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1. OVERVIEW

1.1 Summary

**Background:** Avoidant Personality Disorder (AvPD) and Social Phobia (SP) are closely related and common disorders both in the community and in clinical settings. Whether the two disorders represent different severity levels of social anxiety disorder is currently in dispute. The relationship between AvPD and SP is probably more complex than previously assumed. Little is known about similarities and differences in personality functioning and psychopathology, temperamental and environmental factors, and the underlying processes related to social discomfort in subjects with AvPD and/or SP, such as attachment styles. We wanted to use the Experiences in Close Relationships (ECR) inventory to assess attachment style; however, the Norwegian version of ECR has previously not been tested in a sample of patients with personality disorders (PDs).

**Objectives:** This thesis aimed to explore differences and similarities in developmental and psychopathological aspects of AvPD and SP through comparison of symptoms, personality pathology and functioning, temperament, childhood experiences/trauma, and
attachment styles in patients with AvPD and SP. In this way, we hope to contribute to a more thorough understanding of the psychopathology of AvPD and the relationship between the two disorders. By investigating the psychometric properties of the Norwegian version of ECR in a sample of PDs, we were able to use this instrument to compare attachment styles in AvPD and SP.

**Materials and methods:** Papers I, II, and IV are based on a sample of 91 adult patients with AvPD and/or SP who participated in a multi-site, cross-sectional study. In paper I, we compared three diagnostic groups: one group of patients who had SP and not AvPD; a group who had AvPD and not SP; and a group of patients who had both diagnoses. In papers II and IV, we merged all of the patients with AvPD into one AvPD group with and without concurrent SP and compared them to patients with SP without AvPD, designated as the SP group. Ninety percent of patients in the SP group had generalized SP. Patients were examined using diagnostic interviews and self-report measures, including the Index of Self-Esteem, Severity Indices of Personality Problems, Adult Temperament Questionnaire, Childhood Trauma Questionnaire, Parental Bonding Instrument, and the ECR inventory. In paper III, we examined the psychometric properties of ECR and its two short-forms, ECR-S and ECR-N12, in a sample of 495 patients with PDs. Analyses of the internal consistency, as well as confirmatory and exploratory factor analyses, were conducted.

**Results:** Papers I, II, and IV – Compared with the SP group, patients with AvPD had more symptom disorders and met more criteria for other PDs. They reported more psychosocial problems and more personality dysfunction regarding self-esteem, identity, and relational problems. AvPD predicted personality dysfunction in the identity and relational domains over and above the presence of SP, number of other symptom disorders, and other PDs.
Both AvPD and SP were associated with negative childhood experiences. Patients with AvPD reported more severe childhood neglect, most pronounced for physical neglect, compared to patients with SP without AvPD. The difference between the disorders in neglect remained significant after controlling for temperamental differences and concurrent physical, sexual, and emotional abuse. Both SP and AvPD were associated with high levels of attachment anxiety and avoidance, and a large majority of patients in both groups had an insecure attachment style. Patients with AvPD had higher levels of attachment anxiety than patients with SP without AvPD, especially regarding the sub-factors “Anxiety for abandonment” and “Separation frustration.” Severity of AvPD was associated with “Anxiety for abandonment” over and above concurrent SP, the number of other symptom disorders, and criteria met for other PDs. The diagnostic groups did not differ significantly in levels of attachment avoidance.

**Paper III** – The internal consistency of ECR was found to be questionable. Confirmatory factor analyses revealed poor model fit for the two factor solution of ECR and ECR-S. The two factor solution of ECR-N12 revealed mediocre fit, indicating a potential for improvement. An exploratory factor analysis indicated five factors representing two somewhat different aspects of attachment avoidance and three aspects of attachment anxiety. This alternative five factor solution was called ECR-FF.

**Conclusions:** *Papers I, II, and IV* – The results indicate that AvPD involves broader and more severe areas of personality pathology and dysfunction than SP, supporting the conceptualization of AvPD as a PD. Furthermore, childhood neglect could be a risk factor for AvPD and SP, most pronounced for AvPD, and may be one contributing factor to phenomenological differences between AvPD and SP. AvPD seems to be associated with more attachment anxiety than SP. Thus, fear of abandonment may play a significant role in avoidant personality pathology. *Paper III* – Inferences from scale scores based on ECR
should be derived with care in samples with PDs. A revision of ECR and ECR-N12 is warranted, and further studies are needed to investigate the validity of ECR-FF among different clinical samples.

1.2 List of papers


1.3 Acknowledgements

I want to thank:

- Each of the 91 patients who participated in this study for their willingness, time, and confidence, making the study possible. I’ve promised them to use the results in
support of a better understanding of AvPD and SP. In the longer run, the results will hopefully be used to develop more efficient treatment programs that could improve the outcome for patients with AvPD.

- My supervisors Theresa Wilberg, Jens Egeland, and Egil Martinsen for their wise guidance with kindness, support, and great patience. Theresa has been my first supervisor. She is continuously focused on quality and has a genuine interest in these topics herself, which has been inspiring and trust-building for me.

- Vestfold Hospital Trust, division of addiction and mental health, for the economic and practical foundation of this project, making this study possible.

- My co-authors Gun Abrahamsen, Helene Andrea, Benjamin Hummelen, Geir Pedersen, Øyvind Urnes, and Guro Mikaelsen Skulberg for their inspiring contributions.

- Secretaries Dagny Aamot, Synnøve Heum, and Nina Tapio, librarians Mariann Mathisen and Brit Dolve Larsen, and information technology adviser Amund Ose-Johansen, for help of great value.

- My colleagues at the unit of group psychotherapy in Tønsberg where I have my weekly clinical work, for their interest, patience, kindly support, and contributions.

- Senior researchers Tore Gude, Asle Hoffart, Sven Torgersen, and Andrew Skodol for inspiring me to start and continue research in this field.

- Most of all, I’m deeply thankful to God, my parents Else-Marie and Andreas, my husband Einar, our children Nora Marie, Hjørund, and Audun, my two sisters Tone and Åse, and my close friends and colleagues for their confidence, support, and patience.

1.4 Abbreviations
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AAI</td>
<td>Adult Attachment Interview</td>
</tr>
<tr>
<td>AMPD</td>
<td>Alternative Model of Personality Disorders</td>
</tr>
<tr>
<td>ANCOVA</td>
<td>Analysis of covariance</td>
</tr>
<tr>
<td>ANOVA</td>
<td>Analysis of variance</td>
</tr>
<tr>
<td>APA</td>
<td>American Psychiatric Association</td>
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<tr>
<td>AvPD</td>
<td>Avoidant Personality Disorder</td>
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<tr>
<td>ATQ</td>
<td>Adult Temperament Questionnaire</td>
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<tr>
<td>BPD</td>
<td>Borderline Personality Disorder</td>
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<tr>
<td>CBT</td>
<td>Cognitive Behavioral Therapy</td>
</tr>
<tr>
<td>CFA</td>
<td>Confirmatory Factor Analysis</td>
</tr>
<tr>
<td>CIP</td>
<td>Circumplex of Interpersonal Problems</td>
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<tr>
<td>CTQ</td>
<td>Childhood Trauma Questionnaire</td>
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<tr>
<td>DSM</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
</tr>
<tr>
<td>ECR</td>
<td>Experiences in Close Relationships</td>
</tr>
<tr>
<td>ECR-FF</td>
<td>Five Factor Model of ECR</td>
</tr>
<tr>
<td>ECR-N12</td>
<td>Short version of ECR (Norwegian)</td>
</tr>
<tr>
<td>ECR-S</td>
<td>Short version of ECR (Iowa, USA)</td>
</tr>
<tr>
<td>GAF</td>
<td>Global Assessment of Functioning</td>
</tr>
<tr>
<td>GSI</td>
<td>General Symptom Index (SCL-90-R)</td>
</tr>
<tr>
<td>GSP</td>
<td>Generalized Social Phobia</td>
</tr>
<tr>
<td>ICD</td>
<td>International Classification of Diseases</td>
</tr>
<tr>
<td>IIP</td>
<td>Inventory of Interpersonal Problems</td>
</tr>
<tr>
<td>IPT</td>
<td>Interpersonal Psychotherapy</td>
</tr>
<tr>
<td>ISE</td>
<td>Index of Self Esteem</td>
</tr>
<tr>
<td>M.I.N.I.</td>
<td>Mini International Neuropsychiatric Interview</td>
</tr>
</tbody>
</table>
2 INTRODUCTION

2.1 Avoidant Personality Disorder

2.1.1 Historical development and definition

Theodor Millon could be regarded as the father of the diagnosis of Avoidant Personality Disorder (AvPD). Later definitions are based on his, and he was the first to name the disorder Avoidant Personality Disorder. From his biosocial and learning theoretical perspective, he described an “active–detached” personality pattern, opposed to the “passive–detached” pattern, as two types of the schizoid personality (Millon, 1969). Later, he referred to AvPD as a pervasive disorder that affects the whole life and personality with somatic, emotional, cognitive, and behavioral disturbances, including avoidant strategies to reduce pain in all of these areas (Millon, 1981). Millon played a decisive role when the disorder was included for
the first time in the Diagnostic and Statistical Manual for Mental Disorders, DSM (DSM-III, American Psychiatric Association, APA, 1980).

According to Millon (1991), the first to approximate the AvPD character was Eugen Bleuler in 1911. Bleuler described patients who “quite consciously shun contact with reality because their affects are so powerful that they must avoid everything which might arouse their emotions” (Bleuler, 1911). Ernst Kretschmer elaborated the hyperesthetic extreme of the schizoid temperament in his book Physique and Character (Kretschmer, 1925) as a person who “behaves shyly, or timidly, or distrustfully…, seeks as far as possible to avoid and deaden all stimulation from the outside.” Later psychoanalytic theorists such as Ronald Fairbairn (1940) and Donald W. Winnicott (1956) formulated concepts like “schizoid” and “false self” resembling AvPD. Karen Horney in her book Our Inner Conflicts (Horney, 1945) also described a “detached type” with an interpersonal style of “moving away from people”, akin to AvPD. Moreover, Otto Fenichel’s elaboration of the “phobic character” (Fenichel, 1945) and the early object-relation theorists writing about the “need–fear dilemma” (Burnham, Gladstone, & Gibson, 1969) – longing for closeness combined with a fear of intimacy – have contributed to the conceptualization of AvPD. In DSM-III (APA, 1980), AvPD was for the first time distinguished from the restricted affectivity and interpersonal indifference of the Schizoid PD. Later Aron Beck and Arthur Freeman (Beck & Freeman, 1990) described AvPD in similar ways as an extensive disorder with behavioral, affective, and cognitive avoidance patterns.

The present thesis is based on the diagnostic definitions in DSM-IV (APA, 1994) in which a PD in general is defined by the following criteria:

An enduring pattern of inner experience and behavior that deviates markedly from the expectations from the individual’s culture and is manifested in at least two of the following areas:
• Cognition (i.e., ways of perceiving and interpreting self, others, and events)
• Affectivity (i.e., the range, intensity, lability, and appropriateness)
• Interpersonal functioning or
• Impulse control

The enduring pattern is stable and of long duration, and its onset can be traced back at least to adolescence or early adulthood. The pattern is inflexible and pervasive across a broad range of personal and social situations and leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning.

DSM-IV also defines some exclusion criteria: The enduring pattern is not better accounted for as a manifestation or consequence of another mental disorder and is not due to the direct physiological effects of a substance or a general medical condition. In keeping with its definition, PDs have traditionally been considered chronic; however, several longitudinal studies during the last decades have added considerable nuance to this perception of stability (Cohen, Crawford, Johnson, & Kasen, 2005; Hopwood et al., 2013; Lenzenweger, 2006; Skodol, 2008; Zanarini et al., 2015). For example, the Collaborative Longitudinal Personality Disorders Study documented high diagnostic remission rates and low rates of relapse but high stability of impairment in social functioning over 10 years (Gunderson et al., 2011). In the same sample, half of the patients with AvPD lost their diagnosis after two years, i.e. the criteria dropped below the diagnostic threshold, independently of level of care or amount of treatment (Grilo et al., 2004a).

In the DSM-IV, AvPD is one of eleven PD diagnoses, including PD not otherwise specified (PD NOS). AvPD is described as a pervasive pattern across time and situations, starting in early adulthood, and characterized by social inhibition because of feelings of
inadequacy and hypersensitivity to negative evaluation indicated by at least four of seven criteria (Table 1). In addition, the person has to meet the general criteria for a PD, as described above, to qualify for the diagnosis of AvPD. The International Classification of Diseases (ICD-10; World Health Organization, WHO, 1992) refers to the disorder as “anxious (avoidant) personality disorder” and describes many of the same characteristics as DSM-IV but requires only three of the criteria to be present to qualify for a diagnosis. Anxious PD was for the first time included in ICD-9 (WHO, 1978).

Insert table 1 about here

Major changes have been made in the definition of AvPD from DSM-III up to DSM-IV and DSM-5. Criteria have been omitted, changed, and reintroduced. For example, in DSM-III-R (APA, 1987), low self-esteem, desire for affection and acceptance, and hypersensitivity to rejection were downplayed whereas fear of being inappropriate or embarrassed was added, thus approaching the definition of SP. In DSM-IV, the criterion of low self-esteem was reintroduced, and a criterion of being restrained in intimate relationships was introduced. In DSM-III, a diagnosis of AvPD excluded the diagnosis of SP, so that co-occurrence was not diagnosed. The omission of this hierarchy from DSM-III-R and onward was another major change relevant for AvPD. Likewise, the introduction of the diagnostic specifier ‘generalized SP’ (GSP) in DSM-III-R, defining GSP as fears in most social situations, has brought the diagnostic constructs even closer together and increased the diagnostic overlap. From DSM-III (APA, 1980) until DSM-IV-TR (APA, 2000), AvPD was placed in cluster C (Avoidant, Dependent, and Obsessive–Compulsive PD – “the fearful” PDs) on Axis II along with other PDs. Symptom disorders were placed on Axis I. With the advent of DSM-5 (APA, 2013), the longstanding multiaxial system for mental disorders was eliminated. Yet, in DSM-5 (APA, 2013), the definition of AvPD from DSM-IV is retained. However, there is an Alternative Model of Personality Disorders in DSM-5 (DSM-5-AMPD; APA, 2013), in which AvPD is
one of six specific PD prototypes and is described as a *negative sense of self with excessive feelings of shame and inadequacy, social withdrawal, intimacy avoidance, anhedonia and anxiousness*, in which anxiousness is compulsory (APA, 2013).

The validity as a prototype category and the psychometric properties of AvPD in DSM-IV have been investigated in different clinical samples (Becker, Añez, Paris, Bedregal, & Grilo, 2009; Grilo, 2004b; Hummelen, Wilberg, Pedersen, & Karterud, 2006). The three studies agree on a one factor solution accounting for a majority of the variance in the criteria, high internal consistency, and good diagnostic efficiency.

### 2.1.2 Prevalence and clinical characteristics

AvPD is a common disorder and is one of the most prevalent PDs. In clinical settings, prevalence estimates range from 11% to 57% (Hummelen et al., 2007; McGlashan et al., 2000; Soeteman, Hakkaart-van, Verheul, & Busschbach, 2008; Verheul, Bartak, & Widiger, 2007), and in the general population from 0.5% to 5% (Torgersen, Kringlen, & Cramer, 2001). AvPD has traditionally been regarded as a less severe PD (Kernberg, 1996; Millon, 1981). Skodol et al. (2002) found that patients with AvPD have functional impairment at an intermediate level, between patients with Borderline PD and Obsessive–Compulsive PD. However, more recent data show that AvPD could be associated with significant psychosocial impairment, similar to Borderline PD (Cramer, Torgersen, & Kringlen, 2007; Hopwood et al., 2006; Lynum, Wilberg, & Karterud, 2008; Wilberg, Karterud, Pedersen, & Urnes, 2009).

In an Australian national survey of mental health and well-being, compared with persons without any PD, patients with AvPD had about two times increased odds for one or more physical conditions, about six times for one or more Axis I disorders, and about seven times for having high disabilities due to mental problems (Jackson & Burgess, 2004). In a large Norwegian population study, Cramer et al. found that AvPD appeared to be an
important predictor of poor quality of life, more important than sociodemographic variables, somatic health, and Axis I disorders (Cramer et al., 2007). In another Norwegian community study, Olssøn and Dahl (2012) found that persons with “avoidant personality problems” (including subthreshold AvPD) often reported living alone, having somatic diseases, physical inactivity, daily smoking and alcohol problems, insomnia that affected work ability, a lower level of education, and lower income. Moreover, in the clinical PD sample of Wilberg et al. (2009), patients with AvPD had a lower level of global functioning, higher level of interpersonal problems, and lower level of social support compared with patients with Borderline PD, Paranoid PD, Dependent PD, Obsessive–Compulsive PD, and PD NOS. Thus, AvPD is associated with substantial clinical and socioeconomic impairments.

The medical term ‘comorbidity’ is often used to describe co-variation among mental disorders, i.e., the presence of two or more distinct disorders (Feinstein, 1970). However, our understanding of mental disorders has not yet reached the level at which the disorders can be described with true distinction. Hence, along with Krueger (2005), we will use the terms ‘diagnostic co-occurrence’ or ‘concurrent diagnoses’ in this thesis. Clinical samples have a high co-occurrence of symptom disorders such as depression, anxiety disorders, eating disorders, and alcohol and substance use disorders in patients with AvPD (Eikenaes, Gude, & Hoffart, 2006; Johansen, Normann-Eide, Normann-Eide, & Wilberg, 2013; Ralvski et al., 2005). They also have a high rate of other concurrent PD diagnoses like Dependent, Borderline, Schizoid, and Paranoid PDs (Hummelen et al., 2007; Wilberg et al., 2009). Thus, patients with AvPD present a large variation in psychopathology. Moreover, there are 62 possible different combinations of the four AvPD criteria required to meet the diagnosis (Hummelen et al., 2006). Differing severities of each criterion and the overall personality dysfunction may vary as well. Patterns of co-occurring Axis I and Axis II diagnoses, the total extent of pathology, different attachment patterns, and interpersonal styles may also
contribute to the heterogeneity among patients with AvPD. In addition, AvPD may include underlying dimensions not related to social anxiety, such as genetic and neurocognitive aspects associated with the schizophrenia spectrum (Asarnow et al., 2001; Fogelson et al., 2010; Foegelson et al., 2007) and lack of social skills associated with autism spectrum disorders like Asperger’s disorder (Lunegard, Hallerback, & Gillberg, 2012).

Emotional dysfunction seems to be an important feature of AvPD. Low affect tolerance, avoidance of emotions, dysfunctional beliefs about emotions, and a general affect phobia have been proposed (Beck & Freeman, 1990; McCullough et al., 2003; Millon, 1981). More recently, the metacognitive theory of DiMaggio and coworkers (2007) claims that patients with AvPD have profound difficulty identifying their own mental states with respect to both emotions and thoughts, and a subsequent impaired ability to convey their experiences, partly linked to alexithymia (Diamaggio, Popolo, & Salvatore, 2012; Nicolo et al., 2011; Semerari et al., 2014). Alexithymia is defined as difficulties with identifying, interpreting, and describing one’s emotions (Taylor, 2000). Taylor, Laposa, and Alden (2004) found emotional and novelty avoidance to be associated with AvPD both in a clinical and a student sample. Interestingly, patients with both GSP and AvPD scored higher on avoidance of positive emotions compared with patients with GSP only and with healthy controls (Taylor et al., 2004). In different samples, AvPD has been associated with a higher degree of negative emotions and lower levels of positive emotions (Hummelen et al., 2007; Ye, Yao, Fu, & Kong, 2011) and emotional inhibition (Popolo et al., 2014). Regarding specific affects, Schoenleber and Berenbaum (2012) found that shame proneness predicted AvPD symptoms in a large student sample.

The opposite of alexithymia is affect consciousness, defined somewhat broadly as the capacity to perceive, reflect on, tolerate, and express emotional experiences. In a study of affect consciousness, Johansen et al. (2013) found that patients with AvPD had lower levels
of global affect consciousness and conceptual expressivity compared with patients with Borderline PD. Among the 11 specific affects, patients with AvPD had lower affect consciousness for interest and contempt. Besides these findings, little is known about emotional dysfunction in AvPD.

2.1.3 Treatment and prognosis

So far, few studies have focused on treatment of AvPD. To our knowledge, only two randomized controlled trials (RCTs) on AvPD are published (Alden, 1989; Emmelkamp et al., 2006). In Alden’s 1989 study, 76 patients with AvPD participated in a 10-week behavioral group treatment program. They were randomized to different social exposure strategies or a waiting list. The patients in the treatment groups improved significantly more than those on the waiting list, and the improvements were maintained at the 3-month follow-up. However, the patients did not reach a normative level of functioning. Alden concluded that this short-term intervention was of insufficient duration for these subjects to overcome their habitual avoidant behavior, although improvement did occur. In a short-term (20 weeks) randomized study of 62 patients with AvPD, Emmelkamp and co-workers (2006) found cognitive–behavioral therapy (CBT) to be superior to brief psychodynamic treatment. The study excluded patients with symptom disorders that required immediate treatment such as depressive disorder, agoraphobia, and panic disorder, and those using medications. The improvements in CBT were maintained at 6 months of follow-up. Social skills group training as a treatment component for patients with AvPD did not seem to have any additional effect on group treatment or individual treatment (Stravynski, Lesage, Marcouiller, & Elie, 1998; Zimmermann et al., 2013)

In a naturalistic study of time-limited psychodynamic treatment with 52 sessions of Supportive–Expressive psychotherapy, Barber and co-workers found that 60% of the 24
patients with AvPD lost their PD diagnoses, compared with 85% of the 14 patients with Obsessive–Compulsive PD. However, 46% of the patients with AvPD dropped out of treatment, not completing 52 sessions. On average, the patients with AvPD stayed in treatment for 35 sessions whereas patients with Obsessive–Compulsive PD stayed for 50 sessions (Barber, Morse, Krakauer, Chittams, & Crits-Christoph, 1997).

Some recent treatment studies have shown promising results for cluster C PDs (Avoidant, Dependent, and Obsessive–Compulsive PDs), in which 51 to 63% of the patients had AvPD (Bamelis, Evers, Spinhoven, & Arntz., 2014; Bartak et al., 2009; Svartberg, Stiles, & Seltzer, 2004). In the study of Bamelis et al. (2014), 323 outpatients with PDs, mainly cluster C, were randomly assigned to Schema-Focused individual therapy (SFT), Treatment as usual (TAU), or Clarification-Oriented therapy (COT). The median total number of sessions of indicated principal treatments over 3 years was 50 for SFT, 51 for COT, and 22 for TAU. SFT was superior to the other therapies regarding diagnostic recovery after 3 years and dropout rate. Differences were not found for the self-report measures, however. Bartak et al. (2009) studied the effectiveness of different treatment modalities for 371 patients with cluster C PDs in a naturalistic multi-site project. Initial differences in patient characteristics were controlled for statistically. Short-term inpatient treatment (up to 6 months) was superior to the four other treatment modalities: long-term outpatient treatment (more than 6 months), short-term day hospital treatment, long-term day hospital treatment, and long-term inpatient treatment. Outcome was measured by self-reported symptoms, psychosocial functioning, and quality of life. In the study of Svartberg et al. (2004), 50 patients with cluster C PDs, assessed by Millon Clinical Multiaxial Inventory (Millon, & Davis, 1997), were randomly assigned to 40 weekly sessions of individual psychodynamic therapy or cognitive therapy. Effect sizes were generally large both during treatment and follow-up for both therapies. No differences were found between the therapies. Two years after treatment, 54% of those who received
psychodynamic therapy and 42% of those receiving cognitive therapy had recovered symptomatically whereas 40% in both treatment groups recovered in terms of interpersonal problems and PD disorder. However, all outcome measures were self-report, and about 40% had unchanged scores on all three outcome measures.

Finally, several treatment studies have identified AvPD as a negative prognostic factor and associated with increased risk of relapse after treatment (Chiesa & Fonagy, 2003; Gude & Vaglum, 2001; Karterud et al., 2003; Seemüller et al., 2014; Vrabel, Ro, Martinsen, Hoffart, & Rosenvinge, 2010).

In summary, AvPD is a prevalent disorder associated with large heterogeneity and extensive clinical and socioeconomic impairments, often with a negative prognosis. The personal and health economic burden of AvPD is considerable. Yet, the specific pathology and treatment of AvPD have rarely been the focus of systematic research; thus, we need to understand more about this condition. This better understanding of the nature of the psychopathology of AvPD could in the longer run lead to development of more efficient treatments and to a more favorable prognosis for the disorder.

AvPD shares many similarities with SP. Differences and similarities between these disorders have been discussed from the start, when they were included in the diagnostic classification systems in 1978 and 1980, and are still disputed (Carter & Wu, 2010; Lampe & Sunderland, 2013; Marques et al., 2012; Reich, 2014). Differences and similarities between AvPD and SP are the topics of this thesis.

2.2. Social Phobia/Social Anxiety Disorder

The terms SP and Social Anxiety Disorder (SAD) are used interchangeably. In this thesis, I have chosen to use SP, including when referring to studies that apply the term SAD. SP was included in the diagnostic classification systems for the first time in ICD-9 (WHO,
1978) and DSM-III (APA, 1980). We used DSM-IV (APA, 1994), which defines SP as shown in Table 2.

DSM-IV defines similar exclusion criteria for SP as for PDs (page 11). There are two main subtypes of SP: GSP and non-generalized SP, also called specific or simple SP (SSP). For patients with GSP, almost all social situations elicit anxiety (e.g., in conversations, meetings, parties, performances, and other interactions). In the non-generalized subtype, fears are restricted to a few specific social situations. In ICD-10, there is no subtyping, and physiologically related anxiety symptoms like blushing, hand tremor, nausea, and urgency for micturition are emphasized. Individuals classified with SP by one of these classification systems may not necessarily be diagnosed in the same category by the other system; diagnostic concordance seems to range between 36 and 66% (Andrews, Slade, Peters, & Beard, 1998).

In social or performance situations, persons with SP may experience physical manifestations of anxiety, including blushing, sweating, trembling, and palpitations, which sometimes can take the form of a full panic attack. They often fear that others will notice that they are anxious. Persons with SP also experience anticipatory anxiety, worrying for hours or days prior to a feared event. The degree and character of their avoidance behaviors may vary a lot. They may completely avoid situations, becoming socially isolated, or they may participate with intense anxiety, some merely with support from other people or other forms of safety behaviors or with use of alcohol or tranquilizers. Upon leaving a social situation, persons with SP often focus on their perceived shortcomings, berate themselves, and feel depressed (Schneider, Stein, & Hermann, 2015).
SP has a mean age of onset in the mid-teens (Kessler et al., 2005a). It often arises as an intensification of pre-existing non-impairing shyness, although many patients with SP may identify an unusual stressful social situation in which they felt ridiculed that triggered SP. Onset after age 30 is uncommon. SP shows an enormous variation in rates of spontaneous remission, indicating different courses: short, fluctuating, and chronic (Vriends, Bolt, & Kunz, 2014). Chronic SP is associated with early onset, concurrent psychiatric disorders, chronic health problems, financial dependence, suicidal ideation, family problems, low social functioning, and high society costs (Vriends et al., 2014). There are also large variations and heterogeneity in chronic SP regarding co-occurrence of other psychiatric disorders. SP is a risk factor for subsequent development of major depression and alcohol or substance dependence (Beesdo et al., 2007; Schneier et al., 2010). Different levels of personality functioning and different dysfunctional personality traits, maladaptive interpersonal styles, and attachment patterns may also contribute to the heterogeneity among patients with SP but are less or not studied at all.

SP is the most prevalent anxiety disorder with a lifetime prevalence ranging from 5 to 12% (Fehm, Pelissolo, Furmark, & Wittchen, 2005; Grant et al., 2005; Kessler et al., 2005b; Stein et al., 2010). A review of long-term courses of SP showed that clinical samples had a 27% recovery rate after 5 years compared with 40% in non-clinical samples (Steinert, Hofmann, Leichsenring, & Kruse, 2013). Skodol, Geier, Grant, and Hasin (2014) found that some concurrent PDs, including AvPD, and severity of concurrent PDs predicted the persistence of SP over 3 years in a large national sample from the United States.

There has been a lot of research on SP, and more effective treatments have been developed, both psychological treatments, pharmacotherapy, and combinations (Blanco et al., 2010; Blanco et al., 2003; Borge et al., 2008; Clark et al., 2003; Davidson et al., 2004; Leichsenring, et al, 2014; Ravindran & Stein, 2010; Stein, Ipser, & Balkom, 2004).
Pharmacologic treatment is quite different for GSP versus SSP. Antidepressants like SSRIs and SNRIs (selective serotonin reuptake inhibitors and serotonin norepinephrine reuptake inhibitors, respectively) are the first-line medication treatment recommended for GSP, and MAOIs (non-selective and irreversible monoamine oxidase inhibitors) are suggested as second-line medication (Stein, Roy-Byrne, & Hermann, 2015). They need to be taken daily up to 16 weeks to achieve full effect and continued for at least 6 to 12 months to prevent relaps. SSRIs are best studied and the most commonly prescribed medication for SP (Ravindran & Stein, 2010). Meta analyses of SSRIs to GSP show symptom reduction at a moderate effect size (Stein et al., 2004). Although debated, non-generalized SP is often recommended to be treated with medication rather than psychotherapy, with a benzodiazepine or beta-adrenergic blocker taken before entering the feared situations (Stein et al., 2015).

The most widely studied of contemporary psychological theories of SP emphasize the role of cognitive processes in the generation and maintenance of SP in vulnerable people. These models are the bases for CBT. Therapeutic strategies include psychoeducation, cognitive restructuring, and exposure practice, usually in 12 and up to 20 weeks. CBT is given in different modalities, as individual therapy, group therapy, and internet-guided courses. Stangier, Heidenreich, Peitz, Lauterbach, and Clark (2003) found that CBT given as individual therapy was more efficacious than group therapy in a sample of 71 patients with SP treated in fifteen weeks. A meta-analysis of RCTs found CBT to be moderately efficacious for SP, with considerable variation in effect sizes across studies (Hofmann & Smits, 2008). RCTs comparing CBT and pharmacotherapy for SP have not demonstrated superiority of one treatment over the other (Davidson et al., 2004). Trials comparing the combination of CBT and antidepressant medication for SP to either treatment individually have shown mixed results (Davidson et al., 2004; Blanco et al., 2010).
Another well-studied psychotherapy for SP is Interpersonal Psychotherapy (IPT). IPT is a time-limited psychodynamically based therapy addressing interpersonal difficulties and interactions here and now. Findings from RCTs comparing CBT and IPT with either supportive therapy or placebo have been mixed. A Norwegian RCT compared residential IPT and CBT for 80 patients with SP. They found both therapies to be effective with moderate to large effect sizes and no differences between the therapies on the primary outcome measures. The improvement was continued for the whole sample from posttreatment to 1-year follow-up (Borge et al., 2008).

Psychodynamic psychotherapy for SP has also been studied. Leichsenring and co-workers have published a treatment manual based on Supportive–Expressive psychodynamic therapy (2007) and conducted a multicenter RCT of psychodynamic therapy compared with CBT (2013). Both therapies were efficacious, with differences in favor of CBT. CBT had a higher remission rate (36%) than psychodynamic therapy (26%) at the end of treatment. Response rates were 60 and 52%, respectively, comparable to pharmacotherapy. After 6 months follow-up, there were no differences in outcome between the treatment conditions. At 2 years of follow-up, remission rates were almost 40%, and the response rate was 70% for both treatments (Leichsenring et al., 2014).

It is important to keep in mind that most studies on SP have not assessed concurrent PDs. Therefore, concurrent AvPD may have influenced the results as a confounding variable. In most studies of SP, this limitation is not even discussed.

2.3. The relationship between Avoidant Personality Disorder and Social Phobia

The general description of AvPD as a pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation, starting in early adulthood, may to some degree also characterize patients with SP, and in particular GSP. However, as a PD,
AvPD should include more profound disturbance of the self and the capacity to relate to other people. For instance, Millon (1981) suggested that patients with AvPD fear relationships with other people whereas patients with SP fear social situations.

It is noteworthy that AvPD has primarily been studied in samples of subjects with SP (Reich, 2014). These studies have documented a quantitative severity continuum with an increasing gradient of symptoms and psychosocial dysfunction from SSP, via GSP to GSP with AvPD (Reich, 2014). It is not surprising that the addition of a PD to an anxiety disorder represents higher levels of symptoms and lower levels of functioning. Still, based on these findings and apparent similarities in social anxiety and avoidance tendencies, a continuum hypothesis has been proposed, suggesting that AvPD and SP represent different conceptualizations of the same disorder, merely differing in degree of severity (Reich, 2014).

However, three review articles evaluating the comparative studies of SP and AvPD have reached somewhat different conclusions. Reich (2000) concluded that the evidence did not indicate qualitative differences between AvPD and SP and proposed integrating the disorders under one concept on Axis I. In contrast, Rettew (2000) and Alden, Laprosa, Taylor, and Ryder (2002) included in their reviews more studies of personality, PDs, and Axis I disorders and asserted that more knowledge is needed to clarify possible differences between the disorders. Bogels et al. (2010) reached a similar conclusion regarding SP in their recommendations for DSM-5. They stated that sufficient discrepant and discriminating evidence exists to indicate that it may be overly simplistic to merge AvPD with SP. They warned that doing so might lead clinicians to overlook serious deficits in normal identity development and interpersonal relations – cardinal features of PDs.

Most samples of these comparative studies of AvPD and SP comprised patients with SP with or without AvPD, in which 22–89% of the SP patients had a concurrent AvPD (Reich, 2014). Moreover, the studies used DSM-III-R, probably creating an artificially high
degree of co-occurrence. However, some recent studies have used DSM-IV and compared “pure groups” – i.e., a group of persons with AvPD not concurrent with SP (“Pure-AvPD”) compared with a group of persons with SP without co-occurring AvPD (“Pure-SP”) (Cox, Stein, & Saen, 2009; Hummelen et al., 2007; Lampe & Sunderland, 2013), or a Pure-AvPD group compared with an AvPD+SP group (Ralevski et al., 2005). Two of these are clinical studies (Hummelen et al., 2007; Ralevski et al., 2005), and two are epidemiological studies (Cox et al., 2009; Lampe et al., 2013). In a large sample of day-hospitalized patients, most with PDs, Hummelen et al. (2007) found that 52% of patients with AvPD (total number of patients with AvPD; n=891) did not have concurrent SP. Also, Ralevski et al. (2005) selected patients with AvPD (n=325) and found that 69% did not have SP. In a large epidemiological study, Cox et al. (2009) evaluated a sample from the United States consisting of four groups: one with pure GSP, one with pure AvPD, one with GSP+AvPD, and one with neither. They found that 60% of individuals with AvPD (total number of patients with AvPD; n=993) did not have concurrent GSP. Moreover, in an Australian epidemiologic sample, Lampe and Sunderland (2015) found that 63% of the people with AvPD (total number of patients with AvPD: n=185) did not have concurrent SP/GSP. Thus, most patients with AvPD probably do not meet criteria for SP, an inference that is not in line with the continuum hypothesis and that contrasts with previous assumptions (Reich, 2000).

Generally, many patients with symptom disorders also have PDs or at least some dysfunctional personality traits, and most patients with PDs have one or more symptom disorders. AvPD seems to be typically more associated with SP than with other anxiety disorders, and SP seems to be more associated with AvPD than with other PDs (Hummelen et al., 2007). However, in neither case is the relation at all exclusive or close enough to support a simple severity hypothesis (Hummelen et al., 2007; Skodol et al., 2011). The discussion of whether AvPD and SP are the same disorder is part of a larger debate of the relationship
between symptom disorders on Axis I and PDs on Axis II (Kreuger, 2005). The discussion parallels the debate on schizophrenia-like symptoms, affective instability, impulsivity, and depressive symptoms across Axes I and II. For instance, Borderline PD has for a long period been proposed to be categorized as a Bipolar spectrum disorder because of similarities of affective instability and impulsivity (Akiskal et al., 1985; Perugi, Fornaro, & Akiskal, 2011). Likewise, Schizotypic PD is regarded as a Schizophrenia spectrum disorder due to strong family relationships (Asarnow et al., 2001; Kendler et al., 1993; Kendler, Gruenberg, & Straus, 1981) and brain morphological similarities (Buchsbaum et al., 1997). Moreover, many phenomena and symptoms such as personality dysfunction and attachment problems show dimensional distributions from low levels in a community sample, with increasing levels in patients with Axis I disorders and to the most pronounced/troublesome levels in patients with Axes I and II disorders (Ehrenthal, Dinger, Lamla, Funken, & Schauenburg, 2009; Olsson & Dahl, 2014). For some disorders, differences between the axes could therefore depend on where we set the bar (Dimaggio et al., 2013).

When Bogels et al. (2010) evaluated SP to give recommendations for DSM-5, they argued for maintaining the distinction between AvPD and SP and called for more knowledge to clarify the relationship between the two disorders. So far, studies of the relationship between AvPD and SP have seldom focused on personality functioning and investigated variables of personality pathology related to AvPD specifically, or to PDs in general, such as self-esteem, identity, emotional regulation and avoidance, relational problems, temperament, childhood experiences/childhood trauma, or attachment organization. In all of these areas, we lack knowledge about AvPD relative to SP. Also, the significance of having co-occurring SP and AvPD as compared with “pure AvPD” is still unclear and is insufficiently studied. In the large clinical study of Ralevski et al. (2005), the addition of SP in patients with AvPD did not add to the severity of the condition. This finding was partially supported in the
epidemiological study of Cox et al. (2009) regarding co-occurrence of depressive, but not anxiety disorders. There were no significant differences in the likelihood of being diagnosed with mood disorders among individuals with GSP+AvPD compared with AvPD alone, but a higher likelihood of being diagnosed with anxiety disorders. On the other hand, in the Australian epidemiological study of Lampe and Sunderland (2015), the group of patients with both AvPD and SP reported more distress and concurrent mental disorders than the groups with AvPD or SP alone, which did not differ from each other.

Whether AvPD represents a qualitatively distinct category, in the sense of a latent taxon, is a question that might be approached with taxometric analyses, which should be a topic for further research (Haslam, 2003). In the meantime, increased knowledge about personality functioning, temperament, childhood experiences, and attachment strategies could contribute to a further elaboration of the severity continuum hypothesis currently suggested for SP and AvPD and elucidate possible differences and similarities between AvPD and SP in these areas. If AvPD should be classified as a PD in the future, and not merely as a more severe anxiety disorder, there should be empirically documented differences between AvPD and SP in personality functioning. Does a diagnosis of AvPD really involve more problems with identity and relational problems than a diagnosis of SP? Could it be that aspects like personality functioning and attachment problems better differentiate between AvPD and SP than severity of anxiety? At present, we have little or no empirical data to answer these questions.

2.4. Personality functioning

The categorical classifications of PDs in DSM and ICD have important limitations. First, categorical classifications contradict the general consensus that personality functioning and PDs are dimensional phenomena (Trull & Widiger, 2013). DSM-IV and ICD-10 have no
measure of severity of personality pathology, other than the Global Assessment of Functioning scale (GAF). However, severity is the most robust prognostic predictor of current and prospective dysfunction (Hopwood et al., 2011; Morey, Bender, & Skodol, 2013; Yang, Coid, & Tyrer, 2010). Furthermore, the general criteria for a PD are non-specific, vague, and without empirical basis (Livesley, 1998; Hopwood et al., 2011). There is often extensive co-occurrence of PDs, extreme heterogeneity within diagnosis, and inconsistency of criteria content, i.e., some criteria are behavioral, others represent personality traits, and some are cognitive characteristics. Moreover, the relative instability of PD diagnoses documented during the last decades (Cohen et al., 2005; Grilo et al., 2004a; Gunderson et al., 2011; Hopwood et al., 2013; Lenzenweger, 2006; Zanarini et al., 2015) is incompatible with the general definition of PDs as enduring and stable disorders. Furthermore, the diagnostic thresholds are arbitrary and lack empirical support, and in the existing categorical system, severity and styles of personality pathology are confounded. As a result, the discriminative validity of PDs is poor. Finally, it is argued that PDs in DSM-IV have limited predictive validity and clinical utility (Morey et al., 2007, Morey et al., 2012). For these reasons, the DSM-5 Personality and Personality Disorder Work Group proposed a new hybrid model of PDs, with both dimensional and categorical aspects. This new model was intended for the official classification in DSM-5 but was instead placed in section III, “Emerging Measures and Models” as an “Alternative Model” of PDs (DSM-5-AMPD; APA, 2013).

The Work Group proposing the AMPD created a dimensional measure of impairment in personality functioning to address the issue of a PD-specific indicator and of an indicator of severity in personality pathology. Based on a review of the literature on existing clinician-administered measures of personality functioning (Bender et al., 2011), the work group focused on Self and Interpersonal functioning as the two main, reliably measured domains of personality functioning. The Self and Interpersonal domains are defined by two subdomains
respectively: *identity* and *self direction*, and *empathy* and *intimacy*. Furthermore, each of these subdomains comprises three areas of functioning to be assessed (Table 3).

Insert table 3 about here

Little is known about these broad areas of personality functioning in patients with AvPD and SP. However, self-esteem and interpersonal problems in SP have been studied to some extent. SP has been associated with self-criticism, low self-esteem, and self-efficacy, and reduced quality within romantic relationships and friendships as compared with healthy controls (Cox, Fleet, & Stein, 2004; Iancu, Bodner, & Ben-Zion, 2015; Schreiber, Bohn, Aderka, Stangier, & Steil, 2012; Cuming & Rapee, 2008; Davila & Beck, 2002; Kachin, Newman, & Pincus, 2001; Rodebaugh, 2009; Sparrevohn & Rapee, 2008). Except for the study of Kachin et al. (2001), these studies did not assess co-occurrence of AvPD. Despite the fact that AvPD is defined with low self-esteem and interpersonal problems, these topics have been studied only to a small degree. Lynum et al. (2008) compared self-esteem in treatment-seeking patients with AvPD and/or Borderline PD (BPD) by use of Index of Self-Esteem (ISE; Hudson, 1982), considering the effect of depression and concurrent BPD. They found low self-esteem to be associated with AvPD. Bowles, Armitage, Drabble, and Meyer (2013) studied self-esteem and other-esteem responses to either fully supportive or less supportive interpersonal feedback in students from London. They found a significant association for AvPD but not for BPD. Their results indicate that students with AvPD felt particularly negative about themselves and their close others in situations with subtle criticism, but not in situations signaling unequivocal support. In a small Chinese student sample Ye et al. (2011) found that students with AvPD had significantly lower explicit self-esteem than the healthy controls, as measured by the Rosenberg Self-Esteem
Scale (Rosenberg, 1965; 1979). There were no differences in implicit self-esteem between the groups.

Regarding interpersonal problems, Rodebaugh, Gianoli, Turkheimer, and Oltmanns (2010) studied shared variance based on peer and self-report data in a student sample. They used Multisource Assessment of Personality Pathology (Thomas, Turkheimer, & Oltmanns, 2003) and Inventory of Interpersonal Problems (IIP-64; Horowitz, Alden, Wiggins, & Pincus, 2000). Along with their expectation, they found that AvPD was positively and strongly correlated with being cold/distant (“it is hard for me to show affection to people”), moderately correlated with the subscales socially inhibited (“it is hard for me to join in on groups”), nonassertive (“it is hard for me to be another person’s boss”), and overly accommodating (“it is hard for me to say no to other people”). There was also a small positive correlation with self-sacrificing (“I try to please other people too much”) and a negative correlation with domineering/controlling (“I argue with people too much”). Contrary to their expectation, AvPD also had a small correlation with the subscale intrusive/needey (“I try to be noticed too much”). IIP has been developed further to the Circumplex of Interpersonal Problems (CIP; Alden, Wiggins, & Pincus, 1990; Pedersen, 2002). Wilberg et al. (2009) and Hummelen et al. (2007) both used CIP in their studies. In these clinical studies, AvPD was associated with higher levels of interpersonal problems compared with BPD and other PDs (Wilberg et al., 2009) and compared with SP (Hummelen et al., 2007). Hummelen et al. (2007) compared patients without overlapping diagnoses and found that both patients with pure AvPD and pure SP scored high on the subscales socially avoidant (socially inhibited) and nonassertive, whereas patients with AvPD in addition scored high on cold, exploitable (overly accommodating), and overly nurturant (self-sacrificing).

Thus, studies of self and interpersonal problems in AvPD have applied a limited range of instruments, and few studies have conducted direct comparisons of central aspects of
personality functioning in subjects with AvPD and SP. It is therefore an open question whether patients with AvPD really have more personality pathology or lower personality functioning than patients with SP. This question is the focus of Paper I.

2.5 Constitutional factors

2.5.1 Heritability

In a Swedish study based on the national patient registers, Isomura and co-workers (2014) identified 18,399 individuals with SP and 2,673 with AvPD. They found that SP clusters in families primarily because of genetic factors; relatives at similar genetic distances had similar risk for SP, despite different degrees of shared environment. Heritability for SP was estimated to be approximately 56%, and there were no significant sex differences in family patterns. The risk of AvPD in relatives of SP probands was significantly elevated, even after excluding individuals with both diagnoses, and decreased with increasing genetic distance. These authors concluded that SP and AvPD are etiologically related and may represent different expressions of the same constitutional vulnerability. In a recent longitudinal, population-based twin study from Norway, Gjerde et al. (2015) found a moderate stability over 10 years and a heritability estimate of 67% for AvPD. From the same Norwegian Institute of Public Health Twin Panel, Reichborn-Kjennerud et al. (2007) studied female twins and found heritability estimates for AvPD and SP to be 37% and 39%, respectively, and that the same genetic factors influenced AvPD and SP while the environmental factors influencing the two disorders were uncorrelated and unique to each disorder. Gjerde et al. (2015) and Reichborn-Kjennerud et al. (2007) used somewhat different methods to estimate heritability. So far, however, our knowledge of environmental influences associated with the two disorders is sparse.
2.5.2 Temperament

Risk factors for SP include female gender, a family history of SP, and early childhood shyness or the temperament trait of behavioral inhibition (Bohlin & Hagekull, 2009; Grant et al., 2005; Hirshfeld-Becker, 2010; Kessler, Berglund, Demler, Merikangas, & Walters, 2005). Whether or to what degree behavioral inhibition confers risk for SP in the absence of a family history of anxiety is still unclear (Hirshfeld-Becker, 2010).

A vulnerable temperament combined with early environmental risk factors is a suggested etiological factor in the development of both AvPD and SP (Brook & Schmidt, 2008; Joyce et al., 2003; Meyer and Carver, 2000). Shyness has been proposed as a temperamental trait in both SP and AvPD. However, Prior, Smart, Sanson, and Oberklaid (2000) found only a modest relation between childhood shyness and adolescent anxiety disorder in a longitudinal, community study. Most shy children did not develop an anxiety disorder, and most adolescents with anxiety disorders had not been especially shy (Prior et al., 2000). Nevertheless, other studies of both epidemiological and clinical samples suggest that both AvPD and SP are associated with the temperamental factor “behavioral inhibition,” which is characterized by avoidance of strangers and novelty, shyness, heightened sensitivity, and anxiety reactivity (Alden, et al., 2002; Bohlin & Hagekull, 2009; Cox, MacPherson, & Enns, 2005; Meyer, Ajchenbrenner, & Bowles, 2005). Bohlin and Hagekull (2009) followed 85 subjects from a birth cohort for 21 years in the Uppsala longitudinal study. They found that childhood shyness predicted social anxiety at the age of 21, even when depression was controlled for. Thus, these disorders seem to have some temperamental dispositions in common, but temperamental manifestations could still be present in various degrees.

2.6 Childhood experiences
In a review of environmental risk factors for SP, Brook and Schmidt (2008) found studies of four areas: parenting and family environment, adverse life events, socioeconomic status and culture, and gender. The authors conclude that “research has successfully correlated parenting as a small but integral part of the mechanism in developing SAD” and that it points to an interrelated multi-faceted process of environmental risk and resilience factors in development of the disorder (Brook & Schmidt, 2008). Knappe et al. (2009) followed a representative community cohort of 1395 adolescents in Munich over almost 10 years. They found that parental psychopathology is another risk factor, which interacts with a negative parental rearing style and may predict the persistence of SP (Knappe, Beesdo-Baum, Fehm, Lieb, & Wittchen, 2012). PDs were not assessed in this sample.

Kuo, Goldin, Werner, Heimberg, and Gross (2011), in their study of individuals with GSP, reported more childhood emotional abuse and neglect but not more sexual abuse, physical abuse, or physical neglect, compared with healthy controls, using the Child Trauma Questionnaire (CTQ). These results point to less dramatic and more subtle maltreatment as a possible risk factor in the development of GSP. As for most studies of SP or SAD, comorbidity with AvPD was not controlled for. Moreover, like most studies of childhood trauma, the relative contribution of neglect and abuse was not investigated.

Childhood trauma and parental maltreatment are also well documented as risk factors for adult PD in general, in both prospective and retrospective studies (Hernandez, Arntz, Gaviria, Labad, & Gutierrez-Zotes, 2012; Johnson, Cohen, Brown, Smailes, & Bernstein, 1999; Yen et al., 2002; Zhang, Chow, Wang, Dai, & Xiao, 2012). Johnsen et al. (1999) found that individuals with documented childhood abuse or neglect were four times as likely as those who were not abused or neglected to be diagnosed with PDs during early adulthood. Childhood emotional neglect was associated with increased risk of several PDs, including AvPD (Johnson, Smailes, Cohen, Brown, & Bernstein, 2000).
So far, few studies have focused specifically on AvPD and childhood experiences. However, the large clinical study from the United States Rettew et al. (2003), found that patients with AvPD reported more physical and emotional abuse during childhood compared with patients with major depression. The association fell, though, when concurrent diagnoses of PTSD and BPD were accounted for. In a large outpatient sample in Shanghai, self-reported experience of childhood emotional neglect was associated with adult cluster C PDs (Avoidant, Dependent, and Obsessive–Compulsive PD) (Zhang et al., 2012). Joyce et al. (2003) found that self-reported childhood neglect predicted AvPD in a sample of depressed outpatients. Moreover, in an early, small retrospective study, Arbel and Stravynski (1991) found that the main features differentiating adult AvPD patients from healthy controls were the perception of a discouraging home climate with less parental demonstration of love and pride in the child, and a perception of their parents as shaming, guilt-engendering, and intolerant.

Abuse refers to maltreatment, harmful behavior, and non-accidental injury from an adult person directed toward the child whereas neglect refers to the failure of caretakers to provide a child’s basic psychological or physical needs (Bernstein & Fink, 1998). Generally, childhood neglect has received less empirical attention than childhood abuse (Carr, Martins, Stingel, Lemgruber, & Juruena, 2013). In clinical settings, the experience of neglect in childhood may be overshadowed by dramatic histories of maltreatment and abuse. However, parental abuse and neglect can co-occur in dysfunctional families, making it difficult to disentangle specific consequences of the various types of maltreatment that the child may suffer (Nederlof, Van der Ham, Dingemans, & Oei, 2010). At present, little is known about the unique contribution of neglect to adult psychopathology more generally, either to AvPD or SP.

Parental behavior has also been studied with the Parental Bonding Instrument (PBI) (Parker, Tupling, & Brown, 1979), which aims to collect relevant retrospective information
about childhood experiences. A combination of low scores on the two subscales care and control is called the neglectful parenting pattern, which was found to be the dominating pattern in a small sample of patients with AvPD (Stravynski, Elie, & Franche, 1989). However, when Joyce et al. (2003) found neglect to be associated with AvPD, they operationalized neglect as low scores on the care dimension only. A combination of low scores on the care and high scores on the control subscales is called the cold control pattern, which has been associated with many kinds of adult psychopathology (Nordahl & Stiles, 1997; Reti et al., 2002; Torgersen & Alnaes, 1992). The cold control pattern might also be among the risk factors for SP (Brook & Schmidt, 2008; Bogels, Stevens, & Majdandzic, 2011; Bogels et al., 2010).

Maltreatment probably interacts with temperamental factors to influence personality development and risk of psychiatric symptoms (Joyce et al., 2003). Rothbart and Derryberry (2002) defined temperament as constitutionally based individual differences in emotional, motor, and attentional reactivity and regulation. Temperament is influenced by experience, in turn influences experience, and is gradually transformed and integrated into our adult personality (Rothbart, Ahadi, & Evans, 2000).

Taken together, AvPD and SP seem to be influenced by the same genetic vulnerability, probably including shyness, while the environmental factors shaping the two could be unique to each disorder. Some studies indicate that both AvPD and SP are associated with various types of childhood maltreatment. Most notable, however, no studies have made a direct comparison of childhood environmental factors between the disorders, and little is known about the unique contribution of childhood neglect to adult psychopathology, relative to childhood abuse. We wanted to compare self-reported childhood experiences for patients with AvPD and SP to shed further light on the relationship between the two disorders.
Additionally, we wanted to examine the relative contribution of abuse and neglect, also taking temperament characteristics into account. These are the topics of paper II.

2.7 Attachment

The capacity to establish and maintain mutual and nourishing relationships is a central aspect of personality functioning and is important for the well-being of humans. Both AvPD and SP are associated with elevated levels of interpersonal problems (Cuming & Rapee, 2010; Davila & Beck, 2002; Eikenaes et al., 2006; Hummelen et al., 2007; Rodebaugh et al., 2010). Individuals with these disorders are less likely to develop romantic relationships or to be married (Hummelen et al., 2007; Sparrevohn & Rapee, 2009; Taylor et al., 2004), and some studies have found lower levels of social support and intimacy and less emotional expression and self-disclosure within close relationships for subjects with both disorders (Davila & Beck, 2002; Marques et al., 2012; Sparrevohn & Rapee, 2009; Taylor et al., 2004). In a study of patients with AvPD and SP, without overlapping diagnoses, those with AvPD less often lived with a partner and had a close person committed to them; in addition, they experienced more interpersonal distress and a broader array of interpersonal problems compared with patients with SP (Hummelen et al., 2007). In a large sample of treatment-seeking patients with GSP, Marques et al. (2012) found that the presence of more AvPD criteria was associated with a higher perceived risk of intimacy, lower social support, and more emotional guardedness. Such indications of intimacy problems suggest that attachment difficulties could be significant for AvPD and SP and probably more pronounced for AvPD. Whereas SP is defined as fear of humiliation and embarrassment in response to unfamiliar people or expectations of critical scrutiny by others, AvPD is defined in more explicit attachment-relevant terms, as follows: a negative sense of self, restraint within intimate relationships, including sexual intimacy, with a fear of rejection, criticism, and humiliation (DSM-IV, DSM-5) (APA, 1994, 2013). Thus,
AvPD and SP could be associated with different levels or types of problems in close relationships, reflecting underlying differences in attachment.

2.7.1 Adult attachment

Our understanding of adult attachment is based on the attachment theory of John Bowlby (1969, 1973, 1980, 1988). Bowlby claimed that human attachment plays a “vital role … from the cradle to the grave” (1969, p. 2008). He refers to the close emotional bond between child and caregivers, with the parent as a secure base for the child, promoting the child’s development of affect-regulation, autonomy, and confidence in self and others. Based on experiences in early attachment relationships, the child develops mental representations of self and others and self in relation to others, the so-called internal working models. These affective–cognitive representations mirror the behavioral patterns of attachment, which are assumed to play a crucial role in the development of identity and interpersonal functioning. Thus, the organization of adult attachment is rooted in such internal working models, which later influences the capacity to establish mutually nurturing relationships as an adult (Bowlby, 1969; Hazan & Shaver, 1994).

Adult romantic attachment differs from parent–child bonds in several ways, including reciprocity of attachment, serving as a secure base for each other, and sexual mating. Adult attachment has been studied in two research traditions that apply somewhat different methodology. The developmental approach (Ainsworth, Blehar, Waters, & Wall, 1978) is primarily based on the Adult Attachment Interview (AAI) (George, Kaplan, & Main, 1985), examining the adult’s state of mind regarding attachment through current narratives of their childhood experiences with caregivers. In the social attachment approach, attachment is mainly assessed by self-report questionnaires that more directly assess qualities in current close relationships (Crowell, Fraley, & Shaver, 2008; Hazan & Shaver, 1994). Self-report of
adult attachment is less time-consuming, less expensive, and easier to administer compared with interviews like AAI. On the other hand, attachment is partly an unconscious process that could more easily be uncovered by the AAI (Hesse, 2008) whereas self-reports could be biased, for example, by social desirability or self-deception. One of the many self-report instruments of adult attachment is the Experience in Close Relationships inventory (ECR) (Brennan, Clark, & Shaver, 1998) based on the social attachment approach. ECR is a widely used, short, and highly relevant questionnaire, focusing on current close relationships.

### 2.7.2 Attachment studies in AvPD

Studies of attachment in subjects with AvPD are scarce (Tiliopoulos & Jiang, 2012). However, a few studies have investigated the attachment aspects of AvPD using specific attachment instruments. Riggs et al. (2007) studied attachment, personality, and psychopathology among 80 patients hospitalized for treatment of trauma-related disorders using the ECR. They found that scores on the AvPD scale measured by self-report (Millon Clinical Multiaxial Inventory; Millon & Davis, 1997) were associated with a Fearful attachment style. Fossati et al. (2003) used the Attachment Style Questionnaire in a large sample of patients with PDs. They found that discomfort with closeness and a lack of confidence in attachment relationships, with close resemblance to high attachment anxiety and avoidance, correlated with AvPDs. The Structured Clinical Interview for DSM-IV PDs (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997) was used for assessing PDs. In a large clinical study, Nakash-Eisikovits, Dutra, and Westen (2002) used a clinician-report attachment questionnaire and found that Disorganized/Unresolved attachment was correlated with DSM-IV AvPD criteria. A study of self-reported attachment in a student sample found similar results (Meyer, Pilkonis, & Beevers, 2004). Finally, in a study using the AAI, the 12
patients with AvPD displayed an apparently *Dismissing* attachment that concealed a more *Ambivalent/Preoccupied* pattern (Rindal, 2000). Sheldon and West (1990) did not apply any specific attachment instrument but studied self-reports from 47 patients with AvPD. They found that desire for but fear of an attachment relationship was more characteristic of these patients than a low level of social skills. These results are quite consistent and indicate both high attachment anxiety and avoidance (see 2.8) in AvPD.

### 2.7.3 Attachment studies in SP

A review of environmental risk factors in SP concluded that studies consistently demonstrate an association between insecure attachment and the development of anxiety without any specificity in this relation (Brook & Schmidt, 2008). Yet, in prospective studies applying different methodologies, researchers have found that an *Anxious–Ambivalent* attachment pattern in childhood predicts SP or social withdrawal in adolescents (Bar-Haim, Dan, Eshel, & Sagi-Schwartz, 2007; Warren, Huston, Egeland, & Sroufe, 1997). In a study of 154 high-risk women, Bifulco et al. (2006) found that SP was associated with a *Fearful* attachment style as assessed by the Attachment Style Interview (Bifulco, Moran, Ball, & Bernazzani, 2002). However, concurrent AvPD was not assessed in these studies. In two large samples of SP patients, Eng, Heimberg, Hart, Schneier, and Liebowitz (2001) used the Revised Adult Attachment Scale (Collins and Read, 1990; Collins, 1996), assessing the three attachment styles described by Hazan and Shaver (1987) (*Secure, Avoidant, and Anxious–Ambivalent*) in the context of romantic relationships. By cluster analyses, they found that patients with SP were characterized either by a secure or an anxious–ambivalent attachment style. The *Anxious–ambivalent* group was more impaired and had a higher rate of patients with co-occurring AvPD, as measured by self-report.
Taken together, few studies have examined attachment styles in subjects with AvPD and SP, particularly in clinical populations. The existing studies suggest that both diagnoses may be associated with attachment problems, but research on SP has seldom specified the degree of co-morbidity with AvPD. Moreover, most studies have not assessed the rates of GSP, which could be more similar to AvPD regarding problems in close relationships than the more circumscribed SP (Kachin et al., 2001; Perugi et al., 2001). Thus, we have insufficient knowledge regarding attachment problems related to AvPD and SP. In paper IV, we studied attachment styles to further elucidate the similarities and differences between the two disorders. To our knowledge, no previous study has compared attachment problems between AvPD and SP.

**2.8. Experience in Close Relationship inventory (ECR). Psychometric properties**

Several questionnaires have been developed to assess adult attachment. Among them are Brennan et al.’s (1998) ECR, Collins and Read’s (1990) Adult Attachment Scales, Griffin and Bartholomew’s (1994) Relationship Styles Questionnaire, and Simpson’s (1990) Attachment Style Measure. In a study comparing these questionnaires, Fraley, Waller, & Brennan (2000) found the ECR to reveal the best psychometric properties. Furthermore, Brennan et al. (1998) reported a high internal consistency of its two subscales of Anxiety and Avoidance, with Cronbach’s alpha coefficients (Cronbach, 1951) of 0.91 and 0.94, respectively. These high levels have also been confirmed in other studies (Lopez & Gormley, 2002; Olsson, Sørebø, & Dahl, 2010; Vogel & Wei, 2005).

Both theoretical models of adult attachment (Ainsworth et al., 1978; Bartholomew, 1990; Bartholomew & Horowitz, 1991; Mikulincer, Shaver, & Pereg, 2003) and factor analyses of ECR (Brennan et al., 1998; Ehrenthal, et al., 2009; Olsson et al., 2010; Wei, Russell, Mallinckrodt, & Vogel, 2007) have identified two underlying dimensions of adult
attachment: Anxiety and Avoidance. High attachment anxiety involves a fear of interpersonal rejection or abandonment, an excessive need for approval from others, and distress when one’s partner is unavailable or unresponsive. In contrast, high attachment avoidance involves fear of interpersonal dependence, preference for self-reliance, and reluctance to self-disclose (Wei et al., 2007).

According to Bartholomew (1990; Bartholomew & Horowitz, 1991), four categories of adult attachment styles can be derived by these two dimensions, including one Secure (low anxiety/low avoidance, with a positive model of self and other) and three anxious or insecure styles: Fearful (high anxiety/high avoidance, with a negative model of self and other), Dismissing (low anxiety/high avoidance), and Preoccupied (high anxiety/low avoidance). The labels of these attachment styles seems semantically parallel to the classification of attachment patterns described by George et al. (1984) based on AAI: Secure, Dismissing, Preoccupied, and Unresolved/Disorganized, in addition to a Cannot classify pattern. However, there is a weak concordance between attachment security assessed by self-report and AAI (Riggs et al., 2007; Roisman et al., 2007; Treboux, Crowell, & Waters, 2004), probably because these measures are tapping different phenomena or aspects of adult attachment.

At present, the ECR is perhaps the most frequently used questionnaire for the assessment of adult attachment in intimate relationships. However, our current knowledge of its psychometric properties is mainly derived from student and community samples, which are associated with high rates of secure attachment (Lopez, Mitchell, & Gormley, 2002; Olssøn et al., 2010; Wei, Mallinckrodt, Larson, & Zakalik, 2005; Wei, Russell, Mallinckrodt, & Zakalik, 2004). Considering the extensive application of ECR in clinical research and settings, it is important to further investigate its psychometric properties in clinical samples, especially in samples with PDs that are known to have high rates of insecure attachment styles.
(Crawford et al., 2006; Lorenzini & Fonagy, 2013; Olssøn & Dahl, 2014; Westen, Nakash, Thomas, & Bradley, 2006).

The ECR comprises 36 items, 18 of which address Anxiety and 18 that address Avoidance related to a person’s intimate relationships. Traditionally, when as many as 18 indicators are used to operationalize a homogeneous latent construct, the internal consistency, as assessed by Cronbach’s alpha, will be increased just by the number of items alone and seldom will be less than 0.80. Moreover, it has yet to be seen in social science that the variance in 18 items is accounted for by just one single latent variable, unless the items are shown to be paraphrases or repetitions of each other, what Cattell (1957) called bloated specifics. Generally, the variance of such a high amount of indicators is usually accounted for by two or more somewhat different aspects of the higher order latent construct. Instruments designed in this way can often be shortened with success, as well as with improved validity of the inferences that are made from their scores.

Accordingly, two different 12-item versions have been derived from ECR. In four different studies, Wei et al. (2007) derived a 12-item version assessing Avoidance and Anxiety and confirmed its psychometric properties, validity, and short-term stability (ECR-S). Wei et al. (2007) based their findings on different student samples in the United States. In a Norwegian study, Olssøn and co-workers (2010) used a randomly selected community sample of 437 persons to investigate the psychometric properties of the 36-item version and also to identify a short version of 12 items (ECR-N12). From a confirmatory factor analysis, they found a somewhat questionable fit to a two factor model of Avoidance and Anxiety in the 36-item version but failed to confirm good fit for two factors from the 12-item version of Wei et al. (2007). Therefore, they went on to search for an alternative 12-item short version within their own sample. Their new proposed short form showed good fit to a two factor model
(Olssøn et al., 2010); however, their version shared only four items with the ECR-S of Wei et al. (2007).

Another line of research is to investigate whether the instrument contains sub-factors that account for different aspects of the two main dimensions Anxiety and Avoidance. By confirmatory factor analyses with varying numbers of factors, Olssøn et al. (2010) found good fit for a five factor model of ECR in their community sample. Their findings suggest that Avoidance and Anxiety may be second-order dimensions covering two and three sub-factors, respectively. Thus, ECR may contain information that could give a more nuanced picture of attachment problems in subjects with various psychiatric disorders. However, their findings need replication in clinical samples. In paper III, we investigated the psychometrics of ECR in a large sample of patients with PDs.

3 AIMS AND HYPOTHESES

3.1 Main aims

The thesis aimed to explore differences and similarities in developmental and psychopathological aspects of AvPD and SP to provide a more thorough understanding of the psychopathology of AvPD and the relationship between AvPD and SP. We compared symptoms, personality pathology and functioning, temperament, childhood experiences/trauma, and attachment styles in patients AvPD and SP. We also aimed to investigate the psychometric properties of the Norwegian version of ECR and its two short-forms in a sample of patients with mainly PDs.

We hope to increase knowledge of AvPD and thereby contribute to a basis on which development of more efficient treatment programs for AvPD may be established. Thus, we hope to stimulate more interest and research in AvPD and in the longer run indirectly contribute to improvement in the prognosis of AvPD.
3.2 Specific aims, hypotheses, and research questions

Paper I: We expected that compared with the Pure-SP group, patients in the Pure-AvPD group and the AvPD+SP group would report more symptom distress, have more Axis I pathology, and manifest a lower level of work and social functioning. We also expected that patients in the Pure-AvPD group and the AvPD+SP groups would have more fulfilled PD criteria and report more severe personality dysfunction in the self and relational domains of personality, particularly in terms of lower self-esteem, more unstable self-representations, less experience of enjoyment, and more deficient relational functioning and interpersonal problems. Moreover, because both the Pure-AvPD group and the AvPD+SP group involve AvPD (i.e., personality pathology), we expected that these two groups would be more similar to each other than either would be to the Pure-SP group regarding psychosocial and personality functioning. Finally, we expected that in multivariate analyses, a diagnosis of AvPD would contribute to the explained variance in self-pathology and relational dysfunction independent of the number of co-occurring symptom disorders, other PDs, and the presence of SP.

Paper II: Based on previous research, we 1) expected that patients in the AvPD group would report more severe childhood maltreatment than patients in the SP group as assessed by CTQ; 2) we further explored the relationship between the diagnostic groups and childhood maltreatment when taking into account the presence of different trauma; 3) we expected that the AvPD group more often would report a neglectful parenting style compared with the SP group, measured by PBI, whereas the groups would not differ in rates of a cold control parenting style; and finally, 4) we hypothesized that differences in environmental factors would remain significant when controlling for temperament.
**Paper III:** First, we wanted to investigate the two factor model of the ECR. Second, we wanted to investigate the psychometric properties of the two proposed short forms from Wei et al. (2007) and Olssøn et al. (2010), and finally, we wanted to explore the factor structure of ECR in full, in search of potential sub-factors.

**Paper IV:** We applied a partly hypothesis-testing, partly explorative approach. First, we hypothesized that the AvPD group would have higher scores on both the Anxiety and Avoidance scales compared with the SP group. Next, we compared the levels of the five sub-factors of ECR in the two diagnostic groups and expected that the AvPD group would have higher scores on Anxiety for abandonment compared with the SP group. We also investigated whether the five sub-factors contributed to the explained variance in the number of AvPD criteria over and above number of symptom disorders, SP, and number of other PD criteria. Finally, we compared the distribution of the four categories of attachment styles in the two diagnostic groups and expected the Fearful attachment style to be more frequent among patients with AvPD compared with the SP group.

## 4 METHODS

**4.1. Settings, design, and samples**

*Papers I, II, and IV* are based on a cross-sectional multi-site study conducted by Vestfold Hospital Trust, and included 91 adult patients with AvPD and/or SP. Sixty-six of the ninety-one patients were recruited by their current therapists from seven treatment centers specialized in treating PDs or anxiety disorders. The Units of group therapy in Drammen, Skien, Sandefjord, Tønsberg, and Holmestrand are specialized in treating PDs whereas the anxiety clinics on Gaustad and Modum-Bad are specialized in treating SP. Recruitment of these patients was based on the therapist’s diagnostic screening and evaluation whereas
inclusion was based on subsequent research interviews. Patients were recruited regardless of time in therapy. In total, 72 patients were recruited; 6 of them were excluded because the research interviews revealed diagnoses of alcohol dependency \((n=2)\), adult attention deficit-hyperactivity disorder (ADHD) \((n=2)\), or Borderline PD \((n=1)\), which were exclusion criteria, and one patient dropped out before completing the interviews.

Of the 91 included patients, 25 were selected from baseline data of the Ullevål Personality Project (UPP), a treatment study for patients with PDs conducted by the Department of Personality Psychiatry, Oslo University Hospital (Arnevik et al., 2009a). For all 91 patients, exclusion criteria were cluster A or B PDs, current alcohol or substance dependency, psychotic disorders, bipolar I disorder, adult ADHD, pervasive developmental disorders (e.g., Asperger’s syndrome), organic syndromes, and homelessness. Study participation was voluntary, and all patients gave informed written consent before inclusion. The study was approved by the Norwegian Social Science Data Service and the Regional Committee for Medical Research Ethics.

**Paper III** is a cross-sectional study based on ECR data from a sample of 495 patients consecutively admitted to Department of Personality Psychiatry, Oslo University Hospital, in Norway between 2004 and 2013. All patients gave their written, informed consent to participation in the research, and data were registered in an anonymous central database. The State Data Inspectorate and the Regional Committee for Medical Research and Ethics approved the procedures.

**4.2 Assessments by interviews: Axis I and Axis II diagnoses**

In papers I, II, and IV, Axis I diagnoses were based on the Mini International Neuropsychiatric Interview for Axis I diagnoses (M.I.N.I.; Sheehan et al., 1994). The Structured Clinical Interview for the 4th edition of the Diagnostic and Statistical Manual of
Mental Disorders (DSM-IV) was used to assess PDs on Axis II (SCID-II; First et al., 1997). Trained and experienced clinicians conducted the interviews. All patients with SP without co-occurring AvPD were asked to describe examples of SP-related problems from their lives, which were used along with other information to evaluate whether they had simple or generalized SP.

We conducted a reliability test of the diagnostic assessments of the 66 patients from the different treatment centers mentioned above. All diagnostic interviews were audiotaped. An independent, blind, and experienced psychiatrist rated the interviews of 26 randomly selected patients. Although there was 85% agreement regarding the presence or absence of SP (21 of 22 patients diagnosed with SP), there were too few patients without SP among the 26 patients to compute kappa for SP. Kappa for AvPD was 0.76. The intraclass correlation (ICC 2.1) was 0.86 (95% CI: 0.71–0.93) for the number of Avoidant PD criteria and 0.89 (95% CI: 0.75–0.95) for the total number of PD criteria, indicating satisfactory diagnostic reliability.

Diagnostic reliability of the 25 patients from the UPP was tested in the same way as described above. In UPP, the kappa values were 0.92 for SP and 0.75 for AvPD, respectively; ICC (ICC 3.2) on number of fulfilled SCID-II criteria was 0.95 (95% CI: 0.73–1.00) and was somewhat lower for other symptom disorders and other PDs. Thus, diagnostic reliability was not excellent but acceptable.

Also in paper III, all patients were diagnosed according to the DSM-IV by use of the M.I.N.I. for symptom disorders and the SCID-II for PDs. The reliability was not investigated; however, the staff in the unit were thoroughly trained in diagnostic procedures, and they were instructed to follow the LEAD procedure (Longitudinal, Expert, All-Data; Spitzer, 1983; Pedersen et al., 2013). With this procedure, tentative diagnoses were given at admission on the basis of referral letters, self-reported history and complaints, several assessment interviews, SCID-II, and M.I.N.I.
4.3. Assessments by self-report instruments

4.3.1. Personality functioning

*(Mal) Adaptive personality functioning.* The patients completed The Severity Indices of Personality (SIPP-118; Andrea, 2007), which measures the core components of (mal) adaptive personality functioning. The respondents were asked to think about the past 3 months and to describe the extent to which they agreed with statements like “It is hard for me to feel loved by people I have become close to” and “I often feel that I am not as worthy as other people.” The response categories ranged from 1–4, representing “fully disagree,” “partly disagree,” “partly agree,” or “fully agree.” A higher score indicates better personality functioning. The covered 16 facets (stable self-image, self-respect, enjoyment, enduring relationships, intimacy, feeling recognized, self-reflexive functioning, emotion regulation, aggression regulation, frustration tolerance, effortful control, purposefulness, respect, cooperation, trustworthiness, and responsible industry) are clustered into five higher order domains: *identity integration, relational capacities, self-control, social concordance, and responsibility* (Andrea, 2007; Arnevik, Wilberg, Monsen, Andrea, & Karterud, 2009). Previous studies indicate that SIPP-118 shows good concurrent and discriminant validity, test–retest reliability (Andrea, 2007), and cross-national validity (Arnevik et al., 2009b).

**Self-esteem.** We used the ISE (Hudson, 1982; Tempe, 1992), a 25-item questionnaire measuring the severity of a subject’s self-esteem problems. Respondents were asked to rate statements like “I feel that people would not like me if they really knew me well” on a Likert scale ranging from 1 “None of the time” to 7 “All of the time.” Some items are reversed. Scores range from 0–100; a score of 0 indicates that the subject has none of the attributes, and 100 represents the highest possible distress level. The scale has two clinical cut-off scores: scores above 30 indicate clinically significant self-esteem problems, and scores above 70
indicate constant severe stress. The Norwegian ISE scale has been shown to have good internal consistency in a PD sample (Lynum, et al., 2008).

**Interpersonal problems.** To assess interpersonal problems, we used the CIP, a 0-to-4 Likert scale self-report questionnaire (Alden et al., 1990; Pedersen, 2002). The CIP is a 48-item version of Alden et al.’s IIP-C. It comprises eight subscales (i.e., domineering, vindictive, cold, socially avoidant, non-assertive, exploitive, overly nurturant, and intrusive), an index of mistrust, and a sum score (CIP sum) that correlates 0.99 with the sum score obtained from Alden’s IIP-C (Pedersen, 2002). A higher score indicates more severe interpersonal problems.

### 4.3.2 Symptoms.** We applied the Beck Depression Inventory (BDI; Beck et al., 1961), a 21-item self-report inventory that measures presence and degree of depression. The sum score is an index of depression ranging from 0–63. Sum scores between 19 and 29 indicate moderate depression while scores of 30 and above indicate severe depression. To measure general symptomatic distress, we used the revised Symptom Check List (SCL-90-R; Derogatis, 1994), a self-report questionnaire with a 0-to-4 Likert scale covering the major symptoms of psychic distress summarized in a Global Severity Index (GSI). A higher score indicates more symptomatic distress.

### 4.3.3 Work and social functioning.** The patients completed the Work and Social Adjustment Scale (WSAS; Mundt, Marks, Shear, & Greist, 2002), a simple 5-item measure of general social impairment that has demonstrated good validity and reliability (Mataix-Cols et al., 2005). Disability in work, home management, social and private leisure, and interpersonal relations are rated on a 9-point Likert scale from 0 to 8, with higher scores indicating greater disability. The sum score ranges from 0–40.
4.3.4 Quality of life. The patients were asked to rate their present quality of life on a scale from 1–10, where 10 represents “as good as possible” and 1 represents “as bad as possible.”

4.3.5 Childhood experiences

Childhood trauma was assessed using the CTQ, a 44-item retrospective self-report inventory that provides brief screening for histories of abuse and neglect and has shown good reliability and validity (Bernstein et al., 1994; Bernstein, Ahluvalia, Pogge, & Handelsman, 1997). Items are scored on a 5-point Likert scale from 1 (never true) to 5 (very often true). Items scored are summed on five different subscales: emotional, physical, and sexual abuse, and physical and emotional neglect. Emotional abuse refers to verbal assaults on a child’s sense of worth or well-being, or any humiliating, demeaning, or threatening behavior.

Physical abuse includes descriptions of bodily assaults that pose a risk of or result in injury. Sexual abuse describes sexual contact or conduct. Emotional neglect refers to lack of love, encouragement, belonging, and support. Physical neglect refers to lack of food, shelter, safety, supervision, and health care. It is not unusual to underreport childhood trauma (Hardt & Rutter, 2004; Widom & Shepard, 1996; Widom & Morris, 1997), and the CTQ therefore includes a 3-item denial/minimization scale to detect false-negative trauma reports. The raw scores of the five CTQ subscales are not comparable and have different cut-off thresholds. Raw scores were therefore converted into classifications of four levels of severity based on validation studies in normal and psychopathological samples (Bernstein & Fink, 1998): “absent to minimal” (1), “low to moderate” (2), “moderate to severe” (3), and “severe to extreme” (4). We used these four levels of severity to harmonize the subscales. In this way, we were able to compute a composite neglect score based on the average classification of
severity (1–4) of emotional and physical neglect. Likewise, we computed a composite abuse score from the three abuse subscales: emotional abuse, physical abuse, and sexual abuse.

**Perceived parental behavior** was assessed by the 25-item PBI (Parker et al., 1979). The self-report questionnaire comprises 25 items that are scored on a 5-point Likert scale from 1 (very likely) to 5 (very unlikely), based on perceived parental behavior before age 16 years. Usually two subscales are computed for each parental figure: care/affection and overprotection/control. The combination of the two subscales generates four parental styles: optimal bonding (high care, low overprotection); affectionate constraint (high care, high overprotection); affectionless control, also called cold control (low care, high overprotection); and neglectful parenting (low care, low overprotection). Cut-off scores for high and low care and overprotection were computed based on normative data (Parker, 1989). The respective cut-off scores are 27 and 24 for maternal and paternal care, and 13.5 and 12.5 for maternal and paternal control. We used these cut-offs to compute the four patterns.

**4.3.7 Temperament.** The short form of the Adult Temperament Questionnaire (ATQ) (Rothbart et al., 2000) was used to assess temperament. The ATQ is a self-report questionnaire that consists of 77 items rated on a 7-point Likert scale and includes four factor scales: effortful control, negative affect, extraversion, and orienting sensitivity. Good internal consistency was reported in a student sample (Posner & Rothbart, 2000). The same level of internal consistency was observed for the Norwegian version of the ATQ in the UPP sample, (Urnes et al., unpublished data).

**4.3.8 Attachment**

Attachment style was assessed by the ECR, a 36-item self-report of adult attachment developed by Brennan, Clark, and Shaver (1998), which has been documented as highly
reliable and valid (Wei et al., 2007). The translation to Norwegian was created in accordance with the guidelines of Hambleton (2005) by a group of clinicians and researchers under the oversight of our colleague Øyvind Urnes, MD, at the Department of Personality Psychopathology, Oslo University Hospital. The final translation was retranslated back to English by a bilingual translator and then compared with the original questionnaire. By factor analyses, Brennan et al. (1988) identified two relatively orthogonal dimensions, 18 items each, addressing attachment Anxiety, e.g., item 2, “I worry about being abandoned”; and attachment Avoidance, e.g., item 13, “I prefer not to show how I feel deep down.” The factor structure has been replicated in different samples (Ehrenthal et al., 2007; Olssøn & Dahl, 2014; Wei et al., 2007), but not yet in clinical samples of PDs. The patients rate how well each statement describes their typical feelings in close relationships by a score on a 7-point Likert scale from 1 (not at all) to 7 (very much). Higher scores indicate more attachment-related anxiety or avoidance. Combining the two main dimensions Anxiety and Avoidance defines four categories of attachment styles: Secure (low anxiety/low avoidance) and three insecure, i.e., Dismissing (low anxiety/high avoidance), Preoccupied (high anxiety/low avoidance), and Fearful (high anxiety/high avoidance).

4.4 Statistics

Paper I: Differences in categorical and continuous variables among the three diagnostic groups were tested by Chi-squared tests and one-way analyses of variance (ANOVAs) with least-significance difference post hoc tests for pair-wise comparisons. For effect size of the between-group differences, Cohen’s $d$ and $\eta^2$ were computed. To investigate whether the difference in personality functioning was specifically connected to AvPD and not entirely explained by other psychopathology, we made a series of multiple regression analyses. The personality variables that differed between the groups were entered...
as dependent variables, controlling in the following for (a) number of symptom disorders other than SP, (b) number of PDs other than AvPD, and (c) a diagnosis of SP. AvPD was entered as the last predictor.

**Papers II and IV:** Background demographic and clinical variables of the two diagnostic groups were analyzed using t-tests and Chi-squared tests for continuous and categorical variables, respectively. We compared the groups by applying ANOVA for the continuous variables of the CTQ, ATQ, and PBI. Because skewed distributions of the separate abuse subscales of the CTQ precluded the use of parametric methods, the Mann–Whitney test was used. To analyze the unique contribution of the variables showing significant group differences in the ANOVAs, follow-up covariance analyses (ANCOVAs) were performed controlling for the effects of the possible confounding variables. We used $\text{Eta}^2$ and $r^2$ as measures of effect size for the normal and the skewed distributed data, respectively.

For the subscale Avoidance of closeness, a high kurtosis value in the AvPD group prohibited the use of parametric methods, and the Mann–Whitney test was used. For the same reason, we used the Avoidance score instead of the two sub-scales of avoidance in the regression analysis. To test the association between AvPD and the attachment sub-factors, multiple linear regression analysis was applied with the number of fulfilled AvPD criteria as the dependent variable and ECR scales as independent variables. The first four blocks were demographic and clinical control variables and the next four relate to the attachment variables of interest.

**Paper III:** Internal consistency was estimated by Cronbach’s alpha (Cronbach, 1951), group differences were analyzed by independent samples t-test (two-sided), and linear relationships between variables were estimated by Pearson’s Product Moment Correlations. Exploratory factor analysis was conducted by Principal Axis Factoring (PAF) with Promax rotation. Effect sizes of gender differences were estimated by Hedge’s g (Hedges, 1981).
Confirmatory factor analysis (CFA) was conducted with Mplus 7.11 (Muthén & Muthén, 2012) with estimations based on the Maximum Likelihood Mean adjusted function. This mean-adjusted Chi-squared test statistic, also referred to as the Satorra–Bentler Chi-square (Satorra & Bentler, 2001), is also robust to non-normality. To evaluate the CFA models, goodness of fit was estimated by Root Mean Square Error of Approximation (RMSEA; Steiger, 1990), the Non-Normed Fit Index (Bentler & Bonett, 1980), also called the Tucker Lewis index (TLI; Tucker & Lewis, 1973), the Comparative Fit Index (CFI; Bentler, 1980), and the Standardized Root Mean Square Residual (SRMR; Hu & Bentler, 1999).

In general: Cohens $d$ was computed by means ($M$) and pooled standard deviations ($\sigma$):

$$d = M_1 - M_2 / \sigma_{pooled}$$

where $\sigma_{pooled} = \sqrt[2]{\left(\sigma_1^2 + \sigma_2^2\right)/2}$

According to Cohen (1988), effect sizes <0.20 indicate no effect, 0.20–0.49 a small effect, 0.50–0.79 a moderate effect, and ≥0.80 a large effect. The significance level was set at $p<0.05$ (two-tailed). The statistical analyses were performed by use of the Statistical Package for Social Science (SPSS) Version 16.0 in papers I, II, and IV and Version 19.0 (IBM, 2007 and 2010) in paper III.

4.5 Participants

The sample in papers I, II, and IV comprised 91 patients, of whom 15 (16.5%) were diagnosed with AVPD without SP, 56 (61.5%) had both AVPD and SP, and 20 (22%) had SP without AVPD. Mean age was 37.6 years ($SD=10.2$), 65% were female, and 44% married or cohabiting, and they had an average of 4 years of education after junior secondary school ($SD=3.2$). The participants rated their quality of life to be 3.9 ($SD=1.5$). Age at first contact with psychiatric services was 26.9 years ($SD=10.1$). The average duration between first contacts with psychiatric services to the present treatment was 12 years.
In the first paper, we compared three diagnostic groups: the Pure-AvPD group (AvPD without concurrent SP), the AvPD+SP group, and the Pure-SP group. In the second and fourth papers, the sample was divided into two groups: the AvPD group (AvPD with and without SP; n=71) and the SP group (SP without AvPD; n=20). Eighteen patients (90%) in the SP group had GSP. Sociodemographic characteristics did not differ significantly between the groups (Table 4) except that only 26% of the patients in the AvPD+SP group and 40% in the Pure-AvPD group were working half-time or more, compared with 60% in the Pure-SP group ($p<0.01$). In paper IV, ECR data from one patient with both AvPD and SP were missing, reducing the sample size to 90.

Insert table 4 about here

The sample of paper III consisted of 495 patients with a majority of females (78%) and a mean age of 30 years ($SD=7$). In this sample, 24% were married or cohabiting, and 39% were living alone. They had an average of 6 years of education after junior secondary school ($SD=12.5$) and had been working 5 of the last 12 months ($SD=4.8$). According to DSM-IV, 91% had at least one PD diagnosis, and 96% had at least one symptom disorder: 68% mood disorders, 66% anxiety disorders, and 18% substance-related disorders. Mean GSI (Global Severity Index of SCL-90-R) was 1.7 ($SD=0.7$), mean number of symptom disorders was 2.4 ($SD=1.6$), mean number of PD criteria was 13.6 ($SD=6$), and the average lowest GAF score was 49 ($SD=7$).

5 RESULTS

5.1 Personality functioning in patients with Avoidant Personality Disorder and Social Phobia (Paper I). We found that patients in the two AvPD groups had more additional Axis I diagnoses compared with those in the Pure-SP group. Patients with both disorders also had
more problems in work and social adjustment and more symptoms than the Pure-SP group, but no differences were found among the groups in levels of depression.

As to the extent of Axis II pathology, the two AvPD groups met more PD criteria for other PDs compared with the Pure-SP group. The Pure-SP group had on average 2.2 (SD=0.09) avoidant criteria; i.e., 80% of them met two or three AvPD criteria, thus representing a sub-threshold AvPD group. In this sample, the AvPD+SP group met more AvPD criteria than the Pure-AvPD group.

The groups differed significantly on many measures but not on the CIP sum. The differences had medium to large effect sizes and could indicate that the AvPD group had more problems with psychosocial, identity, and relational functioning than patients with SP only. When taking into account the presence of SP, other symptom disorders, and PDs, we found that AvPD added significantly to the explained variance in self-esteem (ISE), work and social adjustment (WSAS), mistrust (CIP), and several facets of the identity and relational domain (SIPP-118), but not in the facets enjoyment and self-reflexive functioning (SIPP-118).

These results indicate that problems with low psychosocial functioning, low self-esteem, high mistrust, and low functioning regarding self-respect, intimacy, feeling recognized, and cooperation are all closely connected to AvPD pathology.

5.2 Avoidant Personality Disorder versus Social Phobia: The significance of childhood neglect (Paper II)

We compared temperament and childhood experiences in patients with AvPD with and without concurrent SP (AvPD group) with patients in the SP group (patients with SP without AVPD). In line with our hypothesis, the AvPD group had significantly higher scores on physical neglect, as well as on the composite neglect variable, with emotional neglect showing a trend, all compared with the SP group. However, contrary to our expectations, the
groups did not differ significantly in emotional, physical, or sexual abuse although there was a trend towards more abuse in the AvPD group, as measured by the composite abuse variable. In addition, in agreement with our hypothesis, the AvPD-related difference in neglect remained significant when controlling for physical, sexual, and emotional abuse and temperamental differences by ANCOVA.

Contrary to our hypothesis, there were no between-group differences in perceived parental style (PBI) or in the dimensional scales care nor control. The great majority in both groups reported their parents to be low on care. The results indicate that childhood neglect could be a risk factor for AvPD and may be contributing to the phenomenological differences between AvPD and SP.

5.3 Experiences in Close Relationship - Psychometric properties among patients with personality disorders (Paper III)

The aim of this study was to investigate the psychometric properties of the Norwegian version of ECR and the two proposed short forms ECR-S and ECR-N12 in a sample of patients with PDs. An internal consistency and confirmatory factor analysis of ECR, ECR-S, and ECR-N12 from 495 patients with PDs was conducted, as well as an exploratory factor analysis of ECR. Despite high values of Cronbach’s alpha, the internal consistency of ECR was found to be questionable. Confirmatory factor analysis revealed a poor fit to the two factor model for the ECR and ECR-S. The ECR-N12 revealed a mediocre fit, indicating a potential for improvement. An exploratory factor analysis was conducted with all 36 items of the ECR and resulted in six factors with eigenvalues greater than 1, accounting for 62% of the variance. Factor six was defined by three items only. Conceptually, this factor gave no clinical meaning and was not considered further. The remaining five factor model (ECR-FF) accounted for 58% of the variance. A CFA of the ECR-FF revealed good fit, and
conceptually, the factors were “Avoidance of closeness,” “Uncomfortable with openness,” “Separation frustration,” “Anxiety for abandonment,” and “Frantic desire for closeness.”

The results indicated that interference from scale scores based on ECR should be derived with considerable care in a sample of patients with PDs. The multidimensionality of ECR may have the potential for a more nuanced picture of attachment-related anxiety and avoidance. Further studies are needed to investigate the validity of ECR-FF, especially among different clinical samples.

### 5.4 Attachment styles in patients with Avoidant Personality Disorder compared with Social Phobia (Paper IV)

We compared attachment styles in patients with AvPD with and without concurrent SP (AvPD group) with patients in the SP group (patients with SP without AVPD). In line with our first hypothesis, the AvPD group had a higher mean score on the Anxiety scale than the SP group. However, contrary to the hypothesis, the difference on the Avoidance scale was not significant.

In accordance with the second hypothesis, the AvPD group had a higher score on Anxiety for abandonment and Separation frustration. The effect sizes of the differences were large and medium, respectively. After controlling for gender and age, number of other PD criteria, number of other symptom disorders, SP, and the other attachment factors, the attachment factor Anxiety for abandonment explained a significant addition of the variance in AvPD severity. Results of a Chi-squared test of the four categories of attachment styles and the two diagnostic groups were not statistically significant; however, when performing four separate Chi-squared tests, one for each attachment category, Fearful was significantly more frequent in the AvPD group than in the SP group, as hypothesized, whereas the Dismissing
style was significantly more frequent in the SP group than in the AvPD group. The Secure attachment style was the least frequent style in both groups.

The results indicate a large variation of attachment problems in both disorders. Compared to SP, AvPD seems to be more strongly associated with attachment anxiety, in particular fear of abandonment.

6. DISCUSSION

6.1 Main findings papers I, II, and IV

The relation between AvPD and SP is still disputed, and several open questions remain. Is AvPD just a more severe variant of SP, and if so, in what way? Is AvPD a more severe mental disorder than SP in aspects other than social anxiety and functioning, like personality pathology and functioning, temperament, childhood experiences, and attachment? Is it possible to distinguish between AvPD and SP by some of these variables? Could AvPD justify its position as a PD? Are those with both disorders a more severely functioning group than those with Pure-AvPD? Could AvPD and SP be distinguished by underlying dimensions other than social anxiety? In the following, we discuss the present findings in light of these questions.

6.1.1. Personality pathology and functioning

In paper I, we compared clinical characteristics in three diagnostic groups of patients: Pure-SP, Pure-AvPD, and AvPD+SP. We found that patients with AvPD had more symptom disorders, symptom distress, and psychosocial dysfunction compared with patients in the Pure-SP group. Regarding symptom distress and psychosocial dysfunction, however, only patients in the AvPD+SP group differed from those with Pure-SP in a statistically significant way. This finding could, of course, be due to the additional burden of co-occurring disorders,
but could also be due to Type II error because both the Pure-AvPD and Pure-SP groups were small. However, the higher psychosocial distress among patients in the AvPD+SP group might also be related to the fact that they met more AvPD criteria on average than those with AvPD only. The multivariate analyses indicated that AvPD contributes to psychosocial distress over and above the presence of SP. Overall then, these results are in agreement with earlier research finding AvPD to be a generally more severe disorder than SP regarding symptoms and psychosocial functioning (Bögels et al., 2010; Reich, 2013).

Additionally, we investigated if AvPD can be distinguished from SP on various aspects of personality pathology and functioning. The diagnostic interviews revealed more criteria of other types of PDs in the two AvPD groups, which indicate that AvPD is associated with a broader range of personality pathology than SP. This result is in accordance with the findings of Hummelen et al. (2007) and is particularly noteworthy because we excluded patients with co-occurring PDs in clusters A and B.

Patients in the two AvPD groups also had more problems with self-esteem, mistrust, and other identity and relational functioning. These differences had medium to large effect sizes.

Contrary to our hypothesis, however, CIP sum was not significantly different between the groups. Thus, the total amount of interpersonal problems measured by CIP may be quite similar but still differ on the subscales mistrust, social avoidance, and coldness.

The results of the multivariate analyses indicate that problems with low psychosocial functioning, low self-esteem, high mistrust, and low functioning regarding self-respect, intimacy, a feeling of being recognized by others, and cooperation are all closely connected to AvPD pathology. We controlled for symptom disorders, other PDs, and the presence of SP, which is a rather strict level of statistical control because the propensity for a broader load of symptom and personality pathology probably is an inherent aspect of avoidant pathology.
Few studies have investigated personality pathology and functioning in AvPD and SP. Hummelen and co-workers (2007) hypothesized that AvPD and SP involve different degrees of self-pathology, with dysfunctional defense strategies to maintain self-esteem and self-coherence. The present finding suggests that patients with AvPD have a more vulnerable sense of self and less self-reflexiveness to assist with affect regulation in relational contexts. They may depend on pervasive avoidant strategies to preserve self-coherence (Bijttibier, 1999; Fonagy & Target, 1997). Their interpersonal distancing does not seem restricted to social performance situations but affects their capacity for intimacy as well, in concordance with the theory of Millon (1981). In contrast, patients with SP exhibit greater self-reflexive functioning and greater self-respect and stability of self-image, thereby allowing better affect regulation, more interpersonal contact and intimacy, and less devastating psychosocial consequences.

The results thus indicate that patients with AvPD may be distinguished from patients with SP by a more severe and a broader area of personality pathology and by more maladaptive personality functioning in the core aspects of personality, i.e., the identity and relational domains. According to the effect sizes of the between-group differences, the two AvPD groups seem to be more similar to each other than each one is to the Pure-SP group, despite some exceptions. On the other hand, we cannot conclude from these data that AvPD and SP are qualitatively distinct disorders because personality functioning tends to have a dimensional distribution. Then, the question could be where to set the bar (Diamaggio et al., 2013). The discussion of whether AvPD and SP are different disorders is part of a larger debate about the relationship between symptom disorders on Axis I and PDs on Axis II (Kreuher, 2005). However, these results are in line with Hummelen et al. (2007), Ralvski (2005), and DSM-5 (APA, 2013), supporting the definition and retention of AvPD as a PD in DSM-5.
Another question, however, is whether the co-occurrence of AvPD and SP represents a more severe condition than the Pure-AvPD group. Our results are ambiguous: The two AvPD groups were not different on most personality variables covering identity and relational functioning; however, patients in the AvPD+SP group had more severe dysfunction regarding self-esteem, work, and social interactions than those in the Pure-AvPD group. On the other hand, results from the multivariate analyses suggest that these differences could simply reflect the fact that the AvPD+SP group met more AvPD criteria than the Pure-AvPD group. Other studies also give an ambiguous picture at this point: In their clinical study, Ralevski and co-workers (2005) found that the addition of SP in patients with AvPD did not add to the overall clinical severity whereas the results of a large epidemiological study from the United States point in a somewhat different direction (Cox et al., 2009). In an Australian epidemiological study, Lampe and Sunderland (2015) found that the AvPD+SP group reported more distress and co-occurring disorders than the Pure-AvPD group.

AvPD without SP is a particularly interesting group and much more frequent than previously assumed (Reich, 2000). According to recent studies, using DSM-IV, the majority of patients with AvPD do not meet the criteria for SP (Cox et al., 2009; Hummelen et al., 2007; Lampe et al., 2015; Ralevski et al., 2005). We do not know if the absence of social anxiety in these patients reflects a generally lower level of fearfulness, or if their avoidance strategies effectively prevent them from being exposed to situations that may activate anxiety. It has been speculated whether AvPD represents an internalization of the social anxiety state and constitutes a more chronic form of the course of SP (Rettew, 2000). Interestingly, in the present study, patients with AvPD without concurrent SP reported lower levels of self-reflexive functioning compared with the AvPD+SP group, pointing toward more problems with “theory of mind” (Bora, Yucel, & Pantelis, 2009). Probably, these patients represent a heterogeneous group. AvPD may include underlying dimensions not related to social anxiety,
such as genetic and neurocognitive aspects associated with the schizophrenia spectrum (Asarnow et al., 2001; Fogelson et al., 2007; Fogelson et al., 2010) and lack of social skills associated with autism spectrum disorders like Asperger’s disorder (Lunegard et al., 2012). Thus, this study did not provide any answers about the pure AvPD group but does lead to a new hypothesis about patients with pure AvPD: Do they have less mentalizing capacity than those with SP?

6.1.2. Childhood experiences

To explore possible differences in environmental risk factors, we compared childhood experiences in two diagnostic groups: the AvPD group, comprising patients with AvPD with and without SP, and the Pure SP group, in papers II and IV called the “SP group.” Both AvPD and SP were associated with negative childhood experiences, as assessed by CTQ. AvPD was associated with more self-reported childhood neglect, was significant for physical neglect and the composite neglect scale, and showed a trend for emotional neglect. No previous studies have compared AvPD and SP regarding childhood experiences. However, the result is in agreement with retrospective findings that emotional neglect is predictive of cluster C PDs (Zhang et al., 2012) and prospective findings that it is predictive of AvPD (Johnson et al., 2000). The difference between the diagnostic groups was most pronounced for physical neglect, though. Of note, the AvPD-related difference in neglect remained significant when we controlled for child abuse as well as temperamental differences. Thus, the results suggest that the often less dramatic or silent maltreatment experiences of emotional and physical neglect might be risk factors for adult AvPD over and above the effects of both abuse experiences and temperamental dispositions.

Neglect is generally defined as the absence of protection, care, and positive attention, i.e., the parents are physically present but do not attend to the child. Neglect is potentially a
very harmful experience for a child, and the psychological consequences are probably manifold. From the child’s perspective, physical and emotional needs may be perceived as irrelevant or too much trouble for the parents. It is easy to understand that a child who is not given attention, care, and protection within the attachment relationship might develop assumptions of not being of interest to others and not important or not worthy of being loved. Correspondingly, neglect may interfere with the child’s development of perceptions of others as safe sources of comfort, support, and reassurance. Such experiences could be integrated into the personality as more permanently disturbed representations of self and others, or what John Bowlby called *Internal Working Models* (1969) and Jeffrey Young called *Early Maladaptive Schemas* (1990), that are characteristic for AvPD. In instances of more severe neglect, even basic affect regulation and self-coherence may be affected.

In light of the results in paper I that patients with AvPD exhibited more impairment in self and relational functioning than those with SP, one hypothesis, then, is that different levels of childhood neglect are among the factors underlying such differences in personality functioning. In the presence of common constitutional dispositions for AvPD and SP (Reichborn-Kjennerud et al., 2007), the experience of more severe childhood maltreatment may be a factor that drives personality development towards avoidant personality pathology (Joyce et al., 2003).

It is important to recognize, however, that a child’s temperamental make-up may have a bidirectional effect, i.e., exert a certain influence on the parents’ child-rearing behavior, and at the same time render the child more vulnerable to specific responses from the caregivers (Nederlof et al., 2010). Maltreatment probably affects children differently and interacts with both constitutional and environmental risk and resilience factors. For example, temperamental factors may render a person more vulnerable to developing AvPD or SP if they are exposed to neglect or abuse but also are more at risk for being neglected or abused.
In contrast to the results based on the CTQ, no between-group differences were detected regarding the PBI. A majority of the patients in both groups associated their parents with low care (i.e., the neglecting or cold control parental style). The fact that the PBI did not differentiate between the disorders in this sample is in agreement with other studies (Burbach, Kashani, & Rosenberg, 1989; Rey, Bird, Kopec-Schrader, & Richards, 1993; Rey & Plapp, 1990; Rusell, Kopec-Schrader, Rey, & Beumont, 1992). The dimensions assessed by the PBI might represent non-specific vulnerability factors for psychopathology across various psychiatric disorders (Rey et al., 1993). On the other hand, it might also be due to methodological variations. Their experiences of neglect or abuse may have influenced the way they perceived their parents, i.e., with less ability to report their parents’ parental behavior as dysfunctional or deviating from a norm.

6.1.3. Attachment style

Given the indications from theories, previous research, and paper I that AVPD is associated with intimacy problems, AvPD and SP could be associated with different levels or types of problems in close relationships, reflecting underlying differences in attachment. Thus, in paper IV, we compared attachment styles in patients with AvPD and SP. Both diagnostic groups had high levels of attachment anxiety and avoidance, and the large majority in both groups had an insecure attachment style. As hypothesized, the AvPD group had higher scores on the Anxiety dimension than the SP group, indicating more attachment problems among patients in the AvPD group. This is in line with theoretical, clinical, and research indices showing that close relationships and intimacy are more troublesome to patients with AvPD than to those with SP (APA, 1994, 2013; Hummelen et al., 2007; Marques et al., 2012; Millon, 1981).
In contrast to our expectation, the scores for the two diagnostic groups did not differ significantly for the Avoidance dimension. This finding suggests that negative expectancies towards unfamiliar people, typical for SP, also may pertain to close relationships. The definitions of AvPD and SP include negative expectancies in relation to others, outlined as fears of humiliation and critical scrutiny in SP and fear of rejection in AvPD (APA, 1994, 2013). Thus, patients with SP and AvPD could have quite similar avoidant strategies for handling imagined negative responses from others that might become close. Yet, the majority of patients in the SP group had GSP. Avoiding intimacy could be more characteristic of GSP than circumscribed SP. On the other hand, it might be that the self-reported assessment of avoidance measures only certain types of avoidance whereas more subtle and maybe more central aspects remained unstudied here. Future research should use other methods, such as the AAI, to elaborate on similarities and differences in attachment between these disorders, including more unconscious aspects of avoidance.

Both diagnostic groups had high levels of attachment anxiety and avoidance compared with a Norwegian community sample (Olssøn & Dahl, 2010). Moreover, both the levels and the differences between the diagnostic groups in the present sample are in line with the findings of Ehrenthal et al. (2009) and Olssøn and Dahl (2014), which suggest a dimensional gradient of increasing attachment problems with increasing psychopathology, from the normal population to patients with symptom disorders, such as SP, and further to patients with both symptom and personality disorders, such as SP and AvPD.

The five ECR sub-factors gave a more nuanced picture of attachment problems and the differences between the two groups. In paper III, we found that the two-dimensional factor structure of the ECR was questionable in a sample of subjects with PDs whereas the five factor solution used here gave a good model fit. The differences between AvPD and SP were most evident for the sub-factors Anxiety for abandonment and Separation frustration, for
which the AvPD group had higher scores than the SP group, with medium effect sizes. Moreover, *Anxiety for abandonment* contributed significantly to the explained variance in severity of AvPD, over and above age, gender, number of other PD criteria, number of other symptom disorders, concurrent SP, and the other attachment sub-factors. Thus, attachment anxiety regarding abandonment seems to be an important aspect of the AvPD pathology. This result is in line with the finding that AvPD is associated with pessimistic cognitive–affective responses to rejection-related situations (Meyer et al., 2005). In addition, anxious attachment has been associated with tendencies to rate neutral faces as less friendly and more rejecting (Meyer et al., 2004). Our finding is consistent with indices from the research of Schmidt, Joiner Jr, Young, and Telch (1995): In a preliminary validation study of the Schema Questionnaire mapping Early Maladaptive Schemas (Young, 1990), the EMS “Abandonment” was strongly associated with avoidant personality traits. Fear of abandonment is not part of the existing diagnostic criteria but sheds light on the restraint in intimate relationships (APA, 1994). Fear of being abandoned could be an underlying aspect of the fear of intimate relationships. In clinical practice, we often find patients with AvPD saying that “if somebody would know who I really am, they would abandon me.” Gunderson and Lyons-Ruth (2008) have proposed a model of a neurobiologically based interpersonal hypersensitivity in patients with Borderline PD. This hypersensitivity may also pertain to AvPD and play a part in the intense fear of abandonment in these patients.

The large majority of participants in both diagnostic groups had an insecure attachment style, according to the categorical model of Bartholomew (1990). Of note, within each diagnostic group, the distribution of the different types of insecure attachment styles was heterogeneous. This finding indicates that attachment problems are highly individual and differ within diagnoses. Yet, the *Fearful* attachment style was more frequent in the AvPD group. This style may reflect a deep conflict between approach and withdrawal urges, with
resemblance to the *Disorganized/Unresolved or Cannot classify* attachment pattern (Main & Hesse, 1990; Main & Solomon, 1986). Both the *Fearful* style and the *Disorganized* or *Cannot classify* pattern have empirically been associated with AvPD (Fossati et al., 2003; Nakash-Eisikovits et al., 2002; Riggs et al., 2007; Rindal, 2000). These findings point to an internal emotional conflict in patients with AvPD between longing for attachment and high attachment anxiety with intimacy avoidance as a defense against potentially overwhelming affects. Even if this result should be considered with care due to statistical limitations (see below), one may speculate that some patients with AvPD actually have a *Disorganized* attachment pattern with no preferred attachment strategy and that their avoidance behavior in intimate relationships is a necessary defense to maintain coherence. Overall then, patients with AvPD may represent a wide range of severity of attachment problems, from *Secure* to *Disorganized*.

The surprising finding that the *Dismissing* attachment style was more frequent in the SP group contradicts previous research, which has found the *Anxious–Ambivalent* attachment pattern and the *Secure* attachment styles were associated with SP (Bar-Haim et al., 2007; Bifulco et al., 2006; Brook & Schmidt, 2008; Eng et al., 2001; Warren et al., 1997). In the original model of Bartholomew (1990), patients with a *Dismissing* style have a positive view of self. Thus, the result also contradicts our clinical experience and the finding that patients in the SP group have considerable problems with self-esteem (measured by the ISE, Table 1). Haggerty, Hilsenroth, and Vala-Stewart (2009) found that the *Dismissing* style was associated with interpersonal problems of being cold and dominant. In paper I, we found that both AvPD and SP were associated with being cold, but not dominant. One may question the appropriateness of the model of Bartholomew, at least in this sample. There is also uncertainty associated with the psychometrics of the model when applied in this sample; see 6.2.3. At present, the extent of dismissiveness in patients with SP and AvPD seems unclear and should be studied further.
The results indicate that AvPD is associated with more attachment anxiety than SP, especially regarding fear of being abandoned. Fear of abandonment may play a significant role in the AvPD pathology.

6.2 Methodological issues, strengths, and limitations of papers I, II, and IV

6.2.1 Design: a cross-sectional, clinical, multi-site study

The main strengths of this thesis are the direct comparison of personality functioning, childhood experiences, and attachment problems in thoroughly assessed patients with AvPD and SP, and the use of appropriate instruments. This study is the first to compare the two diagnoses on these variables.

The cross-sectional design precludes any conclusions about causality. It may, however, increase our knowledge of associations here and now and stimulate further hypotheses. Previous clinical studies that compared AvPD and SP have recruited patients either from an anxiety population (Eng et al., 2001; Marques et al., 2012) or from a population of personality pathology (Hummelen et al., 2007; Ralevski et al., 2005). In our multi-site design, we included patients both from anxiety clinics treating SP and from units specialized in assessing and treating PDs.

The multi-site design is challenging regarding representativeness. Although the therapists received the same information about the study, they may have had different attitudes and traditions regarding recruitment of patients to clinical research. Thus, they may have selected the patients differently, giving a selection bias. Unfortunately, we have no data about the patients who were not invited to participate or those who rejected participation, so we could not control statistically for these possible differences.

6.2.2 Sample
Inclusion of impaired patients with fully developed disorders indicates that the results may be clinically relevant. However, the patients in this sample had longstanding disorders and were poorly functioning. The mean interval from their first contact with psychiatric services to treatment at the time of inclusion was 12 years, and few of them were working full time. The majority of the patients in the SP group had GSP and thus do not represent the full range of patients with SP. The exclusion of patients with concurrent cluster A and B PDs further limited the representativeness of the sample, and the results cannot be generalized to patients with AvPD and SP in a more general psychiatric population without caution. On the other hand, despite the high rate of GSP, we detected significant and clinically meaningful differences in personality functioning, experiences of childhood neglect, and adult attachment problems between the diagnostic groups.

The patients were included in the study regardless of time in therapy. Unfortunately, we had no measure of time in therapy or type of therapy. Treatment may have influenced their answers in different ways. For example, focusing on some of their problems in therapy may lead to an increased score on self-report of those problems and a reduced value for problems that were not in focus. If patients with AvPD in this sample had more therapeutic focus on their childhood experiences, the differences found in CTQ could be an effect of different treatments for patients with AvPD and SP. However, we have no information in support of such an interpretation. On the contrary, there is no “treatment of choice” for AvPD, and the patients with AvPD in this sample were recruited from all the treatment centers with a variety of treatments available.

Patients in group therapy may compare their problems with the problems of the other group members, thus ranking their own problems either lower or higher than they otherwise would have done. We do not know if patients with AvPD in this sample were treated in
groups more than those with SP. If we had obtained such information, we could have controlled statistically for the differences.

Another variable that we did not measure is the severity of social anxiety – using the Liebowitz Social Anxiety Scale (Liebowitz, 1987), for example – thus also precluding direct comparison with other studies. Also, we could not control for the effect of this possible confounding variable when comparing the SP and AvPD groups. However, we controlled for the number of Axis I diagnoses, as a representation of the range of symptom distress.

The main limitation of this sample is the small sample size, which carries an increased risk for Type II errors. Because of the few patients with AvPD without concurrent SP in this sample, we merged patients with AvPD with and without concurrent SP into one AvPD group in papers II and IV. This choice may have camouflaged possible differences between the AvPD patients with and without concurrent SP.

6.2.3 Statistical analyses
The small sample size increased the risk of Type II errors, which is the possibility of not detecting real differences and getting false-negative results. We performed many statistical analyses and increased the risk of Type I errors, i.e., by chance finding differences that are not true and getting false-positive results. We did not apply any standard correction technique, such as the Bonferroni method, to compensate for the risk of Type I errors by using many statistical tests because we considered the risk of Type II errors higher than the risk of Type I errors in this thesis, due to the small sample size. Thus, one has to keep in mind the possibility of Type I errors when interpreting the results. The small sample size is especially statistically challenging when performing categorical analyses, such as Chi-squared tests of the $2 \times 4$ table of the two diagnostic groups and the four categories of parental styles in paper II, and attachment styles in paper IV, because some also may have low numbers. None of these tests
reached statistical significance, possibly because of Type II errors. Thus, inferences from the analyses with pure diagnostic groups in paper I and the categorical analyses of parental styles in paper II and of attachment categories in paper IV should be made with caution.

A statistical strength is the use of effect sizes when finding statistically significant differences, as additional information about the strength of the results. Among the strengths is also the use of strict statistical control: First, we controlled for other Axis I and Axis II disorders when we analyzed the association between the personality functioning and the two diagnoses. Next, we controlled for temperamental differences and concurrent abuse when analyzing the association between neglect and AvPD. Lastly, we controlled for age, gender, other PD criteria, and symptom disorders in the study of associations among the five attachment factors and severity of AvPD.

To compute the four attachment styles for paper IV, we used classification coefficients based on Fisher’s linear discriminant functions, estimated by Brennan, Clark, and Shaver (1998) in a student sample. Such coefficients may be sample dependent, making the current categorization somewhat uncertain.

Overall, we performed the analyses on the background of theories, results of previous studies, and our long clinical experiences with these patients.

6.2.4 Assessments

Except for the diagnostic assessments, all background and clinical variables were based on self-report instruments. The included instruments have previously been well tested and found to have a high degree of validity and reliability. In paper I, we used the ISE and the SIPP-118; in paper II we used the ATQ, PBI, and CTQ; and in paper IV, we used the ECR. In paper IV, we supplemented our analyses with the five sub-factors of ECR, as outlined in paper III, which probably is a more robust solution in this sample than the original model of two factors.
On the other hand, generally speaking, self-report could be biased by several factors like social desirability, self-deceit, and current symptoms, which may have affected these patients. In addition, patients with AvPD may have a general difficulty in appreciating mental states (Dimaggio, Attiná, Popolo, & Salvatore, 2012; Semerari et al., 2014). Lack of insight and unconscious processes may be especially crucial when reporting one’s own attachment style and childhood trauma. Thus, a clear limitation in this thesis is the use of self-report as the only measure of childhood experiences and attachment. Other studies have used longitudinal designs with additional informants like state registers, parents, and teachers (Children In the Community Study; Johnson et al., 2000; Uppsala Longitudinal Study; Bohlin & Hagekull, 2009), getting more reliable data.

Retrospective reports of early memories are vulnerable to reconstructive bias resulting from mood and personality, and to the processes of “forgetting.” Although certain specific traumatic events may stand out as unusual or extreme, abuse and neglect are often part of an ongoing pattern and may be stored as scripted or generic memories – recurring themes – more than details of the specific events. The CTQ attempts to elicit these scripted memories by asking respondents how often past events happened, rather than the details of traumatic memories (Bernstein & Fink, 1998). Moreover, underreporting is probably a larger threat to validity in retrospective reports than false-positive reports (Fergusson, Horwood, & Woodward, 2000; Widom & Morris, 1997; Widom & Shepard, 1996; Williams, 1994). The denial scale of the CTQ aimed to detect such false-negative reports. In this sample, eight patients scored on the denial scale, and only two had a full score. Still, no differences were detected when data were analyzed with and without these eight patients. In the present sample, patients received different types and lengths of psychotherapy, which may have influenced their ability to report on childhood trauma.
The discrepancy between information from CTQ and PBI is a limitation here but may be due to different methodology. CTQ asks for frequencies of different types of maltreatment whereas PBI asks how they perceive their parents’ behavior. The patient’s perception of their parent’s behavior might be influenced or distorted by their actual experiences with the parents.

An important question is whether it is possible to assess personality functioning reliably by self-report. The ability to report one’s own personality functioning is, of course, dependent on many factors like insight, social desirability, self-deceit, current symptoms, and treatment. Another possibility is to use shared variance based on peer and self-report data like Rodebaugh et al. (2010) did when they studied interpersonal problems in a student sample, or shared variance between therapist and self-report, or interviews. However, previous studies indicate that SIPP-118 has good concurrent and discriminatory validity, test–retest reliability (Andrea, 2007), and cross-national validity (Arnevik et al., 2009b). The reliability was good on all five domains and most facets (Arnevik et al., 2009b). It is not yet known to what extent SIPP-118 covers personality functioning in the AMPD of DSM-5. The interview assessing the level of personality functioning according to the Level of Personality Functioning Scale in the AMPD is under development and is not yet compared with SIPP-118. The LPFS interview was not available when the data in this thesis were collected.

### 6.3 Psychometrics of ECR in a sample of personality disorders

In paper III, we investigated the psychometric properties of the ECR in a clinical sample of individuals with mainly PDs. Additionally, two proposed short forms of ECR were analyzed. The main findings were as follows: 1) Confirmatory factor analyses at item level revealed poor fit to a two factor solution for the full ECR and the ECR-S, but the ECR-N12 indicated some potential for improvement. 2) Internal consistency of items comprising
Avoidance and Anxiety were good to excellent for all three versions, as indicated by Cronbach’s alpha. 3) Exploratory factor analysis of ECR revealed five factors, with low to moderate inter-correlations. Confirmatory factor analysis revealed a good model fit to the five factor solution based on 24 of the original 36 items. In the following, we will discuss these findings.

The high internal consistencies among the items of the ECR subscales, as measured by Cronbach’s alpha, were in accordance with several former studies of ECR. This agreement, however, was found to conceal two major concerns. First, they were representing multidimensionality, and second, many pairs of items were highly correlated paraphrases of each other. Thus, the assumptions for the use of Cronbach’s alpha, i.e., homogeneous scales with a similar mean co-variation, are not confirmed, and one should be careful about drawing inferences from these scale scores.

In accordance with Olssøn et al. (2010), we also found a poor model fit of the ECR-S. However, the ECR-N12 revealed a mediocre model fit, indicating some potential for improvement. The two short forms are somewhat different in their operationalization of avoidance and anxiety. In general, short forms are usually developed to assess the essence of variance related to the clinical constructs in question and are therefore prone to excluding other potentially important clinical information. Future revisions of the short forms thus should be guided thoroughly by more clearly stated domain-specific definitions of the constructs, as well as operationalizations by item compositions free of redundancies due to paraphrases. We recommend that the ECR-N12 be revised and improved to assess the constructs of Avoidance and Anxiety.

From the item pool of ECR, a five factor solution based on 24 items indicates potential for clinical utility that is far better than the two factor solution, in that the ECR-FF gives a more differentiated picture of attachment strategies. Our five factor model, ECR-FF, was
nearly identical to that reported by Olssøn et al. (2010) from their community sample. However, there is a possibility that the present five factors are highly sample dependent, and one should be careful generalizing the findings of this study to samples representing clinical features other than PDs.

Further exploration of the ECR-FF revealed good internal consistency of the scales, but not without some concerns: First, the scales were composed by a somewhat limited number of items given the aim to fully cover such a broad latent construct as indicated by their labels. Second, two items under ‘Separation frustration’ almost address the same aspect, with a highly significant correlation of 0.65. Third, two items under ‘Anxiety for abandonment’ are mere negations of each other, with a highly significant correlation of 0.68.

The diverse findings of Wei et al. (2007), Olssøn et al. (2010), and the current study suggest two things. First, the internal structure of ECR varies across community samples from the Hedemark county of Norway, undergraduate student samples from USA, and PD samples from Oslo in Norway. Second, somewhat surprisingly, the current study did not replicate the good model fit for ECR-N12 but nevertheless found the same factor structure of ECR based on exploratory analysis. Therefore, further investigation of the psychometric properties of ECR is warranted, especially in other community and clinical samples. If more firm documentation appears that ECR comprises five rather than two latent constructs, it may have potential for a more nuanced assessment of attachment avoidance and anxiety.

6.4 Clinical implications

The more severe and broader personality pathology and dysfunction in the patients with AvPD suggest that it is reasonable to continue classifying AvPD as a PD and that focusing treatment solely on social anxiety will probably be insufficient. Identity and relational problems should be assessed in clinical work with AvPD. Treatment programs for patients
with AvPD should address their identity problems regarding self-esteem and self-respect and their profound relational problems regarding mistrust with fear of abandonment, including problems with enduring relationships, intimacy, and cooperation. Indices from this study combined with the literature also suggest that emotional dysfunction in patients with AvPD seems to be an important area for therapy.

Treatment should take into account that many patients with AvPD and SP may have experiences of childhood neglect. Knowledge about their experiences of neglect and abuse could be crucial for understanding the basis of their identity and relational problems and for a good therapeutic attunement, helping them to stay in the therapeutic relationship long enough to foster self-acceptance.

The variation in attachment styles and severity of attachment problems within each diagnostic group indicates a need to assess attachment in individual patients. A patient’s attachment style will influence his/her way of relating to the therapist. Thus, these results are important to better understand the relational perceptions and expectations of patients with AvPD and SP and the possibility for a better attunement by the therapist. Our results indicate that patients with AvPD, despite their silence, emotional guardedness, and behavioral avoidance in social settings, may be longing for a trusting and accepting relationship. This possible longing is important to keep in mind when the therapist may feel rejected or confused by the patient’s avoidance strategies. For example, the therapist may be aware that their emotional guardedness and drop-outs of sessions could be a way of regulating strong, intolerable attachment anxiety. In this way, drop-outs may elicit empathy instead of irritation or other negative counter transferences by the therapist, and the patients may feel understood. It is my hope that these results may contribute to a better clinical understanding of patients with AvPD and SP.
Based on the psychometric findings, we will recommend that inferences should be drawn with care when the full 36-item ECR is used to assess the two constructs of avoidance and anxiety among patients with PDs.

### 6.5 Implications for further research

Many questions regarding the relationship between AvPD and SP remain to be addressed in future studies. Underlying dimensions other than social anxiety have not been studied and compared in pure groups of AvPD and SP and should be investigated. It is still unclear whether patients with concurrent AvPD and SP represent a more disabled and suffering group that the pure AvPD patients. There is a need for replication in larger samples with pure diagnostic groups. Moreover, studying affect regulation in patients with AvPD and SP may contribute to further elaboration of the complexity of the relationship between AvPD and SP.

Not much is known about emotional dysfunction in patients with AvPD, which should be an important area for further research.

The pathways to specific disorders are complex, and more studies with other methods and designs are needed to increase our knowledge about the relationship among childhood experiences, temperament, and personality dysfunction in subjects with AvPD and SP. More epidemiological and longitudinal studies in these areas are welcomed.

Whether AvPD patients without the strong anxiety component inherent in SP differ from those with co-occurring SP in levels of attachment anxiety is an interesting topic for future research. Also, the extent of attachment-related avoidance and dismissiveness in patients with SP and AvPD seems unclear and should be studied further. Future research should use other methods, such as the AAI, to elaborate on similarities and differences in attachment between these disorders, including more unconscious aspects of avoidance. If the
finding is replicated that fear of attachment is associated with AvPD, it may have implications for future revisions of the diagnostic criteria for AvPD.

Because the multidimensionality of ECR seems to capture different aspects of avoidance and anxiety beyond just two scale scores, further studies are needed to investigate the validity of ECR-FF, especially among different clinical samples.

There is surprisingly little research into treatment for AvPD given the prevalence, personal burden, and socioeconomic consequences of the disorder. Above all, it is my hope that the findings in this thesis will contribute to increased knowledge about AvPD and stimulate research in treatment for these patients, and that future treatment will bring a better prognosis for patients with AvPD. There is a huge need for more research and development of treatment methods for this patient group.

7 GENERAL CONCLUSIONS

The results from the present thesis suggest that AvPD involves more severe and broader areas of personality dysfunction than SP regarding the core aspects of personality functioning, i.e., in the identity and relational domains. The more severe impairment in self- and relational functioning in patients with AvPD supports AvPD as a Personality Disorder in accordance with DSM-5.

Furthermore, the experience of neglect in childhood could be a risk factor for both adult AvPD and SP, but most pronounced for AvPD. These findings highlight the potential toll that not being seen, taken care of, and protected during childhood may have on adult mental health. Childhood neglect may be part of the relational histories woven into the identity, self-esteem, and interpersonal patterns of patients with AvPD and may contribute to different degrees of personality dysfunction in patients with AvPD and SP.
The present findings also indicate that there is a large variation in severity of attachment problems in patients with AvPD and SP and that both SP and AvPD diagnoses could be associated with attachment insecurity. However, patients with AvPD may experience more anxiety in close relationships, especially regarding fear of being abandoned. AvPD may also be associated with the co-existence of a strong longing for but an intense fear of close relationships.

The psychometric study of ECR in a sample of patients with PDs suggests that inferences from scale scores based on ECR in such samples should be derived with considerable care. Moreover, the variance of the ECR items seems to be accounted for by five rather than two latent constructs and may have the potential for a more nuanced assessment of attachment-related avoidance and anxiety. The concept of attachment refers to complex phenomena that may be difficult to assess. Self-reports are obviously time- and cost-saving. Hence, despite some limitations, ECR could be a useful tool for assessing adult attachment.
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Table 1: DSM-IV defines Avoidant Personality Disorder as meeting four or more of the following criteria:

1. Avoids occupational activities that involve significant interpersonal contact because of fears of criticism, disapproval, or rejection
2. Is unwilling to get involved with people unless certain of being liked
3. Shows restraint within intimate relationships because of the fear of being shamed or ridiculed
4. Is preoccupied with being criticized or rejected in social situations
5. Is inhibited in new interpersonal situations because of feelings of inadequacy
6. Views self as socially inept, personally unappealing, or inferior to others
7. Is unusually reluctant to take personal risks or engage in any new activities because they may prove embarrassing
Table 2: DSM-IV inclusion criteria for Social Phobia

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 lead to humiliation or embarrassment.

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.

C. The person recognizes that the fear is excessive or unreasonable.

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 or relationships, or there is marked distress having the phobia.
Table 3. Personality Functioning, according to DSM-5 AMPD

<table>
<thead>
<tr>
<th>SELF</th>
<th>INTERPERSONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identity</strong></td>
<td><strong>Empathy</strong></td>
</tr>
<tr>
<td>Has ongoing awareness of a unique self; maintains role-appropriate boundaries</td>
<td>Is capable of accurately understanding others’ experiences and motivations in most situations</td>
</tr>
<tr>
<td>Has consistent and self-regulated positive self-esteem, with accurate self-appraisal</td>
<td>Maintains multiple satisfying and enduring relationships in personal and community life</td>
</tr>
<tr>
<td>Is capable of experiencing, tolerating, and regulating a full range of emotions</td>
<td>Comprehends and appreciates others’ perspectives, even if disagreeing</td>
</tr>
<tr>
<td>Can reflect on, and make constructive meaning of, internal experience</td>
<td>Desires and engages in a number of caring, close, and reciprocal relationships</td>
</tr>
<tr>
<td><strong>Self-Direction</strong></td>
<td><strong>Intimacy</strong></td>
</tr>
<tr>
<td>Sets and aspires to reasonable goals on a realistic assessment of personal capacities</td>
<td>Is aware of the effect of own actions on others</td>
</tr>
<tr>
<td>Utilizes appropriate standards of behavior, attaining fulfillment in multiple realms</td>
<td>Strives for cooperation and mutual benefit and flexibly responds to a range of others’ ideas, emotions, and behaviors</td>
</tr>
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Table 4. Sociodemographic characteristics of the patients with Social Phobia (SP) without Avoidant Personality Disorder (AvPD); Pure-SP group; AvPD without SP, Pure-AvPD group; and the AvPD+SP group

<table>
<thead>
<tr>
<th></th>
<th>Pure-SP n=20</th>
<th>Pure-AvPD n=15</th>
<th>SP+AvPD n=56</th>
<th>F/ $\chi^2$</th>
<th>Group difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (% female)</td>
<td>50</td>
<td>53</td>
<td>73</td>
<td>4.53</td>
<td>ns</td>
</tr>
<tr>
<td>Age (years)</td>
<td>38.4 (12.6)</td>
<td>42.47 (9.6)</td>
<td>36.04 (9.0)</td>
<td>2.53</td>
<td>ns</td>
</tr>
<tr>
<td>Married/cohabiting (%)</td>
<td>50</td>
<td>47</td>
<td>38</td>
<td>0.985</td>
<td>ns</td>
</tr>
<tr>
<td>Education after jr secondary school (y)</td>
<td>4.4 (3.0)</td>
<td>3.8 (3.0)</td>
<td>4.0 (3.3)</td>
<td>0.143</td>
<td>ns</td>
</tr>
<tr>
<td>Age at first contact psych. services (y)</td>
<td>26.7 (9.1)</td>
<td>26.9 (9.3)</td>
<td>27.0 (10.8)</td>
<td>0.006</td>
<td>ns</td>
</tr>
<tr>
<td>Quality of life</td>
<td>3.9 (1.4)</td>
<td>3.7 (1.4)</td>
<td>3.9 (1.5)</td>
<td>0.066</td>
<td>ns</td>
</tr>
<tr>
<td>50–100% occupation (%)</td>
<td>60</td>
<td>40</td>
<td>26</td>
<td>7.49</td>
<td>SP*&gt; SP+AvPD</td>
</tr>
</tbody>
</table>

*Pearson Chi-squared, p<0.01, $\eta^2=0.32$
Abstract

Objectives
Avoidant personality disorder (AvPD) and social phobia (SP) are common disorders both in the community and in clinical settings. Whether the two disorders represent different severity levels of social anxiety disorder is currently in dispute. The relationship between AvPD and SP is probably more complex than previously assumed. Several environmental, temperamental, and constitutional factors may play a role in the etiology of AvPD and SP. Better knowledge about childhood experiences may shed light on similarities and differences between the two disorders. The aim of this study was to compare self-reported childhood experiences in AvPD and SP patients.

Design
This is a cross-sectional multi-site study of 91 adult patients with AvPD and/or SP. We compared patients with AvPD with and without SP (AvPD group) to patients with SP without AvPD (SP group).

Methods
The patients were examined using structured diagnostic interviews and self-report measures, including Child Trauma Questionnaire, Parental Bonding Instrument, and Adult Temperament Questionnaire.

Results
Both AvPD and SP were associated with negative childhood experiences. AvPD patients reported more severe childhood neglect than patients with SP, most pronounced for physical neglect. The difference between the disorders in neglect remained significant after controlling for temperamental factors and concurrent abuse.
Conclusions

The study indicates that childhood neglect is a risk factor for AvPD and may be one contributing factor to phenomenological differences between AvPD and SP.

Introduction

Avoidant personality disorder (AvPD) and Social phobia (SP) are common disorders both in the general population and in clinical settings [1–5]. There is an ongoing debate regarding whether AvPD and SP are different disorders, or just reflect different degrees of social anxiety disorder (SAD) [6–10]. The introduction of the diagnostic specifier generalized SP (GSP) in the revised third edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM-III-R) [11], defining GSP as fears in most social situations, has brought the diagnostic constructs even closer together. A vulnerable temperament combined with early environmental risk factors are suggested etiological factors in the development of both AvPD and SP [12–14]. In a large study of female twins Reichborn-Kjennerud et al. [15] found that AvPD and SP were influenced by the same genetic factors, while the environmental factors influencing the two disorders were uncorrelated and unique to each disorder. So far, however, our knowledge of environmental influences associated with the two disorders is sparse. We wanted to compare self-reported childhood experiences for patients with AvPD and SP to shed further light on the relationship between the two disorders.

In the DSM-IV [16] AvPD is defined as a pervasive pattern across time and situations, starting in early adulthood, and characterized by social inhibition, feeling of inadequacy and hypersensitivity to negative evaluation, indicated by at least four of seven explicit criteria (Table 1). Social Phobia is defined as a marked and enduring anxiety for one or more social situations in which the person is exposed to or observed by unknown people. The person fears to do something or behave in a way that will be humiliating or embarrassing, and avoids the situations, or endures the situations with intense anxiety or distress. AvPD has primarily been studied in samples of SP [10]. These studies have documented a quantitative severity continuum with an increasing gradient of symptoms and psychosocial dysfunctioning from simple SP, via GSP to GSP with AvPD. Based on these findings a continuum hypothesis has been proposed, suggesting that SP and AvPD represent different conceptualizations of the same disorder, merely differing in degree of severity [10]. Only few studies have included a “pure” AvPD group without SP [1, 2, 17]. The discussion whether AvPD and SP is the same disorder, is part of a larger debate of the relationship between clinical disorders on Axis I and PDs on Axis II, see Kreuger, 2005 [18] and Dimaggio et al 2013 [19]. The discussion parallels the debate on schizophrenia.

Table 1. DSM-IV diagnostic criteria for AvPD.

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<td>1.</td>
<td>Avoids occupational activities that involve significant interpersonal contact because of fears of criticism, disapproval, or rejection</td>
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<td>2.</td>
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<td>6.</td>
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<td>7.</td>
<td>Is unusually reluctant to take personal risks or engage in any new activities because they may prove embarrassing</td>
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doi:10.1371/journal.pone.0122846.t001
like symptoms, affective instability, impulsivity and depressive symptoms across Axis I and II, for instance the proposal to categorize Borderline PD as a bipolar spectrum disorder [20, 21].

In a review of environmental risk factors for SAD, Brook & Schmidt [12] found studies of four areas: parenting and family environment, adverse life events, socioeconomic status and culture, and gender. The authors conclude that “research has successfully correlated parenting as a small but integral part of the mechanism in developing SAD”, and points to an interrelated multi-faceted process of environmental risk and resilience factors in development of the disorder [12]. More recently in the study of Kuo, Goldin, Werner, Heimberg, & Gross [22] individuals with GSP reported greater childhood emotional abuse and neglect, but not more sexual abuse, physical abuse, or physical neglect, compared with healthy controls, pointing to the less dramatic and more subtle maltreatment as a possible risk factor in the development of GSP. Like for most studies of SP or SAD, co-morbidity with AvPD was not controlled for. Moreover, like most studies on childhood trauma, the relative contribution of neglect and abuse was not investigated. We wanted to elaborate on these findings, by including AvPD and examine the relative contribution of abuse and neglect, and even temperament.

Childhood trauma and parental maltreatment are also well documented as risk factors for adult PD in general, in both prospective and retrospective studies [23–26]. Johnsen et al. [24] found that individuals with documented childhood abuse or neglect were four times as likely as those who were not abused or neglected, to be diagnosed with PDs during early adulthood. Childhood emotional neglect was associated with increased risk of several PDs, including AvPD [27].

So far, few studies have focused specifically on AvPD and childhood experiences. However, in a large clinical study Rettew et al. [28] found that patients with AvPD reported more physical and emotional abuse during childhood compared to patients with major depression, but this result was influenced by comorbid diagnoses. In a large outpatient sample in Shanghai, self-reported experience of childhood emotional neglect was associated with adult cluster C PDs (avoidant, dependent, and obsessive-compulsive PD) [26]. Joyce et al. [13] found that self-reported childhood neglect predicted AvPD in a sample of depressed outpatients. Moreover, in an early, small retrospective study, Arbel and Stravynski [29] found that the main features differentiating adult AvPD patients from healthy controls were the perception of a discouraging home climate with less parental demonstration of love and pride in the child, and a perception of their parents as shaming, guilt-engendering, and intolerant.

Abuse refers to maltreatment, harmful behavior, and non-accidental injury from an adult person directed toward the child, while neglect refers to the failure of caretakers to provide a child’s basic psychological or physical needs [30]. Generally, childhood neglect has received less empirical attention than childhood abuse [31]. In clinical settings the experience of neglect in childhood may be overshadowed by dramatic histories of maltreatment and abuse. However, parental abuse and neglect can co-occur in dysfunctional families, making it difficult to disentangle specific consequences of the various types of maltreatment that the child may suffer [32]. At present little is known about the unique contribution of neglect to adult psychopathology more generally, and to AvPD as compared with SP specifically.

Parental behavior has also been studied with the Parental Bonding Instrument (PBI) [33], which aims to collect relevant retrospective information of childhood experiences. A combination of low scores on the two subscales care and control is called the neglectful parenting pattern, which was found to be the dominating pattern in a small sample of patients with AvPD [34]. However, when Joyce et al. [13] found neglect to be associated with AvPD, they operationalized neglect as low scores on the care dimension only. A combination of low scores on the care and high scores on the control subscales is called the cold control pattern, which has been
associated with many kinds of adult psychopathology [35–37]. The cold control pattern might also be among the risk factors for SAD [12, 38, 39].

Maltreatment probably interacts with temperamental factors to influence personality development and risk of psychiatric symptoms [13]. Rothbart and Derryberry [40] define temperament as constitutionally based individual differences in emotional, motor, and attentional reactivity and regulation. Temperament is influenced by experience, and in turn influences experience, and is gradually transformed and integrated into our adult personality [41]. Shyness has been proposed as a temperament trait in both SAD and AvPD. However, Prior, Smart, Sanson, and Oberklaid [42] found only modest relation between childhood shyness and adolescent anxiety disorder in a longitudinal, community study. Most shy children did not develop an anxiety disorder, and most adolescents with anxiety disorders had not been especially shy. Nevertheless, other studies of both epidemiological and clinical samples suggest that both AvPD and SP are associated with the temperamental factor "behavioral inhibition", which is characterized by avoidance of strangers and novelty, shyness, heightened sensitivity and anxiety reactivity [43–45]. Thus, these disorders seem to have some temperamental dispositions in common, but temperamental manifestations could still be present in various degrees.

Taken together, some studies indicate that both AvPD and SP are associated with various types of childhood maltreatment. Most notable, however, no studies have made a direct comparison of childhood environmental factors between the disorders.

In clinical samples, many patients with AvPD have a co-occurring SP diagnosis [10]. Also in this sample the two diagnoses were concurrent in most patients. As we wanted to focus on AvPD, we divided the patients into two diagnostic groups: patients with AvPD with or without SP (the AvPD group) and patients with SP without AvPD (the SP group). This choice was supported by previous findings in a large clinical PD sample [17], partially by the results of an epidemiological study [1], as well as a previous study of the present sample [7] suggesting that SP in subjects with AvPD does not add to the overall severity of the condition.

The aim of the present study was to investigate similarities and differences between the two diagnostics groups in self-reported childhood experiences. Based on previous research we expected that 1) Patients in the AvPD group will report more severe childhood maltreatment than patients in the SP group as assessed by CTQ. 2) We further explored the relationship between the diagnostic groups and childhood maltreatment when taking into account the presence of different trauma. 3) Moreover, we expected that the AvPD group will more often report a neglectful parenting style compared with the SP group, measured by PBI, whereas the groups will not differ in rates of a cold control parenting style. 4) Finally, we hypothesized that differences in environmental factors will remain significant when controlling for temperament.

**Methods**

**Settings**

This cross-sectional multi-site study was conducted by the Vestfold Hospital Trust and included 91 adult patients with AvPD and/or SP. Exclusion criteria were cluster A or B PDs, current alcohol or substance dependence, psychotic disorders, bipolar I disorder, adult attention deficit hyperactivity disorder (ADHD), pervasive development disorders (e.g., Asperger’s syndrome), organic syndromes, and homelessness. Twenty-five of the included patients were selected using baseline data from the Ullevål Personality Project (UPP) [46]. The other 66 patients were recruited by their therapists, regardless of time in therapy, from seven treatment centers specialized in treating PDs or anxiety disorders. The recruitment of these patients was based on the therapist’s diagnostic screening and evaluation, and inclusion was decided after the diagnostic research interviews. Seventy-two patients were recruited. Six patients were excluded: five
because the research interviews revealed diagnoses of alcohol dependence \((n = 2)\), adult ADHD \((n = 2)\), and borderline PD \((n = 1)\); and one patient dropped out before completing the interviews. Study participation was voluntary, and all patients provided informed written consent before inclusion. The study was approved by the Norwegian Social Science Data Service and the Regional Committee for Medical Research Ethics.

Assessments

**Axis I and axis II diagnoses.** Axis I diagnoses were based on the Mini International Neuropsychiatric Interview for Axis I diagnoses (MINI) [47]. The Structured Clinical Interview for the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) was used to assess personality disorders (SCID-II) [48]. Trained and experienced clinicians conducted the interviews. All patients with SP were asked to describe examples of SP-related problems from their lives, which were used along with other information to evaluate whether they had simple or generalized SP. All interviews were audiotaped. An independent, blind, and experienced psychiatrist rated the diagnostic interviews of 26 randomly selected patients. Although there was 85% agreement regarding the presence or absence of SP, there were too few patients without SP to compute Kappa for SP. Kappa for AVPD was 0.76. The intraclass correlation (ICC 2.1) was 0.86 (95% CI: 0.71–0.93) for the number of avoidant criteria and 0.89 (95% CI: 0.75–0.95) for the total number of PD criteria, indicating satisfactory diagnostic reliability.

**Childhood trauma.** Child trauma was assessed using the Childhood Trauma Questionnaire (CTQ) a 44-item self-report inventory that provides brief screening for histories of abuse and neglect, and has shown good reliability and validity [49, 50]. Items are scored on a 5-point Likert scale from 1 (never true) to 5 (very often true). Items scored are summed on 5 different subscales: emotional, physical, and sexual abuse; and physical and emotional neglect. Emotional abuse refers to verbal assaults on a child’s sense of worth or well-being, or any humiliating, demeaning, or threatening behavior. Physical abuse includes descriptions of bodily assaults that pose a risk of or result in injury. Sexual abuse describes sexual contact or conduct. Emotional neglect refers to lack of love, encouragement, belonging, and support. Physical neglect refers to lack of food, shelter, safety, supervision, and health. It is not unusual to underreport childhood trauma [51] and CTQ therefore includes a 3-item denial/minimization scale to detect false negative trauma reports. In this sample, eight patients scored on the denial scale. Still, no differences were detected when data were analyzed with and without these eight patients. The raw scores of the five CTQ subscales are not comparable and have different cut-off thresholds. Raw scores were therefore converted into classifications of four levels of severity based on validation studies in normal and psychopathological samples [30]: “absent to minimal” (level 1), “low to moderate” (level 2), “moderate to severe” (level 3), and “severe to extreme” (level 4). We used these four levels of severity to harmonize the subscales. Thereby we were able to compute a composite neglect score based on the average classification of severity (1–4) of emotional and physical neglect. Likewise, we computed a composite abuse score from the three abuse subscales: emotional abuse, physical abuse and sexual abuse. The correlation between physical and emotional neglect was not significant. Emotional abuse correlated moderately with both physical \(r = .443\) and sexual abuse \(r = .372\) whereas the correlation between sexual and physical abuse was non-significant. This led us to conclude that colinearity did not prohibit the construction of the composite scores.

**Perceived parental behavior.** Perceived parental behavior was assessed by the 25-item Parental Bonding Instrument (PBI) self-report questionnaire [52]. The items are scored on a 5-point Likert scale from 1 (very likely) to 5 (very unlikely), based on perceived parental
behavior before the age of 16 years. Usually two subscales are computed for each parental figure: care/affection and overprotection/control. Combination of the two subscales generates four parental styles: optimal bonding (high care, low overprotection); affectionate constraint (high care, high overprotection); affectionless control, also called cold control (low care, high overprotection); and neglectful parenting (low care, low overprotection). Cut-off scores for high and low care and overprotection were computed based on normative data [33]. The respective cut-off scores are 27 and 24 for maternal and paternal care, and 13.5 and 12.5 for maternal and paternal control. We used these cut-offs to compute the four patterns (Fig. 1).

Temperament. The short form of the Adult Temperament Questionnaire (ATQ) [41] was used to assess temperament. The ATQ is a self-report questionnaire that consists of 77 items rated on a 7-point Likert scale and includes four factor scales: effortful control, negative affect, extraversion, and orienting sensitivity. Good internal consistency was reported in a sample of
258 undergraduate students, with Cronbach’s alpha of 0.78, 0.81, 0.75, and 0.85 for effortful control, negative affect, extraversion, and orienting sensitivity, respectively [53]. The same level of internal consistency was observed for the Norwegian version of the ATQ in the UPP sample, with Cronbach’s alphas of 0.82 for effortful control, 0.81 for negative affect, 0.73 for extraversion, and 0.81 for orienting sensitivity [Urnes et al., unpublished data].

Participants
The 91 patients had a mean age of 37.6 years (SD = 10.2); 65% were female, 44% were married or cohabiting, and they had an average of four years of education after junior secondary school (SD = 3.2). The mean age at first contact with psychiatric services was 26.9 years (SD = 10.1), and the average time interval between the first contact and the present treatment was 12 years. The sample was divided into two groups, the AvPD group (AvPD with and without SP; n = 71) and the “pure” SP group (SP without AvPD; n = 20). Eighteen patients in the SP group (90%) had generalized SP, two had simple SP. There were no differences in socio-demographic characteristics between the two groups, except that only 29% of patients in the AvPD group were working half-time or more, compared with 60% in the SP group (p = 0.011; Table 2). The AvPD group also had more Axis I or “symptom disorders” (p = 0.029) and a greater number of total PD criteria than the SP group (p < 0.001). More details are provided in a previous publication [7].

Statistics
Background demographic and clinical variables were analyzed using t-tests and the chi-squared test for continuous and categorical variables, respectively. We compared the AvPD group and the SP group, applying analysis of variance (ANOVA) for the continuous variables of the CTQ, ATQ, and PBI. Because skewed distributions of the separate abuse subscales of the CTQ precluded the use of parametric methods, the Mann-Whitney-U test was used. To analyze the unique contribution of the variables showing significant group differences in the ANOVAs, follow-up covariance analyses (ANCOVAs) were performed controlling for the effects of these possible confounding variables. We used $\eta^2$ and $r^2$ as measures of effect size for the normal

### Table 2. Socio-demographic and clinical characteristics of patients with AvPD$^a$ (n = 71) and SP$^b$ (n = 20).

<table>
<thead>
<tr>
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<th>AvPD</th>
<th>SP</th>
<th>t(df) or $\chi^2$(df)</th>
<th>p</th>
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<tr>
<td>Female, %</td>
<td>69</td>
<td>50</td>
<td>2.47(1)</td>
<td>0.116</td>
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<td>Age, years</td>
<td>37.4 (9.4)</td>
<td>38.4 (12.6)</td>
<td>0.33 (25)</td>
<td>0.743</td>
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<tr>
<td>Married/Cohabiting, %</td>
<td>40</td>
<td>50</td>
<td>0.64 (1)</td>
<td>0.452</td>
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<td>Education after primary school, years</td>
<td>3.9 (3.3)</td>
<td>4.4 (3.0)</td>
<td>0.53 (88)</td>
<td>0.601</td>
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<tr>
<td>Age at first contact psych. services, years</td>
<td>26.9 (10.4)</td>
<td>26.7 (9.1)</td>
<td>0.11 (88)</td>
<td>0.910</td>
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<td>Quality of life</td>
<td>3.9 (1.5)</td>
<td>3.9 (1.4)</td>
<td>0.15 (89)</td>
<td>0.883</td>
</tr>
<tr>
<td>50–100% Occupation, %</td>
<td>29</td>
<td>60</td>
<td>6.47 (1)</td>
<td>0.011</td>
</tr>
<tr>
<td>Number of symptom disorders</td>
<td>3.1 (1.2)</td>
<td>2.5 (.89)</td>
<td>2.22 (89)</td>
<td>0.029</td>
</tr>
<tr>
<td>Total number of PD criteria</td>
<td>12.5 (3.99)</td>
<td>6.8 (2.69)</td>
<td>7.55 (45.2)</td>
<td>0.000</td>
</tr>
<tr>
<td>Work and social adjustment score</td>
<td>24.2 (69)</td>
<td>19.1 (9.3)</td>
<td>2.68 (88)</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Data are presented as mean (SD) unless otherwise noted.

$^a$ The AvPD group comprised patients with AvPD with and without co-occurring SP.

$^b$ The SP group comprised patients with SP without AvPD.

doi:10.1371/journal.pone.0122846.t002
and the skewed distributed data respectively. The alpha level was set at \( p < 0.05 \). Some statistically trends are reported due to the small sample size and risk of type II errors.

**Results**

In line with our first hypothesis, the AvPD group had significantly higher scores on physical neglect, as well as on the composite neglect variable, compared with the SP group (\( p = 0.003 \) and \( p = 0.007 \), Table 3). Emotional neglect trended higher in the AvPD group (\( p = 0.061 \)). However, contrary to our expectations, there were no significant differences in emotional, physical, or sexual abuse between the groups although there was a trend toward more abuse in the AvPD group, measured by the more robust composite abuse variable (\( p = 0.069 \)), Table 3.

Exploration of the relative contribution of neglect and abuse revealed that the AvPD-related difference in the composite neglect remained significant when controlling for physical abuse (\( F = 6.33, \ p = 0.014, \ Eta^2 = 0.068 \), sexual abuse (\( F = 6.63, \ p = 0.012, \ Eta^2 = 0.071 \), and emotional abuse (\( F = 5.61, \ p = 0.020, \ Eta^2 = 0.061 \)) by ANCOVA (df: 2, 91). Each of the abuse variables was also significantly related to neglect: physical abuse (\( F = 9.20, \ p = 0.003, \ Eta^2 = 0.096 \); sexual abuse (\( F = 5.56, \ p = 0.021, \ Eta^2 = 0.060 \); and emotional abuse (\( F = 29.45, \ p = 0.000, \ Eta^2 = 0.25 \)).

Contrary to our hypothesis, there were no between-group differences in the distribution of the four categories of parenting patterns of the PBI when analyzed by a Chi Square test of the 4

| Table 3. Clinical Characteristics of Patients with AvPD\(^a\) (n = 71) and SP\(^b\) (n = 20). |
|-------------------------------------|-------------------------------------|-----------------|-----------------|
|                                    | AvPD (SD)/ Mdn (I-R)\(^c\)         | SP (SD)/ Mdn (I-R)\(^c\) | \( P \)          | Effect size \( Eta^2 \)/\( r^2 \) |
| -----------------------------------|------------------------------------|--------------------------|-----------------|
| **CTQ**                            |                                    |                           |                 |                             |
| Emotional abuse                    | 11.00 (8) *                        | 10.00 (6) *               | .144            | .023 \(^d\)                |
| Physical abuse                     | 5.00 (1) *                         | 5.00 (1) *                | .668            | .002 \(^d\)                |
| Sexual abuse                       | 6.00 (4) *                         | 5.50 (2) *                | .354            | .009 \(^d\)                |
| Composite Abuse Class\(^d\)       | 1.9 (0.8)                          | 1.6 (0.6)                 | .089            | .037                        |
| Emotional neglect                  | 16.0 (4.2)                         | 13.7 (5.2)                | .061            | .039                        |
| Physical neglect                   | 8.3 (3.2)                          | 6.7 (1.6)                 | .003            | .050                        |
| Composite Neglect Class\(^d\)     | 2.8 (0.7)                          | 2.3 (0.7)                 | .007            | .081                        |
| **PBI**                            |                                    |                           |                 |                             |
| Mother care                        | 17.7 (9.5)                         | 19.8 (7.7)                | .363            | .010                        |
| Mother control                     | 17.4 (7.8)                         | 17.6 (8.7)                | .899            | .000                        |
| Father care                        | 14.9 (8.2)                         | 16.2 (7.7)                | .568            | .004                        |
| Father control                     | 14.5 (7.4)                         | 14.1 (5.9)                | .807            | .001                        |
| **ATQ**                            |                                    |                           |                 |                             |
| Negative Affect                    | 4.9 (0.7)                          | 4.4 (0.8)                 | .010            | .072                        |
| Extraversion                       | 3.2 (0.8)                          | 3.6 (0.9)                 | .078            | .034                        |
| Effortful Control                  | 4.1 (0.8)                          | 4.3 (0.7)                 | .259            | .014                        |
| Orienting sensitivity              | 4.3 (0.8)                          | 4.2 (0.7)                 | .484            | .006                        |

\(^a\) The AvPD group comprised patients with AvPD with and without co-occurring SP.

\(^b\) The SP group comprised patients with SP without AvPD.

\(^c\) Score range: 5 (no) to 25 (extreme).

\(^d\) Score range: 1 (none or minimal) to 4 (severe to extreme).

\(^e\) \( Mdn = \) Median; \( I-R = \) Interquartile Range.

\(^f\) \( r^2 = \left( \frac{z}{\sqrt{p}} \right)^2 \).

\( p \) values indicate statistical significance.

\( Eta^2 \) and \( r^2 \) values indicate effect size.

\( df \) for all analyses is 2, 91.

\( \text{doi:10.1371/journal.pone.0122846.t003} \)
Neither were there any differences in the dimensional scales care nor control between the groups. The great majority in both groups reported their parents to be low on care (80% of mothers and 86% of fathers in the AvPD group, and 74% of mothers and 89% of fathers in the SP group).

Scores on the ATQ factor negative affect were higher \((p = 0.010)\) among patients in the AvPD group, compared with the SP group and extroversion trended lower \((p = 0.078)\) in the AvPD group, Table 3. To determine whether difference in the composite neglect was significant when controlling for these differences in temperament, we used the composite neglect score as dependent variable: In agreement with the last hypothesis, the AvPD-related difference in neglect remained significant when we controlled for the temperamental factors by ANCOVA \((df = 2, 91; \text{controlling for extroversion}: F = 6.99, p = 0.010, \eta^2 = 0.074; \text{controlling for negative affect}: F = 5.27, p = 0.024, \eta^2 = 0.057)\). Neither extroversion nor negative affect was significantly related covariates of the composite neglect score.

**Discussion**

The main finding of the present study was that AvPD was associated with more self-reported neglect as compared with SP. This result is partially in agreement with retrospective findings that emotional neglect was predictive of cluster C PDs [26] and prospective findings that it was predictive of AvPD [27]. The difference between the diagnostic groups was most pronounced for physical neglect, though. Notably, the AvPD-related difference in neglect remained significant when we controlled for child abuse as well as temperamental differences. Thus, the results suggest that the often less dramatic or silent maltreatment experiences of emotional and physical neglect might be risk factors for adult AvPD over and above the effects of both abuse experiences and temperamental dispositions.

Neglect is generally defined as the absence of protection, care, and positive attention (i.e., the parents are physically present, but do not attend to the child). No doubt, neglect is potentially a very harmful experience for a child and the psychological consequences are probably manifold. From the child’s perspective, his or her physical and emotional needs may be perceived as irrelevant or too much trouble for the parents. It is easy to understand that a child who is not given attention, care, and protection within the attachment relationship might develop assumptions that one is not of interest to others or not worthy of being loved. Correspondingly, neglect may interfere with the child’s development of perceptions of others as safe sources of comfort, support, and reassurance. Such experiences could be integrated in the personality as more permanently disturbed representations of self and others characteristic for this form of personality pathology. In instances of more severe neglect even basic affect regulation and self-coherence may be affected. Moreover, individuals with a negative self-image and lack of interpersonal trust tend to relate to others in maladaptive ways. For example, they may not ask for others opinions or involvement regarding their personal issues, because of expectations of others as not interested or critical to their needs. Also, close relationships may evoke inherent negative self-views causing defensive avoidance of social contact. Others may interpret this behavior as expressing no need or wish for their involvement, or even as arrogant, giving rise to even more interpersonal distance. Thus this interpersonal pattern may reinforce itself in a vicious circle confirming their assumptions and increasing their loneliness.

The described patterns are in line with the self-other pattern described in the DSM-5 regarding AvPD [54]. According to the alternative model for PDs in DSM-5, Section III, a defective self as well as relational dysfunction is at the core of PDs [54, 55]. In a previous study of the present sample, patients with AvPD exhibited more impairment in self and relational functioning than those with SP [7]. One hypothesis, then, is that different levels of childhood
maltreatment is one of the factors underlying such differences in personality functioning. In the presence of common constitutional dispositions for AvPD and SP [13], the experience of more severe childhood neglect may be a factor that drives personality development towards avoidant personality pathology [13]. It is important to recognize, however, that a child’s temperamental make-up may have a bidirectional effect, i.e. exert a certain influence on the parents’ child-rearing behavior, and at the same time render the child more vulnerable to specific responses from the caregivers. Maltreatment probably affects children differently, and interacts with both constitutional and environmental risk and resilience factors. For example, temperamental factors may render a person more vulnerable to developing AvPD or SP if they are exposed to neglect or abuse, and also more at risk for being neglected or abused. Thus, the pathways to specific disorders are complex and more studies are needed to increase our knowledge of the relationship between childhood experiences, temperament, and personality dysfunctioning in subjects with AvPD and SP.

The severity level of the mean score for emotional neglect was in the moderate-to-severe range in the AvPD group and in the low-to-moderate range in the SP group. For physical neglect, the severity level was in the low-to-moderate range in the AvPD group and in the none-to-minimal range in the SP group. Interestingly, based on visual comparison of our data with a Spanish sample in which the CTQ was applied to patients with borderline PD (BPD), other PDs, and non-psychotic axis I disorders [23], our AvPD group seems to have higher neglect scores than the BPD group, and our SP group resembles the same level as the BPD group. Compared with a sample of incarcerated boys in the Netherlands also using CTQ [32], our groups seems to exhibit more severe scores on neglect and emotional abuse, similar scores on sexual abuse, and somewhat milder scores on physical abuse. Thus, the level of self-reported neglect in our AvPD group was substantial.

In contrast to the results based on the CTQ, no between-group differences were detected regarding the PBI. According to the PBI scores, low care and high control (i.e., the cold control pattern) was frequent in both groups. The fact that the PBI did not differentiate between the disorders in this sample is in agreement with other studies. The dimensions assessed by the PBI might represent non-specific vulnerability factors for psychopathology across various psychiatric disorders [56]. On the other hand, it might also be due to methodological variations. CTQ asks for frequencies of different type of maltreatment, whereas PBI asks how they perceive their parents behavior. The patient’s perception of their parent’s behavior might be influenced or distorted by their actual experiences with the parents.

A main strength of the study was the direct comparison of environmental risk factors in terms of childhood experiences between AvPD and SP. We also took into account temperamental differences between the disorders. Moreover, it is a clinical study with impaired patients with fully developed disorders. The SP group consisted mainly of patients with GSP, potentially making it even harder to detect any differences in comparison with AvPD. However, the results should be interpreted in light of some notable limitations. The small sample size, especially in the SP group, increased the risk of type II errors. Also, few patients with AvPD without co-occurring SP in this sample precluded a comparison of pure diagnostic groups though, a fact that might moderate or camouflage possible differences. Thus, there is a need for replication in larger samples with pure diagnostic groups. The patient sample comprised chronically poorly functioning patients [7]. Excluding patients with cluster A and B PDs further limited the representativeness of the sample. Thus, the results may not be generalized to a broader psychiatric population. Despite these limitations, we detected significant and clinically meaningful differences between the groups. The lack of standardized assessment of simple SP versus GSP (e.g. MINI plus) is another limitation. However, we compensated by systematically asking patients to give examples of the extent of their social anxiety, and then we made a general evaluation of
all available information. Further, it should be mentioned that age at the time of maltreatment was not taken into account in this study, i.e., the CTQ asks for the frequency of experiences before 16 years of age. However, the potential damage of childhood neglect and abuse is likely more severe at younger ages and during particular sensitive developmental stages.\textsuperscript{57, 58}

Self-report of childhood trauma is another major limitation. Retrospective reports of early memories are vulnerable to reconstructive bias resulting from mood and personality, and to the conscious and unconscious processes of "forgetting". Although certain specific traumatic events may stand out as unusual or extreme, abuse and neglect are often part of an ongoing pattern, and may be stored as scripted or generic memories—reoccurring themes, more than details of the specific events. The CTQ attempts to elicit these scripted memories by asking respondents how often past events happened, rather than the details of traumatic memories.\textsuperscript{30} Moreover, underreporting is probably a larger threat to validity in retrospective reports than false positive reports.\textsuperscript{59} The denial scale of the CTQ aimed to detect such false negative reports. Few patients in this sample scored on this scale, only two had a full score. In the present sample, patients received different types and length of psychotherapy, which may have influenced their ability to report on childhood trauma. In addition patients with AvPD may have a general difficulty in appreciating mental states.\textsuperscript{60, 61} Unconscious processes, such as dissociation and attachment organization, might also lead to an inability to recall traumatic memories.\textsuperscript{62} Any differences in attachment organization between AvPD and SP may shed light on their etiology and should be topics for further research.

Conclusions

To our knowledge this is the first study to compare patients with AvPD and SP regarding childhood experiences, parental behavior, and temperament. Our findings suggest that the experiences of physical and emotional neglect in childhood are risk factors for adult AvPD and SP, most pronounced for AvPD though. The study highlights the potential toll that not being seen, taken care of, and protected during childhood may have on mental health. The relationship between AvPD and SP is complex and further research should aim to recruit larger and pure diagnostic groups. Childhood neglect may be part of the relational histories woven into the identity, self-esteem and interpersonal patterns of patients with AvPD, and may contribute to different degrees of personality dysfunction in patients with AvPD and SP. While in need of more research, this understanding may be useful for the development and facilitation of psychotherapy more specifically tailored to individuals with AvPD.

Author Contributions

Conceived and designed the experiments: IE JE BH TW. Performed the experiments: IE JE BH TW. Analyzed the data: IE JE BH TW. Contributed reagents/materials/analysis tools: IE JE BH TW. Wrote the paper: IE JE BH TW.

References


Correction: Avoidant Personality Disorder versus Social Phobia: The Significance of Childhood Neglect

Ingeborg Eikenaes, Jens Egeland, Benjamin Hummelen, Theresa Wilberg

The legend for Fig 1, "Attachment style in Avoidant personality disorder (AvPD, n = 70) and Social phobia (SP, n = 20)" is incorrect. The complete, correct Fig 1 legend can be viewed here.
References

## Errataliste

### Navn kandidat: Ingeborg Helene Ulltveit-Moe Eikenæs

### Avhandlingstitel: Avoidant Personality Disorder and Social Phobia - Studies of Personality Pathology and Functioning, Childhood Experiences and Attachment.

### Forkortelser for type rettelser:
- Cor – korrektur
- Celtf – endring av sidelayout eller tekstopformat

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