Flawless beyond reach and reason

Aspects of Perfectionism in Eating Disorders

PETERSSON, Suzanne

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Aspects of perfectionism in eating disorders

Suzanne Petersson

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Abstract

Although there has been considerable research on EDs throughout the years, there is still much left to be desired for successful treatment. Perfectionism has been suggested to play a crucial role in the development and maintenance of EDs. Perfectionism has also been suggested to interfere with treatment, and to predict treatment outcome. This thesis aims to illuminate aspects of perfectionism in patients with eating disorders.

In Study I the relationship between perfectionism and Sense of Coherence (SOC) in a sample of patients with EDs was investigated. A high extent of perfectionism was significantly correlated to a weak SOC. Socially Prescribed Perfectionism (SPP) was correlated to all SOC components, while Self-Oriented Perfectionism (SOP) was solely correlated to the *Manageability* component. The results suggested that SOP might be a more healthy aspect of perfectionism compared to SPP. Also, SPP could be more strongly related to psychiatric co-morbidity.

In Study II it was explored whether there were different patterns for the extent of SPP and SOP, perseverance/changeability of perfectionism, and how such patterns were related to long-term outcomes. Study data from a large, clinical, and national database was used. Five clusters were found. Persistent SOP was more strongly related to ED symptoms and psychiatric symptoms at baseline compared to other perfectionism patterns. There were no significant differences in outcomes between clusters three years after the initial measure. Patterns of relationships between the extent and possible changes of perfectionism measured with the Perfectionism Scale in the Eating Disorder Inventory (EDI-P) at baseline, and after six months, did not appear to be associated with long-term outcomes in psychiatric health ratings.

In Study III semi-structured interviews with 15 patients were conducted and analysed. The narratives were compared with scorings on the EDI-P. No differences were found in the narratives related to EDI perfectionism scores or ED diagnoses. Seven themes were found: The origins of perfectionism, Top performance, Order and self-control, A perfect body, Looking good in the eyes of others, A double-edged coping strategy, and A Sisyphean task. The women in this study did not emphasize their weights or bodies as the main goal of their perfectionistic strivings. Core descriptions were order, self-control, and top performances. All participants described their awareness of the impossibility of reaching perfectionism. Scorings of SOP were significantly higher compared to SPP. The results showed that psychometric measures do not always capture patient definitions of perfectionism, but considering that perfectionism serves as a means to, among other things, regulate affects, and may lead to an exacerbation of an eating disorder, and the development of obsessive-compulsive symptoms, it is important to investigate the definitions of perfectionism.

All studies in the present thesis were clinical, naturalistic, and, thus, transdiagnostic. The results showed that perfectionism in patients with EDs is a complex construct, suggesting that perfectionism should be regarded as a compensatory strategy with affect-regulating functions, in line with ED symptoms.

Key words: eating disorders, perfectionism, psychiatry, sense of coherence, psychometrics

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Flawless beyond reach and reason

Aspects of perfectionism in eating disorders

Suzanne Petersson

LUND
UNIVERSITY

Till Gabrielle

Content

Tack

Många människor har på olika sätt bidragit till denna avhandling. Jag vill börja med att tacka alla de människor med ätstörningar som, trots sin ansträngda situation, har bidragit med sin tid till självskattningar, intervjuer och delat med sig av sina tankar! Precis som ni önskar jag att vi snart kommer på en bättre lösning på ätstörningarnas gåta.

Jag har även haft turen att få vetenskapligt och vänskapligt stöd av några mycket kloka personer som här presenteras "in order of appearance" i mitt liv; min handledare *Per Johnsson*, vi träffades redan i mitten på 80-talet då du var min lärare på psykologutbildningen. Gemensamma kliniska intressen har gjort att vi har "sprungit på" varandra genom åren och så förenats igen i modershuset i Lund. Min handledare *Kent-Inge Perseius* träffade jag i samband med en gemensam föreläsning i Blekinge. Det var du som fick mig in på denna bana och som har fått höra både det ena och det andra genom åren ("det var ditt fel att jag hamnade i det här!"), men som alltid mirakulöst har stått kvar som ett stort stöd vid min sida. Sedan långt innan doktorandutbildningen har *Lars Brudin* tålmodigt hjälpt mig att utföra och förstå statistiska manövrar, när jag har varit nyfiken på hur saker hänger/inte hänger samman. Utan dig Lasse skulle det vara svårt att bedriva forskning inom Kalmar läns landsting du har varit mentor åt så många nyfikna forskare genom åren.

När jag blev doktorand, hade det nyligen bildats ett nätverk för ätstörningsforskning. Där träffade jag i ett tidigt stadium *Claes Norring*. Claes, du har svarat snabbt på desperata frågor, trots att du inte haft som uppdrag att vara min handledare. Du har svarat på kluriga frågor, gett mig feedback och har varit ett ovärderligt stöd genom de här åren. Du och *David Clinton* gav mig tillgång till SUFSA-databasen och blev medförfattare till min andra studie, utan egentliga band till mig. *Andreas Birgegård*, tack för ett gediget opponentskap med en noggrann genomgång med massor av konstruktiv kritik vid mitt slutseminarium. Tack ni alla för att ni har funnits där för mig och inte låtit mig känna att jag har varit jobbig (vilket jag säkerligen har varit ibland).

Genom nätverket för ätstörningsdoktorander har jag träffat så många trevliga människor och tillika doktorander som brinner för att försöka belysa och lösa dessa svåra frågor. Tack snälla för att jag har fått vara med er, fått stöd och fått ta del av all viktig forskning! Ni är dessutom alla sådana vänliga, smarta och roliga människor. Ni är ett (härligt) gäng, så jag tackar er kollektivt.

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Abstract

Eating disorders (EDs) are common and serious psychiatric disorders causing significant physical and psychological suffering, for both those afflicted and their significant others. Although there has been considerable research on EDs throughout the years, there is still much left to be desired for successful treatment. Perfectionism has been suggested to play a crucial role in the development and maintenance of EDs. Perfectionism has also been suggested to interfere with treatment, and to predict treatment outcome. This thesis aims to illuminate aspects of perfectionism in patients with eating disorders.

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In Study III semi-structured interviews with 15 patients were conducted and analysed. The narratives were compared with scorings on the EDI-P. No differences were found in the narratives related to EDI perfectionism scores or ED diagnoses. Seven themes were found: *The origins of perfectionism*, *Top performance*, *Order and self-control*, *A perfect body*, *Looking good in the eyes of others*, *A double-edged coping strategy*, and *A Sisyphean task*. The women in this study did not emphasize their weights or bodies as the main goal of their perfectionistic strivings. Core descriptions were order, self-control, and top performances. All participants described their awareness of the impossibility of reaching perfectionism. Scorings of SOP were significantly higher compared to SPP. The results showed that psychometric measures do not always capture patient definitions of perfectionism, but considering that perfectionism serves as a means to, among other things, regulate affects, and may lead to an exacerbation of an eating disorder, and the development

of obsessive-compulsive symptoms, it is important to investigate the definitions of perfectionism. All studies in the present thesis were clinical, naturalistic, and, thus, transdiagnostic. The results showed that perfectionism in patients with EDs is a complex construct, suggesting that perfectionism should be regarded as a compensatory strategy with affect-regulating functions, in line with ED symptoms.

Sammanfattning på svenska

I denna avhandling har olika aspekter av perfektionism hos patienter med blandade ätstörningsdiagnoser undersökts. Perfektionism brukar beskrivas som multifaktoriell och vid ätstörningar har det visat sig att det är två typer av perfektionism som är av betydelse; själv-orienterad (SOP) och socialt föreskriven (SPP). SOP innebär att personen själv ställer perfektionistiska krav på sig. SPP innebär man tänker att andra människor ställer orimliga krav. SOP beskrivs som en mer hälsosam aspekt av perfektionism, men just vid ätstörningar har man tidigare visat att bägge aspekterna är inblandade i uppkomst och vidmakthållande. Perfektionism anses vara försvårande för tillfrisknande, ett hinder i den terapeutiska behandlingen och därmed viktig att uppmärksamma. Perfektionismskalan i Eating Disorder Inventory, EDI-P, mäter såväl SOP som SPP och har använts genomgående i avhandlingens studier. Såväl kvantitativa som kvalitativ metod har använts och totalt har 404 personer deltagit, varav fem män. Två studier har gjorts vid en subspecialiserad ätstörningsenhet i södra Sverige (ABC i Kalmar) och en studie bygger på data från en nationell, longitudinell databas med material från 14 specialistkliniker i Sverige.

I samtliga studier uppvisade patienterna en högre grad av SOP jämfört med SPP, vilket stärker tidigare forskning som visat att hög grad av SOP är vanligt vid ätstörningar. Den första studien visade att en lågt skattad känsla av mening och sammanhang, KASAM, var relaterad till en hög skattning av perfektionism, framför allt SPP. I den andra studien undersöktes olika mönster av perfektionism avseende grad och typ (SOP/SPP), samt föränderlighet under de första sex månaderna efter bedömningssamtal för ätstörningsbehandling. Olika mönster framträdde vid klusteranalys av perfektionism-skattningarna, däremot fann vi inga samband mellan dessa mönster och hur deltagarna skattade sina ätstörnings- eller psykiatriska symptom vid uppföljning tre år senare. Den tredje studien var en halvstrukturerad intervjustudie där patienter under pågående ätstörningsbehandling fick berätta om sin syn på perfektionism. Deras berättelser jämfördes sedan med deras skattningar av perfektionism. Tidigare forskning har visat att patienter med en ÄS riktar sin perfektionistiska strävan mot sina kroppar, vilket inte deltagarna i avhandlingens intervjuer beskrev som huvudmålet för perfektionism. En del beskrev att kropps-projektet började med hälsosamma mål och alla deltagarna beskrev att ordning och toppprestationer var förknippade med perfektionism. Syftet var att hålla inre och yttre kaos under kontroll. De gav en enhällig bild av att strävan efter perfektionism är ett slitsamt och omöjligt uppdrag. Det är svårt att stoppa denna process innan nackdelarna blir alltför överväldigande, kanske på grund av de till att börja med positiva följderna med minskad ångest, kontroll och positiv uppmärksamhet från andra.

I samband med intervjuerna undersökte vi deltagarnas skattningar på EDI-P. Fem deltagare skattade lågt, två precis ovanför gränsen för hög perfektionism och resterande åtta skattade högt. Studien visade inga skillnader i berättelserna som var relaterade till skattningarna. Intervjuerna visade att psykologiska självskattningsformulär kanhända inte alltid fångar patienters definitioner av perfektionism. Perfektionism fungerar bland annat som känsloreglerare, vilket kan leda till att en ond cirkel där ätstörning och tvångs-problematik ökar. Det är viktigt att tidigt ta sig an patienternas egna definitioner och upplevelser av perfektionism i ätstörningsbehandlingen. Sammanfattningsvis problematiseras tidigare antaganden när det gäller perfektionismens roll och relation till ÄS.

Preface

The studies in this thesis stem from my clinical experience. My background as a psychologist rests mainly on cognitive behavioural theory. At the AnorexiBulimiCenter, ABC, in Kalmar patients with all types of eating disorders, EDs, are treated in outpatient care; and my experience as a clinician is that there are many similarities between the diagnoses regarding their origin and maintenance. In the same way, the patient's symptoms, thoughts, emotional experiences, and suffering are alike, regardless of the specific ED diagnosis. The treatment is also, in many ways, similar. With the exception of patients with restrictive anorexia nervosa, which seems different, I regard EDs as trans-diagnostic. The self-reported instrument Eating Disorder Inventory is used at the ABC during the assessment phase, prior to treatment at the clinic, so that scores can support later treatment. Clinical experience has shown that patients recognize themselves in most of the instrument's subscales, with the exception of perfectionism. Many patients describe themselves as perfectionists, which is reinforced by statements from their significant others. The results on the perfectionism subscale often show lower estimates in relation to patient descriptions. The differences between the patients' scorings and their stories was the start of the studies that have now become a thesis.

List of papers

This doctoral thesis is based on three studies listed below:

I.   Perfectionism and sense of coherence among patients with eating disorders. Authored by: Petersson S., Perseius, K.-I., & Johnsson, P. (2014). Published in Nordic Journal of Psychiatry, 68, 409–415.

II.   Perfectionism in eating disorders - are long-term outcomes influenced by changeability in initial perfectionism? Authored by: Petersson, S., Clinton, D., Brudin, L., Perseius, K.-I., & Norring, C. (2016). Manuscript submitted for publication.

III.   A Sisyphean task: Experiences of perfectionism in patients with eating disorders. Authored by: Petersson, S., Johnsson, P. & Perseius, K.-I. (2016). Manuscript submitted for publication.

List of abbreviations

ABC	AnorexiBulimiCenter
ADHD	AttentionDeficit/Hyperactivity Disorder
AN	Anorexia Nervosa
AN-R	Anorexia Nervosa Restrictive type
ANOVA	Analysis of Variance
APA	American Psychiatric Association
ASD	Autism Spectrum Disorder
BED	Binge Eating Disorder
BMI	Body Mass Index
BN	Bulimia Nervosa
CBT (-E)	Cognitive Behavioural Therapy (Enhanced)
CO-RED	Coordinated Evaluation and Research at Specialized Units for Eating Disorders
DSM	Diagnostic and Statistical Manual
ED(s)	Eating Disorder(s)
EDE-Q	Eating Disorder Examination Questionnaire
EDI	Eating Disorder Inventory
EDI-ED	Scales measuring Eating disorder symptoms in the EDI
EDI-P	Eating Disorder Inventory-Perfectionism subscale
EDI-PSYNOP	Psychological but No Perfectionism measure in the EDI
EDNOS	Eating Disorder Not Otherwise Specified
EESS	Explained Error Sum of Squares
FBT	Family Based Therapy
GAD	Generalized Anxiety Disorder
HP	Highly perfectionistic
ICD-10	International Statistical Classification of Diseases and Related Health Problems- 10th edition
IBS	Irritable Bowel Syndrome
IPT	Interpersonal Psychotherapy
LP	Low perfectionist
MFT	Multifamily therapy
MPS-F	The Multidimensional Perfectionism Scale (Frost et al.)
MPS-H	The Multidimensional Perfectionism Scale (Hewitt & Flett)
NEO	Neuroticism-Extraversion-Openness Personality test
NICE	National Institute for Health and Clinical Excellence

OCD	Obsession Compulsive Disorder
OCPD	Obsessive compulsive personality disorder
OOP	Other Oriented Perfectionism
OSFED	Other Specified Feeding and Eating Disorders
PTSD	Post-Traumatic Stress Syndrome
RCT	Randomized Controlled Trial
SCID-I	Structured Clinical Interview for DSM-IV
SCL	Symptom Checklist
SEDI	Structured Eating Disorder Interview
SOC	Sense of Coherence
SOP	Self-oriented perfectionism
SPP	Socially prescribed perfectionism
TAS-20	Toronto Alexithymia Scale-20
WMA	World Medical Association Declaration of Helsinki
The Clusters:	
GP	"General perfectionists"
CP	"Changeable perfectionists"
CSOP	"Changeable self-oriented perfectionists"
PSOP	"Persistent self-oriented perfectionists"
NP	"Non perfectionists"

Introduction

Eating disorders (EDs) are common and serious psychiatric disorders causing significant physical and psychological suffering for those afflicted, and for their significant others. Although there has been considerable research on EDs throughout the years, more is needed when it comes to successful treatment (Halmi, 2013). Perfectionism is a factor that, independently or in combination with other risk factors, has been shown to predispose for and/or maintain ED symptoms (Bardone-Cone, 2007; Egan, Wade, & Shafran, 2011; Lilenfeld, Wonderlich, Riso, Crosby, & Mitchell, 2006; Vohs et al., 1999). There are differing constructs and conceptualizations of perfectionism. These differ from each other depending on whether there are unidimensional, or multidimensional constructs (Burns, 1980; Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991). Perfectionism has been considered to either cover a continuum from healthy to pathological perfectionism, or as different constructs (Parker, 2002). Perfectionism is often associated with psychopathology (Shafran, Cooper, & Fairburn, 2002), but has also been described as healthy, or positive (Hamacheck, 1978; Terry-Short, Glynn Owens, Slade, & Dewey, 1995; Lundh, 2004). The American psychiatrist David Burns described perfectionists as

> "those whose standards are high beyond reach or reason, people who strain compulsively and unremittingly toward impossible goals, and who measure their own worth entirely in terms of productivity and accomplishment" (p. 34, 1980).

A historical context of eating disorders

An evolutionary perspective on eating disorders

Human history is associated with periods of famine. During 98% of human history, we were hunter-gatherer nomads with varying access to food (Laland & Brown, 2011). When food could not be saved natural selection favoured those individuals who could best survive starvation (Nesse & Williams, 1996). When there was ample access to food, it was advantageous to eat, preferably food rich in fat or carbonates, and store energy for times of scarcity (Laland & Brown, 2011; Polivy & Herman,

2006). However, overeating at one meal could jeopardize survival, and most humans have instincts to avoid overburdening the digestive system, and stop ingestion when feeling full (Nesse & Williams, 1996). When there was a relatively high risk for caloric deficit, conservation of energy by reducing activity would be beneficial. Howsoever humans, as a species, have adapted to the environment during history, there are still lags of adaptation in some areas. While foods rich in sugar, salt, and/or fat were rarely found during the hunter-gatherer period, the modern food industry has solved this, but this heritage can still (and often does) cause over-eating, although there are more than sufficient and reliable food resources in western societies (Nesse & Williams, 1996; Laland & Brown, 2011).

Anorexia nervosa (AN) has puzzled clinicians and researchers throughout the years. Why do some people (most often girls) starve themselves? And why do not all dieters end up as anorexics? Evolutionary perspectives on AN have attempted to answer some of these questions. Threat of starvation triggers old, adaptive responses to stop weight loss. Normally, weight reduction leads to neuroendocrine and behavioural changes to conserve energy and increase food intake (Guisinger, 2003). Despite that, AN has, for a relatively small proportion of the population, been shown to follow weight reduction regardless of its causes; dieting, physical illness, depression, or religious, or political motives, etc.

It has been suggested as functional to reduce reproduction during periods of famine (Anderson, Crawford, Nadeau, & Lindberg, 1992). Suppression of reproduction could also be favourable during overly stressful situations, and serve as a means for postponing sexual maturation and possible parenting until more favourable conditions are met (Juda, Campbell, & Crawford, 2004). Girls with an inherited/genetic predisposition to tolerating and adapting to a low energy intake and weight could more easily migrate to find the resources needed by the family and group. Physical and psychological alertness, combined with a strong resistance to starvation, were necessary qualities for moving on, and leading the group to places with better resources (Guisinger, 2003). This can also explain feelings of guilt and shame among anorexic girls when they rest or eat; they experience failure, having eaten food meant for other family or group members. For men it has probably been more adaptive to maintain strength and muscle mass as much as possible, which can explain the female dominance of AN (Guisinger, 2003).

A historical perspective on eating disorders

EDs as medical/psychiatric conditions are quite new phenomena in human history, although related behaviours have existed for a longer time. Habermas (1992) described how the perspective on extreme fasting has changed: "There was a gradual transition from miraculum to spectaculum and then to disease" (p. 432). Asceticism,

fasting, and self-control have served, and in some cultures still serve, as a means to reach divinity or wisdom in a religious context (e.g. in Hindu, Buddhist, Jewish, Christian, and Islamic religions) (Diamond, 2003; Laidlaw, 2005; Schaeffer, 2004; Sirois, Darby, & Tolle, 2013). This was important to western societies, not least in medieval times when the church and its sacred texts were law, when people could be sanctified if they detached themselves from their earthly bonds, and refined their spirits by giving up needs and comfort ("anorexia mirabilis" or "holy anorexia") (Bell, 1985; Habermas, 1989; 2005; Rampling, 1985; Walker Bynum, 1988). Some people (above all, women) became sanctified partly since they could fast for extremely long periods. Some showed symptoms and behaviour such as anorectic patients today, for example food rejection, vomiting, chewing and spitting out food, showing restless energy, feeding other people, and sleep disturbances. "Like modern anorectics, many of these saints lost "normal" body concept or perception" (Walker Bynum, 1988, p.203). In many cultures religious fasting concerned mainly women, while political fasting as was performed chiefly by men (Walker Bynum, 1988). Fasting and growing thin have also been considered as a means of gaining self-control for women, and in ancient times, a sure way of maintaining autonomy, for example, by not getting married or giving birth (Walker Bynum, 1988).

As the influence of the church decreased, and the influence of medical science increased during the 17th century, the perspective of voluntary starvation changed. Miraculous maidens, claiming to live without eating, were fascinating, and hunger artists and "living skeletons" were displayed in variety theatres (Vandereycken & van Deth, 1994). If forming spiritual beauty was in focus during the late medieval time, forming a beautiful female body came into focus later on. During the 17th century fashion prescribed the use of corsets to form a slender waist, and there are occasional reports of weight fixation from this time. The first time weight control was mentioned as a motive for extreme fasting was in 1875 (Habermas, 2005).

Morton first described self-starvation and underweight as medical/psychological disorders in 1689. In 1873 the French physician Laségue termed the condition "anorexia hysterica", and the following year Gull coined the term "anorexia nervosa" (Silverman, 1997). From the 17th to the 19th centuries several cases of young self-starving girls were described in medical reports and traditional medicine. Medications, bed-cures, warmth, milk and egg yolks, forced feeding, change of air, separation from the family, marriages or pregnancies, were suggested as treatment. During the first half of the 20th century AN was considered related to pituitary gland insufficiency, and futile treatments with pituitary extract, or implant were tested (Silverman, 1997).

In antiquity and during medieval times vomiting and purging were performed to preserve health, or as medical treatment (Russell, 1997). Binge eating and self-induced vomiting to eat and drink as much as possible, were performed by wealthy

people at dinner parties during the same eras (Russell, 1997). The motives for binging and purging were then related rather to the possibility to enjoy food, and not related to anxiety relief, or striving towards a slender body. This behaviour is not considered related to the Bulimia nervosa (BN) diagnosis that was first described by Russell in 1979.

In the 20th century Bruch developed a model of EDs containing drive for thinness, body image disturbances, and interoceptive difficulties as the result of complicated relationships between mother and daughter concerning the young girl's autonomy, self-esteem, and self-control (Bruch, 1973). Bruch's contribution has influenced modern treatment forms for EDs. Current main criteria for the BN- and AN diagnoses are fear of being/becoming overweight despite a low or normal weight (weight phobia), and that the purpose of the self-induced, compensatory behaviour should be attempts to lose weight (Russell, 1997). Weight concerns are considered to play a crucial role to distinguish EDs from other states such as depression, gastric complaints, phobic and hypochondriac obsessions, paranoid delusions of being poisoned, or hysterical vomiting (Habermas, 2005). Garner & Garfinkel (1997) developed the multifactorial model, still valid today, considering biological and psychological vulnerability, sociocultural influences, and weight reductive-related effects on the body, psyche, and impact from interpersonal relationships.

Expressions and interpretations of phenomena such as ED behaviour are deeply interconnected to cultural circumstances. Thus, it is not easy to compare behaviour/symptoms in diverging historical and cultural contexts (Habermas, 1989). Both the agents (the self-starving girls) and their interpreters (society/church/doctor) have been influenced by their time, and it is important to mention that the development of diagnostic thinking also means a change of perspective from which behaviour is viewed (Habermas, 1989; 2005).

Diagnosing Eating Disorders

Classifications of diagnoses

The American Psychiatric Association (APA), a society of psychiatric physicians, providing guidelines and criteria for mental disorders (APA, 1994; 2013) developed the Diagnostic and Statistical Manual of Mental Disorders (DSM). The purpose of these guidelines is to summarise the patient's problems to facilitate selection of treatment, better statistical reporting on morbidity and outcome, and to enhance communication between caregivers/researchers. The conceptualization of clinically significant symptoms (psychological or behavioural) into diagnoses and syndromes

is also important to ensure comparable research. However, there is a debate concerning the lack of validity in psychiatric diagnostics (Kendell & Jablensky, 2003). Most psychiatric symptoms are sooner continuous variations than clear-cut entities. Diagnoses often merge, and are not distinct entities of symptoms, aetiology, or successful treatment forms. This is in contrast to many (but far from all) medical diagnoses (Kendell & Jablensky, 2003). Kendell & Jablensky wrote:

> "(T)he surface phenomena of psychiatric illness (i.e., the clustering of symptoms, signs, course, and outcome) provide no secure basis for deciding whether a diagnostic class or rubric is valid, in the sense of delineating a specific, necessary, and sufficient biological mechanism" (2003, p. 7).

There is no exception for ED diagnoses when considering the deficiencies of psychiatric diagnosis as described above. Although there remains a large heterogeneous diagnosis group (earlier UNS and now OSFED), still encompassing a large part of the ED population, most research is focused on AN followed by BN (Clinton, 2010).

DSM-IV and DSM-5 classifications of eating disorders

During the process of this thesis the diagnostic classification of ED has undergone a revision from the fourth to the fifth edition of the DSM. Study I and II refer to the DSM-IV, while study III refers to the DSM-5. The classifications are presented in Appendix 1. According to the DSM-IV, the ED diagnoses are divided into three main diagnoses: Anorexia Nervosa (AN), Bulimia Nervosa (BN), and a residual diagnosis; Eating Disorders Not Otherwise Specified (EDNOS) (APA, 1994). According to the DSM-5, diagnoses of eating disorders can be divided into four main diagnoses: AN, BN, Binge Eating Disorder (BED), and Other Specified Feeding and Eating Disorders (OSFED) (APA, 2013). The residual EDNOS-diagnosis in the DSM-IV has been shown to consist of 50-70 % of EDs (Fairburn & Bohn, 2005). Studies have suggested that EDNOS represented a transitional stage into or out of other ED diagnoses, while other studies have described EDNOS as a diagnostic entity of its own (Fairburn et al., 2007). The large residual group has been considered troublesome, and the criteria for AN and BN diagnoses have been relaxed in order to reduce the proportion of EDNOS diagnoses. The provisional BED diagnosis has been broken out from the EDNOS diagnosis, and has become a new diagnosis in the DSM-5 (APA, 2013). As a result of the new diagnostic criteria the cases of the DSM-5 residual group, OSFED, have been reduced due to BED being a distinct diagnosis together with the expansion of the AN and BN diagnoses (Gualandi, Simoni, Manzato, & Scanelli, 2016).

The Feeding and ED category in DSM-5 also contains three diagnoses moved from the category "Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence" in DSM-IV; Pica, Rumination Disorder, and Avoidant/Restrictive Food Intake Disorder (APA, 2013). The latter diagnoses have not been considered in the present thesis. Thus, the number of ED diagnoses has increased in number. With validity in mind, the question is whether more, and more distinctive, diagnoses meet the challenges when it comes to effective treatment of the conditions.

A transdiagnostic perspective

Since there are considerable likenesses between ED diagnoses, symptom overlap, and common maintaining mechanisms, besides substantial migration between ED diagnoses, perhaps EDs should be treated from a transdiagnostic perspective (Ekeroth, Clinton, Norring, & Birgegård, 2013; Fairburn & Bohn, 2005; Fairburn, Cooper, & Shafran, 2003). Most migration occurs during the first three to five years of illness (Hepworth & Paxton, 2007). Referring to the DSM-IV diagnoses most migration has been reported between AN and BN, and BN and BED (Hilbert et al., 2014), and between EDNOS and AN and BN (Milos, Spindler, Schnyder, & Fairburn, 2005). The development from DSM-IV to DSM-5 criteria was partly due to the large residual diagnosis EDNOS in the former manual. By defining more distinct sub-classifications, reduction of the residual group was the intention. However, it has been considered important to define the boundary between EDs and not EDs, rather than defining different ED sub-diagnoses (Ekeroth, et al., 2013).

Co-morbidity

Psychiatric co-morbidity in ED is high. Ulfvebrand, Birgegård, Norring, Högdahl, & von Hausswolff-Juhlin (2015) showed that the highest levels of comorbidity were found in women with BED, and men with BN. Common comorbid disorders in BED are depressive and anxiety disorders (Grilo & Becker, 2016; Ulfvebrand et al., 2015). Substance abuse and personality disorders, most frequently a borderline personality disorder, are common comorbid disorders in BN (Sansone & Sansone, 2011; Wonderlich et al., 2005). Touyz et al. (2013) showed that 75% of patients with AN-R also met SCID-I criteria for dysthymia, generalized anxiety disorder (GAD), social phobia, or obsessive-compulsive disorder (OCD). Other studies have shown similar results (Fennig, & Hadas, 2010; Godart et al., 2007; Ivarsson, Råstam, Wentz, Gillberg, & Gillberg, 2000). Other described ED-related psychiatric diagnoses are post-traumatic stress disorder (PTSD), substance-related disorders, attention deficit/hyperactivity disorder (ADHD), and autism spectrum disorders

(ASD), obsessive-compulsive personality disorder (OCPD) (Dyer et al., 2013; Goncalves et al., 2016; McElroy, Kotwal, Keck Jr., & Akiskal, 2005; Råstam et al., 2013; Ulfvebrand et al., 2015; Wentz et al., 2009). Performing research on co-morbidity is a difficult task with ED diagnoses combined with other psychiatric diagnoses and symptom overlap. Research on co-morbidity in EDs should be interpreted with caution, age, duration of ED, and malnutrition can be confounding factors for co-morbidity among ED patients.

There are opposing theories regarding the importance of differential diagnostics, and, thus, how co-morbidity should be regarded. Co-morbidity is considered important from the perspective of its relationship to development and maintenance of the ED. Thus, additional diagnoses are important for understanding the condition and its treatment (e.g. Treasure, 2006). ED has been suggested to share underlying personality traits with other psychiatric diagnoses, e.g. neuroticism in AN, and in depression (Bulik et al., 2006). Waller (2008), on the other hand, has suggested that EDs should be included with anxiety disorders in the DSM rather than as diagnoses of their own. His suggestion was based on anxiety preceding the development of EDs, and that ED behaviour is aimed at reducing anxiety, but with a long-term maintenance effect (Waller, 2008).

Prevalence, incidence, and risk factors

Prevalence

There has been some evidence for an increasing prevalence of ED (Bulik, 2016; Pike, Dunne, & Addai, 2013). Although some studies have shown an increased prevalence of EDs in males, female dominance in the frequency of ED remains (Woodside et al. 2001; Smink, van Hoeken, Oldehinkel, & Hoek, 2014). In a prospective community study, Stice, Marti, & Rohde (2013) showed a lifetime prevalence by age 20 of ~13% for all DSM 5 EDs (AN= 0:8%, BN= 2.6%, BED = 3.0% and OSFED ~11.5%). The prevalence of EDs is higher among homosexual and bisexual men compared to heterosexual men, although such a pattern does not apply when comparing homosexual/bisexual women with heterosexual women (Shearer et al., 2015).

The onset for the majority of ED patients is usually during the teenage years or in the twenties, but the number of women over thirty with an ED is growing. Some of the older ED patients have developed an ED early in life and not recovered, some have had an early-onset disorder with full recovery but later relapse, while a significant number of the midlife ED cases are of late onset (Lapid et al., 2010). ED

symptoms and related behaviour in late-onset ED are similar to those of the younger, although body dissatisfaction in older women also comprises age-related concerns such as loss of muscle mass and sagging skin (Ackard, Richter, Frisch, Mangham, & Cronemeyer, 2013; Gagne et al., 2012). EDs have long been considered to primarily afflict white women of upper socioeconomic backgrounds within Western societies, but recent studies show a global spread of EDs, although there is a call for more research on the subject (Pike et al., 2013).

Incidence

The incidence of a condition is the probability of occurrence of a given medical condition in a population within a specified period of time. The cumulative incidence is the number of new cases within a specific time period (e.g. a year) divided by the size of the population initially at risk. Studies on incidence rates for EDs are not comprehensive, there are more studies on the incidence of AN and BN compared to other EDs (Smink, van Hoeken, & Hoek, 2012). According to a meta-analysis the yearly incidence for AN in women was estimated to 4.7-7.7 new cases/100 000 inhabitants, more frequent in women aged 15-19 years; 109-270/100 000 (Smink et al., 2012). A recent Swedish study showed an incidence of AN in girls under 12 to be approximately 18/100 000 (Rosling, Salonen Ros, & Swenne, 2016). The AN incidence for men has been shown to be about a 1:10 compared to the incidence for women (Smink et al., 2012). The yearly incidence of BN was estimated to 6.1-6.6 new cases/100 000 inhabitants (more frequent in women aged 16-20 with roughly 200/100 000. The lifetime risk for developing EDs varies between AN: 1.2 % (men 0.29 %), BN: 1.7-2.3 % (men 0.1-0.5 %), EDNOS: 6.5 %, and BED: 1.9-3.5 % (men about the same) (Smink, et al., 2012).

Aetiology and risk factors

The aetiology of EDs is multifactorial and transactional with interactions between psychological, environmental and biological vulnerability factors (Bruch, 1973; Culbert, Racine, & Klump, 2015; Hilbert et al., 2014). Schmidt & Treasure (2006) explain that female vulnerability for AN development is due to "biological factors; that female humans and animals are much more sensitive to the effects of starvation, in terms of resulting alterations in affect and behaviour" (p.346). Most of the known risk factors are shared among the different ED diagnoses (Bulik et al., 2006; Hilbert et al., 2014).

Generally, onset for AN has been shown to occur at an earlier age than onset for BN and BED, whereas the age of onset for BN and BED has been shown to be quite similar (Hilbert et al., 2014). Most onsets occur during the pubertal transition.

Ovarian hormones, particular estradiol, leads to an increase in body fat and weight, which can act as a trigger for dieting in young girls (Culbert et al., 2015). Dieting is considered a major risk factor. However, far from all dieters develop EDs. Binge eating has been shown to be a precipitating risk factor in BN and BED. Binging is associated with experienced loss of control due to hunger after trying to diet, or as a strategy to handle affect-intolerance (Hilbert et al., 2014).

It has been proposed that genetic vulnerability could partly explain the development from dieting to ED. Also, there is nearly eleven times the risk for AN development in families with members of AN probands compared to families without AN probands (Yilmaz, Hardaway & Bulik, 2015). There are similar findings for BN, BED, but also for ED comorbid conditions, e.g. anxiety or depression, suggesting an overlap of genetic factors and neural networks for ED and affective disorders (Yilmaz et al., 2015). Thus, transactional processes underlying ED and their symptoms could emerge via genetic and behavioural influences from significant persons, i.e. parents (Bulik et al., 2006; Striegel-Moore & Bulik, 2007).

Among the psychological risk factors personality traits such as negative emotionality and neuroticism, drive for thinness, ineffectiveness, as well as obsessive-compulsive traits, have been shown to contribute to the development of ED (Bulik et al., 2006; Ghaderi & Scott, 2000; Lilenfeld et al., 2006). Low self-esteem, mood intolerance, and interpersonal difficulties have also been shown to be risk/maintaining factors (Ambwani, Slane, Thomas, Hopwood, & Griloe, 2014; Fairburn et al., 2003). Perfectionism, independently or in combination with other risk factors, has been shown to predispose and/or maintain ED symptoms in AN, BN and EDNOS/OSFED (Bardone-Cone, 2007; Boone, Soenens, & Luyten, 2014; Lilenfeld et al., 2006; Vohs et al., 1999). High levels of cognitive inflexibility have been shown to be associated with persistent restriction, whereas impulsive features may lead to BN (Treasure, Stein, & Maguire, 2015). Studies of AN have shown that starvation leads to changes in the right insula in ill adult and adolescent patients, as well as in recovered adults. Interoceptive processing is one of the functions of the right insula (Frank, 2015). Poor interoceptive awareness, with difficulties interpreting internal sensations and emotional states, has been shown to be common in EDs (Jacobi, Hayward, de-Zwaan, Kraemer, & Agras, 2004), although research has shown contrasting results. Casper (1990) for example, showed that recovered ED patients showed normal interoceptive awareness.

Childhood bullying, sexual and physical abuse, as well as childhood neglect, have been shown to be risk factors for ED development (Copeland et al., 2015; Goncalves et al., 2016; Jacobi et al., 2004). In the case of bullying, there is an enhanced vulnerability for ED for both the bullied person and the bullies (Copeland et al., 2015). Conduct problems, substance abuse, and childhood obesity have also been shown related to BED (Hilbert et al., 2014).

The cultural idealization of thinness in women has been associated with increased rates of ED (Keski-Rahkonen et al., 2014; Stice, 2002a). The media exposure of socio-cultural norms has been shown to be a risk for ED development, although body dissatisfaction has been shown to emerge before the increased perceived pressure to be thin (Martınez-Gonzalez et al., 2003; Rohde, Stice, & Marti, 2015). The media exposure of Western culture (formerly considered to have a higher prevalence of ED) is also considered to contribute to increased ED development in non-Western cultures (Becker, Burwell, Gilman, Hertzog, & Hamburg, 2002). As discussed previously, dieting and weight loss is a strategy for attaining a thin body, and is considered to be a common precipitating risk factor for developing AN, although not all dieters develop an ED.

Picky eating when young, and diet-related health conditions, such as irritable bowel syndrome, food intolerance, inflammatory bowel disease and cystic fibrosis have been found to be related to ED. This can be understood as a forced preoccupation with food from a health perspective. Avoiding certain foods as a means of avoiding or decreasing stomach pain, using the laxative qualities of the intolerable food, or acting in a way that appears normal in the eyes of peers in order to avoid shame, can constitute risks for developing ED (Quick, Byrd-Bredbenner, & Neumark-Sztainer, 2013).

Eating disorder-related complications

ED symptoms often cause social, economic, psychological, and physical complications. Social difficulties and withdrawal are common, and often increase as the illness progresses, due to feelings of shame, and unsocial behaviour associated with, for example, avoidance of eating, or a restrictive choice of food (Zucker et al., 2007). Compensatory strategies, such as excessive exercising, or binging and purging, steal time from social relations. EDs often interfere with studies and professional work, and binge eating can imply high costs, which lead to negative economic consequences. ED can lead to deficiencies of essential amino acids, B-vitamins and long-chain fatty acids which interfere with brain function and the synthesis of neurotransmitters such as serotonin and dopamine, which influence psychological wellbeing (Bondi et al., 2014). Epigenetic studies on starvation and abnormal eating have been shown to affect brain/gut synchrony, and brain plasticity, structure and function (Stilling, Dinan, & Cryan, 2014). Stilling et al. (2014) also showed that social withdrawal and loneliness that follows ED affect brain functioning negatively.

There are many other negative ED effects on the body, and it is impossible to make a short summary of all of complications. However, some examples are presented in the following section. Cardiac complications contribute significantly to morbidity

and mortality. Severe underweight or weight loss influence the endocrine system, which could lead to decreased growth hormones, to amenorrhea and osteoporosis, the latter often irreversible (Mehler & Andersen, 2010). BED, purging disorder, and BN without an early phase of AN have been found to be associated with later obesity and substance abuse (Sonneville et al., 2013). Other complications related to ED are for, example, oral and dental complications, disturbances in the gastrointestinal system such as irritable bowel syndrome, IBS, constipation, or gastroparesis (Mehler & Andersen, 2010). No studies have shown an increased prevalence of ED in insulin-dependent diabetes mellitus, but when the two diagnoses co-exist, insulin misuse is common as a weight reduction strategy (Mehler & Andersen, 2010). Co-occurring ED and diabetes mellitus have been shown to develop more severe complications and elevated mortality rates (Nielsen, Emborg, & Molbak, 2002; Rydall, Rodin, Olmstead, Devenyl, & Daneman, 1997). One cause of death in EDs is suicide, and ED diagnoses have been found to significantly predict a greater risk for suicide (for both men and women) compared to referents without EDs (Zerwas et al., 2015). Overall, longitudinal studies on mortality have shown that ED patients are at greater risk for untimely death, compared to the general population, with a crude mortality ratio of 3.3-3.9% (primary cause of death by suicide 60%) in BN, and 6.5-7.5% in AN (suicide 17%) (Franko et al., 2013; Huas et al., 2011; 2013).

Treatment and outcome

There is still much to be desired in ED treatment. (Hart, Granillo, Jorm, & Paxton, 2011; Steinhausen & Weber, 2009). In a review of AN Steinhausen (2002) found that 47% of the population recovered, 33% improved, and 20% had a chronic outcome, however, less is known about the development and chronification of other ED diagnoses (Treasure et al., 2015). Older age at onset and a short duration of AN has been shown to predict a more favourable outcome (Rosling et al., 2016: Vall, & Wade, 2015).

The NICE guidelines recommend family treatment of AN for young patients (2011). Family-Based Therapy (FBT) and Multi-Family Therapy (MFT) have been shown to be effective in treating young patients with short-term AN (Downs & Blow, 2013; Eisler, 2005; Gelin, Fuso, Hendrick, Cook-Darzens, & Simon, 2015; Lock et al., 2010). The outcome for older AN patients with a longer illness duration are poor due to co-morbidity and lack of motivation for recovery (Nordboe, Espeseth, Gulliksen, Skårderud, & Holte, 2006; Treasure et al., 2015). Specialist Supportive Clinical Management Treatment has been shown to be the best treatment for older patients with a long history of AN (Carter et al., 2011; Touyz et al., 2013).

A meta-analysis of treatment outcome showed that only approximately 45 % of bulimic patients recover from their ED, and 10 % had a chronic condition ten years after completion of treatment (Steinhausen & Weber, 2009). The same meta-analysis showed that psychotherapy was superior to medicinal therapy, although SSRIs have been found to be an effective short-term treatment for BN, especially in combination with psychotherapy (Mitchell, Roerig, & Steffen, 2013; Steinhausen & Weber, 2009). Enhanced cognitive behavioural therapy, CBT-E, was developed as a transdiagnostic treatment method for EDs, and treatment studies for BN and BED have shown favourable outcomes for CBT-E, and Interpersonal Therapy, IPT (Fairburn et al., 2003; Fairburn et al., 2015). CBT has also been shown to be effective in clinical transdiagnostic settings (Turner, Marshall, Stopa, & Waller, 2015). However, despite positive outcomes for CBT and IPT there is a lack of randomized-controlled studies (Steinhausen & Weber, 2009). Cognitive and behavioural prevention interventions, aimed toward responsiveness to thin-ideal media images and sociocultural influences, have been found to lead to biopsychosocial changes, and a reduced risk for development of ED (Stice, Becker, & Yokum, 2013).

However, evidenced-based therapeutic treatment guidelines warrant some consideration. Patients in the clinical setting are more likely to differ from the selected patients in studies with psychiatric and physical co-morbidity (Clinton, 2010). Many patients are excluded from randomized controlled studies, e.g. Thomson-Brenner & Westen (2005) showed that 40 % of patients with BN were excluded due to common exclusion criteria (as cited in Clinton, 2010). In clinic most patients are diagnosed with a mixed, subthreshold ED symptomatology (Fairburn & Bohn, 2005).

One complication of treatment research is that the therapist effect is difficult to separate from the treatment model (Wampold & Serlin, 2000). Therapeutic alliance is an important factor contributing to positive outcomes for treatment of any disorder (Norcross, 2011). In an interview study, Gulliksen et al (2012) showed that AN patients preferred therapist characteristics such as generosity, respect, and patience, self-confidence along with active interest, support, and focus on patient resources.

Emotion regulation and eating disorders

Affects and emotions

Tomkins defined affects as very brief, innate biological responses to stimuli, manifested in bodily, above all facial, autonomic responses, serving as "motivational fuel" (Shmurak, 2006). Emotions, on the other hand, have been defined as a blend of affects along with psychological and biographical experiences (Shmurak, 2006). Affect and emotional theories are subjects of several theses, thus, their descriptions in this thesis are very brief. In the present thesis I have chosen to use the terms "affect" and "emotion" interchangeably, well aware that this is a simplification. The function of emotion could be described as a guide for e.g. motivation, decision-making, goal setting, evaluation, action, learning enhancement, perspective evaluation, and a promotor of attachment (Greenberg, 2009). It is necessary and functional to be able to both act upon and inhibit emotions in order to be able to behave in a beneficial way (e.g. rejecting affects and thoughts of a preference to stay in bed in the morning instead of going to work, or paying attention to driving and following traffic rules while seeing a half-naked model on an advertising poster by the road).

Avoidance and suppression of emotions in EDs

Bruch (1973) suggested that a key deficiency in people with EDs is related to difficulties in distinguishing and describing feelings, and emotional control is relevant in ED's other forms of psychopathology. The motives may vary between those afflicted, but the behaviour associated with the condition is a means to solve individual problems. Cognitive and emotional avoidance are common in patients with an ED, and one function of ED symptoms has been considered to regulate emotion (Bruch, 1973). In patients having an ED, cognitive distraction:

> "is achieved by focussing on food, eating, weight, shape, exercise, and through the use of excessive exercise and purging behaviours. As the disorder progresses, the physiological impact of starvation numbs experience" (Oldershaw, Lavender, Sallis, Stahl, & Schmidt, 2015, p. 85).

Although sometimes useful, inhibition of affects may also implicate the destruction of useful information. Research has shown that patients with AN reported poorer emotional awareness (especially related to disgust and shame), more emotional suppression (in order to avoid conflict), less use of adaptive emotional regulation strategies, and more use of maladaptive emotional regulation strategies, compared

to people in a healthy control group (Oldershaw, et al., 2015). Similar results have been shown in studies on other EDs, implying that affect dysregulation is transdiagnostic (Harrison, Sullivan, Tchanturia, & Treasure, 2010; Svaldi, Griepenstroh, Tuschen-Caffier, & Ehring, 2012). In 2003, Fairburn et al. presented a cognitive behavioural model of the maintenance of BN. Clinical perfectionism, core low self-esteem, interpersonal difficulties, and mood intolerance were described as aggravating factors for the changeability of ED behaviour. A subgroup of patients with EDs are unable to cope appropriately with emotional experiences. This subgroup is unable to relate the emotion to the trigger, and are unwilling to accept the emotion. Instead of using emotions as signals, these patients do their best to avoid discomfort by starvation, bingeing, purging, or by self-harm, or drugs (Fairburn et al., 2003). ED symptoms aim at controlling the inner world by controlling the outer world, and especially one's own body (Skårderud, & Fonagy, 2012).

Alexithymia and poor interoceptive awareness

Alexithymia is defined as difficulty to identify, differentiate, and describe emotions, and has been claimed to be a feature of people with EDs, especially AN (Eizaguirre, de Cabezon, de Aldaa, Olariaga, & Juaniz, 2004). Alexithymia and poor interoceptive awareness are related constructs suggested to be common in EDs. For instance, four of the items from the EDI-Interoceptive awareness scale were added to the Toronto Alexithymia scale (TAS-20) at the construction of the instrument (Bagby, Parker, & Taylor, 1994). Alexithymia has been shown to be positively associated with several psychological and cognitive traits characteristic of patients with EDs. However, alexithymia has not been shown to be associated with attitudes and behaviour related to abnormal eating, body weight and shape (Taylor, Parker, Bagby, & Bourkes, 1996). Poor interoceptive awareness has been defined as an inability to recognize and respond to emotional and bodily states; e.g. visceral sensations related to hunger and satiety. Poor interoceptive awareness has been shown to be a risk factor for ED development, and predicts poor treatment outcome (Garner, 2004).

Alexithymia in EDs, primarily in AN, has been suggested to occur due to disturbances in the modulation of emotionality, with an impaired ability to identify emotions on a neurobiological level caused by malnutrition (Kaye, Wagner, Fudge, & Paulus, 2011). Alexithymia has also been shown to correlate with depression, a common comorbid condition in EDs, and sometimes due to starvation (Pollice, Kaye, Greeno, & Weltzin, 1997). Perfectionism has been shown to correlate with alexithymia, when measured with TAS-20 (Lundh, Johnsson, Sundqvist, & Olsson, 2002). Lundh et al. (2002) suggested that this might be due to experiencing demands to answer in a proper way combined with a tendency to be overly critical towards

one's behaviour. Parling, Mortazavi, & Ghaderi (2010) showed that patients with AN believed that they had difficulties in identifying and describing emotions, but this was not the case when performing the identification and description of emotions. Alexithymia was suggested to be related to the state of mood, e.g. depression, rather than to ED. The results implicate that patients with ED can rely on their emotions and work on the enhancement of functional strategies for emotional management (Parling et al., 2010). Some studies have shown that people who recover from ED have improved their emotional processing (Harrison, et al., 2010; Oldershaw, et al., 2015), although the levels of shame have been shown to be more resistant to change (Swan & Andrews, 2003).

Perfectionism and eating disorders

Defining perfectionism

There are various definitions of perfectionism. In 1950, Karen Horney described the development of perfectionism as the child's response to feelings of inferiority, and referred to it as "the tyranny of the shoulds". Burns (1980) described perfectionistic behaviour as a compulsive and unremitting striving for unreasonably high standards, and stated that self-worth was based on accomplishment of these standards. Fairburn et al. (2003) suggested "that at the heart of the psychopathology of clinical perfectionism is a system of self-evaluation in which self-worth is judged largely on the basis of striving to achieve demanding goals and success at meeting them" (p. 515). Flett and Hewitt (2002) wrote "We have found that this tendency to overcompensate by trying to be perfect is a common theme among distressed people. In that sense, perfectionism can be seen as an ill-advised coping response to an already imperfect situation" (p.8).

It has been debated whether perfectionism is a continuum from healthy to pathological perfectionism, or if there are different constructs (Parker, 2002). Perfectionism is often associated with psychopathology, but some researchers also describe a healthy kind of perfectionism related to success and well-being (Hamacheck, 1978; Lundh, 2004; Terry-Short et al., 1995). Positive/normal perfectionism is regarded to be maintained by positive reinforcement, standards are realistic, and success leads to self-satisfaction and enhanced self-esteem (Hamacheck, 1978; Lundh, 2004). Positive perfectionism has been described as a *striving* for perfection, combined with an acceptance when not reaching it (Lundh, 2004). Negative/neurotic perfectionism, to the contrary, is maintained by negative reinforcement: the strivings are oriented towards excessively high standards, and motivated by fear of failure (Flett & Hewitt, 2002). In a study of perfectionism and

personality, Egan, Piek, & Dyck (2015) showed a strong association between negative perfectionism and aspects of personality measured with NEO. They also showed that the extent of positive perfectionism was the same in a clinical group and a group of athletes, whereas the extent of negative perfectionism was almost doubled in the clinical group compared to the athlete group (Egan et al., 2015).

However, the concept "positive/normal perfectionism" can be regarded as an oxymoron, and should thus be renamed as "striving for excellence", as proposed by Missildine in 1963 (as cited in Greenspon, 2000). Perfectionism means that unless you are perfect you are worthless, which results in feeling you can never be good enough (Greenspon, 2000). The positive and functional concept is considered to have little clinical relevance, and most research concentrates on the dysfunctional aspects (Burns, 1980; Shafran et al., 2002).

The development of perfectionism has been suggested to derive from interpersonal experiences at a young age (Greenspon, 2000). Perfectionism was originally considered unidimensional, but multidimensional theories were developed in the early 1990's (Frost et al. 1990; Hewitt & Flett, 1991). Shafran et al. (2002) proposed that perfectionism is unidimensional, and there has been a debate between the proponents of unidimensional and multidimensional perfectionism, where the unidimensional perspective focuses on Self-Oriented perfectionism (SOP), and the multidimensional perfectionism adds interpersonal dimensions (Hewitt, Flett, Besser, Sherry, & McGee, 2003; Shafran et al., 2002). The interpersonal dimensions from Hewitt & Flett (1991) are Socially Prescribed (SPP) and Other-Oriented (OOP) Perfectionism. SPP is an over-concern of expected demands from others, while OOP concerns a person's demands on others to perform perfectly (Hewitt & Flett, 1991).

Shafran et al. (2002) have defined clinical perfectionism as "the overdependence of self-evaluation on the determined pursuit of personally demanding, self-oriented, standards in at least one highly salient domain, despite adverse consequences" (p. 778). Regardless of dimensional perspectives, Shafran et al. have presented a model of perfectionism maintenance that can be useful in understanding the vicious circle that controls perfectionistic people. This is illustrated in Figure 1 (Shafran, Egan, and Wade, 2010). Their cognitive-behavioural model includes personally demanding standards with dichotomous thinking, fear of failure and need for self-control, biased evaluation of achievement, self-critical reactions when standards are not met, and compensatory/avoiding strategies (temporarily meeting standards but not relying on or being satisfied with the results, postponing or avoiding tasks).
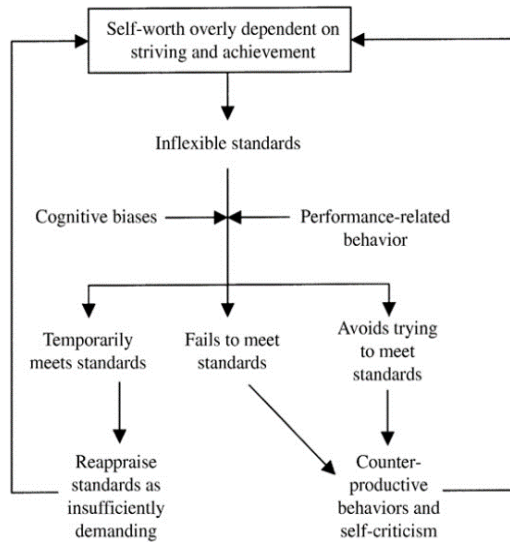
Figure 1.
A cognitive-behavioural model of clinical perfectionism, reproduced from Shafran et al. (2010) with permission from Constable & Robinson Ltd.

Further, the conceptualization of perfectionism is complicated considering the amount of related concepts, e.g. order, conscientiousness, achievement, competitiveness, striving for mastery, terms of self-evaluation (e.g. self-esteem or self-worth), and body image/body dissatisfaction. For example, self-efficacy is the perceived ability to meet standards, while perfectionism sets the standard (Flett & Hewitt, 2002). Conscientiousness, including terms such as competence, order, dutifulness, achievement striving, self-discipline and deliberation, on the other hand, is related to SOP, but considered to be a less extreme form of striving (Flett & Hewitt, 2002). Conscientiousness has been related to the organizational concept, but the Organizational subscale in the MPS-F was shown to be weakly correlated with the other subscales, and was for that reason recommended by Frost to be excluded (Flett & Hewitt, 2002). Thus, the concepts within or without the definitions are debatable. For this thesis I have mainly focused on SPP and SOP from the multidimensional model (Hewitt & Flett, 1990; 1991).

There are several assessments for measuring multidimensional perfectionism (Bardone Cone et al., 2007), and in this paragraph just a few of the existing measures are recognized. About 1990 two research teams independently published measures of multidimensional aspects of perfectionism, sharing a common name, the Multidimensional Perfectionism Scale, MPS (Frost et al., 1990; Hewitt & Flett, 1990; 1991). Both scales have satisfactory psychometrics (Enns & Cox, 2002). The Frost MPS-F scale originally consisted of six dimensions of perfectionism: Concern over Mistakes, Personal Standards, Parental Expectations, Parental Criticism, Doubt

about Actions, and Organization (Frost et al., 1990). The Hewitt & Flett MPS-H consists of three dimensions; SOP, SPP and OOP (Hewitt & Flett, 1991) which are described in the paragraphs above. The Eating Disorder Inventory (EDI) contains a subscale that measures perfectionism. The subscale was intended to be unidimensional, but has been shown to measure SOP and SPP (Joiner & Schmidt, 1995; Sherry et al., 2004). Both subscales have shown satisfactory psychometrics (Enns & Cox, 2002). Personal Standards from Frost-MPS and SOP are considered to be more related to achievement striving, while Concern over mistakes, Doubt about actions, Parental Criticism, and Parental Expectations from Frost-MPS, together with SPP, are considered to be related to maladaptive perfectionism (Bardone-Cone et al., 2007).

The role of perfectionism in EDs

Perfectionism has been found to play a crucial role in the development and maintenance of EDs (Egan et al., 2011; Stice, 2002b). Shafran et al. (2002) suggested that EDs might actually be an expression of perfectionism. Women with higher levels of perfectionism have been shown to have the highest ED symptom levels (Bardone-Cone et al., 2008). Patients with AN, BN, and BED, showed higher perfectionism compared to a non-psychiatric control group (Hilbert et al., 2014). Patients with AN, in turn, showed higher perfectionism than patients with BED (Hilbert et al., 2014).

It has been shown that the onset of AN leads to enhanced perfectionism (Anderluh, Tchanturia, Rabe-Hesketh, & Treasure, 2003). OOP has not been shown to relate to EDs, while the combination of SPP and SOP, with differential roles, has been found to be associated with EDs (Cockell et al., 2002; Sherry, Hewitt, Besser, McGee, & Flett, 2004). SOP has shown to be more strongly related to anorectic symptoms, while SPP has been found to correlate with negative affect and depression, and a wider range of EDs including BED (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Nilsson, Sundbom, & Hägglöf, 2008; Pratt, Telch, Labouvie, Wilson, & Agras, 2001). In summary, research has shown that both achievement striving and maladaptive perfectionism are elevated in patients with AN and BN, while the findings for patients with BED are more inconsistent (Bardone-Cone et al., 2007). In a review of perfectionism in EDs Bardone-Cone et al. (2007) showed that AN is more related to perfectionism compared to other psychiatric diagnoses including other ED diagnoses.

Perfectionism has, in some studies, been considered a trait (Lundh & Öst, 2001; Zuroff, 1994), and in other studies a state (Egan et al., 2011; Jacoby et al., 2004). Trait perfectionism shows temporally stable patterns, while state dependent perfectionism varies. Cox & Enns (2003) conducted confirmatory factor analyses

on perfectionism and depression scorings, showed that SPP was relatively stable, showing a significant decrease at the follow-up one year later, and strong significant test-retest correlations, while SOP was stable with no significant change between baseline and follow-up, and strong significant test-retest correlations. Trait SOP has been suggested to be a vulnerability factor for depression (Cox & Enns, 2003), and it has been suggested that this is also evident for ED development (Bardone-Cone et al., 2007).

Casper (1993) found no differences between patients recovered from AN and healthy controls when measuring perfectionism with the EDI-P. The EDI-P may measure state perfectionism and thus differ from MPS-H. Although findings have been somewhat inconsistent, most studies have shown elevated perfectionism levels in recovered patients, which supports the idea that perfectionism is trait- rather than state-dependent (Bardone-Cone et al., 2007). However, the authors add a saving clause since recovery from an ED only concerns physical and behavioural criteria, there has been no control for ED cognitions (Bardone-Cone et al., 2007). Perfectionism and EDs share a dichotomous nature, that is, all or nothing. A single flaw destroys everything, and catastrophe is a fact (Lethbridge, Watson, Egan, Street, & Nathan, 2011). Guisinger wrote about perfectionism in relation to AN:

> "Ironically, the personality traits that lead to such exemplary behavior appear to be the patients' Achilles' heel; these traits represent the major psychological risk factor for AN. Although serious premorbid psychopathology is not found consistently, the personality traits of perfectionism and rigidity are reliably correlated with development of AN" (2003, p.747).

In EDs the main areas for perfectionism have been suggested to be food, exercise, weight, and body shape (Fairburn, & Harrison, 2003; Slade, 1982). Vohs et al. (2001) showed that perfectionism and body dissatisfaction were related to bulimic symptoms among women with low self-esteem. Perfectionism can also interfere in the treatment of EDs. The dichotomous and rigid thoughts and behaviour that accompany perfectionism have a negative influence on social interactions, and interfere with the alliance between patient and therapist (Hewitt & Flett, 1991; Sutandar-Pinnock, Woodside, Carter, Olmsted, & Kaplan, 2003).

Perfectionism, emotion regulation, and EDs

Parling et al. (2010) showed a negative correlation between perfectionism and results on an emotion-identification performance test in a sample of patients with AN. This suggests that the more difficulties in describing and defining emotions, the higher the level of perfectionism, and vice versa. It was suggested that "the AN patients believe they have difficulties in identifying and describing emotions" (p.

208) rather than really having these difficulties (Parling et al., 2010). Perfectionism may lead to a similar process; a perfectionistic person may believe that they cannot describe emotions well enough. "Some theorists suggest that perfectionism develops in an attempt to avoid uncertainty or in an attempt to establish control, while others suggest that perfectionism produces uncertainty and the desire to control one's own environment" (Frost, Novara, & Rheaume, 2002 , p. 92).

Perfectionism, shame, and EDs

You cannot speak about perfectionism, or EDs, without mentioning shame. "Shame is the intensely painful feeling or experience of believing we are flawed and therefore unworthy of acceptance and belonging" (Brown, 2008, p. 5). Terms like self-worth, self-esteem or self-evaluation are affiliated with perfectionism as well as with EDs. Humans are biologically, cognitively, emotionally, and socially predisposed for, and dependent on, relationships to others. Adaptive shame serves as a protection against alienation from the group by preventing too much erring, or breaking social rules (Greenberg, 2009). Maladaptive shame makes people feel as if they are a mistake rather than that they have made a mistake; shame becomes identity, the self (Greenberg, 2009). Shame is the antipole to perfectionism; perfectionism cannot exist without fear of shame. Control and flawless achievement/ appearance protect against feelings of lower self-esteem and feelings of shame. Behaviour, thoughts, emotions, body function, and appearance are under critical evaluation and modifications due to shame (Skårderud, 2007). Sassaroli, Gallucci, & Ruggiero (2008) suggested that ED "symptoms may be an attempt to retrieve a personal sense of control and self-esteem via the pursuit of perfection, at least in the narrow domain of eating, weight, and body shape" (p.482). However, the goals are often unattainable, and the dichotomous (i.e. "all-or-nothing") nature of perfectionism leads to a sense of failure, and a loss of control and the supposed "cure" makes the perfectionistic prone person to feeling worse (Lethbridge et al., 2011).

EDs and perfectionism may thus develop due to feelings of shame and low self-evaluation, and serve as shame aversion. Shame-regulating behaviour can lead to dysfunctional eating and eating attitudes (Costa, Marôco, Pinto Gouveia, & Ferreira, 2016). As a part of a self-perpetuating cycle, ED patients can also feel shame or pride (when goals are attained) of their disorder, as described by Skårderud (2007): "For many patients, dietary restriction, controlling appetites, changing body shape and resisting the influence/control of others will possibly be connected to a sense of pride, while bingeing behaviour and a more general loss of control may be experienced as a defeat and as shameful" (p. 95).

Body image and EDs

As discussed above, body image and body dissatisfaction are concepts closely related to both EDs and perfectionism, when considering the body as an aim of perfectionistic strivings for patients with EDs (Shafran et al., 2002). Body image is a theoretical realm of its own, encompassing theories on developmental processes with e.g. historical, sociocultural, information processing, and feminist perspectives. Body ideals are related to cultural norms and perceived expectations from others (Cash, & Pruzinsky, 2002). Body image dysfunctions are related to psychiatric disorders, and not least to EDs. In AN, two aspects of body image disturbances are evident; perceptual body size distortion and body dissatisfaction (Garner, 2002). Body dissatisfaction is related to negative affect, and has been proposed to develop as a result of the central evaluative dimension of appearance that concerns females in Western culture (Stice, 2002a). Body size overestimation is common in AN, probably due to unstable mental representations biased by reactivity to ideals, and cognitive and affective variables (Garner, 2002). Body dissatisfaction is associated with dieting and a gateway to ED development. Paradoxically, girls or women with AN are often satisfied with their emaciated bodies, and eventual dissatisfaction with the emaciated body can be regarded as a positive sign (Garner, 2002). As in AN, body dissatisfaction and thin-idealization are transdiagnostic factors, and are also evident in the development and maintenance of other EDs, e.g. BN (Stice, 2002a).

Sense of coherence

Sense of Coherence (SOC) was developed by the Israeli sociologist Antonovsky, and the concept was derived from his theory on salutogenesis. Antonovsky was interested in why and how some people can live through traumatic experiences and still have a good life, while others perish in similar situations. He assumed there are some factors that protect against stressful events and named them "salutogenic" as an antonym to the more commonly used term "pathological". An SOC was defined as a health-sickness continuum, and the position on this continuum determines the individual's ability to predict its external and internal environment (Antonovsky, 1987). Individuals with a strong SOC could therefore withstand distressing experiences and still live a rich life, while individuals with a weak SOC would have more difficulties adapting after similar experiences.

SOC was described as solid attitudes, developed in relation to significant others and life-situations during their lifetime, with a waning changeability over the years (Antonovsky, 1987). Still, it has been shown that SOC increases with age in both genders (Mattisson, Horstmann, & Bogren, 2014). According to Antonovsky a strong SOC mobilizes what he named generalized resistance resources that helps

avoid stressors. Examples of generalized resistance resources are flexibility, intelligence, rationality, knowledge, ability to predict outcomes, and material resources (Antonovsky, 1979).

Three interrelated components are included in the concept; *Comprehensibility*, *Manageability* and *Meaningfulness*. *Comprehensibility* is a cognitive component, and is related to the degree of how understandable experiences are (Figure 2). *Manageability* is a behavioural component related to how well the individual knows how to handle experiences, and whether he or she has tools to deal with the situation. Finally, *Meaningfulness* is a motivational component that comprises the ability to create and strive for values (Antonovsky, 1987). Setbacks are considered to be parts of the way towards the values and are worth the effort and the engagement it takes. *Meaningfulness* implies that even the worst experiences can be dealt with through a sense of meaning and certainty to survive the experience with some kind of dignity (Antonovsky, 1987).
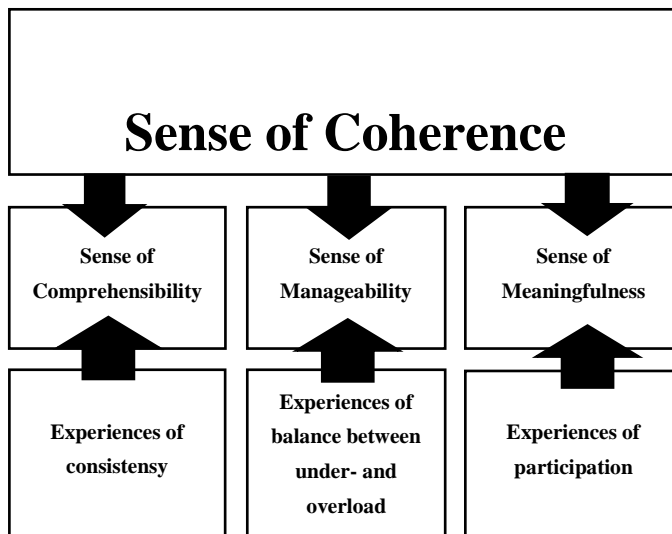
Figure 2.
A model of the Sense of Coherence concept. Revised model from Krause, 2011.

Sense of Coherence, perfectionism and EDs

There has been substantial research on SOC and health related behaviour, stress, psychosomatic, psychiatric, and organic disorders, but research on EDs and SOC is sparse. Women with an ED have been shown to have a weaker SOC than the general population (Hansson, & Cederblad, 1995; Keller, 1997; Tagay, Mewes, Brähler, & Senf, 2009). One could speculate on whether experiencing a weak SOC is a result

of the consequences of the ED. According to Antonovsky (1987), SOC develops in relation to significant others and life-situations, especially during the formative years, and SOC has been described as "solid attitudes". The onset for the majority of ED patients is usually during the teens or twenties. This may support an earlier SOC development compared to ED. Some researchers have suggested that perfectionism is a trait shared by family members (Bardone-Cone et al., 2007). From that perspective both EDs and a weak SOC could be results of trait perfectionism. This is solely hypothetical since published research on perfectionism and SOC, besides this study, seems to be non-existent.

Research papers

Aims

The aim of the present thesis was to further the understanding of perfectionism in EDs by the investigation of clinical transdiagnostic samples of patients with ED diagnoses.

The aims of the specific studies were:
  I.   To describe the relationship between perfectionism and SOC among patients with EDs.
  II. a) To investigate whether there are different patterns of perfectionism regarding EDI-P dimensions, extent, and perseverance/changeability over time (6 months) in a clinical sample of patients with EDs, and b) To describe how these patterns (if found) are related to long-term outcome.
  III. a) To describe experiences and descriptions of perfectionism in patients with EDs, and b) to investigate whether descriptions differed between participants with high or low scores, respectively, on EDI-P.

Participants and settings

The studies presented in this thesis include 404 participants (5 men), all patients with EDs, in two different settings. Studies I and III were conducted at a public, youth/adult, integrated psychiatric outpatient clinic, the AnorexiBulimiCenter (ABC), specializing in the treatment of ED in southern Sweden. ABC receives approximately 150 new patients yearly. About 2 % of the patients are men. Diagnostic evaluation is performed at admission, by a staff experienced in the assessment and treatment of EDs.

In Study II data was retrieved from the Coordinated Evaluation and Research at Specialized Units for Eating Disorders (CO-RED) (further described in Björck, Clinton, Sohlberg, & Norring, 2007; Björk, Clinton, & Norring, 2011). The CO-RED included 14 specialist treatment centres across Sweden, ABC not included. The CO-RED units offered a wide variety of recognized therapeutic interventions

for ED and concomitant psychopathology. Treatment included individual, family or group therapy, psychopharmacological medication, and expressive treatment forms. Staff members well versed in the treatment of EDs at participating treatment units collected the data. The instrument battery in CO-RED consisted of both interviews and self-reported inventories. The initial assessment was completed at the treatment start, and thereafter follow-ups at 6, 12, 18, and 36 months, respectively, were carried out.

While the work on this thesis has continued, new diagnostic criteria have been developed, which complicates a summary of diagnoses in the included studies. A summary of age ranges and diagnoses is provided in Table 1.

Table 1.
Overview of ages and DSM diagnoses for the participants in the studies.

Study	Ages	DSM	ED diagnoses n (%)
I	Range: 14-53 years mean=22.3 (sd= 7.2)	IV	AN: 13 (14) BN: 17 (18) EDNOS: 65 (68)
II	Range: 18-50 years mean=25.5 (sd =7.1)	IV	AN: 76 (26) BN: 104 (35) EDNOS: 114 (39)
III	Range: 18-44 years Median= 24	5	AN: 4 (27) BN: 4 (27) OSFED: 7 (47)

Methods – a quantitative and qualitative approach

The three included studies contribute to the aims from different perspectives. Due to the different types of research questions the thesis deals with, it represents a mix of quantitative and qualitative research methods. In two of the studies (I and II) quantitative methods were conducted, and in one study (III), both qualitative and quantitative methods were used.

Data collection

Participants in Study I were recruited 2009-2010, and in Study III 2014-2015. CO-RED data, used in Study II, was collected 1995-2001 (Table 2). Self-reporting measures were used in the studies. The perfectionism scale in the EDI was used throughout all three studies. In the following section the psychometric measures in the studies are further described.

The Eating Disorder Inventory -2 and -3 (EDI-2, EDI-3)

The total EDI-2 was used in Study II. The EDI-2 is a 91-item self-report questionnaire designed to measure ED related constructs (Garner, 1991). The EDI-2 consists of eleven scales; (1) Drive for thinness, (2) Bulimia, (3) Body Dissatisfaction, (4) Ineffectiveness, (5) Perfectionism, (6) Interpersonal Distrust, (7) Interoceptive Awareness, (8) Maturity Fears, (9) Asceticism, (10) Impulse Regulation and (11) Social Insecurity. Respondents are asked to rate each item on a 6-point scale, ranging from "never" to "always". The points are hidden for the patients/research person, and are recoded as 0,0,0,1,2,3 (Garner, 1991).

The EDI scales can be combined into two global measures; the first three scales measuring central ED symptoms (EDI-ED) and the following eight scales measuring psychological correlates of EDs. During the work with this thesis, the EDI has been revised for the third time (Garner, 2004). The 91 items are the same as in the second version, but new factor analyses have been performed, and the items have been reorganized into 12 scales (Garner, 2004). Some scales are unchanged, and some are refined and renamed. The 6-point scale, ranging from "never" to "always" remains, although the scorings are now recoded as 0,0,1,2,3,4, which generates higher points compared to the second version of the measure (Garner, 2004).

The Eating Disorder Inventory-Perfectionism subscale (EDI-P)

The EDI-P was used in all three studies. However, in Study III the third revision of EDI was used. Despite the third revision of the EDI, the items in the EDI-P are unchanged in the new version (Garner, 2004). The set-up is the same, but recoding has been changed in the new version, making comparisons more complicated. The scale has been shown to consist of two subscales with three items each (Bardone-Cone, 2007; Joiner & Schmidt, 1995; Lethbridge et al., 2011; Sherry et al., 2004): item No 13: "Only outstanding performance is good enough for my family", 29: "As a child, I tried very hard to avoid disappointing my parents and teachers", and 43: "My parents have expected excellence from me" are related to Socially Prescribed Perfectionism (EDI-SPP), while items No 36: "I hate being less than best at things", 52: "I feel that I must do things perfectly or not do them at all" and 63: "I have extremely high goals" are related to Self-Oriented Perfectionism (EDI-SOP). Perfectionism, measured with EDI-P, in patients with EDs was not shown to be diagnosis-specific (Clinton & Norring, 2005; Nevonen, Clinton, & Norring, 2006). The SPP scale concerns expectations from parents and teachers. Two of the EDI-SPP items are in the past tense, which differs from the formulations in the remaining EDI-P items.

The Sense of Coherence Scale (SOC-29)

The SOC-29 was used in Study I. SOC-29 is a 29-item self-report questionnaire designed to measure Antonovsky's (1979; 1987) salutogenic construct sense of coherence, which has been described as "a global orientation to view the world and the individual environment as comprehensible, manageable, and meaningful, claiming that the way people view their lives has a positive influence on their health" (Eriksson & Lindström, 2005, p. 460). SOC is used as an outcome measure for psychotherapeutic interventions (Gassne, 2008; Söderhamn & Holmgren, 2004). The measure has seven-point Likert scales for each item. The total score ranges from 29 to 203. Non-clinical adults generally score 152 (+/-10) while non-clinical schoolchildren generally have lower scores than adults (146+/- 10) (Hansson & Cederblad, 1995). Gassne (2008) divided the SOC-scores into three grades: weak (</= 122), moderate (123–162) and strong (>/= 163). Patients in need of greater support from healthcare professionals have been shown to score generally lower on the scale (Cederfjäll, Langius-Eklöf, Liedman, & Wredling, 2002).

The Symptom Check List-63 (SCL-63)

The SCL-63 was used in Study II. The SCL-90 is a multidimensional self-assessment checklist measuring psychiatric symptoms (Derogatis, Lipman, & Covi, 1973; Derogatis, Lipman, Rickels,, Uhlenhuth, & Covi, 1974). In Study II the shortened, 63-item version of the SCL-90 was constructed by removing subscales assumed to be of lesser relevance for ED patients i.e. *Phobic anxiety*, *Paranoid ideation*, *Psychoticism*, and additional scales. The six subscales used were *Somatisation*, *Obsessive-compulsive*, *Interpersonal sensitivity*, *Depression*, *Anxiety*, and *Hostility*. The respondents were asked to rate each item from 0 to 4 on a five-point scale. The shorter form is considered to have the same psychometric capacity as the original (Derogatis, et al., 1974). Earlier research on SCL-63 and EDs has not shown any differences between ED diagnoses (Clinton & Norring, 2005).

The interviews

The data collection in Study III was conducted by semi-structured interviews, and previous EDI-P scorings. The interviews were conducted according to a guide constructed by the authors (Appendix 2). The guide was developed using experience gained in clinical work with ED patients, and qualitative research of psychiatric patients performed by the authors.

The interview guide used a funnel approach with open-ended questions, starting with a number of wider "trigger questions" for each area, such as "What role does perfectionism play in your life?", or "What are the possible consequences of perfectionism?", and "How do you think perfectionism develops"? Then the

questions became more specific, such as "Would you call yourself perfectionistic?", and "Are there any positive or negative effects of perfectionism?" The interview guide also included questions on definitions of perfectionism, variability versus stability, positive and/or negative aspects, development of perfectionism, and connections between perfectionism and health. The guide was pilot tested in three initial interviews. Data from the pilot interviews was later included in the analysis, as the test resulted in only minor revisions to the original interview guide. The interviews were held at the treatment unit. They lasted between 45 and 70 minutes, and were audio recorded. The first author conducted all interviews.

Table 2.
Overview of participants, setting, sampling method, data collection and data analyses for the studies.

Study	Participants	Setting	Sampling	Data collection	Data analysis
I	n=95 (1 man)	ABC	Consecutive	EDI-2 SOC-29	Descriptive and inferential statistics
II	n=294 (4 men)	CO-RED	Consecutive Longitudinal Multicenter study	EDI-2 SCL-63	Descriptive and inferential statistics
III	n=15	ABC	Consecutive	Semi-structured interviews EDI-3	Thematic analysis, descriptive and inferential statistics

Study I – Sense of Coherence among patients with eating disorders

Aim

The study aimed to describe the relationship between perfectionism as operationalized by Garner in the EDI-2 and SOC as defined by Antonovsky in the SOC-29 scale. The hypothesis was that SOC should be negatively associated with perfectionism.

Method

The study was cross-sectional and ninety-five participants, including one man, were recruited consecutively in a clinical context (Table 2). Ages ranged from 14-53

(M=22.3, SD 7.2) (Table 1). BMI ranged from 14.4 - 44.8 (M=21.1, SD 4.4). The DSM-IV diagnoses were divided into AN, 14% (n=13); BN, 18% (n=17), and EDNOS, 68% (n=65), respectively (Table 1). The sample was representative for the patient clientele of the studied clinic. The EDI-2 (EDI-2) (Garner, 1991) and the Sense of Coherence Scale-29   (SOC-29) (Antonovsky, 1987) were used as self-report measures.

Statistical analysis

Data was analysed by descriptive and inferential statistics. In order to evaluate the extent to which scales and subscales met the criteria for internal consistency, reliability, inter item correlations, as well as Cronbach's α were calculated. The non-parametric Spearman's rank correlation was used for correlation tests. T-test for dependent groups was used, comparing means between the EDI-SPP and the EDI-SOP and means between the "very low" versus the "low" SOC-score groups. The material was divided into two groups according to the median of the SOC-scores. STATISTICA version 10 (StatSoft®, Tulsa, OK, USA) was used for the analyses.

Results

The results showed a significant negative correlation between the SOC-scale and the EDI-P. Significant negative correlations were also shown when relating the three SOC components to the total EDI-P and SPP. The strongest correlation was between the SOC component *Meaningfulness* and SPP, and between *Manageability* and SPP. SOP deviated from this pattern, and was only (negatively) correlated to *Manageability*. The weakest correlations were between the SOC-component *Comprehensibility*, and the EDI-P scales.

The EDI-P showed satisfactory internal consistency reliability with Cronbach's α= .80 for the total scale. When dividing EDI-P into two subscales, the α was = 0.74 for EDI-SPP and = 0.78 for the EDI-SOP. The SOC scale showed satisfactory reliability considering internal consistency with an α –level of 0.89. When dividing the SOC-scale into its three components, the internal consistency reliability was somewhat reduced (Cronbach's α for *Meaningfulness* = 0.85, *Manageability*= 0.73, and *Comprehensibility*= 0.70), although still acceptable (Nunnally & Bernstein, 1994).

Figure 3 illustrates a median split of the SOC scores related to the EDI-P scores. The group that comprised the lowest SOC-scores had significantly higher scores on the EDI-P (t=2.78, p= 0.0007).

Boxplot for EDI-P and degree of SOC
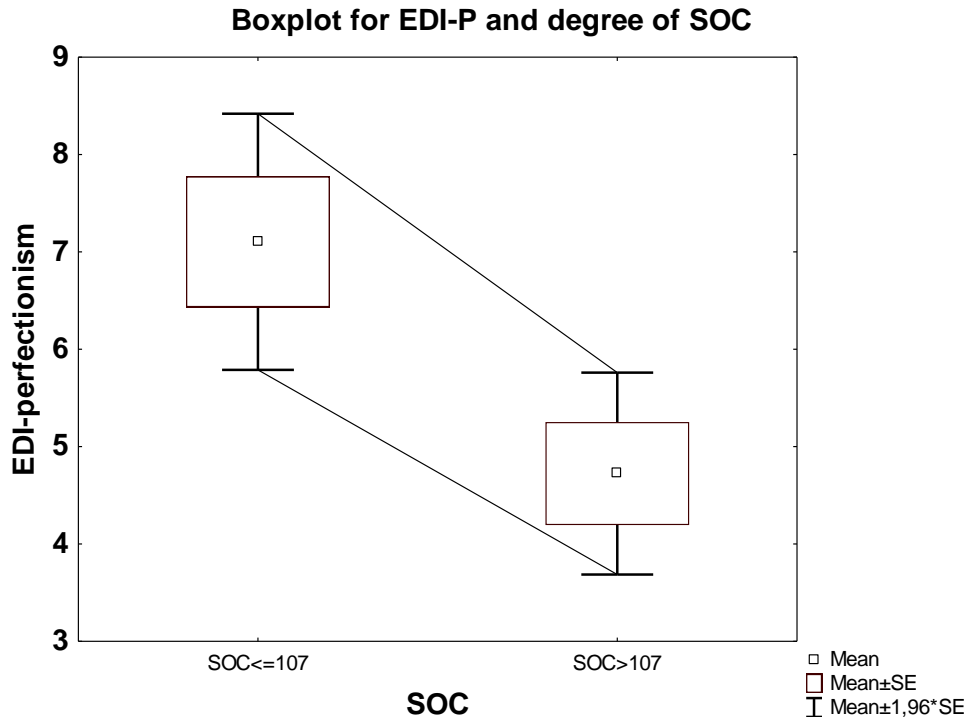
Figure 3.
Box plot displaying comparisons between EDI-P and SOC-subgroups; "very low" (SOC<=107) and "low" (SOC>107) scores, t = 2.78, p=.007.

The EDI-P reached the reliability criterion with α=0.80 for the total scale. When dividing EDI-P into SPP and SOP the internal consistency was α=0.74 for SPP and α=0.78 for SOP. There was a 0.45 correlation between SPP and SOP. The patients scored significantly higher (t=5.82, p< .0) on SOP (M=3.8, sd= 2.8) compared to SPP (M=. 2.2, sd= 2.3). The scorings on the SOC-scale in the material were low (M=106.5, sd= 20.8) since </= 122 has been considered a weak SOC (Gassne, 2008).

Study II - Perfectionism in eating disorders - are long-term outcomes influenced by extent and changeability in initial perfectionism?

Aims

Study II aimed to investigate for different patterns of perfectionism regarding EDI-P dimensions, extent, and perseverance/changeability over time (6 months) in a clinical sample of patients with EDs, and describe how these patterns (if found) are related to long-term outcome.

Method

Scorings on EDI-SPP and EDI-SOP at baseline and the six-month follow-up were used in a cluster-analysis to explore patterns of perfectionism. The EDI-2 and the Symptom Checklist-63 (SCL-63) together with the frequency of ED diagnoses were used as outcome measures. The sample comprised 294 patients, most commonly diagnosed as EDNOS (Table 1).

Statistical analysis

Cluster analysis

Data was divided into clusters using the initial and six-month measures of the EDI-SPP together with the initial and six-month measures of the EDI-SOP. The analysis was conducted in three steps. After controlling for outliers in the data (none found), cluster analysis was conducted with Ward's hierarchical method in order to identify the optimal number of clusters. The hierarchical solution was further analysed by conducting a non-hierarchical k-means cluster analysis for five clusters in order to optimise results. According to Bergman (1988) the Explained Error Sum of Squares (EESS) for the cluster solution should be more than 50%. The EESS for the chosen five-cluster solution was 66.3 %. Clusters are presented in Figure 4.
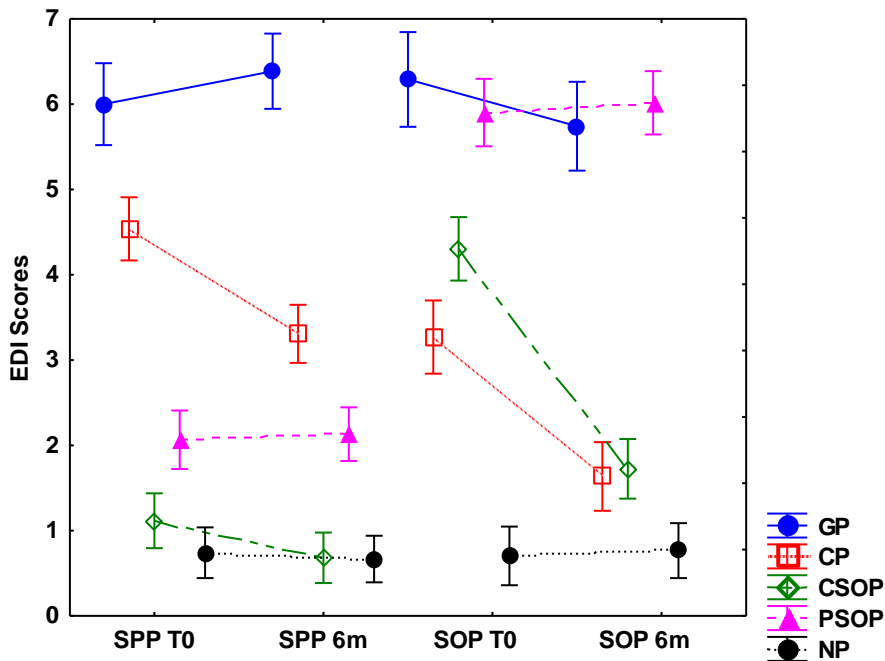
Figure 4
The five clusters constructed from the scorings of EDI SPP and EDI SOP at baseline and at the six-month follow-up. General Perfectionists (GP), Changeable Perfectionists (CP), Changeable Self-oriented Perfectionists (CSOP), Persistent Self-oriented Perfectionists (PSOP) & Non Perfectionists (NP).

Other statistical analyses

Descriptive statistics was computed for the five clusters. Analyses of internal consistency of the assessment scales were performed. Pearson's r for the included variables at baseline was computed. Repeated measures ANOVA was used to determine whether the within-group changes of SPP and SOP (at baseline and 6 months) for the clusters were significant, and in case of significance Scheffé's test was used. Repeated measures ANOVA, followed by Scheffé's post hoc analysis in case of significance, were also used to determine whether the within-group changes between baseline and the 36-month follow-up of the outcome variables were significant. The differences in outcome between clusters were made with repeated measures ANOVA followed by Scheffé´s tests in case of significance. The frequency of diagnoses at the 36-month follow-up was calculated. STATISTICA version 12 (StatSoft®, Tulsa, OK, USA) was used for the analyses.

Results

The clusters

The first cluster of five was labelled "General perfectionists" (GP) and was characterized by a high initial SPP and SOP; and the ratings did not change significantly at the six-month follow-up (Figure 4). The second cluster, labelled "Changeable perfectionists" (CP), had a high SPP and a moderate SOP at baseline, but the ratings were significantly less at the six-month follow-up for the two subscales. The third cluster, labelled "Changeable self-oriented perfectionists" (CSOP) was characterized by a low SPP and a high SOP at baseline (T0), and by significant reductions in the ratings of SOP at the six-month follow-up. The fourth cluster, labelled "Persistent self-oriented perfectionists" (PSOP), showed a moderate SPP and a high SOP, both unchanged at the six-month follow-up. The last cluster, labelled "Non perfectionists" (NP), showed low and stable ratings on both SPP and SOP at baseline (T0), and at the six-month follow-up (Figure 4).

Outcome

SOP and SPP correlated significantly (r= .39, p< .001). EDI-ED and EDI-PSYNOP were both significantly correlated with all SCL-63 variables (r= .22- .4, p< .001 for EDI-ED) and (r= .43- .67, p< .001 for EDI-PSYNOP). SOP was significantly correlated with all outcome variables at baseline (r= .16- .36, p< .01 - .001), the strongest correlation was with EDI-PSYNOP. SPP was most strongly correlated to SOP (r= .39, p< .001) and EDI-PSYNOP (r= .27, p< .001). Due to the rather large sample, and the risk for mass significance Pearson's r < .3 should thus be regarded as a weak correlation.

All five clusters showed significant changes (less symptoms) between baseline and the 36 month follow-up for five of the eight outcome variables: EDI-ED, EDI-PSYNOP, SCL *Obsessive-compulsive*, SCL *Interpersonal sensibility*, and SCL *Anxiety*. The PSOP cluster showed significant changes between baseline and the 36-month follow-up for all variables (Appendix 3). All clusters with exception for the CP cluster showed significant changes for the SCL *Somatization* scorings, and the PSOP and NP clusters showed significant changes for the SCL *Hostility* variable. The CP cluster showed the least number (six out of eight variables) of significant changes after 36 months.

The NP cluster scored lower on EDI-PSYNOP at baseline than the GP, the CP, and the PSOP clusters (p< .01). The NP cluster scored lower on SCL *Obsessive-compulsive*, SCL *Interpersonal sensibility*, and SCL *Anxiety* than the PSOP cluster (p< .01- p< .001).

There were no significant differences between any of the clusters regarding improvement rate with exception for EDI-PSYNOP at the 36 month follow-up.

Thus the significant baseline differences between clusters (seven out of eight outcome variables) had levelled out. Diagnoses at the follow-up were missing for 26 patients, and there were no differences between the clusters in that regard. No significant differences in recovery rates between the clusters were found when analysing the frequency of diagnoses at the 36 month follow up, missing data included. When excluding missing data there was a significant difference between the clusters regarding recovery from ED. Fewer patients in the PSOP-cluster were recovered compared to the patients in the GP-cluster (Chi 2 p= .039, Fisher exact p= .0341).

Study III - A Sisyphean task: Experiences of perfectionism in patients with eating disorders

Aims

The aim of the study was a) to get descriptions from in patients with EDs in order to illuminate experiences of perfectionism, and b) to investigate whether descriptions differed between participants with high or low scores, respectively, on a perfectionism measure.

Method

Data was collected by individual semi-structured interviews. They were conducted according to an interview guide constructed by the authors (Appendix 2). The participants' scorings on the EDI-SPP and EDI-SOP at assessment before treatment were also used in the last study to investigate whether descriptions differed between participants with high or low scores.

Statistical analysis

The results of the EDI-3 were checked during the data analyses to learn whether descriptions of perfectionism were related to the assessed degree of perfectionism. Cronbach's α was calculated for the total EDI-P as well as for the two subscales. The EDI-3 cut off score (>7 points, raw score) was used to determine whether a participant scored high or low on the EDI-P subscale. The Wilcoxon rank sum test was performed to compare the EDI-SPP and EDI-SOP scores. STATISTICA version 12 (StatSoft®, Tulsa, OK, USA) was used for the analyses.

Qualitative analysis

The interview data was analysed by thematic analysis (Braun & Clarke, 2006). Data was transcribed verbatim by the first author and then analysed as follows: The transcripts were first divided into low and high perfectionism narratives (according to the informants' scores on EDI-P), and were then further analysed in these two datasets. The first author read and reread the datasets and recognized sentences and parts of sentences as initial codes. The initial codes in the two datasets were then compared by the first (SP) and last authors (KIP), and as there were no apparent differences, the data was further analysed as one dataset.

Codes from four of the interviews were then randomly drawn, and all three authors suggested, in an inductive process, preliminary themes for the initial codes. Six themes were then agreed upon, thus forming an initial theme system. The codes from the following interviews were then either deductively fitted into the initial theme system or temporarily put aside as non-fitting codes. The non-fitting codes were inductively used tracing new themes. Six additional preliminary themes were found. All themes found were reviewed independently by the first and last authors in relation to codes and interview texts. This process reduced the number of themes, and some themes were renamed. The theme system was then found consistent with the data and therefore regarded as final.

Results

Seven themes were found in the interviews: *The origins of perfectionism*, *Top performance*, *Order and self-control, A perfect body, Looking good in the eyes of others, A double-edged coping strategy,* and *A Sisyphean task.*

Most participants felt that perfectionism developed during adolescence. The origins of perfectionism theme was considered mainly related to familial factors, although interestingly, with conflicting hypotheses; either perfectionistic or "untidy" parents were considered the cause of perfectionism. Participants, however, reported a difference between themselves and their siblings. Participants reported that individual differences together with early messages from teachers, coaches, peers, and the media regarding achievement and success, may also influence the development of perfectionism. Perfectionism was mainly associated with orderliness, cleanliness and top performance. Competing above one's level was described as a coping strategy, thus decreasing possibilities to win, but providing, on the other hand, a possibility to explain less successful results. This might also be connected to the unwillingness of being associated with the term "perfectionism" mentioned in some of the interviews. To be perfectionistic might imply high

demands, which should be avoided in order not to be exposed. Being perfect (-ionistic) was also suggested to evoke envy, and was thus considered threatening.

Appearance in the eyes of others (SPP) was held important by many of the participants. Scorings on the EDI-P showed a significantly higher extent of SOP than SPP among participants. In contrast to the formulation of EDI-SPP, the participants in this study did not express that performance was particularly directed towards family or teachers. On the contrary, they expressed dubious thoughts about parental trustworthiness. Although research has shown that patients with an ED direct their perfectionistic striving to weight and body shape, the aim of obtaining a perfect body was not described as a primary perfectionism target. Only half of the participants discussed perfectionism in relation to physical appearance. This suggests that the motive behind controlling the body is more often related to other functions, e.g. affect regulation.

The downside of control is that harshness towards oneself and obsessive compulsive traits are enhanced at the cost of spontaneity. Some participants noted the risk of developing an obsessive compulsive disorder (OCD). Similarly, they associated their EDs with control. Both EDs and perfectionism can provide a sense of order and control. Participants experienced that perfectionism increased along with the EDs, and participants considered perfectionism secondary or contemporaneous, rather than predisposing, to the ED, and that this was contrary to their description of perfectionism and OCD development.

After the interviews the EDI-3 scores were compared with the content in the interviews. Five participants scored below (3-7 points), and ten scored above (8-24 points) the cut-off score. Notable is that among the high scorings two were exactly above the cut-off (8), and there was a gap between 8 and the remaining high scores. There was a significant difference ($p < 0.008$) between variables where the scores for SOP were higher. No differences in the narratives related to EDI-perfectionism scores or ED diagnoses were found.

Some participants (n= 5/15) did not consider themselves being perfectionistic. Seven of the participants showed deviating results when comparing the EDI-P scorings with their self-descriptions. Nevertheless, soon into the interview, the narratives were presented from a perfectionist's view.

Discussion

On the surface the concept of perfectionism appears easy to understand and describe. However, defining perfectionism is complicated and multifaceted. In a similar way, the role of perfectionism in EDs is complex and nonlinear (Flett & Hewitt, 2002). Together, these lead to conceptual challenges and contradictive results in research. In the following section the main findings and conclusions of the studies are summarized and discussed.

Perfectionism and Sense of Coherence

Study I was one of but a few published studies on SOC and patients with EDs, and the first to examine SOC and perfectionism. The SOC scores indicated a weak SOC, which corroborated with earlier studies on SOC and EDs (Hansson & Cederblad, 1995). The patients in the study scored consistently with other Swedish ED samples on the EDI-P (M=6.0, SD=4.4), which was significantly lower compared to results from other countries (Nevonen et al., 2006; Norring & Sohlberg, 1988). SOC and perfectionism were investigated, and significantly reversed correlations between the variables, especially SPP and SOC, were shown.

Perfectionism was suggested to be a compensatory strategy used to cope with difficulties related to a weak SOC. Shafran et al. (2010) described perfectionism as a compensatory strategy for lacking self-worth. Krause (2011) studied immigrant school children and related their self-worth to SOC. Her study was longitudinal, and contained both qualitative and quantitative methods. She showed that sturdy self-worth was a vital resource for wellbeing, achievement, and a sense of belonging (Krause, 2011). Antonovsky's SOC concept is based on stress, resources/coping and motivation (1979). When we are exposed to stressors, a sense of predictability (comprehensibility, cognitions) is helpful for adaptive coping. Knowing how to handle stress (manageability, coping strategies) is also important to maintain control. An ability to find meaningfulness (motivation) even in very stressful situations has been shown to be a determinant for the ability to cope with emotionally challenging life events (Antonovsky, 1979; Eriksson & Lindström, 2005). A strong SOC is thus related to adaptive coping strategies. The patients in

the study generally scored themselves as having a weak SOC. Their ED symptoms and high level of perfectionism can be seen as either, not so adaptive, strategies to avoid negative emotions and cognitions following difficulties dealing with stressors, or the opposite; experiencing a weak SOC is a result of the consequences of ED or perfectionism. Taking the latter approach, some researchers have suggested that perfectionism is a trait shared by family members (Bardone-Cone et al., 2007), and from that perspective both EDs and a weak SOC could be the results of trait perfectionism. Antonovsky (1987) described SOC as solid attitudes that develop in relation to significant others and life-situations, especially during the formative years. Early developed perfectionism could affect SOC development negatively, for example, if the perfectionistic demands were experienced as uncomprehensive and unmanageable. The stability of SOC over a life span has been questioned (Eriksson & Lindström, 2005), and it is possible that SOC could be influenced by ED symptoms. Experiences of ill being may influence self-assessment scores in a negative way. Most likely, interaction and enhancement are parts of a vicious circle.

Patterns of perfectionism

In Study II we found that patients with EDs showed different patterns of perfectionism regarding the extent and perseverance of EDI-SPP and EDI-SOP. However, there were no relationships between perfectionism patterns and long term outcomes for ED symptoms, ED diagnoses, or related psychiatric morbidity. The relationships between perfectionism and EDs and other psychiatric symptoms were apparent at baseline, but not after three years. Some patients remained perfectionistic, and a large part of the sample never scored themselves as perfectionists from the start. In a longitudinal study on patients with restrictive AN it was shown that the EDI-P scorings did not change from the eight-year to the 16-year follow-up (Nilsson et al., 2008). However, in that study EDI-P was not measured at baseline, so the first measure of EDI-P was eight years after the first admission for AN. In that study the EDI-2 and the SCL-90 were used as outcome measures, and significant recovery on the EDI and SCL scales were shown (Nilsson & Hägglöf, 2008). This finding was corroborated in Study II, in which most patients scored significantly lower on the EDI and SCL-63 at the three-year follow-up. Almost half the patients in Study II no longer filled the criteria for an ED, regardless of their perfectionism patterns.

Research on perfectionism as a predictor for ED development is limited (Bardone-Cone et al., 2007). Retrospective studies, using measures other than EDI-P or MPS-H, have shown evidence for childhood perfectionism as a predictor of EDs, suggesting that trait perfectionism predicts ED development (Bardone-Cone et al.,

2007). Retrospective studies are problematic due to biases as inaccurate, or selective recall (Bardone-Cone et al., 2007). EDI-P at ages 12-18 has been shown to predict young adult onset (ages 20-24) of AN, but not BN (Tyrka, Waldron, Graber, & Brooks-Gunn, 2002). However, EDI-P at ages 12-16 did not predict earlier AN onset (Tyrka et al., 2002). Perhaps the results can be seen as an exception, since a later onset is less common in AN. Similar to the results in Study II, Clausen (2008) showed that 48.7% of ED patients reached remission after 2.5 years, and their scorings on the EDI-subscales (with the exception for Maturity fears subscale), and on the SCL-90, were significantly improved. The findings from Study II showed that perfectionism was not a predictor for EDs, and supported the results of Clausen's (2008) study.

Patient descriptions of perfectionism

The patients in the third study described how perfectionism and EDs work in a similar manner, suggesting that one main function of perfectionism is to experience a sense of control. The description of the function of perfectionism corroborated the model by Shafran et al. (2010). Perhaps some patients use two (or more) parallel systems for dealing with unwanted emotions. Participants also described OCD and addiction problems serving the same functions as perfectionism. The need for experiential avoidance and control is central to EDs, and not least for AN (Fairburn et al., 2003; Schmidt & Treasure, 2006). Dieting and weight control, as well as high performance, lead to positive (feelings of success) and negative (experiential avoidance) reinforcement. Order and control, and top performance were common descriptions, as was insight into the impossibility of ever reaching flawlessness, similarly to how David Burns once described perfectionism (1980).

The patients in the studies scored lower than the North American comparison group from the manual. This corroborates findings in other Swedish studies (Nevonen, et al., 2006; Nyman-Carlsson, Engström, Norring, & Nevonen, 2015). There may be cultural differences in how we describe perfectionism, and from whom we seek approval. The SPP scale contains items related to parents and teachers, but other groups of significant others, e.g. peers, could be more important to Swedish people. The participants in Study III referred to parents and "school", but also to peers, ideals in the media, and not least the social media. When patients score low on the SPP, the results of the interviews suggest it advisable to inquire into whether they consider appearance in the eyes of others important, and to define the owner of the critical eye.

Clinical implications

There have been contradictions regarding treatment of perfectionism in patients with EDs (Bardone-Cone et al., 2007). Fairburn (2008) considered perfectionism an important aspect of EDs to be especially considered in treatment, and Levinson & Rodebaugh (2016) suggested that interventions targeting perfectionism should be tested in an early phase of ED treatment. However, the results of Study II were in line with a study by Schmidt & Treasure (2006), who claimed that perfectionism has not been shown to affect outcomes in EDs, and that interventions aiming at reduction of perfectionism have not been shown to improve the outcomes of EDs. It has been suggested that one function of perfectionism is as a strategy for dealing with troublesome emotions (Bardone-Cone et al., 2007). ED behaviour and symptoms, not least starvation has, in some studies, been suggested to function as an escape from emotions (Schmidt & Treasure, 2006). ED behaviour and symptoms, as well as perfectionistic behaviour seem, thus, to share the same function. Cano, Fernandez, Saenz, Moreno, & Leal, (2016) showed that body image was most associated with perfectionism, and that an interplay between body dissatisfaction and perfectionism created a foundation for ED development, but the participants in Study III did not stress body dissatisfaction as an area of perfection. The results of the studies in this thesis showed a correlation between SPP and SOC, but in contrast to e.g. the work of Fairburn (2008), no relationship between perfectionism and ED were found. It seems as if perfectionism parallels EDs, perhaps sharing some of their functions.

And how does this affect treatment? Perfectionism causes distress to both perfectionists and those near them. Self-criticism, self-esteem, achievement, and interpersonal relations can be negatively affected by perfectionism. Regardless of whether perfectionism is related to EDs or not, it can cause problems in itself. Considering perfectionism as a compensatory strategy, as suggested in Studies I and III, it could still be advantageous to identify and address vulnerabilities controlled by perfectionism. If SOC components such as *Meaningfulness* and *Manageability* are dealt with by a striving for flawlessness, should treatment focus rather on strengthening these components? If perfectionism acts as prevention against shame, should treatment focus on shame management? And so on, the main issue perhaps is to find out what perfectionism "hides" or compensates, and work with that rather than focus on perfectionism per se.

Strengths and limitations

In the following sections some of the strengths and limitations of the studies in the thesis will be discussed further.

The three studies shared a clinical and transdiagnostic view on EDs according to suggestions from earlier research (Egan et al., 2011; Fairburn & Bohn, 2005; Fairburn et al., 2003; 2007). Using a transdiagnostic perspective enhanced clinical relevance, since different diagnoses show symptom overlap, and common maintaining mechanisms, besides the significant migration between the different ED diagnoses (e.g. Fairburn & Bohn, 2005).

In order to widen the understanding of perfectionism, and to strengthen generalizability, the methodological approaches differed; the first study was a consecutive, cross-sectional study with patients from one specialized treatment centre in Sweden. The second study used data from a longitudinal, naturalistic multicentre study with participants from 14 specialist treatment centres in Sweden. The data was used to investigate whether different patterns of perfectionism in EDs were related to long-term outcomes.

The quantitative studies were complemented by a qualitative study in which patients with EDs described their experiences and descriptions of perfectionism; and it was investigated whether the descriptions differed between participants with high or low perfectionism. However, the sample was too small to draw conclusions regarding quantitative results, but further studies on comparisons between EDI-P scorings and qualitative descriptions would be valuable.

The EDI-Perfectionism scale was used to measure perfectionism throughout the studies, divided into self-oriented and socially prescribed aspects. The conceptualization of perfection was thus similar in the three studies.

Due to the consecutive recruitment of participants in the studies, most participants in this thesis were women (499/504). However, female dominance reflects clinical reality (Allen, Byrne, Oddy, & Crossby, 2013). Another limitation was that all studies were performed in Sweden. Swedish patients with EDs have been shown to score generally lower on the EDI compared to international samples, which has also been shown for EDI-P scorings (Norring & Sohlberg, 1988; Nyman-Carlsson et al., 2015). All of this reduces the generalizability of the findings.

The co-morbidity aspect with a frequent diagnosis overlap was not investigated in the first and third studies. Self-reported data has been used in the three studies, which entails risks of response bias. At the same time, using well established, valid, and reliable measurements ensured that the included variables were measured in the same way in the different research settings. The EDI-P is often used in research on

perfectionism, and it is a valid, reliable, relatively short and convenient scale (Clausen, Rokkedal, & Rosenvinge, 2009; Garner, 1991; 2004; Nevonen et al., 2006; Nyman-Carlsson et al., 2015). The scale was used in the clinical context, where the first and third studies were performed, and was also available in the CO-RED database. Still, some objections have been raised against the EDI-P scale, sometimes considered to be an insufficient measure of perfectionism (e.g. Hurley, Palmer, & Stretch, 1990; Peck & Lightsey Jr, 2008).

A strong SOC was shown related to good health, and a low SOC has been associated with somatic and psychiatric health-related behaviour, stress, psychosomatics, psychiatric, and organic disorders (e.g. Feldt, Kokko, Kinnunen, & Pulkkinen, 2005). However, some critique has been leveled at the SOC scale, and questions have been raised on whether the scale measures according to Antonovsky's theoretical concept of the scale (Lindström & Eriksson, 2005). Validity has in some studies been found weak, and it has been shown to be a multidimensional measure rather than the one-factor scale proposed by Antonovsky. Furthermore, the scale has been shown to be more unstable than presented (Eriksson & Lindström, 2005; Sandell, Blomberg, & Lazar, 1998).

In the second study questions were posed against previously collected data. Taking advantage of collected data is a way to recycle data economically, but reduces the possibilities to pose some questions. The database used for the study did not reveal the treatment given, and perhaps some patients with high perfectionism scores received different, or more treatment compared to the non-perfectionists, thereby affecting outcome. The data was enhanced with a qualitative study, although there is a risk for interpretation of the interviews to either confirm or falsify existing theory (Lincoln & Guba, 2000; Ponterotto, 2005). In the same way there is also a risk that the researcher's experiences, ideas, or values, and the research process, bias results (Ponterotto, 2005). This was managed through frequent debriefing and feedback considering pre-understanding between the authors.

Validity and reliability

Validity and reliability are cornerstones of the entire research process, including sampling, analysis, and interpretation of data (Trochim, 2006). The concepts are complex, however, and I will discuss some of their many aspects. The term validity describes whether the method/instrument really measures what it intends to measure, and whether the methods are consistent and reproducible (Trochim, 2006).

The overarching type of validity is construct validity, briefly described as how well the theory (the method or instrument) and reality (observations and results) match (Trochim, 2006). Acknowledged, well established, and valid questionnaires widely used in research were used in all three studies (Derogatis & Cleary, 1997; Eriksson,

& Lindström, 2005; Garner, 1991; Nevonen et al., 2006; Norring, 1990; Nyman-Carlsson,et al., 2015; Woodside et al., 2002). The validity of a method/instrument is a prerequisite for generalizability (Trochim, 2006). The studies in this thesis were clinical and naturalistic, which enhance external validity at the expense of internal validity (executing rigorous control of all study circumstances). External validity, on the other hand, enhances generalization to other people, places, or times, which in turn increases the clinical utility of the research. The fact that all studies were performed in Sweden, and that Swedish patients have been shown to score lower on the EDI compared to international samples (Norring & Sohlberg, 1988; Nyman-Carlsson et al., 2015), reduced the international generalizability of the findings in this thesis. However, factors that enhanced generalizability, not least from a clinical perspective, were the quite large, transdiagnostic samples from naturalistic settings, together with the use of valid and internationally used assessment instruments.

Validity and reliability should be high and inter-related, but high reliability does not necessarily result in high validity, while low reliability results in low validity of the method/instrument as well (Trochim, 2006). Thus reliability is a foundation of validity. As for validity, there are different kinds of reliability, e.g. inter-rater reliability (different observers reach the same results when using the same instrument or method), or test-retest reliability (the test/method shows the same results compared at different times) or in different environments, or over time (Clayton, 1984). The self-assessment instruments in the studies have demonstrated high internal consistency as well as test-retest reliability (Eriksson, & Lindström, 2005; Garner, 1991; Nevonen, Clinton, & Norring, 2006; Nyman-Carlsson, Engström, Norring, & Nevonen, 2015). In this thesis Cronbach's α was calculated at baseline for all measures in the studies, and were found to be sufficient according to Nunnally & Bernstein (1994).

Trustworthiness

In qualitative research, trustworthiness is a counterpart to validity and reliability in quantitative research, and a foundation for assuring high quality of the research process (i e sampling, data collection, analysing, and interpreting data). Guba (1981) introduced four criteria for trustworthiness in qualitative research. The criteria were described by Shenton (2004), and in the following section the criteria are discussed in relation to Study III.

Credibility

Credibility corresponds to the quantitative term internal validity, and concerns how the research process captures reality. It is a challenge to describe the participants,

and not the researcher's ideas or knowledge (Morrow, 2005). Data was collected by individual semi-structured interviews. They were conducted according to an interview guide constructed by the authors, inspired by earlier research on psychiatric patients, and clinical experiences of working with patients with EDs. The sampling was consecutive, which enhanced representativeness. To enhance honesty, it was pointed out that participation was voluntary, and participants were encouraged to relate their own thoughts and experiences, and were told there were no right or wrong answers. Participants were ensured that presentation of the data would be handled with confidentiality so that no statement could be traced to any single informant. The researchers had no further assessment or treatment relationship to the participants, which should have also enhanced honesty.

The authors had frequent debriefing and feed-back sessions during the research process. The authors constructed the questions of the interview, worked through the interviews, and created the themes individually, and collectively, in several steps. Credibility can be enhanced by reflexivity, i.e. the researcher should explore and understand her/his pre-understanding and theoretical base in order to deal with how this affects interpretations and descriptions of the studied subjects or situations (Morrow, 2005; Patton, 2002). Because of this a diary on pre-understanding was kept by the first author, and was commenced before the study started. The diary started with an analysis of pre-understanding stemming from personal experiences, e.g., gender, education, work as a clinical psychologist, and the research literature.

Transferability

Transferability corresponds to external validity or generalisability. One difficulty of transferability in qualitative research is the small sample sizes (Shenton, 2004). The sample was clinical, and informants formed a representative group in this setting. Both high and low scorings of perfectionism (as measured by EDI-P), and various ED diagnoses were included in the sample, thus obtaining both a consensus and deviations from the material, making it more generalizable (Rapley, 2004). The participants were, however, relatively highly educated, and all were employed, which may have made the sample slightly high-achieving.

Dependability

Dependability corresponds to reliability in quantitative research, and hence concerns the possibilities of replication of the research. Dependability is difficult, since qualitative research often covers a moment linked to the present situation. This can be compensated by the credibility of the study; the greater the credibility the greater the dependability. However, transparency in the research process facilitates

possibilities to reproduce the study. This can be achieved by stringent descriptions of the research design and its implementation, presentations of operational details of data gathering, and reflective appraisal of the project (Shenton, 2004). The research process was carefully presented in Study III.

Confirmability

Lastly, confirmability corresponds to objectivity. Objectivity is highly valued in all research, although difficult to accomplish:

> "objectivity in science [is associated] with the use of instruments that are not dependent on human skill and perception. […there is a] difficulty of ensuring real objectivity, since, as even tests and questionnaires are designed by humans, the intrusion of the researcher's biases is inevitable" (Shenton, 2004, p. 72).

The difficulties of defining a dividing line between the researcher's experiences, ideas, or values and the research process should be dealt with (Ponterotto, 2005). The three authors have differing perspectives on EDs; the first author (SP), is a licenced psychologist, working clinically with patients with EDs, the second (PJ) is a licenced psychologists working as a researcher and teacher at the university, and the third (KIP) is a registered nurse, teacher, and researcher at the university, and specializes in borderline psychopathology. Self-reflexion together with the authors' differing experiences and perspectives enhanced the trustworthiness of the study.

Ethical considerations

The studies in the present thesis were conducted according to the principals of the Declaration of Helsinki (WMA, 2013). The four ethical principles (autonomy, nonmaleficence, beneficence, and justice) described by Beauchamp & Childress (2013) were also considered during the research process. The first principle, autonomy, concerns free and voluntary actions. This was considered, and prior to participation participants were provided written and oral information about the study. It was especially pointed out that participation was voluntary, and that participation or refusal would not affect future treatment. Nonmaleficence concerns an ethical commitment to protect research participants from harm. Participants were informed that presentation of the data would be handled with confidentiality so that no statement could be traced to any single informant. In Studies I and II data from previously completed self-assessment forms was used, and in Study 2 data was taken from a large database, which was considered to be less strenuous for participants than to have to fill in new assessments. Beneficence concerns

preventing and removing harm, and is, in the short-term, the least obvious principle. Participants did not benefit by participating in the studies, benefits will rather emerge in the future, for other patients with EDs. Finally, justice: again participants were reassured that participation or refusal would not affect future treatment. All participants were 18 years or older and were able to decide whether they wanted to participate or not. In Study III participants invested time and effort in the interviews. Effort was made to schedule interviews when the participants chose, and the authors were not involved in the assessment or treatment of the participants. The studies were approved by the research ethics committees of Linköping University (Study I), Uppsala University (Study II), and Lund University (Study III).

Further studies

As described in other studies on perfectionism and EDs, interrelations have been proven to be complex, and more research is thus warranted (Bardone-Cone, 2007). On one hand, SOP has been considered a healthier aspect of perfectionism compared to SPP (e.g. Bieling, Israeli, & Antony, 2004), but on the other hand the studies in this thesis show a larger extent of SOP among the research subjects, and there were stronger relationships between SOP and psychopathology. Relationships between SOP and EDs have been suggested to be moderated by other vulnerability factors, for example ineffectiveness, body dissatisfaction, or self-esteem (Boone & Soenens, 2015; Cano et al., 2016; Vohs et al., 2001). Lethbridge et al. (2011) suggested that SOP rather than SPP is associated with psychopathology in individuals with EDs. Thus, questions for further research remain. The extent of perfectionism varied, and patterns of changeability differed among patients with EDs. Considering this, a suggestion for further studies on patterns of perfectionism (regarding extent and changeability) is to use a larger and more controlled sample, with a possibility to compare different ED diagnoses and perfectionism patterns regarding extent and perseverance. Studies of perfectionism as a state or trait, with more specific measures for targeting predictors of long-term outcomes of the treatment and development of ED, are suggested for further studies. For that, a more comprehensive measure than the relatively short EDI-P scale should be used for assessing multidimensional perfectionism. Despite the greater prevalence of EDs among women, more studies on boys/men would be desirable.

Regarding Study I, studies on SOC and EDs are sparse, and other studies of perfectionism and SOC are non-existing. No conclusions can be drawn until more research on these variables are performed. More studies on the interrelationship between perfectionism and SOC would be an interesting continuation. If perfectionism is not related to EDs, how or why are perfectionism and SOC related?

Regarding the poor treatment outcome, studies on the meaningfulness component in SOC and EDs, considering values and motivation for change, would be valuable to investigate further.

In the qualitative Study III, a study of relationships between patient scorings on the EDI-3 were related to their narratives and descriptions. In order to avoid influence from the scorings on the semi-structured interviews, the EDI-Ps were examined after the interviews. A criterion-based (e.g. based on perfectionism scorings, or diagnoses), and thus larger sample would have been advantageous to examine this more thoroughly. Some of the participants in Study III suggested that perfectionistic and demanding parents were a cause of perfectionistic development in the child, while some proposed that it was the other way around: that careless parents made the child perfectionistic. Both suggestions have been described in earlier research (Hibbard & Walton, 2014). The participants' descriptions of how parents were involved in the development of their perfectionism, and how this mainly concerned one child in a host of siblings opened up for more questions. These would be valuable to investigate further with interviews of parents and siblings regarding development of perfectionism.

Conclusions

In this thesis aspects of perfectionism in transdiagnostic samples of patients with ED diagnoses were investigated. Although, according to some theories, considered a positive aspect of perfectionism, the SOP was dominant, corroborating earlier research on the relationship of SOP and EDs. The results showed that there were relationships between a weak SOC, and "strong" perfectionism. The extent and types (SOP/SPP) of perfectionism were shown to vary between individuals with EDs. About one third of the patients in Study II scored a low level of perfectionism. For about 40% of the patients, who scored a high level of perfectionism at baseline, the scorings decreased significantly during a six-month period. Perfectionism patterns constructed by level, perseverance/changeability of SOP and SPP did not affect ED or psychiatric symptom ratings three years later. Patients with EDs described perfectionism in similar ways regardless of their scorings on the EDI-P. Taken together, these results problematize previous assumptions that perfectionism is as relevant in EDs as has previously been advocated.

Notwithstanding the limitations of the present study, the severity of EDs and the negative impact on patients with the diagnosis demand more research from different perspectives in order to create a better understanding of the problem, and thereby augment the possibilities to create more effective future preventive and treatment methods. For this, more qualitative studies on ED patients' experiences would be

desirable. Research on predisposing and maintaining factors for EDs is an important and ongoing process, and in that way research is similar to perfectionism; "*It's like running a race without ever reaching the finish line*" (Participant 9).

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Paper I

Perfectionism and sense of coherence among patients with eating disorders

SUZANNE PETERSSON, KENT-INGE PERSEIUS, PER JOHNSSON

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Background: There is a substantial body of research on eating disorders and perfectionism. Also there are several studies on eating disorders and sense of coherence (SOC), but studies regarding all three subjects are sparse. Perfectionism and the degree of SOC are considered central and aggravating aspects of psychiatric conditions, not least in relation to eating disorders. *Aims:* The present study aimed to describe the relationship between perfectionism as operationalized by Garner in the Eating Disorder Inventory-2 and SOC as defined by Antonovsky in the SOC-29 scale. The hypothesis was that SOC should be negatively associated with perfectionism. *Methods:* Data from the two self-measuring instruments collected from 95 consecutively recruited eating disorder outpatients were analysed with descriptive and inferential statistics. *Results:* The patients in the present study scored consistently with other Swedish eating disorder samples on the Perfectionism subscale in the Eating Disorder Inventory-2 (EDI-P) and on the SOC-29, indicating a higher degree of perfectionism and weaker SOC than normal population groups. Perfectionism was significantly correlated to SOC. The correlation was negative, confirming the study hypothesis. The hypothesis was further confirmed in a subgroup analysis comparing patients with different degrees of SOC related to their EDI-P scores. *Conclusions:* Perfectionism is associated with SOC in patients with eating disorders. *Clinical implications:* The clinical implications derived from the study could be a recommendation to focus on the SOC in patients with an eating disorder with the hope of lowering the patients' perfectionism as well.

• *Eating disorders, Perfectionism, Sense of coherence, Treatment.*

Suzanne Petersson, AnorexiBulimiCenter, Länssjukhuset i Kalmar, S-391 85 Kalmar, Sweden, E-mail: suzannep@ltkalmar.se; Accepted 1 October 2013.

Eating disorders generally, and anorexia nervosa (AN) in particular, are severe psychiatric problems, associated with impaired psychosocial functioning, untimely death and considered hard to treat (1–4). Perfectionism is a feature strongly associated with eating disorders (2). The onset of eating disorders is common during puberty. The pubertal transition is a vulnerable period, particularly for girls. Body image is an important part of the pubertal girl's global self-esteem. A significant number of girls in that phase are discontented with their bodies and susceptible to perceived evaluation from others (5, 6). Relations between perfectionism and eating disorder-related behaviours seem to be crucial (7, 8).

Fairburn among others considers perfectionism to be one of the main risk factors for developing eating disorders (9, 10). Eating disorders are also seen as an expression of perfectionism related to body control (11–13). Perfectionism in eating disorders tends to affect the patients' control of weight, food intake and body shaping (11). Flett et al. (14, p. 200) investigated bulimic and perfectionistic automatic thoughts in a non-clinical sample and suggested that there seems to be "a weight-related self-schema that incorporates an emphasis on perfectionism".

A large number of studies have been made to operationalize and explain the components of perfectionism (12, 15–17). According to a cognitive behavioural theory, the underlying core beliefs of perfectionism are based on an exaggerated self-evaluation in terms of achievement, and the rules that stem from those core beliefs are dichotomously and conditionally demanding: when there is a flaw you *are* a failure and this experience is anxiety provoking (10, 18). Different theoretical perspectives share the view that perfectionism has a compensatory function for problems with regulation of inner processes such as feelings and bodily signals (10, 19–22). Perfectionism consists of some aspects that seem to be trait-determined and some aspects that seem to be more

subject to circumstantial conditions (23). It is suggested to develop in a combination between parent factors and the child's temperament (24).

Hewitt & Flett (25) developed a three-dimensional construct of perfectionism containing self-oriented perfectionism (SOP), socially prescribed perfectionism (SPP) and other-oriented perfectionism (OOP). The Multidimensional Perfectionism Scale (MPS-H) measures the construct. The SOP scale captures the degree of perfectionistic demands on oneself, while the SPP scale focuses on experience of conditional perfectionistic demands from significant others. The OOP scale measures the person's demands on others to perform perfectly and is considered unrelated to eating behaviour (26). Lethbridge et al. (27) suggest that self-oriented perfectionism rather than socially prescribed perfectionism is associated with eating disorders. The Perfectionism subscale in the Eating Disorder Inventory-2 (EDI-P) was constructed as a unidimensional scale but has been found to include the SOP and the SPP perspectives with three items each, although this is not considered an exact proxy for the MPS-H (28–32). One difference between the subscales is that while the EDI-SPP items mainly concerns expectations from family members, the MPS-H SPP scale addresses expectations from non-specified persons (29).

Sense of coherence and eating disorders

The concept sense of coherence (SOC) was derived from the theory of salutogenenesis (33, 34). The salutogenetic view focuses on factors protecting against stressful events in life (34). The SOC concept is described as solid attitudes rather than personal traits. SOC is considered to develop in relation to significant others and life-situations from birth on with less change for adults than for younger persons (34, 35). Child-centred parenting is shown to be associated with a strong SOC at adulthood (36). SOC is considered a global measurement based on three components: comprehensibility, manageability and meaningfulness (34, 37, 38). Goodsitt (p. 211, 20) suggests that eating disordered patients have "a failure to integrate bodily, cognitive, and affective experience into an organized core self", which could be comparable to the definition of a weak SOC. Women with an eating disorder are known to have a weaker SOC than the general population (37, 39, 40).

Sense of coherence and perfectionism

Antonovsky (34) suggests that a strong SOC acts as a buffer against stress. This has been confirmed in clinical studies of, for example, depression and chronic heart failure (41, 42). Perfectionistic standards per se are stress inducing. Perfectionistic behaviour provides a sense of control in the short term as it works as an aid against feared situations and intermittently holds back feelings of worthlessness, shame and failure (9). A weak SOC is related to reduced motivation, decreased adaptive coping and treatment compliance. Similar consequences come with perfectionism, which is considered an obstacle to psychotherapy due to rigid behaviour patterns, reluctance to change and low tolerance for exposure of stress (38, 43, 44). Research on eating disorders and SOC is sparse, and published research on perfectionism and SOC seem to be non-existent.

Aim

The present study aimed to describe the relationship between perfectionism (as operationalized by Garner in the Eating Disorder Inventory-2, EDI-2; 45, 46) and SOC (as defined by Antonovsky in the SOC-29 scale; 34) among patients with eating disorders. The hypothesis was that SOC should be negatively associated with perfectionism.

Material and methods
Setting

The present study was conducted at a youth–adult integrated psychiatric outpatient clinic, specializing in the treatment of eating disorders. The clinic receives approximately 150 new patients yearly. The diagnostic evaluation is performed in a clinical interview according to the DSM-IV criteria. To guide treatment focus, the patients fill in self-evaluation forms at the clinic. Two of these—the Sense of Coherence Scale-29 (SOC-29) and the EDI-2—have been used in this study (34, 45, 46).

Participants and data collection

The participants were recruited consecutively. Patients were included during a 15-month period. When diagnosed with an eating disorder, patients were asked to participate in the study. A total of 144 patients were diagnosed with an eating disorder during this period. Seven refused participation. Eleven did not show up for the evaluation sessions to complete questionnaires. Treatment was initiated in 26 cases without patients having been asked to participate in the study. Five participants were excluded because they did not complete the SOC-29. The sample comprised 94 women and one man. Ages ranged from 14–53 (mean $= 22.3 \pm 7.2$). BMI ranged from 14.4 to 44.8 (mean $= 21.1 \pm 4.4$). The DSM-IV diagnoses were divided into AN, 14% ($n = 13$); bulimia nervosa, 18% ($n = 17$) and eating disorder not otherwise specified, 68% ($n = 65$) respectively. The sample is representative for the patient clientele of the clinic.

The patients completed the Swedish version of the EDI-2 and the Swedish version of the SOC-29 during a session in the initial evaluation phase. The first author then transferred the patients' individual scores, item by

item, into an Excel database together with socio-demographic, diagnostic and health data.

Instruments
EDI-2
The Eating Disorder Inventory-2 (EDI-2) is a self-report questionnaire designed to measure attitudes, personality features and eating disorder symptoms. The instrument is internationally acknowledged and often used in the research and assessment of eating disorders (19, 47, 48). EDI-2 is a 91-item self-report questionnaire with 11 subscales. The subscales have demonstrated high internal consistency reliability as well as test–retest reliability (47, 49, 50). Respondents are asked to rate each item on a 6-point scale, ranging from "never" to "always". The scoring-system is hidden from the respondent (45, 46). The clinical mean score for Swedish patients with eating disorders is 6.1 ($\pm$ 4.1) while the non-clinical mean for Swedish women is 2.6 ($\pm$ 3.4) (50). The Perfectionism subscale can be divided into two separate subscales with three items each: items 36, 52 and 63 are related to self-oriented perfectionism according to MPS-H (EDI-SOP), while items 13, 29 and 43 are related to socially prescribed perfectionism (EDI-SPP) according to the same scale (28). The third and latest version of the instrument, the EDI-3, is now published. The items of the Perfectionism subscale have not been changed in the new edition (32).

The Sense of Coherence scale (SOC)
In order to measure SOC, Antonovsky created a 29-item self-report questionnaire with 7-point Likert scales for each item. The total score ranges from 29 to 203. The SOC scale consists of three components: comprehensibility (10 items), manageability (10 items) and meaningfulness (eight items), plus one item that is a part of the total score but not a part of any of the components (34). The SOC-29 has been validated and has shown good reliability and is used as an outcome measure for psychotherapeutic interventions (38, 51). The Swedish non-clinical mean score of the SOC-29 for adults is 152 ($\pm$ 18) (52). Non-clinical schoolchildren generally have lower scores than adults (146 $\pm$ 10) (37). Patients in need of greater healthcare support scores generally lower on the scale (43).

Data analysis
Data was analysed by descriptive and inferential statistics. In order to evaluate the extent to which scales and subscales met the criteria for internal consistency reliability inter item correlations as well as Cronbach's α were calculated. The material was divided into two groups according to the median of the SOC-scores (referred to as "very low" and "low"). The *T*-test for dependent

groups was used, comparing means between the EDI-SPP and the EDI-SOP and means between the "very low" versus the "low" SOC-score groups. For correlation tests, Spearman's rank correlation was used. The statistical analysis was performed using Statistica, version 10.

Ethical considerations
During the clinical assessment, participants were provided written information about the study and written consent was obtained. They were told that they could withdraw from the study at any time and such a decision would not affect their future treatment. Participants were reassured that the data would remain confidential. The study was approved by the management of the psychiatric clinic, and by the board of the county council, responsible for patient data. The study was also approved by the regional ethical review board of Linköping, Sweden, No: M145-08.

Results
The patients in the present study scored consistently with other Swedish eating disorder samples on the EDI-P (mean = 6.0 ± 4.4), which is significantly lower than the scores of the North American norm group (mean = 8.9 ± 6.2) (47, 50).

The EDI-P reached internal consistency reliability with α = 0.80 for the total scale (Table 1). When dividing EDI-P into two subscales (28, 30), the internal consistency was α = 0.74 for the EDI-SPP and α = 0.78 for the EDI-SOP, which supports earlier research suggesting that the EDI-P can be seen as two separate subscales. The patients scored significantly higher on the EDI-SOP than on the EDI-SPP (*t* = 5.82, *P* < 0.0000).

The results on the SOC-29 in the present study were low (mean = 106.5 ± 20.8) compared with a non-clinical

Table 1. Displaying results and internal consistency reliability for sense of coherence (SOC) and the Perfectionism subscale in the Eating Disorder Inventory-2 (EDI-2), as well as their postulated components.

SOC and EDI-2 perfectionism (number of items)	Sample, present study (*n* = 95)			
	Mean	*s*	Inter-item corr.	Cronbach's α
SOC Comprehensibility (10)	32.0	7.2	0.19	0.70
SOC Manageability (10)	37.8	8.3	0.22	0.73
SOC Meaningfulness (8)	32.3	8.1	0.45	0.85
SOC total (29*)	106.4	20.8	0.22	0.89
EDI-2 Perfectionism, total (6)	6.0	4.4	0.43	0.80
EDI-2 Perfectionism-SPP (3)	2.2	2.3	0.55	0.74
EDI-2 Perfectionism-SOP (3)	3.8	2.8	0.55	0.78

*SOC total contain one additional item that is not included in the component scales (Antonovsky, 1987).
s, standard deviation.

sample ($n = 254$, mean $= 152 \pm 18.0$) (52). SOC-29 scores in earlier studies of Swedish eating disorder patient groups ranged from mean $= 103.6$ to mean $= 122.3$ (37). The SOC-29 scores in the present study were within that range. The internal consistency of the SOC-29 showed an α-level of 0.89 (Table 1).

The EDI-SPP showed a 0.45 correlation with the EDI-SOP, further supporting a possible split into two internal subscales (Table 2). When correlating the SOC components with each other, there were significant correlations at $P < 0.001$ (ranging from 0.44 to 0.61). Also, the total SOC scale correlated significantly with the SOC components (Table 2). Furthermore, the SOC scale and the EDI-P were significantly negatively correlated to each other ($P < 0.01$). Significant negative correlations at $P < 0.05$ were also the case when relating the SOC components to the EDI-P and the EDI-SPP. The strongest correlation between the scales was between the SOC total and the EDI-SPP ($P < 0.001$), as well as the SOC component meaningfulness and the EDI-SPP ($P < 0.001$) (Table 2).

Our hypothesis was that SOC should be negatively related to the results on the EDI-P. To test the hypothesis furthermore, the SOC-results were divided into two groups according to the median of the sample, one with scores of 43–106 (labelled "very low") and one with scores of 107–156 (labelled "low") and compared them with the EDI-P results. The group that comprised the lowest SOC-scores had significantly higher scores on the EDI-P (Figure 1).

Discussion

The EDI-P reached the criterion for internal consistency reliability Cronbach's $\alpha = 0.70$ (53), both as one scale and when divided into an EDI-SPP subscale and an EDI-SOP subscale, which points towards EDI-P as being
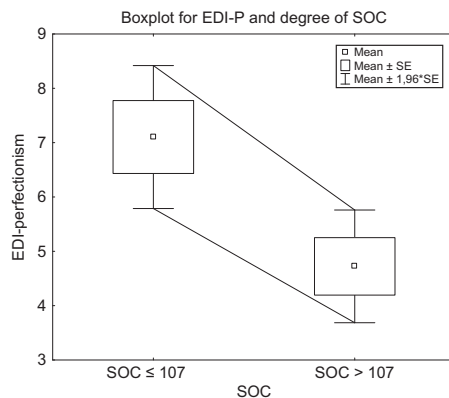
Fig. 1. Box plot displaying comparisons between the Perfectionism subscale in the Eating Disorder Inventory-2 and sense of coherence (SOC) subgroups; "very low" (SOC ≤ 107) and "low" (SOC > 107) scores, $t = 2.78$, $P = 0.0067$.

psychometrically sound. The validity of the SOC-29 has been questioned and what the instrument measures is subject to debate (54). Although there has been strong resistance toward dividing the SOC scale, the present study found some support for doing so. The Cronbach's α values for the SOC components in our study were satisfactory, while the mean inter-item correlations were satisfactory only for the meaningfulness component. The mean inter-item correlation as well as the internal consistency for this component is better than for the undivided scale, which could be added to the criticism of the construct (54). This result is congruent with other studies on the measure of meaningfulness, showing that this is the purest factor in the SOC construct (37, 38). In an overview of studies on non-clinical populations, the results

Table 2. Correlation matrix of sense of coherence (SOC) results and results on the Eating Disorder Inventory-2 (EDI-2) Perfectionism scale as well as their postulated components.

	EDI-2 Pefectionism, total	EDI-2 Perfectionism, socially prescribed	EDI-2 Perfectionism, self-oriented	SOC total	SOC Comprehensibility	SOC Manageability	SOC Meaningfulness
EDI-2 Perfectionism, total	1.00	0.78***	0.90***	− 0.33**	− 0.20*	− 0.29**	− 0.28**
EDI-2 Perfectionism socially prescribed	0.78***	1.00	0.45***	− 0.38***	− 0.22*	− 0.31**	− 0.35***
EDI-2 Perfectionism self-oriented	0.90***	0.45***	1.00	− 0.23*	− 0.15	− 0.23*	− 0.17
SOC total	− 0.33**	− 0.38***	− 0.23*	1.00	0.78***	0.87***	0.82***
SOC Comprehensibility	− 0.20*	− 0.22*	− 0.15	0.78***	1.00	0.61***	0.44***
SOC Manageability	− 0.29**	− 0.31**	− 0.23*	0.87***	0.61***	1.00	0.58***
SOC Meaningfulness	− 0.28**	− 0.35***	− 0.17	0.82***	0.45***	0.58***	1.00

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$.

showed that SOC scores of 152 ($\pm$10) points or more for adults and 146 ($\pm$10) points or more for young people are cut off-levels predicting a reasonable degree of SOC (37). The scores on the SOC-29 in our study were lower than the scores in the general population, which was expected. Research in the field of eating disorders and SOC is sparse but there is an agreement that women with eating disorders have a weaker SOC than the general population (37, 39, 40).

Gassne (38) divided the SOC-scores into three grades: weak ($\leq$122), moderate (123–162) and strong ($\geq$163) SOC (38). Seventynine out of the 95 participants in our sample scored < 123. The group with the lowest degree of SOC showed a significantly higher degree of perfectionism according to the EDI-P, suggesting that the weaker SOC a person with eating disorder has the greater the tendencies towards perfectionism. If viewing SOC as the independent variable, perfectionism could serve as a compensatory strategy when the SOC is weak. Many of the patients with an eating disorder diagnosis are young. SOC scores tend to stabilize around the age of 30 (34). Thus, it would probably be easier to influence the development of SOC the younger the patients are.

The results of the present study support earlier research suggesting that the EDI-P covers two aspects of perfectionism, one self-oriented (SOP) and one socially prescribed (SPP) represented with three items each (28–31). The patients scored significantly higher on the EDI-SOP than on the EDI-SPP, which is consistent with earlier findings of eating disorders as more related to self-oriented perfectionism (27). However, our results show that the strongest correlation was between SOC and EDI-SPP as well as between the meaningfulness component in SOC and EDI-SPP. This might indicate a complex association between perfectionism and SOC in patients with eating disorders. This should be investigated in future studies. For instance, EDI-SPP has been found related to both eating disorders and other psychiatric diagnoses (55). Comorbidity with other psychiatric diagnoses is common in patients with eating disorders (56, 57), and could be one explanation why socially prescribed perfectionism was more strongly correlated to SOC than self-oriented perfectionism in the present study. However, this study did not investigate comorbidity aspects.

According to our knowledge, there are no earlier published studies on perfectionism and SOC among patients with eating disorders. However, the study has several limitations. The study is cross-sectional and lacks information about both causality and possible influence from time related development of eating disorder symptoms on the ratings of SOC and perfectionism. Furthermore, the lack of controls and the limited geographical area that data originates from pose threats to the generalizability of the results. Still, the results on the SOC scales

and on the EDI-P are consistent with other studies on patients with eating disorders (37, 30, 50). Data were normally distributed, the measures used showed good overall internal consistency reliability and the sampling was consecutive, which together can be seen as supportive for the generalizability of the results. When using self-report inventories there is a risk that response biases have some impact on the findings, though. Furthermore, the labels "low" and "very low" referring to subgroups in the material could be debated. There were 34% (16 participants) in the "low" group that reached the criteria for "moderate SOC" and saying that their results are low is somewhat misguiding, but still, the scores in the upper median group are still low compared with non-clinical populations. The limited earlier research on the topic poses challenges when it comes to a more theoretical discussion of the material.

The clinical implications derived from the study could be a recommendation to focus on the SOC in patients with an eating disorder with the hope of lowering the patients' perfectionism as well. Such a focus could also function as a clinical test of the direction of causality between SOC and perfectionism in patients with an eating disorder.

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Suzanne Petersson, clinical psychologist, M.Sc., AnorexiBulimiCenter, Division of Psychiatry, Kalmar County Council and Department of Psychology, Lund University, Lund, Sweden.
Kent-Inge Perseius, R.N., Ph.D., Nyckeln Competence Center for Health Pedagogics, Kalmar County Council; and Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm, Sweden.
Per Johnsson, licensed psychologist, Ph.D., Associate Professor, Department of Psychology, Lund University, Lund, Sweden.

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Paper II

Perfectionism in eating disorders - are long-term outcomes influenced by extent and changeability in initial perfectionism?

Suzanne Petersson[1], David Clinton[2], Lars Brudin[3], Kent-Inge Perseius[4], & Claes Norring[2]

Submitted manuscript

[1] Department of Psychology, Lund University and Division of Psychiatry, Kalmar County
  Council, Sweden.
[2] Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden
[3] Department of Clinical Physiology, Kalmar County Council, Sweden.
[4] The Swedish Red Cross University College, Stockholm, Sweden.

Abstract

Purpose: Perfectionism has been found to predict outcomes in the treatment of eating disorders (ED). In the present study, we took advantage of longitudinal data to: a) investigate whether there are different patterns of perfectionism in a clinical sample of patients with ED, and b) describe how these patterns are related to long-term outcome. **Methods**: A sample of patients (N=294) from a database was divided into clusters according to perfectionism patterns measured with the EDI-2 perfectionism scale at baseline and six months in treatment. Cluster-analysis was performed on extent and perseverance/changeability of self-oriented and socially described perfectionism. Outcome data was measured with the EDI-2 and the SCL-63. Frequencies of eating disorder diagnoses were investigated. **Results**: Five clusters were found. Persistent self-oriented perfectionism was more related to eating disorder symptoms and psychiatric symptoms at baseline compared to other perfectionism patterns. A pattern of persistently high ratings of both self-oriented and socially prescribed perfectionism was shown to be related to a better recovery rate compared to a pattern of persistent self-oriented perfectionism. There were no other significant differences of outcome between clusters. **Conclusions**: Results indicated better psychiatric and psychological health three years after the initial measure. Patterns of relations between the extent and possible changes of perfectionism measured with the EDI-P at baseline and after six months did not appear to be associated with long-term outcomes on psychiatric health ratings.

Keywords: Perfectionism, Eating Disorders, Eating Disorder Inventory, Long term study, Cluster analysis

Introduction

Eating disorders (ED) are serious psychiatric disorders that cause significant physical and psychological suffering for those afflicted. ED include anorexia nervosa (AN), bulimia nervosa (BN) and related eating disorders. AN is characterized by refusal to maintain normal weight, and BN by intermittent binge eating and compensatory behaviour. It has been shown that different ED diagnoses fundamentally share the same core psychopathology, with over-valuating eating, shape, weight and control (Ekeroth, Clinton, Norring, & Birgegård, 2013). Migration across the ED diagnoses is common, therefore a transdiagnostic perspective has been suggested (Fairburn, Cooper, & Shafran, 2003).

Perfectionism is generally considered an integral aspect of ED (Hilbert et al., 2014). Individuals with EDs tend to score higher on perfectionism measures (Bardone-Cone, 2007; Hilbert et al., 2014). Despite considerable research on the topic, the function of perfectionism remains unclear, and it has been suggested to have different functions in the aetiology and maintenance of ED (Levinson & Rodebaugh, 2016; Nilsson, Sundbom, & Hagglof, 2008; Shafran, Cooper, & Fairburn, 2002; Welch, Miller, Ghaderi, & Vaillancourt, 2009). Two aspects of perfectionism have been found to be associated with EDs, high personal standards and evaluative concerns (i.e. self-critical evaluations and over-concern of expected demands from others) (Bieling, Israeli, & Antony, 2004). Recently Wade, Wilksch, Paxton, Byrne, and Austin (2015) showed that a higher level of concern for mistakes, mediated by a higher level of ineffectiveness, increased the risk of ED development in a preventive longitudinal study of schoolgirls.

There are inconsistent findings regarding the changeability of perfectionism, and it has been considered state dependent in some studies, but as a stable trait in others (Parker, 2002; Shafran et al., 2002). Saboonchi and Lundh (1999) showed that perfectionism varies due to situations. It has been found that perfectionism is susceptible to change by interpersonal experiences (Blatt, 1995). In a similar way some studies have shown a reduction of the extent of perfectionism after rather brief psychotherapeutic interventions, whereas other studies have shown an unchanged extent of perfectionism after treatment and recovery (Ashbaugh et al., 2007; Lundh & Öst, 2001; Maia et al., 2011; Nilsson et al., 2008). The extent of perfectionism has been found to be crucial in treatment, not least since it is considered an obstacle to the alliance between therapist and client, and a high extent of perfectionism has been found to predict poor outcomes in treatment of ED (Bardone-Cone, 2007; Bizeul, Sadowsky, & Rigaud, 2001; Blatt & Zuroff, 2002; Santonastaso, Friederici, & Favaro, 1999; Sutandar-Pinnock, Woodside, Carter, Olmsted, & Kaplan, 2003) .

 "Perfectionism" is not easily defined, and definitions and methods of measurement vary (Lo & Abbott, 2013). During the last three decades a wide range of assessments

of perfectionism have been developed. In 1990 Hewitt & Flett developed the Multidimensional Perfectionism Scale (MPS). The MPS is derived from a clinical perspective, and view perfectionism as a personality feature that is negative. The MPS consists of three dimensions; Self-Oriented (SOP), Socially Prescribed (SPP) and Other Oriented (OOP) perfectionism. SOP is experienced as self-imposed, while SPP is a conception that other people demand flawless achievement or appearance of one self, and OOP is expectations of exceedingly high standards for other people (Hewitt & Flett, 1990; Hewitt & Flett, 1991a).

SPP has been found to be associated with a broad range of psychopathology and negative affect, while SOP is sometimes even considered to relate to healthy strivings (Bieling et al., 2004; Blatt, 1995; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Hewitt & Flett, 1991b). When it comes to ED, research has shown that the combination of the two aspects of perfectionism is crucial, and that SOP accounts for unique variance in ED symptomatology (Lampard, Byrne, McLean, & Fursland, 2012). SOP has been found to relate to anorectic strivings with a thinner ideal figure, resistance to eating and over-activity (Bardone-Cone, 2007; Cockell et al., 2002; Sherry, Hewitt, Besser, McGee, & Flett, 2004). The combination of SPP and SOP was examined by Davis (1997), who found that a high extent of SOP and a low extent of SPP predicted high levels of body esteem, whereas the contrary combination (low SOP and high SPP) predicted poor body esteem in ED populations.

The Eating Disorder Inventory (EDI) is a widely used questionnaire for eating disorder pathology, and has been twice revised (Garner, 1983, 1991, 2004). One means of measuring perfectionism is the Perfectionism scale in the EDI (EDI-P). The EDI-P was constructed as a unidimensional scale, but has been found to include two subscales with three items each; one related to self-oriented perfectionism (EDI-SOP), and the other related to socially prescribed perfectionism (EDI-SPP) according to the Hewitt & Flett MPS (Bardone-Cone, 2007; Joiner & Schmidt, 1995; Lampard et al., 2012; Sherry et al., 2004).

The Coordinated Evaluation and Research at Specialized Units for Eating Disorders (CO-RED) was a longitudinal naturalistic multicentre study (from 1996 to 2001) with a large, well described sample of patients with ED. EDI was one of the measures used in the study.

In the present study, we took advantage of the CO-RED data to: a) investigate whether there are different patterns of perfectionism regarding dimension, extent, and perseverance/changeability over time (6 months) in a clinical sample of patients with EDs, and b) describe how these patterns (if found) are related to long-term outcome. The hypotheses were that a) a low extent of perfectionism should be related to a better outcome, compared to a high extent of perfectionism b) changeable perfectionism should be related to a better outcome compared to a

persistent high extent of perfectionism c) a high extent of SPP should be less beneficial for outcome compared to a high extent of SOP.

Method

In order to establish naturally occurring perfectionism patterns, cluster analysis was conducted using the baseline and six-month follow up scores of the EDI-SPP and EDI-SOP. If interpretable and conceptually meaningful clusters were found, outcome analyses would be performed. Eating disorder variables, psychiatric symptoms, and frequencies of ED diagnoses were used as outcome measures. Inasmuch as it has been shown that different ED diagnoses fundamentally share the same core psychopathology, and since migration across the ED diagnoses is common, a transdiagnostic perspective was chosen for this study.

Procedure

The CO-RED included 14 specialist treatment centres across Sweden. The units offered a wide variation of recognized therapeutic interventions for ED and concomitant psychopathology. Treatment included different forms of individual, family or group therapies, psychopharmacological medication and expressive treatment forms. Treatment forms such as out-patient, in-patient and day-patient settings were offered. Data was collected by a staff experienced in the treatment of eating disorders (most frequently psychiatric nurses, clinical psychologists and psychiatrists) at participating treatment units. The instrument battery in CO-RED consists of both interview measures and self-reporting inventories. The initial assessment was completed at the treatment start, and thereafter follow-ups at 6, 12, 18, and 36 months, respectively, were carried out.

Participants

The CO-RED database comprised 908 ED patients. At the six-month follow-up 482 patients remained. The inclusion criterion for the present study was complete EDI-P scores at baseline   and at 6 and 36 months. The criterion-based sample comprised 294 patients from the database, 290 women and 4 men. The age of the sample ranged from 18-50 years (mean=25.5, SD =7.1), and the BMI range was 10.4-44.2 kg/m^2 (mean=20.1, SD=4.7). The distribution of DSM-IV eating disorder diagnoses at baseline was: Anorexia Nervosa (AN: N=76; 25.9%), Bulimia Nervosa (BN: N=104; 35.4%) and Eating Disorder Not Otherwise specified (EDNOS: N=114;

38.8%). Reasons for missing data at follow-up included dropping out from treatment and assessment, failure of staff to obtain data on all questionnaires, and failure by some participants to complete all self-reported measures. A non-response analysis, using Fisher's exact test, was conducted considering age, diagnoses, gender, BMI and initial scorings on the EDI-P. No significant differences were found when the studied sampled and non-respondent sample were compared. The study was approved by the regional ethical review board of Uppsala University, Faculty of Medicine.

Measurements

EDI-2

The Eating Disorder Inventory-2 (EDI-2) is a 91-item self-report questionnaire designed to measure ED related constructs (Garner, 1991)[1]. The instrument is well established and widely used in the research and assessment of ED (Norring, 1990; Woodside et al., 2002). The EDI-2 consists of eleven scales; (1) *Drive for thinness*, (2) *Bulimia*, (3) *Body Dissatisfaction*, (4) *Ineffectiveness*, (5) *Perfectionism*, (6) *Interpersonal Distrust*, (7) *Interoceptive Awareness*, (8) *Maturity Fears*, (9) *Asceticism*, (10) *Impulse Regulation* and (11) *Social Insecurity.* Respondents are asked to rate each item on a 6-point scale, ranging from "never" to "always". The scales of the instrument have demonstrated high internal consistency as well as test-retest reliability (Garner, 1991; Nevonen, Clinton, & Norring, 2006). The EDI-P subscales consist of three items each: items No 13: "Only outstanding performance is good enough for my family", 29: "As a child, I tried very hard to avoid disappointing my parents and teachers", and 43: "My parents have expected excellence from me" are related to SPP, while items No 36: "I hate being less than best at things", 52: "I feel that I must do things perfectly or not do them at all" and 63: "I have extremely high goals" are related to SOP (Joiner & Schmidt, 1995). The SPP scale mainly concerns expectations from family members. Two of the EDI-SPP items are in the past tense, which differs from the formulations in the remaining EDI-P items. The EDI scales can be combined into two global measures; the first three scales measuring central eating disorder symptoms (EDI-ED) and the following eight scales measuring psychological correlates of eating disorders (EDI-PSY). The global measures were used for the study together with the EDI-P, divided into SOP and SPP. Since the EDI-P was used as a predictor, the EDI-P was withdrawn from the EDI-PSY and resulted in an EDI "Psychological but No Perfectionism measure" (EDI-PSYNOP).

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[1] The items in the Perfectionism scale have not been changed in the new version of the EDI, the EDI-3 (Garner, 2004).

SCL-63

The Symptom Checklist-63 was used to measure self-reported psychiatric symptoms (Derogatis, Lipman, & Covi, 1973). A shortened, 63-item version of the SCL-90 was constructed by removing subscales assumed to be of lesser relevance for eating disorder patients i.e. *Phobic anxiety*, *Paranoid ideation*, *Psychoticism*, and additional scales. The six subscales used were *Somatisation, Obsessive-compulsive, Interpersonal sensitivity, Depression, Anxiety* and *Hostility*. The respondents are asked to rate each item from 0 to 4 on a five point scale.

Data analysis

Cluster analysis

In order to investigate different patterns of perfectionism, a cluster analysis was conducted. The statistical analyses were performed using STATISTICA 12.0. Data was divided into clusters using the initial and six-month measures of the EDI-SPP together with the initial and six-month measures of the EDI-SOP. The analysis was conducted in three steps according to Fraley and Raftery (1998). The first step was to identify possible outliers calculating logarithms of the EDI-SPP and EDI-SOP data. No outliers were found. The second step was conducted with Ward's hierarchical method in order to identify the optimal number of clusters. A five-cluster solution was judged to be the most meaningful, since it resulted in conceptually meaningful and distinct clusters. The hierarchical solution was further analysed by conducting a non-hierarchical k-means cluster analysis for five clusters in order to optimise results. According to Bergman (1988) the Explained Error Sum of Squares (EESS) for the cluster solution should be more than 50%. The EESS for the chosen five-cluster solution was 66.3 %. Table 1 and Figure 1 present descriptive data for the clusters.

Other statistical analyses

Internal consistency was calculated for each outcome measure at baseline. Pearson's r for the included variables at baseline was computed and presented in a correlation matrix. Descriptive statistics was performed for the five clusters. Repeated measures ANOVA was used to determine whether the within-group changes of SPP and SOP (baseline and 6 months) for the clusters were significant, and in case of significance Scheffé's test was used. Repeated measures ANOVA, followed by Scheffé's post hoc analysis in case of significance, were also used to determine whether the within-group changes between baseline and the 36-month follow-up of the outcome variables were significant. The differences of outcome between clusters were made with repeated measures ANOVA followed by Scheffé´s tests in case of significance.

The frequency of diagnoses at the 36-month follow-up was calculated, and Chi square performed as a significance test.

Results

Internal consistencies (Cronbach's alpha) for the scales used were SOP= 0.71, SPP= 0.69, EDI-ED= 0.91, EDI-PSYNOP= 0.93, and the SCL scales = 0.78-.0.87.

The five clusters

The first cluster, was labelled "General perfectionists" (GP) and was characterized by a high initial SPP and SOP, and the ratings did not change significantly at the six-month follow-up (Table 1 and Fig.1). The second cluster, labelled "Changeable perfectionists" (CP), had a high SPP and a moderate SOP at baseline but the ratings were significantly less at the six-month follow-up for the two subscales. The third cluster, labelled "Changeable self-oriented perfectionists" (CSOP) was characterized by a low SPP and a high SOP at baseline, and by significant reductions in the ratings of SOP at the six-month follow-up. The fourth cluster, labelled "Persistent self-oriented perfectionists" (PSOP), showed a moderate SPP and a high SOP, both unchanged at the six-month follow-up. The last cluster, labelled "Non perfectionists" (NP), showed low and stable ratings on both SPP and SOP at baseline, and at the six-month follow-up.

Table 1. Description of the Perfectionism clusters calculated by cluster analysis using data from the initial and six-month follow-up scores on the Eating Disorder Inventory (EDI)-Socially prescribed perfectionism (SPP) and EDI-Self-oriented perfectionism (SOP).

	GP (n=31)				CP (n=52)				CSOP (n=69)				PSOP (n=61)				NP (n=81)			
	Baseline		6 months		Baseline		6months		Baseline		6months		Baseline		6 months		Baseline		6months	
	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd	M	sd
SPP	6.00	2.14	6.39	1.75	4.54	1.72	**3.31**	1.64	1.12	1.06	0.68	0.92	2.07	1.26	2.13	1.27	0.74	0.95	0.67	0.92
SOP	6.29	1.95	5.74	2.19	3.27	1.72	***1.63***	1.55	4.30	1.51	***1.72***	1.49	5.90	2.01	6.02	1.45	0.70	0.80	0.77	1.02

Footnotes to Table:
neral Perfectionists (GP), Changeable Perfectionists (CP), Changeable Self-oriented Perfectionists (CSOP), Persistent Self-oriented Perfectionists (PSOP) & Non Perfectionists (NP). Changes between baseline and 6-month follow-were analysed using repeated measures ANOVA; followed by Scheffé post hoc test in case of significance. Significant changes between baseline and the 6-month follow-ups are marked (p< .01 (**bolded**) and p< .001 (***bolded italic***).

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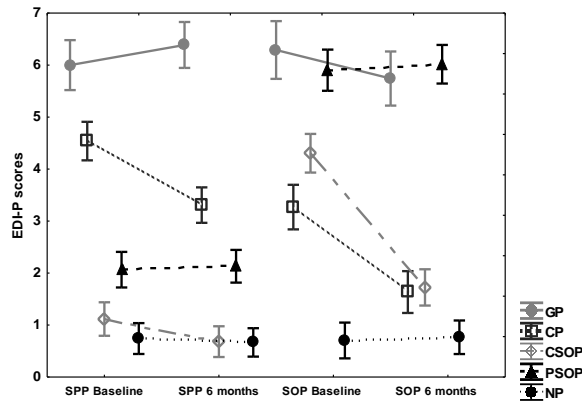
Figure 1: The clusters
Fig 1: The five clusters constructed from the scorings of EDI SPP and EDI SOP at baseline and at the six-month follow-up. General Perfectionists (GP), Changeable Perfectionists (CP), Changeable Self-oriented Perfectionists (CSOP), Persistent Self-oriented Perfectionists (PSOP) & Non Perfectionists (NP).

Outcome

Table 2 shows the correlations between SOP, SPP and the outcome variables at baseline. Due to the large sample, there was a risk for mass significance, and Pearson's r < .3 should thus be regarded as weak a correlation. SOP and SPP correlated significantly (r= .39, p< .001). EDI-ED and EDI-PSYNOP were both significantly correlated with all SCL-63 variables (r= .22- .4, p< .001 for EDI-ED) and (r= .43- .67, p< .001 for EDI-PSYNOP). There was a weak correlation between EDI-ED and SPP (r= .15, *p*< .05), as well as between EDI-ED and SOP (r= .16, *p*< .01).

SOP was significantly correlated with all outcome variables at baseline (r= .16- .36, *p*< .01 - .001), the strongest correlation was with EDI-PSYNOP. SPP was significantly correlated with all variables except for SCL *Somatization* and SCL *Hostility* (r= .1- .27, p< .05- .001). The correlations between SPP and EDI-ED, SCL *Obsessive-compulsive,* SCL *Depression* and SCL *Anxiety* were weak, though (r= .1- .15, *p*< .05). SPP was most strongly correlated to SOP (r= .39, *p*< .001) and EDI-PSYNOP (r= .27, p< .001).

All five clusters showed significant changes for five of the eight outcome variables: EDI-ED, EDI-PSYNOP, SCL *Obsessive-compulsive*, SCL *Interpersonal sensibility*, and SCL *Anxiety* (Table 3). The PSOP cluster showed significant changes between baseline and the 36-month follow-up for all variables. There were a few differences between the clusters regarding changes from baseline and 36 month follow up. All clusters with exception for the CP cluster showed significant changes for the SCL *Somatization* scorings, and the PSOP and NP clusters divergently showed significant changes for the SCL *Hostility* variable. The CP cluster showed the least number (six out of eight variables) of significant changes after 36 months. All changes were in the direction of improved psychiatric and psychological health at 36 months.

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Table 2. Correlation matrix at baseline.

Variables	1	2	3	4	5	6	7	8	9	10
1 SPP										
2 SOP	*0.39*									
3 EDI_ED_	0.15	**0.16**								
4 EDI_PSY_NO_P	***0.27***	***0.36***	***0.4***							
5 SCL Somatization	0.07	***0.22***	***0.27***	***0.44***						
6 SCL Obsess-Comp	0.1	***0.22***	***0.22***	***0.56***	***0.69***					
7 SCL Interpersonal	**0.16**	***0.3***	***0.25***	***0.67***	***0.59***	***0.67***				
8 SCL Depression	0.12	***0.25***	***0.24***	***0.61***	***0.6***	***0.76***	***0.71***			
9 SCL Anxiety	0.12	***0.27***	***0.24***	***0.56***	***0.7***	***0.75***	***0.69***	***0.77***		
10 SCL Hostility	0.03	**0.18**	***0.23***	***0.43***	***0.38***	***0.43***	***0.52***	***0.53***	***0.45***	

Footnotes to table:
Pearson's r. Marked correlations are significant at p< .01 (**bolded**) and p< .001 (***bolded italic***). The numbers in the heading correspond to the number of variables as indicated. At the 36-month follow-up there were four SCL-63 that were not complete, and the data were thus regarded as missing.

Table 3. Description of the outcome variables at baseline and 36-month follow-up. Significant changes between baseline and 36-month follow-up are marked at p< .05 (italic), p< .01 (bolded) and p<.001 (bolded italic). Changes between baseline and 36-month follow-up were analysed using repeated measures ANOVA; followed by Scheffé post hoc test in case of significance. GP=General perfectionists, CP= Changeable perfectionists, CSOP=Changeable self-oriented perfectionists, PSOP= Persistent self-oriented perfectionists and NP=Non perfectionists.

	GP Baseline		GP 36 months		CP Baseline		CP 36 months		CSOP Baseline		CSOP 36 months		PSOP Baseline		PSOP 36 months		NP Baseline		NP 36 months	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
EDI_ED_	42.4	13.7	***16.4***	13.5	41.3	12.3	***18.6***	13.0	37.2	16.2	***14.4***	14.5	38.6	14.7	***17.1***	15.1	35.3	14.9	***14.6***	12.9
EDI_PSYNOP	70.7	26.6	***28.5***	23.9	61.7	26.1	***31.7***	24.2	54.1	21.6	***23.1***	20.5	63.9	23.3	***30.6***	24.8	45.8	23.9	***22.6***	23.0
SCL Somatization	1.68	0.87	*1.14*	0.99	1.41	0.85	0.98	0.83	1.44	0.85	***0.86***	0.79	1.53	0.77	***0.93***	0.70	1.20	0.77	*0.78*	0.67
SCL Obsessive-Comp	1.94	0.83	***1.06***	1.12	1.72	0.84	***1.07***	0.89	1.71	0.85	***0.99***	0.79	1.89	0.77	***1.27***	0.89	1.44	0.78	***0.77***	0.66
SCL Interpersonal sensibility	2.14	0.83	***1.00***	0.90	1.81	0.85	***1.13***	0.12	1.65	0.81	***0.95***	0.83	2.04	0.85	***1.17***	0.83	1.46	0.80	***0.82***	0.73
SCL Depression	2.38	0.75	***1.33***	1.13	2.03	0.81	*1.41*	1.02	1.98	0.83	***1.25***	0.97	2.20	0.69	***1.47***	0.97	1.78	0.81	***1.08***	0.83
SCL Anxiety	1.94	0.82	***1.15***	1.01	1.66	0.86	***1.04***	0.81	1.64	0.76	***0.97***	0.80	1.86	0.73	***1.19***	0.83	1.44	0.78	***0.78***	0.67
SCL Hostility	0.98	0.65	0.55	0.59	0.78	0.72	0.53	0.65	0.80	0.67	0.49	0.57	1.04	0.71	***0.53***	0.55	0.84	0.77	***0.30***	0.35

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The NP cluster scored lower on EDI-PSYNOP at baseline than the GP, the CP, and the PSOP clusters ($p<$ .01). The NP cluster scored lower on SCL *Obsessive-compulsive*, SCL *Interpersonal sensibility*, and SCL *Anxiety* than the PSOP cluster ($p<$ .01- $p<$ .001) (table 4).

There were no significant differences between any of the clusters regarding improvement rate with exception for EDI-PSYNOP (see the interaction column in Table 4). Nevertheless, there were statistically significant cluster differences when comparing the mean levels of seven of the eight outcome variables at baseline (significance of the mean differences in Table 4).

Table 4. Significance levels (p-values) of cluster differences at baseline and 36 months follow-up were analyzed using repeated measures ANOVA with clusters as categorical predictors, followed by Scheffés post hoc test in case of significance. Mean difference is any difference between mean values of baseline and 36-months' follow up between the clusters.

	Cluster differences	
	Mean difference	**Interaction**
EDI_ED_	0.070	0.686
EDI_PSY_NO_P	<0.001[a]	*0.011*[a]
SCL Somatization	0.053	0.425
SCL Obsessive-Compulsive	0.002[b]	0.542
SCL Interpersonal Sensibility	<0.001[b]	0.061
SCL Depression	0.005[c]	0.304
SCL Anxiety	0.002[b]	0.736
SCL Hostility	0.059	0.150

Footnotes to table
a) NP is lower than GP (p= .009), CP (p= .013) and PSOP (p= .004). The differences were between baseline means only.
b) NP is lower than PSOP (p< .001 to p= .006). No significant differences in change.
c) NP is not statistically significantly lower than PSOP (p= .016). No significant differences in change.

No significant differences in recovery rates between the clusters were found when analysing the frequency of diagnoses at the 36 month follow up, missing data included (table 5a). When excluding missing data (table 5b) there was a significant difference between the clusters regarding recovery from ED. Fewer patients in the PSOP-cluster were recovered compared to the patients in the GP-cluster, Chi 2 *p*= .0391, Fisher exact *p*= .0341. Diagnoses at the follow-up were missing for 26 patients, and there were no differences between the clusters in that regard.

Table 5a. Frequencies of diagnoses at 36-month follow-up, n and (%). Missing data was included.

Cluster	ED	No ED	Totals
GP	15 (48)	16 (52)	31 (100)
CP	31 (60)	21 (40)	52 (100)
CSOP	38 (55)	31 (45)	69 (100)
PSOP	41 (67)	20 (33)	61 (100)
NP	46 (57)	35 (43)	81 (100)
Totals	171 (58)	123 (42)	294 (100)

There were no significant differences between the clusters regarding recovery from ED when missing data was included.

Table 5b. Frequencies of diagnoses at 36-month follow-up, n and (%). Chi squared gave p= .039. Missing data was deleted.

Cluster	ED	No ED	Totals
GP	10 (38)	16 (62)	26 (100)
CP	29 (58)	21 (42)	50 (100)
CSOP	35 (53)	31 (47)	66 (100)
PSOP	34 (63)	20 (37)	54 (100)
NP	37 (51)	35 (49)	72 (100)
Totals	145 (54)	123 (46)	268 (100)

There was a significant difference between the clusters regarding recovery from ED when missing data was deleted. More patients in the GP-cluster were recovered compared to the patients in the PSOP-cluster. Chi 2 p= .0391, Fisher exact p= .0341.

Discussion

In the present study we utilized longitudinal data, collected in a multicentre naturalistic setting, to investigate whether there were different patterns of perfectionism in a clinical sample of patients with EDs, and describe how these patterns (if found) were related to long-term outcome. Five distinct perfectionism patterns/clusters were found. The "General perfectionists" (GP) showed a high initial SPP and SOP, which persisted at the six-month follow-up. The "Changeable perfectionists" (CP) showed a high SPP and a moderate SOP at baseline, but the ratings were significantly lower at the six-month follow-up for the two subscales. The "Changeable self-oriented perfectionists" (CSOP) were characterized by a low SPP, and high SOP at baseline, and by significant reductions in the ratings of SOP at the six-month follow-up. The "Persistent self-oriented perfectionists" (PSOP) showed a low SPP and high SOP, persistent at the six-month follow-up. The "Non perfectionists" (NP) included a substantial proportion of patients (n=81) who rated a low extent of perfectionism at the first and second assessment.

Research has shown that perfectionism in patients with EDs is associated with a broad range of psychopathology. SPP has been shown to be especially associated with obsessive-compulsive disorder, depression, and anxiety disorders (Egan, Wade, & Shafran, 2011; Enns, Cox, & Borger, 2001; Hewitt & Flett, 1991b; Pinto, Liebowitz, Foa, & Simpson, 2011), and SOP, especially with depression (Bieling et al., 2004; Blatt, 1995). A persistently high level of perfectionism (GP) was thus expected to relate to higher ratings for SCL *Obsessive-compulsive*, SCL *Depression* and SCL *Anxiety,* compared to a low extent of perfectionism (NP). In addition to the associations between perfectionism and psychopathology, perfectionism has been found to interfere negatively with the alliance between patient and therapist (Blatt & Zuroff, 2002; Sutandar-Pinnock et al., 2003), thus making a therapeutic intervention less likely to succeed for GP, and possibly PSOP, compared to NP. The baseline scorings on all outcome variables varied significantly between clusters, except for the EDI-ED (containing the first three subscales in the EDI measuring ED related questions). Regarding interaction between time and outcome for outcome measures, there was a significant difference between clusters regarding the global psychological measure, EDI-PYNOP were NP scored lower than GP, CP and PSOP. This was expected, but the differences were between baseline means only. At the 36-month follow-up scores for all outcome variables were similar. Thus, no significant differences between perfectionism patterns regarding the three-year outcome measures of psychiatric symptoms, or ED symptoms, were found. Symptoms decreased, and ended up significantly for all groups. Changes between

baseline and follow-up were hence dependent on factors other than perfectionism patterns. Nilsson et al. (2008) showed that while ED symptoms and psychiatric symptoms decreased, the EDI-P levels remained the same. However, they showed a relation between initial perfectionism scorings and outcome, which was not supported in this study. This highlights a need to further investigate long-term outcomes regarding EDs and perfectionism.

When comparing recovery rates from EDs there was a significant difference between the GP and the PSOP clusters. Interestingly, significantly more patients in the GP cluster had recovered from ED than the patients in the PSOP cluster, indicating that a high extent of self-oriented perfectionism was less beneficial than a high extent of both SOP and SPP. The perfectionism perseverance of the PSOP cluster could be the cause of a poorer outcome, but could not explain why the patients in the GP cluster had a better outcome. More patients in the GP cluster were relatively, but not significantly, recovered at the three-year follow-up compared to all clusters, suggesting, against other research, that a generally high, persistent extent of perfectionism should be preferable. The small size of the GP cluster (n=26) could explain the divergent results. The differences were not apparent when missing data was included in the analysis.

ED patients with a persistently high extent of EDI-SPP and/or SOP (the GP and the PSOP clusters), rated their symptoms on the outcome variables at the same level as ED patients with a more changeable perfectionism, and as ED patients with a stable low extent of perfectionism (the CP and the NP clusters). Again, a high persistent extent of SOP, but not combined with a high persistent extent of SPP (as for the GP cluster), appeared to be most negative regarding ED symptoms and psychiatric symptoms. This finding might corroborate the study of Lethbridge, Watson, Egan, Street, and Nathan (2011), suggesting that, contrary to other psychiatric conditions in individuals with EDs SOP, rather than SPP, is associated with psychopathology, and that "(t)his has implications for theories of perfectionism, wherein EDs self-oriented perfectionism cannot be considered adaptive or benign in relation to pathology" (p. 204). Relations between SOP and ED have been suggested to be moderated by other vulnerability factors, for example ineffectiveness, body dissatisfaction, or self-esteem (Boone & Soenens, 2015; Vohs et al., 2001). This suggests further studies on mediators and moderators for perfectionism in ED symptomatology.

The ED-related variables, EDI-ED and EDI-PSYNOP, were significantly correlated with all SCL variables at baseline, which indicated a relation between the broad eating disorder related aspects, as measured with the EDI-2, and other psychopathology. SPP and SOP were also correlated to most of the variables, although with varying strength. SPP was correlated to fewer variables, and to a lesser extent compared to SOP. Thus again, regarding SOP as a healthier aspect of

perfectionism has not been corroborated in this study. Although Levinson and Rodebaugh (2016) suggested that perfectionism interventions should be considered as an intervention for ED treatment, earlier research has not shown that interventions to reduce perfectionism in patients with AN have led to improvement (Schmidt & Treasure, 2006). Our study showed that the recovery rate three years after the assessment was 46% (missing data deleted), which is in line with other research (Steinhausen, 2002; Steinhausen & Weber, 2009). In order to develop more effective treatment interventions a larger understanding of ED relevant factors in a longitudinal perspective is needed.

Methodological issues

This is a longitudinal study, with a three-year follow-up. The data was collected in a naturalistic setting, and was taken from 14 different treatment centres throughout Sweden. The sample is large, and should altogether strengthen the clinical generalizability and utility of the results. The study is based on a naturalistic, transdiagnostic sample, which is a strength considering clinical relevance. Although different ED diagnoses fundamentally share the same core psychopathology, and migrations between the ED diagnoses are common, there is a lack of studies on transdiagnostic samples (Clinton, 2010). Some methodological factors warrant consideration, however. First, self-reported data was used, entailing risks of response bias. However, using well established, valid, and reliable measurements ensure that the included variables were measured in the same way at the different treatment centres. The EDI is a well-established measure of ED-related concerns, and we utilized data from an existing database. However, in some studies the EDI-P has been considered an insufficient measure of perfectionism (Chang, Ivezaj, Downey, Kashima, & Morady, 2008; Hurley, Palmer, & Stretch, 1990; Peck & Lightsey Jr, 2008). Using a more comprehensive measure than the relatively short EDI-P scale for assessing multidimensional perfectionism would have been valuable, and should be investigated in future studies. Studies of assessment of perfectionism as a state or trait with more specific measures in order to target predictors of long term outcomes of treatment and development of patients having an ED should be further investigated.

Although more clinically relevant, previous studies have shown it difficult to make predictions in heterogeneous ED samples (Steinhausen & Glanville, 1983a; Steinhausen & Seidel, 1993). Bastiani, Rao, Weltzin, and Keye (1995) found elevated EDI-P scores in weight-restored patients with AN. Considering this, a suggestion for further studies is to use a more homogeneous and controlled sample with, for example, a larger sample of patients with restrictive AN.

Conclusions

This study showed that there are different perfectionism patterns regarding the extent and aspects of perfectionism (SOP/SPP) among patients with EDs. The perfectionism patterns were shown to be related to ED and other psychiatric symptoms at assessment, but this relation did not appear at the long-term follow-up. The hypotheses that a) a low extent of perfectionism should be related to a better outcome, compared to a high extent of perfectionism b) changeable perfectionism should be related to a better outcome compared to a persistent high extent of perfectionism c) a high extent of SPP should be less beneficial for outcome compared to a high extent of SOP, were not supported by this study. SOP was shown to be more related to ED symptoms and psychiatric symptoms compared to SPP, and SOP was also related to less recovery from ED diagnoses. Perfectionism is considered highly associated with eating disorders. However, relations between perfectionism and EDs (and other psychopathology) are complex, and have been shown to be mediated by other variables (Boone & Soenens, 2015; Watson, Steele, Bergin, Fursland, & Wade, 2011; Vohs et al., 2001). The construct of perfectionism is complex and multifaceted, and hence difficult to conceptualize and measure (Bardone-Cone et al., 2007). However, perfectionism patterns on extent and changeability did not predict outcome, about one third of the patients in this study scored a low extent of perfectionism. For about 40% of the patients, who scored a high extent of perfectionism at baseline, their perfectionism scorings decreased significantly during a six months' period. The results of this study problematize previous assumptions that perfectionism is as relevant in EDs as previously been advocated, and corroborate findings of previous studies claiming that perfectionism does not affect outcome (Schmidt & Treasure, 2006).

Acknowledgement

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Paper III

A Sisyphean task: Experiences of perfectionism in patients with eating disorders.

Suzanne Petersson[1]*, Per Johnsson[2] & Kent-Inge Perseius[3]

Submitted manuscript

1. Suzanne Petersson*, licenced psychologist, and MSc, Department of Psychology, Lund University and Division of Psychiatry, Kalmar County Council, Sweden. suzannep@ltkalmar.se

2. Per Johnsson, licenced psychologist, Associate Professor, Department of Psychology, Lund University, Sweden. per.johnsson@psy.lu.se

3. Kent-Inge Perseius, RN, Associate Professor, the Swedish Red Cross University College, Stockholm, Sweden. kent-inge.perseius@rkh.se

Abstract

Background: Despite the theoretical links between eating disorders and perfectionism, the definition of perfectionism in practice is complicated. The present study explored descriptions and experiences of perfectionism described by a transdiagnostic sample of patients.

Methods: In-depth, semi-structured interviews were carried out with 15 patients. The interviews were analyzed by Thematic Analysis. A comparison between the patients' scorings on the Eating Disorder Inventory-Perfectionism scale was also performed.

Results: Seven themes were found: The origins of perfectionism, Top performance, Order and self-control, A perfect body, Looking good in the eyes of others, A double-edged coping strategy, and A Sisyphean task. The women in this study did not emphasize weight and body as the main perfectionistic strivings. Core descriptions were instead order, self-control and top performances. All of the participants described the awareness of reaching perfectionism as impossible. Scorings of self-oriented perfectionism was significantly higher compared to socially prescribed perfectionism. No differences in the narratives related to perfectionism scores or eating disorder diagnoses were found.

Conclusions: The results showed that psychometric measures do not always capture the patients' definitions of perfectionism, but regarding that perfectionism serves as a means to regulate affects and may lead into an exacerbation of the eating disorder, and the development of obsessive-compulsive symptoms, it is important to investigate the personal definitions of perfectionism.

Keywords: Eating disorders, perfectionism, qualitative research

Plain English summary

Perfectionism can lead to eating disorders, be a maintenance factor and interfere with treatment. In the present study we explored descriptions and experiences of perfectionism described by 15 patients, all women, treated for different eating disorder diagnoses. We interviewed the patients and compared their perfectionism scorings on an instrument constructed for assessing eating disorders symptoms. Seven themes were found; The origins of perfectionism, Top performance, Order and self-control, A perfect body, Looking good in the eyes of others, A double-edged coping strategy, and A Sisyphean task. The patients did not emphasize weight and body as the main perfectionistic strivings. Their core descriptions were order, self-control and top performances. Perfectionism was described to be a strategy to handle feelings of low self-esteem or anxiety. All patients considered perfection impossible and exhausting. Perfectionism was described to lead into a worsening of the eating disorder, and a development of obsessive-compulsive symptoms. We found no differences in the narratives related to perfectionism scores or eating disorder diagnoses.

A Sisyphean task: Experiences of perfectionism in patients with eating disorders.

Introduction

Perfectionism is one factor that, independently or in combinations with other risk factors, has shown to predispose and/or maintain ED symptoms in anorexia nervosa (AN), bulimia nervosa (BN) and eating disorder not otherwise specified/other specified feeding or eating disorder (EDNOS/OSFED) [1-4]. It has been suggested that EDs actually may be an expression of perfectionism [5]. Negative self-evaluation is common among those with an ED [6, 7]. Self-critical perfectionism, combined with body dissatisfaction, has been shown to predict high levels of drive for thinness [8]. However, apparently impulsive behaviour, e.g. binge eating, has been shown to be related to self-critical perfectionism as well [9]. One explanation is that rigid control (dieting), might "spiral out", and paradoxically lead to a loss of control, resulting in binge eating [10].

Perfectionistic persons with low self-esteem base their self-worth on strivings towards perfect achievement and/or appearance [11]. Perfectionism is a dichotomous concept, perfect or imperfect, which leads to inflexible standards. Negative events or actions get over-generalized and ruminated over, while positive events pass without much notice, or are rejected as too easy [12]. The connection between perfectionism and self-esteem can explain the difficulties to lower goals and perfectionistic behaviour for those who are perfectionistic [11]. Women with higher levels of perfectionism were shown to have the highest ED symptom levels [13]. Individuals with a high level of perfectionism invest their self-worth in a domain relevant to them, and for eating disorders the main areas for perfectionism have been shown to be food, exercise, weight, and body shape [14, 15].

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There are different conceptualizations and definitions of perfectionism [16]. In 1990 two research groups independently published measures of multidimensional aspects of perfectionism, sharing a common name, the Multidimensional Perfectionism scale, MPS, [17-19]. The Frost MPS scale originally consisted of six dimensions of perfectionism: Concern over mistakes, Personal standards, Parental expectations, Parental criticism, Doubt about actions, and Organization [17]. The Hewitt & Flett MPS consists of three dimensions; Self-Oriented (SOP), Socially Prescribed (SPP) and Other Oriented (OOP) Perfectionism [18]. The combination of SPP and SOP, with differential roles, has been found to be associated with EDs, [20, 21]. SOP has shown to be more strongly related to anorectic symptoms, while SPP has been found to correlate with negative affect, depression, and a wider range of EDs including BED [22-24]. Concern over mistakes and parental criticism have shown to correlate with depression and negative affect [23]. Perfectionism has been found to associate negatively with Sense of Coherence ratings (SOC) in a study of patients with eating disorders. SPP was found to have a strong negative correlation with the SOC components, especially the meaningfulness and manageability components, while the correlation between SOP and SOC was weak, pertaining only to the manageability component [25].

Some aspects of the perfectionism concept have been described as normal/positive [23, 26]. Two of the Frost MPS dimensions, Personal Standards and Organization, have been found to be positively correlated with positive affect and feelings of efficacy, and negatively correlated with frequency of procrastination, and have been suggested to measure a healthier aspect of perfectionism [17, 23]. Moreover, a study by Frost et al. [23] showed a positive relation between positive affect and self-oriented perfectionism measured with the Hewitt & Flett MPS, suggesting that SOP is a positive aspect of perfectionism. The positive and functional

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concept is considered to have little clinical relevance, and most research focuses on the dysfunctional aspects [5, 27].

When trying to understand predisposing and maintaining factors for EDs, perfectionism is considered a key factor, and thus important to address in research and clinical work [5]. There has been substantial research on perfectionism and eating disorders, mostly involving operationalized psychometric measures. When using such instruments in clinical assessment we feel they do not cover all facets of perfectionism as described by the patients, and furthermore, that there often appears to be a dissonance between the results of the assessments and the patients' own descriptions. There is lack of systematized, detailed, and in-depth descriptions of perfectionism from a patient perspective. We believe that such descriptions, investigated by a qualitative approach, could help to refine future operationalization of the concept, as well as in the clinical situation, be helpful when addressing issues of perfectionism.

The aim of the present study was twofold: a) to illuminate experiences and descriptions of perfectionism in patients with eating disorders, and b) to investigate whether descriptions differed between participants with high or low scores, respectively, on a perfectionism measure.

Method

Study setting and clinical evaluation of perfectionism

The study was conducted at a public, youth/adult, integrated psychiatric outpatient clinic, the AnorexiBulimiCenter (ABC), specializing in the treatment of ED in southern Sweden. The clinic receives approximately 150 new patients yearly. About 2 % of the patients are men.

Diagnostic evaluation is performed at admission, by a staff experienced in the assessment and treatment of eating disorders, in a clinical interview, using the 36-item version of the Eating Disorder Examination Questionnaire, EDE-Q [28] and the Structured Eating Disorder Interview, SEDI [29]. The authors were not involved in the assessment or treatment of the participants.

The EDE-Q is a self-report measure focusing on behavioral features of EDs during the past 4 weeks. It contains four subscales (Restraint, Eating Concern, Shape Concern, and Weight Concern) as well as ratings of objective and subjective bingeing, purging, laxative/diuretic use and exercise [28]. The EDE-Q has shown good psychometric properties, including concurrent validity [30], internal consistency, temporal stability, and test–retest reliability [31].

The SEDI is a semi-structured interview based on DSM-IV and ICD-10 ED criteria and comprises 20–30 questions. Preliminary validation against the EDE interview has shown a concordance of 81% concerning specific ED diagnosis (including EDNOS and BED) and Kendall' Tau-b of $\tau = .69$ (p<. 0001) [32]. In this study the authors transferred the DSM-IV diagnoses to the DSM-5 criteria.

Upon admission patients filled in the Eating Disorder Inventory-3, EDI-3, although this was not part of the diagnostic battery, but used to guide treatment focus later on in the process. The EDI-3 is a self-report questionnaire designed to measure attitudes, personality features and eating disorder symptoms. The instrument is internationally acknowledged, and consists of 12 primary scales, where one of the scales measures extent of perfectionism (Garner, 2004). The Perfectionism subscale has demonstrated high internal consistency as well as test retest reliability [33, 34]. The Perfectionism subscale can be divided into two separate

subscales with three items each. One subscale is related to self-oriented perfectionism (EDI-SOP) according to the Hewitt & Flett MPS, while the other subscale is related to socially prescribed perfectionism (EDI-SPP) according to the same scale [2].

Participants

The sample was clinical and consisted of consecutive female patients who commenced treatment at the ABC and consented to participate in the study. At the time for inclusion no new male patients were registered at the clinic. Seventeen patients starting treatment during the second half of 2014 were asked to participate, two declined. The final sample consisted of 15 women ranging 18-44 years of age (Median = 24). The distribution of the DSM-5 ED diagnoses was: Anorexia Nervosa (AN: n=4), Bulimia Nervosa (BN: n=4) and Other Specified Feeding or Eating Disorder (OSFED: n=7, including six participants diagnosed with atypical AN, and one with a low frequency BN). According to participants the age of onset for EDs ranged from 11-23 years (Median=16 years). Seven participants had been previously treated for EDs. Five were being treated in a day care program at the unit at the time of the interview. Two were in treatment as inpatients at a psychiatric ward. The two youngest participants were in grammar school. All remaining 13 participants had completed grammar school, and three of them reported having a university degree, while another five were studying, or had studied for a short time at university. None of the participants were unemployed and four were on sick leave at the time of the interviews.

Data collection

Qualitative data collection often takes the form of loosely or semi structured dialogue between a researcher and an informant in an interview with open-ended questions [35]. In the present study data was collected by individual semi-structured interviews. They were conducted

according to an interview guide constructed by the authors; inspired by earlier research exploring the life-situation, and experiences of encounters with psychiatric care among self-harming persons with borderline personality disorders and their significant others [36, 37].

The interview guide used a funnel approach with open-ended questions, starting with a number of wider "trigger questions" for each area, such as "What role does perfectionism play in your life?", or "What are the possible consequences of perfectionism?", and "How do you think perfectionism develops"? Then the questions became more specific, such as "Would you call yourself perfectionistic?", and "Are there any positive or negative effects of perfectionism?" The interview guide also included questions on definitions of perfectionism, variability versus stability, positive and/or negative aspects, and connections between perfectionism and health. The guide was developed using the experiences of clinical work with ED patients, and qualitative research of psychiatric patients performed by the authors. The guide was pilot tested in three initial interviews. Data from the pilot interviews was later included in the analysis, as the test resulted in only minor revisions to the original interview guide. The interviews were held at the treatment unit. They lasted between 45 and 70 minutes, and were audio recorded. The first author conducted all interviews.

Data analysis

Data was analyzed by thematic analysis [38]. Thematic analysis is an experiential and theoretically flexible method compatible with certain paradigms within psychology. "Thematic analysis can be a method that works both to reflect reality and to unpick or unravel the surface of `reality´" [38] (p. 81). Themes can be larger or smaller regarding item content. However, the main issue is whether they capture something important in relation to the overall research question.

Data was transcribed verbatim by the first author and then analyzed as follows:

1) The transcripts were first divided into low and high perfectionism narratives (according to the informants' scores on EDI-P), and were then further analyzed in these two datasets.

2) The first author read and reread the datasets.

3) Sentences and parts of sentences were recognized as initial codes.

4) The initial codes in the two datasets were then compared by the first (SP) and the last author (KIP), and as there were no apparent differences, the data was further analyzed as one dataset.

5) Codes from four of the interviews were then randomly drawn, and all three authors suggested, in an inductive process, preliminary themes for the initial codes.

6) Six themes were then agreed upon thus forming an initial theme system.

7) The codes from the following interviews were then either deductively fitted into the initial theme system or temporarily put aside as non-fitting codes.

8) The non-fitting codes were inductively used tracing new themes. Six additional preliminary themes were found.

9) All themes found were reviewed independently by the first and last authors in relation to codes and interview texts. This process reduced the number of themes, and some themes were renamed. The theme system was then found consistent with the data and therefore regarded as final.

In order to enhance trustworthiness the first author kept a self-reflecting diary during the research process. The diary started with an analysis of pre understanding stemming from personal life experiences, work as a clinical psychologist, and from the research literature [39, 40].

Results

The EDI-P scores

The results of the EDI-3 were checked during the data analyses to learn whether descriptions of perfectionism were correlated to the assessed degree of perfectionism. The EDI-3 cut off score (>7 points, raw score) was used to determine whether a participant scored high or low on the EDI-P subscale. Five participants scored below (3-7 points), and ten scored above (8-24 points) the cut off score (Table 1).

Table 1. Eating Disorder Inventory-3 Perfectionism scale scores

Participants	EDI-P	EDI-SPP	EDI-SOP
1	5	1	4
2	24	12	12
3	13	3	10
4	3	0	3
5	8	4	4
6	6	2	4
7	19	11	8
8	11	2	9
9	14	4	10
10	15	5	10
11	19	7	12
12	22	10	12
13	8	4	4
14	7	0	7
15	4	1	3
Sum:	178	66	112
Mean (std)	11.9 (6.8)	4.4 (3.9)	7.5 (3.5)
Range	3-24	0-12	3-12

EDI-P P scores (mean= 11.9, std. 6.8, range 3-24) were consistent with other Swedish samples of patients with EDs (mean=10.23, std. 4.85) (Nyman-Carlsson, Engström, Norring, & Nevonen, 2015). The Wilcoxon rank sum test was performed to compare the EDI-SPP and EDI-SOP scores. There was a significant difference ($p < 0.008$) between variables where the

scores for SOP were higher. No differences in the narratives related to EDI-perfectionism scores or ED diagnoses were found.

Themes

Seven themes were found in the data. Some themes were more categorical and others were more dimensional in their nature.

> *1. The origins of perfectionism*
> *2. Top performance*
> *3. Order and self-control*
> *4. A perfect body*
> *5. Looking good in the eyes of others*
> *6. A double-edged coping strategy*
> *7. A Sisyphean task*

The authors' clarifications in the quotations are written within brackets, while empty brackets stand for participant's pause. Numbers are defined as one, a few </=3, some= 4-8, many= 9-12, most=13-14, and 15=all participants and written within brackets at the headings. HP stands for high perfectionism, and LP for low perfectionism.

The origins of perfectionism (n=15)

Most participants described perfectionism as developing during childhood. The onset of perfectionism was most commonly regarded occurring at secondary school or 6th form. Some participants saw a connection between perfectionism and a growing bodily focus/awareness during secondary school (1 HP, 1 LP). Others underlined the pressures of academic achievement (i.e. grades) as causes for a perfectionistic development (2 HP, 1 LP). One participant (HP) considered perfectionism constitutional, while others described the development of perfectionism as a combination of constitution and environmental influences (1LP, 2HP).

I think it's sort of inborn, (...) it depends on how much you're allowed to exercise it when growing up, whether those with whom you grow up show that you don't have to be perfect, so you don't have to follow those impulses, then you won't become so perfectionistic when you grow up" (Participant nr 2, HP).

Parental influence was regarded as playing a considerable role according to participants, but theories of its mechanisms varied. Half the participants believed that demanding or high-achieving parents influenced the development of perfectionism, while others (2LP, 2HP) believed that careless or disorderly parents resulted in perfectionistic children.

"You don't become perfectionistic if you have perfectionistic parents" (Participant nr 1, LP).

Two participants (HP) grew up with seriously ill mothers with life threatening conditions. One of them theorized that this was related to her perfectionistic strivings; she felt she had to be an easy child so as not to trouble or burden her sick mother:

"I think that it has always been like that because I didn't want to be troublesome, and I didn't want to be a burden to my mum,...while all the time striving to be the nice daughter as far as possible (...) I still think there's a connection with wanting to please everybody, and make it easier for everyone, and not be in the way for anyone". "I don't think that you're born with it but comes from something when you're growing up" (Participant nr 8, HP).

Although perfectionism was, in one way or another, considered to originate from childhood and family, most participants that described themselves as perfectionists reported that their siblings were not perfectionists. Advertisements, media and social media were also indicated as mediators for development of perfectionism. A participant found hope in case there was a contextual learning development of perfectionism in a quote presented below:

*"In a way it would be better if it (*perfectionism*) was learned, then re-learning would be possible"* (Participant nr 9, HP).

Top performance (n=15)

Top performance in different areas was one of the general definitions of perfectionism and reported by all participants. Top performance was experienced as demanded in school, at work, and in relationships. The latter was described in terms of the desire to be a perfect girlfriend, friend or daughter. Always striving for top performance was reported as tiresome. Some participants reported frustration for being close to perfection but felt they had "failed" even if they made but one mistake.

"In my first year at 6th form I got top grades in all subjects except one, and…yes…I can still recall thinking "it would have been great to have the highest grade there too, and be able to say that I had top grades in all subjects since the first grade. I had only one mistake on all my vocabulary tests in all my school years, and since I only had one mistake, it's pretty easy to remember" (Participant nr 7, HP).

Sometimes striving was planned to endure for just a short while, only for some goal that was considered reachable, and then rewarded with no further striving. Participants however, found it difficult to leave a perfectionistic strategy once initiated:

"I thought that when leaving the 9th grade I would stop doing this and release control. And then I thought that it'd be nice to start in a new class in 6th level (…) it started when people asked me (about school stuff), *and thought that I was clever and asked me about this and that, returning again to my pursuit of perfection"* (Participant nr 14, LP).

One participant used two strategies (competing above her level, or totally avoiding competition) in order to decrease pressure, as described below:

Regarding riding competitions: *"I compete somewhat over our capacity (…) all the time, then nobody has demands on us, then I make no demands on myself to win (but) just perform as well as I can. If I were to* (compete*) at my current level (…) then I'd rather skip the whole thing instead* (Participant nr 1, LP).

Order and self-control (n=15)

Participants associated perfectionism with order and cleanliness. They talked of house cleaning, bed making, lawn cutting, and sorting of pens and books. They also spoke of

cleaning up, not just their own homes, but their friends' kitchens as well. According to one of the participants:

"*when I'm at someone's home I can start cleaning up, and I don't do that because I think that someone's disgusting but I know that I do it fast (...) it's like a skill I have (...) I can stare at the kitchen tile, it sort of distracts me, "good God how can I...can't she go to the bathroom"* (so the participant can quickly clean the tile without being discovered) (Participant nr 11, HP).

The function of order was described as a way of controlling oneself by controlling surroundings, as in the following description:

"*Inside my head I'm probably pretty untidy and then I compensate that by cleaning. That sounds really weird, I know*" (Participant nr 1, LP).

A perfect body (n=8; 3 LP, 5 HP)

Some participants reported that their bodies were aims for their perfectionistic striving. The striving for better physical appearance as a part of perfectionism was pointed out in the latter parts of the interviews, and were considered to be the cause of ED development for these women. Participants described pressure from the social media to train and diet for fitness and achieve an ideal body. One participant had gained some weight and was influenced by others' involvement in the pursuit of fitness as presented in the social media:

"*Everyone went to the gym and, well, lost a lot (*of weight*) and became gorgeous, and I went in the wrong direction. It was more than I could take*" (Participant nr 10, HP).

A few participants considered Victoria's Secret (VS) models, also called angels, as the ideal body image.

"*...you strive hard to look like a Victoria's Secret model. They are super thin and fit*" (Participant nr 5, HP). "*They (*the VS models*) radiate such self-confidence, and if I get as thin then I'll get that self-confidence as well, and become as happy as they seem to be*" (Participant nr 7, HP).

Physical training sometimes began with healthy intentions, and was considered a good hobby from the beginning according to participants. After a while the aim of the training changed.

Some mentioned weight reduction as something initially positive, although they did not describe ideals or definitions of perfect bodies.

*"At first I thought it (*training*) was fun (…) but in the end it became mostly (…) looking like the ideal"* (Participant nr 8, HP).

The down side of getting thinner and closer to the ideal body image was also discussed. The ideal body is considered to be both skinny and fit, which is contradictive. Exercising and increasing muscle mass on the one hand, and starving and having no body fat on the other was described as difficult.

"It takes tremendous effort, particularly for girls, to get a six-pack. We're not really made to have such a low lean-to-fat ratio (…). It looks great in a picture, but you have to put it in relation to what you're willing to give" (Participant nr 7,HP).

While the participants quoted above tried to achieve an ideal body with diets and physical training, one participant dismissed this idea since she thought that a perfect appearance was:

"to have natural features…to be naturally thin…, to not have to change much of yourself, to be natural. If you're wearing makeup then you're not perfect" (Participant nr 4, LP).

Although participants engaged in body shaping had a positive aim, one participant described how she experienced her skinny body as ugly during her worst anorectic period, and that she felt relieved when she had regained some weight and muscles.

 *"…at the end (*of the ED*) I thought that I was actually sort of ugly, my ass hung and was all floppy. I really saw that at the end and I just felt shitty"* (Participant nr 6, LP).

Looking good in the eyes of others (n=12; 6 LP, 6 HP)

Most participants reported the importance of gaining approval from others in relation to perfectionism. The need for approval was, however, described as troublesome. Participants were unsure about what and how much to do, and what was considered sufficient. They

described that praise from others could initiate the desire for more praise, leading to a vicious circle of increased efforts toward enhanced and undefined goals.

*"I can get like that; now I've accomplished as much as possible, but what if people aren't satisfied, or if it isn't good enough? And then I do more" (*Participant nr 1, LP).

A difficulty gaining positive attention for being oneself was described. A perfectionistic performance or appearance was suggested to be a way to project one's personality into a more visible and concrete manifestation.

"Maybe it's hard to get validation eh…for yourself as a person but it's easier to get (validation) *for things that you have and things that are viewable rather than for who I am…inside"* and *"it's not about myself, it's about what you think others think about you in a way (Participant nr 15, LP).*

Some participants had their own ideas of what people really thought about them, regardless of what those people said. They meant that there was no way to know the truth about others' inner thoughts and opinions. Besides, praise from others was sometimes dismissed as something not to be trusted. They hypothesized that people may give praise just to make someone happy, no matter whether true or not, as suggested in a quotation below:

"…they are parents, and you believe it's their job to say such things so they aren't necessarily…true" (Participant nr 8, HP).

Performing and behaving in a way that pleases others was considered important. Thus, this could turn up to be contrarious. One participant described how she stopped caring about significant others when it came to her anorectic behavior, which was a matter that really concerned and worried her closest friends and family.

"…it's really awful when I think about how I was this summer. I was really inside my own bubble, and I was just concerned with myself. I didn't give a damn about others. Other people felt bad seeing me in that state, but I didn't care and did just as I pleased" (Participant nr 6, LP).

Three participants emphasized that perfectionistic striving was self-imposed (2 HP, 1 LP).

A double-edged coping strategy (n=15)

Perfectionism was on the one hand described in positive terms, and considered helpful in getting things done, getting organized, and gaining emotional control under trying circumstances. However, the dichotomous nature of perfectionism was also described as a harsh master when demands were not met. Furthermore, this coping strategy often fails in time. Distress becomes a problem for the individual.

"*I become depressed because I can't keep things the way I want, and then I feel like a failure*" (Participant nr 9, HP). "*I feel I've in some way failed, when things go wrong despite trying to get them right*" (Participant nr 8; HP).

Comparisons with alcoholism (1 HP, 2 LP) were made on the basis of positive feelings when perfectionistic strivings succeeded. Participants described a connection between perfectionism and physical illness with bodies that hurt and stop functioning. They also reported connections between perfectionism and psychiatric disease, like EDs and Obsessive Compulsive Disorder, and associated their ED with control. The degree of perfectionism was considered to increase with the ED's severity. Some of that control was reported related to treatment, with demands and rules for meals and eating but also directly to the illness as a reason for increased needs for control:

 "*That's why I became ill, I think, because then I could gain control over things*" (Participant nr 6, LP). "*It's much better when I'm not stuck in this eating disorder that I have. I wasn't so perfectionistic when I felt good about things*" (Participant nr 3, HP). "*Actually, it's a high price to pay, being anorectic to avoid demands. (Participant nr 12, HP).*

The risk of causing others to feel bad was also of concern. Maintaining strict order or high levels of success risked making friends feel bad.

Besides fearing the risk of hurting people close through perfection they were also afraid of arousing envy in others (2 LP, 4 HP).

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A Sisyphean task (n=15)

All participants concluded that being perfect was unattainable, not just for themselves but for everyone. A few participants (2 HP, 2 LP) started the interviews by saying that they were not perfectionistic themselves, but after a short while all participants spoke from their own experiences and strivings. They described a problem in becoming perfect: is there no end?

*"The problem with perfectionism (*is that*) nothing's perfect"* (Participant nr 2, HP).
"Sometimes I think I'm striving towards something I'm (...) not sure even exists" (Participant nr 12, HP).

Participants concluded that since the definitions of perfectionism differ from person to person, knowing when you have achieved perfection is impossible. They established that if a goal is reached, there is always another one beyond. Participants described how there were always limitations to their achievements, and that they, therefore, had to continue their efforts forever. In addition, others and life itself sometimes hampered perfectionistic intentions. Striving for perfectionism is a Sisyphean task. As two participants phrased it:

"As soon as you reach one level it isn't long before you strive to go farther" (Participant nr 12, HP).
"It's like running a race without ever reaching the finish line" (Participant nr 9, HP).

Discussion

The present study explored experiences and descriptions of perfectionism from a patient perspective, in order to obtain detailed and in-depth information that could be used for future developments in operationalization of the concept, and to address perfectionism in clinical work with patients suffering from eating disorders. First of all, there were no differences in

the narratives related to EDI-perfectionism scores or ED diagnoses, and the interviews were used as one dataset.

The origins of perfectionism have been shown to be multifactorial and transactional with interactions between psychological, environmental and biological vulnerability factors [41]. The participants' descriptions of the development of EDs varied as well. However, most participants felt that perfectionism developed during adolescence. The *Origins of perfectionism* theme was considered mainly related to familial factors, although interestingly, with conflicting hypotheses; either perfectionistic or "untidy" parents were considered the cause of perfectionism. This was in line with a study that found that both authoritarian and indulgent parenting styles seemed to foster perfectionism [42]. Parental style was defined by two dimensions: demandingness and responsiveness [42]. Demandingness concerns standards and demands set by parents, while responsiveness concerns parental responses to their children [43]. The authoritarian parenting style is high on demandingness, and high on responsiveness, while the indulgent parenting style is low on demandingness and high on responsiveness (eg. warmth). It was shown that combinations of parental styles and warmth in relation to their children either fostered or buffered maladaptive perfectionism, and either fostered or buffered adaptive perfectionism [42]. Participants, however, reported a difference between themselves and their siblings. Participants reported that individual differences together with early messages from social media, teachers, coaches, peers, and the media, regarding achievement and success, may also influence the development of perfectionism.

Perfectionism was mainly associated with orderliness, cleanliness and top performance, described in the *Top performance* theme. These are concepts that relate to constructs such as "Conscientiousness", "Organization" or "High standards" [16, 17, 44]. Researchers have not resolved if these concepts are to be considered parts of the perfectionism construct [16]. For

example, "Frost et al. recommended that scores on the Organization subscales should *not* be included in the total score because of low correlations with the other perfectionism dimensions asserted with their MPS" [45](p. 18). Adaptive perfectionism in some reflect organization, conscientiousness, and an achievement–oriented style rather than perfectionism per se [44].

Shafran et al. [5] suggested that "clinically relevant perfectionism should be defined as: the overdependence of self-evaluation on the determined pursuit of personally demanding, self-imposed, standards in at least one highly salient domain, despite adverse consequences" (p.778). Additional dimensions are suggested as related constructs, and e.g. socially prescribed perfectionism is not considered a part of the construct [5].

There could be another connection between conscientiousness and SOP. A longitudinal study on teenagers found that conscientiousness, as measured with the Neuroticism-Extraversion-Openness Inventory (NEO), predicted the development of SOP [46]. Notwithstanding the different theoretical conceptualizations of perfectionism, the participants emphasised the strong necessity of order, control and top-performance together with an experience that there was no end of struggle. Clinical perfectionism was suggested to be due to negative reinforcement (avoidance of negative affect/anxiety).

There are varying self-presentational styles. One style includes a need to appear perfect (to appear capable, competent and successful) in order to hide imperfections and perceived shortcomings to avoid criticism and maintain self-esteem [47]. This was illustrated by the quotation on competing above one's level, thus decreasing possibilities to win, but providing, on the other hand, a possibility to explain less successful results. This might also be connected

to the unwillingness of being associated with the term "perfectionism" mentioned in some of the interviews. To be perfectionistic might imply high demands, which should be avoided in order not to be exposed.

Appearance in the eyes of others (SPP) was held important by many of the participants, and was described in the *Looking good in the eyes of others* theme. Scorings on the EDI-P, inconsistently, showed a significantly higher extent of SOP than SPP among participants. This distribution was, however, in line with a study of a large Swedish naturalistic database [48]. The results of the EDI-P might depend on the items, while the EDI-SOP items relate to an all or nothing performance, being the best and setting high goals, while the EDI-SPP items relate to achievement directed toward parents/family and teachers. The women in this study did not express that performance was particularly directed towards family or teachers. On the contrary, they expressed dubious thoughts about parental trustworthiness. Two items are formulated in the past tense, and relate to childhood. Hence, cultural or temporal differences might affect EDI-SPP ratings.

Although research has shown that patients with an eating disorder direct their perfectionistic striving to weight and body shape [15], the aim of obtaining a perfect body was not described as a primary perfectionism target. Only half of the participants discussed perfectionism in relation to physical appearance. This suggests that the motive behind controlling the body is more often related to other functions, e.g. affect regulation, as suggested by F Skårderud and P Fonagy [49].

Perfectionism can be experienced as necessary when psychological well-being is affected, which was described in the *Order and self-control* and a *Double-edged coping strategy*

themes. The downside of control is that harshness towards oneself and obsessive compulsive traits are enhanced at the cost of spontaneity. Some participants noted the risk of developing an obsessive compulsive disorder (OCD). Similarly, they associated their eating disorders with control. Emotional regulation deficits are common among persons with eating disorders [50]. Both eating disorders and perfectionism can provide a sense of order and control. Participants experienced that perfectionism increased along with the EDs. Perfectionism was considered secondary or contemporaneous, rather than predisposing, to the ED, which was contrary to their description of perfectionism and OCD development, although in line with earlier findings [51].

Methodological issues

The distinctive features and strengths of qualitative research is that it explores phenomena, reflects inter-subjective experiences, and can discover patterns from which hypotheses or operationalizations of concepts can emerge. When it comes to the rigorousness of a study in a quantitative domain, the main priorities are validity and reliability. In qualitative studies the equivalent concept is trustworthiness [39, 40]. A vital component for ensuring trustworthiness is the critical use of detailed descriptions of the phenomenon, which we consider was met in the present study [39]. According to MQ Patton [39] the credibility of the researcher is especially important in qualitative research since the researcher is the major instrument of data collection and analysis.

Investigation of results of the EDI-3 after the interviews, was performed with the intention of minimizing the influence of the self-report results on both the interviewer and participants. In order to enhance representation the interviewer made an effort to be a "naïve inquirer" with

deepening and clarifying questions [40]. The authors were aware of, and considered the risk for, confusion between research and therapy when carrying out qualitative interviews [52].

The sample was clinical, and the informants were a representative group in this setting. Both high and low scorings of perfectionism (as measured by EDI-P), and various ED diagnoses were included in the sample, thus obtaining both a consensus *and* deviations from the material, making it more generalizable [53].
The participants were, however, relatively highly educated, and all were employed, which may have made the sample slightly high-achieving.

There are some objections to interviews as a research method. Silverman [54] highlights the risk for interviews resulting in manufactured data, and therefore should be considered "a last resort". He argues that it is impossible to gain neutral and natural knowledge, since researchers always color results with pre-understanding [54]. The researchers in this study have tried to deal with this problem by using and communicating reflexivity, as shown above [40].

On the other hand, the result of an interview is created by the interaction between the interviewer and the interviewee which can be considered a strength [53]. However, biases can occur similar to the results of questionnaires, in which the studied subjects may reply according to perceived expectations rather than their own viewpoints.

Conclusions

Although research has shown that patients with an eating disorder direct their perfectionistic striving to weight and body shape [15], the aim of obtaining a perfect body was not described

as a primary perfectionism target in the present study. Some participants told of how the body project arose as an effect that started with healthy intentions. All participants described order and top performance as core descriptions of perfectionism, although this has been a challenged definition in research on perfectionism. There was a unanimous description of perfectionism as a toilsome and impossible task. The difficulty seems to be to stop a process that seems positive and advantageous through anxiety relief, control, and positive attention from others before the downsides become too imminent.

Clinical implications

The results showed that psychometric measures do not always capture a patient's conception of perfectionism. Regarding that perfectionism serves as a means to regulate affects, and may lead to an exacerbation of the ED, and to the development of obsessive-compulsive symptoms (which is an aggravating factor in ED development), an early intervention of personal definitions of perfectionism is important.

List of abbreviations

ABC, AnorexiBulimiCenter; AN, Anorexia Nervosa; BED, Binge Eating Disorder; BN, Bulimia Nervosa; DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, fourth edition; ED, Eating Disorder; EDI, the Eating Disorder Inventory; EDI-P, the Perfectionism scale in the EDI; EDE-Q, the Eating Disorder Examination Questionnaire; EDNOS, Eating Disorder not Otherwise Specified; HP, High scorings on the EDI-P; LP, Low scorings on the EDI-P; ICD-10, International Classifications of Diseases, tenth edition; MPS, the Multidimensional Perfectionism scale; OSFED, Other Specified Feeding or Eating Disorder; SEDI, the Structured Eating Disorder Interview; SOC, Sense of Coherence; SOP, Self-Oriented Perfectionism; SPP, Socially Prescribed Perfectionism; OOP, Other Oriented Perfectionism.

Declarations

Ethics approval and consent to participate

The study was conducted according to the principals of the Declaration of Helsinki [55]. Prior to interviews participants were provided written and oral information about the study. It was especially pointed out that participation was voluntary, and that participation or refusal would not affect future treatment. Participants were informed that presentation of the data would be handled with confidentiality so that no statement could be traced to any single informant. The study was approved by the research ethics committee of Lund (2014/45). The interviewer and participants had no treatment relationship.

Consent for publication

All participants provided written consent to be included in the study, and for their anonymized data to be published.

Availability of data

The raw, anonymized interview data can be accessed by contacting the authors.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

SP was the lead researcher, but all three authors designed the study and contributed during the research process. Contributions and the research process are further described in the article. All authors read and approved the final manuscript.

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DSM IV diagnostic criteria for Eating Disorders (Appendix 1)

ANOREXIA NERVOSA

A. A refusal to maintain body weight at or above a minimally normal weight for age and height (e.g. weight loss leading to a maintenance of body weight less than 85% of that expected, or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.

D. In postmenarcheal females, amenorrhea, i.e. the absence of at least three or more consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g. oestrogen, administration).

Specify type:
Restricting Type: during the current episode of Anorexia Nervosa, the person has not regularly engaged in binge-eating or purging behaviour (i.e. self-induced vomiting or the misuse of laxatives, diuretics or enemas)

Binge-Eating/Purging Type: during the current episode of Anorexia Nervosa, the person has regularly engaged in binge-eating or purging behaviour (i.e. self-induced vomiting or the misuse of laxatives, diuretics or enemas).

BULIMIA NERVOSA

A. Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following:
   1) Eating, in a discrete period of time (e.g. within any 2 hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.
   2) A sense of lack of control over eating during the episode (e.g. a feeling that one cannot stop eating or control what or how much one is eating).

B. Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviours both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

Specify type:
Purging Type: during the current episode of Bulimia Nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics or enemas.
Nonpurging Type: during the current episode of Bulimia Nervosa, the person has used other inappropriate compensatory behaviours, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics or enemas.

Eating Disorder Not Otherwise Specified (EDNOS)

The Eating Disorder Not Otherwise Specified category is for disorders of eating that do not meet the criteria for any specific Eating Disorder. Examples include:

1. For females, all the criteria for Anorexia Nervosa are met except that the individual has regular menses.

2. All the criteria for Anorexia Nervosa are met except that, despite significant weight loss, the individual's current weight is in the normal range.

3. All the criteria for Bulimia Nervosa are met except that the binge eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than 3 months.

4. The regular use of inappropriate compensatory behaviour by an individual of normal body weight after eating small amounts of food (e.g. self-induced vomiting after the consumption of two biscuits.

5. Repeatedly chewing and spitting out, but not swallowing, large amounts of food.

6. Binge-eating disorder: recurrent episodes of binge eating in the absence of the regular use of inappropriate compensatory behaviours characteristic of Bulimia Nervosa.

(American Psychiatric Association, 1994)

DSM-5 diagnostic criteria for Eating Disorders

ANOREXIA NERVOSA

A. Restriction of energy intake relative to requirements, leading to a significantly lower body weight in context of age, sex, developmental trajectory, and physical health. *Significantly low weight* is defined as a weight that is less than minimally normal or, for children and adolescents, less than minimally expected.

B. Intense fear of gaining weight or becoming fat, or persistent behaviour that interferes with weight gain, even though at a significantly low weight.

C. Disturbance in the way in which one´s body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.

Specify whether:
Restricting type: During the last 3 months, the individual has not engaged in recurrent episodes of binge eating or purging behaviour (i.e. self-induced vomiting or the misuse of laxatives, diuretics, or enemas). This subtype describes presentations in which weight-loss is accomplished primarily through dieting, fasting and/or excessive exercise.
Binge-eating/purging type: During the last 3 months, the individual has engaged in recurrent episodes of binge eating or purging behaviour (i.e. self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

Specify current severity:
The minimum level of severity is based, for adults, on current body mass index (BMI) (see below) or for children and adolescents, on BMI percentile. The ranges below are derived from World Health Organization categories for thinness in adults; for children and adolescents, corresponding BMI percentiles should be used. The level of severity may be increased to reflect clinical symptoms, the degree of functional disability and the need for supervision.

Mild: BMI >17 kg/m2
Moderate: BMI 16-16.99 kg/m2
Severe: BMI 15-15.99 kg/m2
Extreme: BMI < 15 kg/m2

BULIMIA NERVOSA

A. Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following:

   1) Eating, in a discrete period of time (e.g. within any 2 hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.
   2) A sense of lack of control over eating during the episode (e.g. a feeling that one cannot stop eating or control what or how much one is eating).

B. Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviours both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

Specify current severity:

The minimum level of severity is based on the frequency of inappropriate compensatory behaviours (see below). The level of severity may be increased to reflect other symptoms and the degree of functional disability.
Mild: An average of 1-3 episodes of inappropriate compensatory behaviour per week.
Moderate: An average of 4-7 episodes of inappropriate compensatory behaviour per week.
Severe: An average of 8-13 episodes of inappropriate compensatory behaviour per week
Extreme: An average of 14 or more episodes of inappropriate compensatory behaviour per week

BINGE-EATING DISORDER

A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

1) Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances.
2) A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).

B. The binge-eating episodes are associated with three (or more) of the following:

1) Eating much more rapidly than normal.
2) Eating until feeling uncomfortably.
3) Eating large amounts of food when not feeling physically hungry.
4) Eating alone because of feeling embarrassed by how much one is eating.
5) Feeling disgusted with oneself, depressed, or very guilty afterwards.

C. Marked distress regarding binge eating is present.

D. The binge eating occurs, on average, at least once a week for 3 months.

E. The binge eating is not associated with the recurrent use of inappropriate compensatory behaviour as in bulimia nervosa and does not occur exclusively during the course of bulimia nervosa or anorexia nervosa.

Specify current severity:
The minimum level of severity is based on the frequency of episodes of binge eating (see below). The level of severity may be increased to reflect other symptoms and the degree of functional disability.
Mild: 1-3 binge-eating episodes per week.
Moderate: 4-7 binge-eating episodes per week.
Severe: 8-13 binge-episodes per week.
Extreme: 14 or more binge-eating episodes per week.

OTHER SPECIFIED FEEDING OR EATING DISORDER

This category applies to presentations in which symptoms characteristic of a feeding and eating disorder that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for any of the disorders in the feeding and eating disorders diagnostic class. The other specified feeding or eating disorder category is used in situations in which the clinician chooses to communicate the specific reason that the presentation does not meet the criteria for any specific feeding and eating disorder. This is done by recording "other specified feeding or eating disorder" followed by the specific reason (e.g. "bulimia nervosa of low frequency"). Examples of presentations that can be specified using the "other specified" designation include the following:

1. **Atypical anorexia nervosa:** All of the criteria for anorexia nervosa are met, except that despite significant weight loss, the individual´s weight is within or above the normal range.
2. **Bulimia nervosa (of low frequency and/or limited duration):** All of the criteria for bulimia nervosa are met, except that the binge eating and inappropriate compensatory behaviours occur, on average, less than once a week and/or for less than 3 months.

3. **Binge-eating disorder (of low frequency and/or limited duration):** All of the criteria for binge-eating disorder are met, except that the binge eating occurs, on average, less than once a week and/or for less than once a week and/or for less than 3 months.
4. **Purging disorder:** Recurrent purging behaviour to influence weight or shape (e.g. self-induced vomiting; misuse of laxatives, diuretics; or other medications) in the absence of induced vomiting; misuse of laxatives, diuretics, or other medications) in the absence of binge eating.
5. **Night eating syndrome:** Recurrent episodes of night eating, as manifested by eating after awakening from sleep or by excessive food consumption after the evening meal. There is awareness and recall of the eating. The night eating is not better explained by external influences such as changes in the individual´s sleep-wake cycle or by local social norms. The night eating causes significant distress and/or impairment in functioning. The disordered pattern of eating is not better explained by binge-eating disorder or another mental disorder, including substance use, and is not attributable to another medical disorder or to an effect of medication.


UNSPECIFIED FEEDING OR EATING DISORDER

This category applies to presentations in which symptoms characteristic of a feeding and eating disorder that causes clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for any of the disorders in the feeding and eating disorders diagnostic class. The unspecified feeding and eating disorder category is used in situations in which the clinician chooses *not* to specify the reason that the criteria are not met for a specific feeding and eating disorder, and includes presentations in which there is insufficient information to make a more specific diagnosis (e.g., in emergency room settings).

(American Psychiatric Association, 2013)

Appendix 2. Outcome variables for the five clusters at baseline and 36 months follow up:
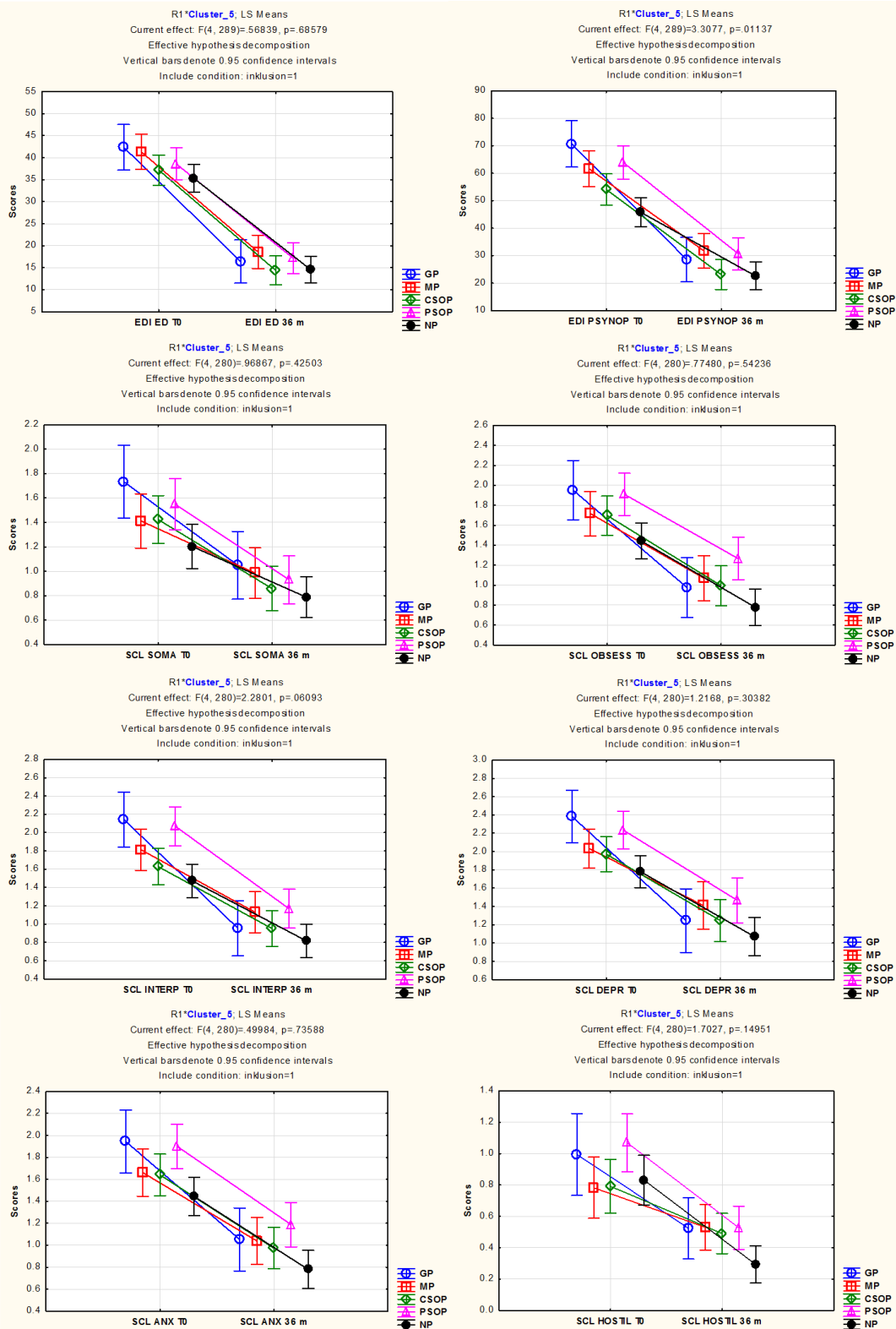
Patienter med ätstörningar – deras beskrivningar och upplevelser av perfektionism.

Syftet med den planerade studien är att belysa hur unga vuxna kvinnor med ätstörningsproblematik berättar om och relaterar till begreppet perfektionism.

Allmänt för intervjuaren:
Intervjuerna avser att belysa följande områden:

- Hur definierar man perfektionism?
- Hur värderar man det?
- Hur utvecklas perfektionism?
- Finns det skillnad i hur man ser på perfektionism i relation till sig själv respektive i relation till andra?
- En personlig reflektion över den egna perfektionismen

Frågor: Inom parentes=inte frågor utan områden som kan täckas

Inledning: Vilken roll spelar perfektionism i ditt liv?

(Hur skulle du beskriva perfektionism?)

Vad kännetecknar en perfektionistisk person? Kan du beskriva en sådan person för mig?

(Är perfektionism något mera statiskt eller varierar det?)

Är perfektionism likadan hela tiden, eller är det olika?
(Om svaret är att den varierar); Har du exempel på hur det kan vara olika?
På vilket sätt är den olika? Hur ser det ut i olika situationer? Hur varierar perfektionism i relation till olika människor? Hur varierar perfektionism utifrån hur man mår? På vilket sätt tycker du att det hänger ihop? Kan du ge något exempel?

(Hur värderar du perfektionism?)

Finns det något bra med perfektionism? Vad?
Vad kan vara bra med att vara perfektionistisk som person?
Kan du ge något exempel?

Finns det något mindre bra med perfektionism? Vad?
Vad kan vara mindre bra med att vara perfektionistisk som person?
Kan du ge något exempel?

(Om perfektionism beskrivs som mindre bra); Vad kan man göra åt perfektionism?

(Vad kan perfektionism få för konsekvenser?)
Vad kan det innebära för en själv om man är perfektionistisk? Kan du ge något exempel?

Vad kan det innebära för andra om någon är perfektionistisk?
Kan du ge något exempel?

(Hur tänker du dig att perfektionism utvecklas?)

Hur kommer det sig att en person blir perfektionistisk?

(Hur hänger perfektionism ihop med andra saker?)

T ex:
Perfektionism och psykisk ohälsa...
Perfektionism och ätstörning...
Perfektionism och krav…
Perfektionism och prestation…
Perfektionism och självkänsla…

Skulle du kalla dig själv perfektionistisk?
(Om så); Hur länge har du upplevt att det har varit så?
Vad gjorde att du blev perfektionistisk?
Vad har det fått för konsekvenser i ditt liv?

Hur är man om man är perfekt?

Tack för att du har tagit dig tid att svara på mina frågor!