Perfectionism and Self-Vulnerabilities in Obsessive-Compulsive and Eating Difficulties

Narisa Vormwald

Submitted in partial fulfillment of the requirements of the degree of

Doctor of Clinical Psychology

2014

Department of Psychology
Swinburne University of Technology
ABSTRACT

Perfectionism has had a long-standing role in theorizing about psychopathology. Empirical studies have identified this construct as a key phenomenological link for OCD and EDs, in particular. Despite its apparent longevity, and recent growing interest, it is still not well understood. This is true in spite of research that has found perfectionism to be a significant hindrance to the successful treatment of disorders. Attempts at differentiating unique aspects of perfectionism for disorders have generally been unsuccessful. Moreover, developmental and motivational bases have not been adequately addressed. This thesis aims to address some of these issues.

The overall aim of the thesis was to develop models of perfectionism that delineate specific facets related, in particular, to OC and ED phenomena. The thesis had three broad aims. The first aim was to construct measures of perfectionism that were uniquely related to OC and ED disorder symptoms, based on cognitive theories and empirical evidence. The second aim was to explore the relative influence of general perfectionism facets and the specific perfectionism scales developed in this thesis, on OC and ED symptoms. In addition, the research investigated the relationship between general and specific self-vulnerabilities that are hypothesized mechanisms thought to underlie perfectionism, and perfectionism facets. The third aim was to develop and compare models of perfectionism for OC and ED phenomena, incorporating self-vulnerabilities.

Five hundred and two non-clinical female participants were recruited. Participants comprised undergraduate students \((N = 261; \text{mean age } = 20.68; \text{SD} = 4.79)\) and individuals from the community \((N = 241; \text{mean age } = 33.42; \text{SD} = 11.34)\). To measure various perfectionism facets, self-vulnerabilities, and other common factors related to OC and ED symptoms, participants completed a range of online questionnaires.
Three studies were conducted, each addressing a separate research aim. In the first study, two specific measures of perfectionism were developed and validated based on domains that were hypothesized as being particularly salient for OC and ED phenomena. These hypothesized domains included morality and physical appearance, respectively. In addition, specific measures of self-vulnerability based on the same disorder-relevant domains were constructed to examine the theorized relationships between self-vulnerabilities and perfectionism. The results of this study found discriminant validity for the developed scales.

Study 2 examined the relative influence of general and specific perfectionism facets on OC and ED severity, the potential self-vulnerabilities linked to these, and compared the influence of self-vulnerabilities on perfectionism, to that of other general vulnerabilities for perfectionist beliefs. Contrary to expectations, the results of the study revealed that both general and specific dimensions of perfectionism were not significantly related to OC and ED symptoms. Despite this, findings supported other hypotheses. Specifically, moral and physical appearance self-vulnerabilities were strongly related to moral and physical appearance perfectionist beliefs, and OC and ED phenomena, respectively. In contrast, general self-vulnerabilities were not directly related to disorder severity. Thus, the study provided some evidence of specificity in the relationships between self-vulnerabilities, and facets of perfectionism, for the disorders.

Finally, Study 3 used the findings from the previous studies to inform the development of two preliminary models of perfectionism for future research and replication. In general, the perfectionism models that were empirically examined in this study maintained significant relationships between variables found in the previous two studies. Notably, neither general nor specific perfectionism dimensions were related to disorder severity. Specific self-vulnerabilities were directly related to specific perfectionism facets, and to disorder severity. General self-vulnerabilities were directed associated with general negative perfectionism, but only indirectly related to disorder severity through the relationship with specific self-vulnerabilities.
In light of these findings, it was proposed that rather than being a cause of OC and ED phenomena, perfectionism may represent an epiphenomenon related to common mechanisms for the disorders. In any case, this thesis highlighted important specific self-vulnerabilities and perfectionism facets which may be incorporated in modular cognitive therapies to form more focused and individualized treatments, with the aim of improving clinical outcomes for individuals with OC and ED difficulties.
DECLARATION

This is to certify that

the thesis comprises only my original work towards the Doctor of Clinical Psychology
except where indicated in the Preface,

due acknowledgement has been made in the text to all other material used,

the thesis is less than 100,000 words in length, exclusive of tables, maps, bibliographies
and appendices.

____________________________

Narisa Vormwald

2014
ACKNOWLEDGEMENTS

This thesis was completed with the combined efforts and support of many.

First and foremost, I would like to thank my principal supervisor, Professor Mike Kyrios, to whom I am most grateful, for his dedication, shared enthusiasm, and fabulous sense of humour. And for maintaining enthusiasm for this work, when on occasions, I was less than enthusiastic about it.

Much appreciation also goes to Denny Meyer for giving up time to impart her statistical know-how, Maja Nedeljkovic who has supported me through this and other aspects of the doctoral program, and the APS gang for their moral support, understanding, genuine interest, and general cheer-leading.

Special thanks to all the participants who completed the online questionnaires for their time and effort. Likewise to the Dillon and Vormwald families, and friends for their support and encouragement.

Last, but by no means least, I would like to thank my partner Simon who has been unwavering in his emotional and practical support, and has made all matter of sacrifices over the years in the service of helping me to achieve my psychology aspirations. These sacrifices include, but are not limited to, tolerating the copious piles of study materials, running eleventh hour errands to purchase a new computer, and moving countries. I am very much indebted to him.
TABLE OF CONTENTS

ABSTRACT ................................................................................................................................... ii
DECLARATION ............................................................................................................................v
ACKNOWLEDGEMENTS ........................................................................................................ vi
LIST OF TABLES ..................................................................................................................... xiii
LIST OF FIGURES ................................................................................................................... xiv

PART 1 – INTRODUCTION AND LITERATURE REVIEW .......................................................15

Chapter 1: Introduction to Perfectionism ................................................................................ 15
  1.1 Definitions and historical conceptualizations of perfectionism ....................................... 16
    1.1.1 Debates regarding the nature of perfectionism .................................................... 23
      1.1.1.1 The content of perfectionism ..................................................................... 23
    1.1.2 The Structure of Perfectionism ............................................................................ 33
      1.1.2.1 Dimensional versus Categorical Models of Perfectionism ....................... 33
      1.1.2.2 Unidimensional versus Multidimensional Perfectionism ......................... 36
  1.2 Perfectionism and links to psychopathology ................................................................. 39
    1.2.1 Perfectionism and depression .............................................................................. 39
    1.2.2 Perfectionism and personality disorders .............................................................. 41
    1.2.3 Perfectionism and somatic conditions ................................................................. 45
    1.2.4 Perfectionism and social phobia .......................................................................... 45
    1.2.5 Perfectionism related to Obsessive-Compulsive Disorder and Eating Disorders 46
  1.3 Summary .......................................................................................................................... 47

Chapter 2: Introduction to Obsessive-Compulsive Disorder and Eating Disorders .......... 49
  2.1 The Phenomenology of Obsessive Compulsive Disorder .............................................. 49
    2.1.1 Definition ............................................................................................................. 49
    2.1.2 Differentiation from ICD definition .................................................................... 50
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.3 Issues of classification</td>
<td>51</td>
</tr>
<tr>
<td>2.2 Aetiological Models of Perfectionism in OCD</td>
<td>55</td>
</tr>
<tr>
<td>2.2.1 Historical Perspectives</td>
<td>55</td>
</tr>
<tr>
<td>2.2.2 Psychodynamic Models</td>
<td>56</td>
</tr>
<tr>
<td>2.2.3 Psychobiological and Developmental Models</td>
<td>59</td>
</tr>
<tr>
<td>2.2.4 Cognitive Behavioural Models</td>
<td>61</td>
</tr>
<tr>
<td>2.3 Perfectionism and OC symptom dimensions</td>
<td>67</td>
</tr>
<tr>
<td>2.4 The Phenomenology of Eating Disorders</td>
<td>69</td>
</tr>
<tr>
<td>2.4.1 Definition</td>
<td>69</td>
</tr>
<tr>
<td>2.4.2 Differentiation from ICD definition</td>
<td>71</td>
</tr>
<tr>
<td>2.4.3 Issues of classification and assessment</td>
<td>72</td>
</tr>
<tr>
<td>2.5 Aetiological Models of Perfectionism in Eating Disorders</td>
<td>75</td>
</tr>
<tr>
<td>2.5.1 Historical Perspectives</td>
<td>76</td>
</tr>
<tr>
<td>2.5.2 Psychodynamic Models</td>
<td>77</td>
</tr>
<tr>
<td>2.5.3 Psychobiological and Developmental Models</td>
<td>78</td>
</tr>
<tr>
<td>2.5.4 Cognitive Models</td>
<td>81</td>
</tr>
<tr>
<td>2.6 Perfectionism and ED symptom dimensions</td>
<td>84</td>
</tr>
<tr>
<td>2.7 Perfectionism as an explanation for OCD and ED comorbidity</td>
<td>85</td>
</tr>
<tr>
<td>2.8 Perfectionism and self-vulnerabilities</td>
<td>89</td>
</tr>
<tr>
<td>2.9 Conclusion</td>
<td>110</td>
</tr>
<tr>
<td>Chapter 3: Thesis Overview</td>
<td>111</td>
</tr>
<tr>
<td>PART II – EMPIRICAL ANALYSES</td>
<td>116</td>
</tr>
<tr>
<td>Chapter 4: Study 1 Development of disorder-specific perfectionism and self-vulnerability scales</td>
<td>116</td>
</tr>
<tr>
<td>4.1 Introduction</td>
<td>116</td>
</tr>
</tbody>
</table>
4.2 Method ........................................................................................................................... 122

4.2.1 Participants ........................................................................................................ 122

4.2.2 Procedure ........................................................................................................... 128

4.2.3 Measures ............................................................................................................ 129

4.2.3.1 Demographic Questionnaire .................................................................... 129

4.2.3.2 Frost Multidimensional Perfectionism Scale (Frost et al., 1990) .......... 129

4.2.3.3 Obsessive Beliefs Questionnaire-44 – Perfectionism subscale (OBQ-P; OCCWG, 2005) ................................................................. 130

4.2.3.4 Physical Appearance Perfectionism scale (PAP) .................................... 131

4.2.3.5 Self-Ambivalence Measure (SAM; Bhar & Kyrios, 2007) ..................... 131

4.3 Results ........................................................................................................................ 132

4.3.1 Exploratory Factor Analyses ............................................................................. 132

4.3.1.1 Preliminary data analyses: factorability of general and specific

perfectionism and self-vulnerability items .................................................. 132

4.3.1.2 Extraction and rotation procedures ......................................................... 134

4.3.1.3 Content Validity ...................................................................................... 135

4.3.2 Confirming factor structure in Sample 2: confirmatory factor analyses .... 139

4.3.2.1 Preliminary data analyses: the suitability of Sample 2 data for SEM ......... 140

4.3.2.2 Factor Models: evaluating goodness-of-fit criteria .................................. 141

4.3.2.3 Discriminant Validity – a stronger test ................................................... 146

4.4 Summary ................................................................................................................. 148

Chapter 5: Study 2 Common and specific vulnerabilities for perfectionism .......... 150

related to OC and ED phenomena ................................................................................. 150

5.1 Introduction ............................................................................................................. 150

5.2 Method .................................................................................................................... 156
5.2.1 Participants, Procedure and Materials ............................................................... 156
  5.2.1.1 Adult Self-Perception Profile (ASPP; Messer and Harter, 1986) .......... 157
  5.2.1.2 Dichotomous Thinking in Eating Disorders Scale-11 (DTEDS-11; Byrne et al., 2004) ................................................................. 158
  5.2.1.3 Obsessive Compulsive Inventory-Revised (OCI-R; Foa et al., 2002) .... 160
  5.2.1.4 Eating Disorder Examination Questionnaire-6 (EDE-Q; Fairburn & Beglin, 2008) ........................................................................................... 160
  5.2.1.5 Rosenberg Self-Esteem scale (RSE, Rosenberg, 1965). ......................... 163
  5.2.1.6 The Depression, Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995) ................................................................. 164

5.3 Results .................................................................................................................. 165
  5.3.1 Factor Scores versus Factor Scale Scores ................................................ 165
  5.3.2 Descriptive statistics .................................................................................. 167
  5.3.3 Preliminary data screening ..................................................................... 171
  5.3.4 Intercorrelations ...................................................................................... 171
  5.3.5 Regression analyses ............................................................................. 173
  5.3.6 Regression predicting OCD severity ..................................................... 174
  5.3.7 Regression predicting ED severity ....................................................... 178
  5.3.8 Regression analyses predicting general and specific perfectionism facets ...... 181

5.4 Discussion ........................................................................................................... 189

Chapter 6: Study 3 Developing aetiological models of perfectionism ................. 193
  related to OC and ED phenomena incorporating self-vulnerabilities .......... 193

  6.1 Introduction ................................................................................................ 193
  6.2 Method ........................................................................................................ 199
    6.2.1 Participants, Procedure and Materials ............................................. 199
### 6.2.2 Statistical methods ............................................................... 200

### 6.3 Results ......................................................................................... 201

- **6.3.1 Descriptive statistics** .................................................... 201
- **6.3.2 Preliminary data analyses** ........................................ 201
- **6.3.3 Intercorrelations** .................................................. 201
  - **6.3.4.1 Model 1** ....................................................... 203
  - **6.3.4.2 Model 2** ................................................... 207

### 6.4 Discussion .................................................................................. 209

- **6.4.1 Pathways shared by Model 1 and Model 2** .................. 210
- **6.4.2 Unique pathways of Model 1** .................................. 211
- **6.4.3 Unique pathways of Model 2** ................................ 212

### Chapter 7: General Discussion and Conclusion ................................. 213

#### 7.1 Introduction ............................................................................ 213

#### 7.2 Summary of findings .......................................................... 215

- **7.2.1 Constructing and validating perfectionism and self-vulnerability scales** .... 215
- **7.2.2 Relationship between self-vulnerability, perfectionism and OC and ED phenomena** ........................................................................................................ 216
- **7.2.3 General vulnerabilities** ............................................ 217
- **7.2.4 Disorder-specific vulnerabilities** ................................ 217

#### 7.3 Theoretical implications ...................................................... 222

#### 7.4 Practical implications .......................................................... 224

#### 7.5 Limitations and directions for future research .................... 228

### REFERENCES .................................................................................. 234

### APPENDICES ............................................................................... 293

**Appendix A: Recruitment of community participants** ........................................ 293
Appendix C: Plain Language Statement for Student Participants ........................................ 295
Appendix D: Plain Language Statement for Community Participants .............................. 298
Appendix F: Debriefing Statement for Community Participants ...................................... 303
Appendix G: Student REP Participation Slip ...................................................................... 306
Appendix H: Copy of Ethics Approval ............................................................................... 307
Appendix I: Demographic Information ............................................................................. 309
Appendix J: Screening for Psychiatric History ................................................................. 311
Appendix L: Obsessional Beliefs Questionnaire – Perfectionism (OCCWG, 2005) .......... 316
Appendix M: Physical Appearance Perfectionism (PAP) scale ........................................ 319
Appendix N: Self-Ambivalence Measure (Bhar & Kyrios, 2007) ...................................... 320
Appendix P: Dichotomous Thinking in Eating Disorders Scale-11 (Byrne et al., 2004) .... 325
Appendix Q: Obsessive Compulsive Inventory Revised (Foa et al., 2002) ....................... 327
Appendix R: Eating Disorders Examination Questionnaire (Fairburn & Beglin, 2008) ... 329
Appendix S: Rosenberg Self-Esteem Scale (Rosenberg, 1965) ......................................... 335
Appendix T: Depression Anxiety and Stress Scale (Lovibond & Lovibond, 1995) .......... 336
LIST OF TABLES

Table 4.1 Demographic characteristics across the two sample groups ................................................ 124
Table 4.2 Primary diagnoses and psychological treatment across the two samples ...................... 127
Table 4.3 Six-Factor Solution for Sample 1 Item Pool ................................................................. 137
Table 4.4 Ranges of Estimated Loadings for Construct Items ..................................................... 146
Table 4.5 Discriminant Validity Analysis for Factors ................................................................. 148
Table 5.1 Correlations between Factor Scores and Summated Scales ............................................. 166
Table 5.2 Internal Consistency for Factor Scales Across Sample Groups ...................................... 168
Table 5.3 Comparison of Means, Standard Deviations and Ranges of Factor Scales .................. 169
Table 5.4 Comparison of Means, Standard Deviations, Ranges and Reliabilities of the Variables ... 170
Table 5.5 Pearson Correlations Between Dependent and Independent Variables ....................... 172
Table 5.6 Hierarchical regression predicting OCI-R ................................................................. 176
Table 5.7 Hierarchical regression predicting EDE-Q ................................................................. 179
Table 5.8 Hierarchical regression predicting moral perfectionism ............................................. 183
Table 5.9 Hierarchical regression predicting physical appearance perfectionism ....................... 185
Table 5.10 Hierarchical regression predicting general negative perfectionism ............................ 187
Table 6.1 Pearson Correlations between Dependent and Independent Variables ....................... 202
Table 6.2 Standardized pathway coefficients for the two Models .............................................. 205
LIST OF FIGURES

Figure 6.1 Model 1 predicting OC severity.................................................................203

Figure 6.2 Model 2 predicting ED severity.................................................................207
PART 1 – INTRODUCTION AND LITERATURE REVIEW

Chapter 1: Introduction to Perfectionism

Perfectionism is an important psychological construct that has long been recognized as a central vulnerability factor for the development of a wide variety of psychopathologies. A large amount of research has indicated that perfectionism is higher in individuals with diagnoses of depression, anxiety, eating disorders (EDs) and obsessive-compulsive disorder (OCD), compared to healthy controls (Shafran & Mansell, 2001). However, despite increasing research into perfectionism, particularly during the last decade, the developmental and motivational basis for perfectionism has not been sufficiently addressed. Secondly, attempts at delineating aspects of perfectionism that differentiate disorders have generally been unsuccessful. The literature presents an array of different characterizations, as well as, various instruments that are used to measure the same concept. Furthermore, few perfectionism studies feature more than one perfectionism measure or type of psychopathology. Naturally, the design of these studies precludes the ability to examine any potential differences in aspects of perfectionism that might be observed across disorders.

Perfectionism is most often construed as a broad, monodimensional construct. Thus, it is perhaps not surprising that research-to-date has failed to find unique links between perfectionism and the psychopathologies with which it is purported to be associated. This “specificity issue” has implications for clinical settings, as there is some evidence to suggest that perfectionism can impede successful treatment of a disorder, irrespective of the treatment method employed (Blatt, Quinlan, Pilkonis, & Shea, 1995). This finding supports the need to better understand perfectionism and its differential involvement in disorders, in order to fine-tune aspects that are targeted in the treatment of
disorders, and improve treatment outcomes. To this end, it is proposed that a study which compares general and specific facets of perfectionism, across different psychological conditions for which perfectionism is a known vulnerability, may help to resolve the current impasse, so to progress research in this area. In this thesis, *general perfectionism* refers to those facets that are considered to have general relevance to psychopathology, whereas *specific perfectionism* refers to facets which are proposed to have some level of specificity to particular disorders.

This chapter begins by defining the phenomenology of perfectionism, including a discussion of the various conceptualizations both past and present, and the ongoing debates regarding its nature. Relationships between perfectionism and the various disorders with which it is linked are explored, with particular focus on the role of perfectionism in the development and/or maintenance of Obsessive-Compulsive Disorder, Eating Disorders, and the co-occurrence of these two disorders. In addition, theories and research related to the potential developmental and motivational bases for perfectionism are discussed, specifically, self-vulnerabilities.

### 1.1 Definitions and historical conceptualizations of perfectionism

Perfectionism has long been recognized as an important aspect of human behaviour. The construct first appeared in psychiatric vernacular in the International Classification of Diseases in 1977, but lacks an agreed definition within the psychiatric literature (Todorov & Bazinet, 1996). Although, according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994), it is not a diagnosable psychiatric condition, research has indicated that perfectionism plays an integral role in the development and treatment of various psychological conditions, including, but not limited to, OCD, EDs, and depression.
The earliest ideas about the role of perfectionism in psychopathology date back to the Stoics and Epictetus (cited in Ellis, 2002). Despite this apparent longstanding attention, it is only in the last few decades that the concept has gained serious interest from the scientific community. For many years it was simply described as a construct rather than being subject to empirical investigation. Early clinical descriptions of perfectionism provided useful accounts of the core features of the phenomenon. The majority of early theorists viewed perfectionism as a dysfunctional characteristic. Janet (1898) was first to write about perfectionism. He saw perfectionists as having —*idé es fixes*” (fixed ideas). Hence, rigidity was one of the first features used to describe the phenomenology of perfectionism.

Later psychoanalysts such as Alfred Adler (1927), Sigmund Freud (1929) and Karen Horney (1939) viewed perfectionism as a feature of personality, particularly neurotic personalities. Adler believed that striving for perfection was a fundamental human response to feelings of inferiority. Freud viewed perfectionism as a common symptom of obsessional neurosis. He stated that perfectionism resulted from a harsh and punitive superego that demanded superior conduct and achievement in all life domains. He also saw perfectionism as an aspect of narcissism (Slade & Owens, 1998). Horney proposed that neurosis resulted from protective habits, and a key protective habit was perfectionism. She described perfectionism as —*the tyranny of the shoulds*” (Horney, 1950). According to this idea, neurotics are compulsively driven to reach an idealized version of self. Anxiety, fear and need for emotional security forces the neurotic towards an ideal, setting an impossibly high standard:

—He should be the utmost of honesty, generosity, considerateness, justice, dignity, courage, unselfishness. He should be the perfect lover, husband, teacher. He should
be able to endure everything, should like everybody, should love his parents, his wife, his country; or, he should not be attached to anything or anybody, nothing should matter to him, he should never feel hurt, and he should always be serene and unruffled”. (Horney, 1950, p. 65)

More recent psychodynamic views of perfectionism are mainly based on object relations theories, which focus on both the content and structure of mental representations or cognitive-affective schemas of the self and others (Blatt, Auerbach, & Levy, 1997; Levy, Blatt, & Shaver, 1998). These representations or schemas, based on early interactions with primary caregivers and significant others, are considered to guide explicit and implicit cognitions, feelings and behavior (Blatt et al., 1997). In accordance with this perspective, representations of the self and others are predominantly based on negative properties of the self (e.g. self-criticism) (Kempke & Luyten, 2007). Others are viewed as critical and punishing. This leads to rigidity, and a strong need for control (e.g. adoption of perfectionist strategies), otherwise referred to as ‘anal character traits’, in traditional psychoanalytic terms (Kempke & Luyten, 2007).

With regard to the link between early life experiences and vulnerability to perfectionism, Blatt’s (1974) study indicated that disrupted parent-child relations can lead to the internalization of distorted mental representations of the self and others in caring relationships, such that an individual either constantly seeks reassurance and support, and has difficulty with separation, or continually anticipates rejection and/or criticism. These two types of disruptions in parent-child relationships (i.e. parental failure to provide consistent care, nurturance or support versus parental exercise of excessive authority, control, criticism and disapproval) are associated with two corresponding types of depression, labeled ‘anaxiclic‘ and ‘introjective‘ depression (Blatt, 1974; Blatt, Wein,
Anaclitic (dependent) depression is characterized by feelings of loneliness, helplessness, and weakness, chronic fears of abandonment, and profound need to be loved, cared for, nurtured, and protected. Separation from others and loss are sources of fear, and are often dealt with by denial and/or a desperate search for substitutes (Blatt, 1974). Introjective (self-critical) depression, is characterized by self-criticism, and feelings of unworthiness, inferiority, failure and guilt. Such individuals engage in constant and harsh self-scrutiny and evaluation, and have a chronic fear of disapproval, criticism, and rejection, which they attempt to compensate for through setting excessive achievement demands and striving for perfection (Blatt, 1974).

Albert Ellis was the first cognitive-behavioural theorist to describe perfectionism. He defined perfectionism as one of 12 irrational beliefs that invariably leads to emotional disturbances. Ellis (1962) wrote in his first book for the psychology profession that perfectionism is “the idea that there is invariably a right, precise, and perfect solution to human problems and that it is catastrophic if this perfect solution is not found”. (pp. 69-88). He described perfectionists as individuals for whom “..the main goal and purpose of life is achievement and success; incompetence in anything whatsoever is an indication that a person is inadequate or valueless (Ellis, 1957, p. 89). According to Ellis (1958), perfectionists only feel worthwhile when they are achieving and competent in all areas of life.

Missildine (1963) proposed a similar definition of perfectionism to Ellis. He also argued that unremitting self-dissatisfaction and poor self-esteem were key characteristics of the phenomenon. Hollender (1978) regarded perfectionism as a neglected personality trait. He defined perfectionism as “the practice of demanding of oneself or others a higher
quality of performance than is required by the situation” (p.94). He stated that a perfectionist is someone who:

- cannot accept or be content with anything short of perfection…he looks so intently for defects or flaws that he lives his life as though he were an inspector at the end of a production line…not only that, but no matter how well he does, he seldom performs to his complete satisfaction” (Hollender, 1965, pp. 94-95).

These early definitions of Hollender (1978) and and Ellis (1962), and even later work by Burns (1980), construed perfectionism in exclusively negative and dysfunctional terms. In contrast, on the basis of clinical experience and anecdotal evidence, Hamachek (1978) argued the case for two distinct types of perfectionism, which he termed normal and neurotic. He defined normal perfectionism as striving for reasonable and realistic standards that leads to a sense of self-satisfaction and enhanced self-esteem. In contrast, neurotic perfectionism was defined as the tendency to strive for excessively high standards, motivated by concerns about making mistakes and fears of failure. The discovery that perfectionism is associated with both positive and negative characteristics has generated considerable controversy within the literature regarding the latent structure of perfectionism (Broman-Fulks, Hill & Green, 2008). This debate is elaborated in section 1.1.1 of this chapter.

Similarly other authors have distinguished between positive and negative perfectionism. Burns (1980b) stated:

- I want to make clear what I mean by perfectionism. I do not mean the healthy pursuit of excellence by men and women who take genuine pleasure in striving to meet high standards…the perfectionists I am talking about are 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).

Burns asserted that perfectionism could be associated with the development and maintenance of various mood problems (particularly depression), lowered life and career satisfaction, and decreased productivity. He included a chapter in one of the first cognitive-behavioural manuals for depression entitled “ways to overcome perfectionism”.

Burns (1980a) provided a broad conceptualization, describing perfectionism as a “network of cognitions” that included expectations, interpretations of events, and evaluations of oneself and others. Burns’ recognition that perfectionism comprised both personal and interpersonal aspects is regarded as a significant development in the field. It promoted perfectionism as a complex, multidimensional entity, and has paved the way for other major developments with regards to theory and measurement of the construct (Flett & Hewitt, 2002).

Unlike Hamachek, Burns (1980) acknowledged that when the pursuit of excellence is functional and positive, it has little clinical relevance. Similarly, Pacht (1984) argued that the use of the label “perfectionism” was appropriate only in the context of describing psychopathology. He noted that in the literature, perfectionism has been associated with a wide variety of problems, including alcoholism, erectile dysfunction, Munchausen syndrome, irritable bowel syndrome, depression, anorexia, obsessive-compulsive personality disorder, abdominal pain, writer's block, ulcerative colitis, paranoia, and Type A behaviour.

In general, early conceptualizations viewed perfectionism as a negative trait associated exclusively with psychopathology and dysfunction. These conceptualizations shared some common elements, including striving to achieve high, unachievable
standards, a fear of failure and making errors, self-worth contingent on achieving high personal standards, and poor self-esteem when one’s high personal standards are not achieved. Many of these definitions incorporated Rogers’ (1954) notion of self-actual and self-ideal discrepancy. According to this theory:

"when individuals' goals, aspirations or hopes, as embodied in the ideal self-image, do not match perceptions of their actual attributes or accomplishments, as reflected in the real self-image, an unpleasant state of internal conflict may result” (Bybee, Luthar, Zigler & Mersica, 1997, p.39).

The problem with this theory is that the unpleasant state that is described is not unique to perfectionists. It is shared by individuals with a diverse range of presenting problems.

Later theorists asserted that the setting of excessively high standards alone is not a sufficient determinant for perfectionism (e.g. Frost, Marten, Lahart & Rosenblate, 1990). Rather, Frost et al. (1990) argued that perfectionism is connoted by the setting of unreasonably high personal standards accompanied by overly critical self-evaluation if and when one perceives that standards are not met. Extreme self-criticism in the context of perceived failure is widely considered to be at the core of psychopathology observed in clinically-relevant perfectionism. As such, it has been integrated into contemporary cognitive-behavioural models of perfectionism (e.g. Dunkley & Grilo, 2007; Dunkley, Masheb & Grilo, 2007; Dunkley, Zuroff & Blankstein, 2003; Shafran et al., 2002).

Shafran et al. (2002) concurs with many early theorists who have argued that perfectionism should be restricted to phenomena of clinical relevance (i.e. negative aspects), since this is the type of perfectionism associated with psychopathology, interferes with treatment progress, and therefore, warrants intervention (Blatt et al., 1995; Lynd-
Stevenson & Hearne, 1999; Pacht, 1984). The group added that a disorder is likely to be more intractable when the self-domain in which perfectionism is expressed, overlaps with the domain affected by the psychological disorder (e.g. a person striving for perfect dietary restraint who has an ED diagnosis) – an argument which supports a research program that is focused on developing specificity in perfectionism models. On the basis of these arguments, Shafran and colleagues (2002) established a new label and definition for negative perfectionism, “clinical perfectionism,” defined as:

- the over dependence of self-evaluation on the determined pursuit (and achievement) of self-imposed, personally demanding, standards of performance in at least one salient domain, despite the occurrence of adverse consequences” (p. 773).

Applying this definition, anorexia nervosa (AN) and bulimia nervosa (BN), for example, could be viewed as the expression of clinical perfectionism in the domain of eating, shape or weight and their control (Shafran et al., 2002). According to Shafran et al. (2002), clinical perfectionism is a more focused, specific clinical construct than multidimensional perfectionism and other conceptualizations to date. In any case, there appears to be a general tendency in the perfectionism field toward characterizing perfectionism as an inherently negative cognitive-personality feature, at least where psychopathology is involved.

1.1.1 Debates regarding the nature of perfectionism

1.1.1.1 The content of perfectionism

As illuminated earlier in the chapter, perfectionism tends to be framed in dichotomous terms representing both ‘good’ and ‘bad’ forms of perfectionism. Positive perfectionism is described as — a predominantly normal or healthy form that carries positive
benefits” (Slade & Owens, 1998, p.377). It is characterized by high levels of organization, self-oriented perfectionism, high personal standards, and a positive striving to meet one’s goals. The authors suggest that positive perfectionism is “driven by positive reinforcement and a desire for success” (p. 378). In contrast, negative perfectionism is described as pathological, unhealthy and “driven by negative reinforcement and a fear of failure” (pg. 378). It is associated with neuroticism, dissatisfaction, maladaptive evaluation concerns, and a high level of socially-prescribed perfectionism (i.e. the perception that others demand perfection from the self).

Many different labels have been used in the literature to describe good and bad forms of perfectionism including: normal and neurotic (Hamachek, 1978), satisfied and dissatisfied (Slade, 1982), functional and dysfunctional (Rheaume et al., 1995), active and passive (Adkins & Parker, 1996), healthy and unhealthy (Stumpf & Parker, 2000), and adaptive and maladaptive (Enns, Cox, Sareen & Freeman, 2001). Some researchers have accepted this distinction without criticism and have incorporated it into their empirical work, whilst others have challenged it. Some blame a deficiency of terminology and focus on perfectionism type rather than associated affective state, for the lack of a consistent conceptualization of the phenomenon (Bilsby, Tang & Bilsby, 2001). In any case, there is ongoing contention about how to best and accurately conceptualize perfectionism. This issue is an important one, due to its practical impact on assessment and treatment. Therefore, a discussion of the debate, including the key arguments and pertinent literature, is provided here.

Many researchers have endorsed the dichotomous view of perfectionism (Enns & Cox, 1999; Slaney, Rice & Ashby, 2002). The distinction between positive and negative aspects of perfectionism has been the focus of many empirical studies (Bieling, Israeli,
Smith, & Antony, 2004; Chang, Watkins, & Banks, 2004; Kempke, Van Houdenhove, Luyten, Goossens, Bekaert, & Van Wambcke, 2011; Lynd-Stevenson, & Hearne, 1999; Norman, Davies, Nicholson, Cortese, & Malla, 1998; Rice, Ashby, & Slaney, 1998). For instance, a factor analytic study (Frost, Heimberg, Holt, Mattia & Neubauer, 1993) of the two most well-known and commonly used multidimensional perfectionism measures - the Frost Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990) and the Hewitt and Flett Multidimensional Perfectionism Scale (MPS-HF; Hewitt & Flett, 1991) - revealed two unambiguous factors. The first factor consisted of high loadings for Hewitt and Flett’s Socially-Prescribed Perfectionism subscale and four of Frost et al.’s (1990) subscales, including Concern over Mistakes, Parental Criticism, Parental Expectations, and Doubts about Actions. This socially-oriented perfectionism factor correlated with Beck Depression Index scores and negative affect scores. It was interpreted as reflecting negative aspects of perfectionism and was termed ‘Maladaptive Evaluation Concerns’ (MEC). The second factor consisted of high loadings on Hewitt and Flett’s Self-Oriented Perfectionism subscale and two of Frost et al.’s subscales, including Personal Standards and Organization. This self-oriented perfectionism factor correlated with positive affect and was considered to represent positive aspects of perfectionism. It was labeled ‘Positive Achievement Striving’ (PAS).

In a similar study, three competing models of perfectionism were examined using confirmatory factor analysis (Bieling et al., 2004). The first model comprised the MPS-F and MPS-HF, the second model specified a unitary model with a single perfectionism factor common to all subscales of both the MPS-F and MPS-HF, and the third model incorporated two perfectionism factors, one corresponding to maladaptive perfectionism and the other adaptive perfectionism. The authors also examined the relations of Frost et
al.'s (1993) MEC and PAS factors, to a measure of psychological distress. It was concluded that the model which differentiated maladaptive and adaptive perfectionism represented a better structure of the perfectionism scales than unitary perfectionism. Moreover, MEC was more strongly associated with depression, anxiety, stress, and test taking anxiety, than PAS.

Other proponents of a two-factor model of perfectionism, include Kempke et al. (2011). These researchers investigated the role of adaptive perfectionism (conceptualized as high scores on the MPS-F Personal Standards dimension) and maladaptive perfectionism (defined as high scores on both MPS-F Concern over Mistakes and Doubts about Actions subscales combined) in chronic fatigue syndrome. Results supported a model in which only maladaptive perfectionism was positively related to severity of chronic fatigue, adding further empirical evidence for a two-factor model of perfectionism.

Despite the tendency towards construing positive and negative perfectionism as separate subtypes, the usefulness of this duality has been questioned and even challenged. The reason for this, is that some studies have found positive perfectionism to be associated with negative aspects, and vice versa for negative perfectionism (see Stoeber & Otto, 2006 for a review). For example, with regard to personality traits, adaptive perfectionism has been shown to be related to higher conscientiousness, but also higher neuroticism (Enns, Cox, & Clara, 2002; Parker, 1997; Rice & Dellwo, 2002). With respect to well-being, adaptive perfectionism has been related to not only positive affect, but higher levels of negative affect (Bieling et al., 2003). Other studies have found positively construed perfectionism was associated with lower levels of wellbeing and social support, and higher levels of perceived stress and pathological symptoms (Dunkley et al., 2000), including obsessive-compulsive symptoms (Hill et al., 2004; Martin & Ashby, 2004; Rheaume et al.,
2000). In addition, it is not uncommon for scores on the two dimensions to show significant correlation (Rice, Ashby & Slaney, 1998; Mitchelson & Burns, 1998). Stoeber and Otto (2006) note that previous investigations have shown correlations ranging from .40 to .70. Furthermore, some studies have revealed high levels of both subtypes coexisting in perfectionists (Bieling, Israeli, & Antony, 2004; Bieling, Israeli, Smith, & Antony, 2003).

Finally, there are steadfast 'traditionalists' who do not conceive of perfectionism as anything other than negative, dysfunctional, and even pathological. For example, with respect to adaptive perfectionism, Flett and Hewitt (2006) asserted that the 'notion of positive perfectionism is more apparent than real' and that 'what is described as positive perfectionism is more akin to conscientiousness...than perfectionism per se' (p. 487). Flett and Hewitt (2006) supported their contention with research demonstrating that self-oriented perfectionism is associated with conscientiousness and its various facets including, competence, order, dutifulness, achievement striving, self-discipline, and deliberation (Hill, McIntire & Bacharach, 1997, cited in Flett & Hewitt, 2002; Flett & Hewitt, 2006). Thus, these researchers contend that identifying types of perfectionism as adaptive is a misconstrual of other personality traits (Goldner, Cockell, & Srikanameswaran, 2002).

It is important to note that this issue is complex and the research literature appears confusing. According to Stoeber and Otto (2006), this apparent confusion may be, at least partly, attributable to the fact that in many studies, the perfectionism dimension of interest has been 'contaminated' by combining facets of both positive and negative perfectionism (p. 310). Although these authors support the notion that perfectionism is a
multidimensional phenomenon with many facets, including some that are positive, they err on the side of caution when referring to perfectionism as such:

- It seems premature to speak of functional or adaptive perfectionism...because the adjectives functional and adaptive have strong connotations that many researchers find unfitting in association with perfectionism” (p. 310). Therefore, we choose to...speak of healthy and unhealthy perfectionists, because healthy does not necessarily denote that something is conducive to health, but may simply denote that something (or someone) enjoys or evinces good health” (p. 315).

Stoeber and Otto (2006) commented that the positive effects of positive perfectionism\(^1\) still remain to be demonstrated in the research. The authors evidenced this by citing a longitudinal study by Enns et al. (2001) comparing perfectionistic strivings and perfectionistic concerns, which found that perfectionistic concerns had negative longitudinal effects, predicting increases in depression and hopelessness. Contrary to expectations, no positive longitudinal effects for perfectionistic strivings were found.

Indeed the argument over whether perfectionism is positive, negative or both extends to specific facets of perfectionism. For instance, some authors argue that self-oriented perfectionism, a core facet of perfectionistic striving, is primarily adaptive and conducive to achievement outcomes (e.g. Blankstein & Dunkley, 2002; Stoeber & Otto, 2006). Others strongly contest this notion, and perceive self-imposed perfectionism to be intrinsically maladaptive (e.g. Greenspon, 2000; Shafran et al., 2002). Empirical findings are divided. Studies that have investigated longitudinal effects of a core facet of perfectionistic striving, self-oriented perfectionism, have found that it may predict progress

\(^{1}\) Stoeber and Otto (2006) refer to positive perfectionism as ‘perfectonistic strivings’ and negative perfectionism as ‘perfectonistic concerns’.
in attainment of important personal goals and decreases in negative affect (Powers et al., 2005). Other studies have found no positive longitudinal effects of self-oriented perfectionism (e.g., Enns, Cox, & Clara, 2005). For example, O’Connor and O’Connor found that high levels of self-oriented perfectionism and low levels of adaptive coping showed increases in hopelessness, suggesting that facets associated with positive perfectionism may have negative longitudinal effects under unfavourable conditions (see also Dunkley et al., 2000).

In another study, Sherry, Hewitt, Sherry, Flett & Graham (2010) investigated the relationship between perfectionism dimensions and research productivity in psychology professors, supplementing participant self-report with more objective data (e.g. journal citations and impact ratings). By exploring a largely unstudied population, the authors sought to expand the evidence base which they stated is narrow and overrepresented by psychiatric patients and undergraduate students. In addition, journal citations and impact ratings were used to overcome the well-described limitations of self-report measures. According to Flett and Hewitt (2006), the particular problem with using self-report instruments to measure perfectionism, is the tendency for perfectionists to avoid appearing imperfect to others. Consequently, it is difficult to determine from self-reports whether perfectionists who are indicating high levels of adjustment are actually well-adjusted, or are concealing perceived self-deficiencies.

Sherry et al. (2010) conducted a discriminant validity analysis which indicated that self-oriented perfectionism was a separate construct to both consciousness and socially-prescribed perfectionism. Moreover, the group found self-oriented perfectionism to be a counter-productive form of over-striving, that impeded research productivity. Thus, the findings drew into question the notion that self-oriented is, broadly speaking, adaptive.
Despite the apparent disagreement among researchers regarding the terminology and precise conceptualization of perfectionism, there appears to be an important point of agreement that warrants attention. According to Owens and Slade (2008), the dissension is linked to the way that researchers have approached the issue of perfectionism. They argue that the majority approach it from the viewpoint of being concerned with the clinical manifestations of perfectionism (i.e. whether the form of the perfectionist behaviour is positive or negative), and the consequences of the perfectionism (i.e. whether it leads to positive or negative outcomes). While these aspects are no doubt important, the authors acknowledge that there is another important, yet relatively understudied approach to exploring perfectionism. This approach involves examining the motivational antecedents to perfectionism – the mechanisms by which perfectionism functions. The authors argue that the problem may not be the perfectionism itself, but the underlying processes driving it: “Whatever the terminology used, the underlying processes remain unaffected” (p. 928). In this way, these researchers seem to suggest that contextual factors relating to perfectionism may override the importance of the positive-negative distinction.

Owen and Slade’s (2008) position on perfectionism is based on Skinnerian reinforcement theory, upon which they developed a dual process model of perfectionism (Slade & Owens, 1998). According to their model, the distinction between positive and negative perfectionism is based on functional differences rather than differences in the form of perfectionist behaviour. Specifically, the valence of perfectionism (negative or positive) is determined by relevant positive and negative ‘reinforcers’ whereby an individual adopts high standards and goals to obtain positive consequences or to avoid negative outcomes, respectively.
Along similar lines, Hewitt, Flett, Sherry, Habke, Parkin, Lam et al. (2003) devised a scale, the Perfectionistic Self-Presentation Scale (PSPS) based on the premise that some individuals are motivated to adopt perfectionist behaviours in an attempt to conceal their own perceived imperfection. The PSPS rates three aspects of perfectionistic self-presentation: advertising one’s own perfection, avoiding situations in which one might appear to be imperfect, and failing to disclose situations in which one has been imperfect. Hewitt et al. found that the functional aspects of the PSPS predicted psychological distress above and beyond that which was predicted by their original measure of perfectionism (i.e. the MPS-HF).

In a quantitative and qualitative analysis exploring the meaning of perfectionism, Rice, Bair, Castro, Cohen and Hood (2003) cited several functional aspects which they proposed distinguish adaptive and maladaptive perfectionism dimensions, including affective, intrapersonal, and interpersonal responses to living up to high personal standards. Their analysis revealed that adaptive perfectionists seemed to be less distressed when high standards were not achieved, whereas maladaptive perfectionists experienced considerable distress. Thus, according to these researchers, it is not the perfectionism per se that is _good_ or _bad_, but it is how individuals interpret perceived failure to achieve their high standards, and level of distress experienced consequently, that determine the valence of the perfectionism.

With regard to their stance on the existence of a positive dimension of perfectionism, Stoeber and Otto (2008) acknowledged that the positivity of psychological characteristics may depend on situational circumstances. They illustrated this point with the following example:
—Whereas active coping such as problem-focused coping is generally regarded as a positive characteristic, it is not helpful when stressors are not changeable…And even though passive coping such as disengagement is generally regarded as negative it may provide some relief in the early stages of the coping processes and thus help individuals to use more effective coping later in the process” (p. 313).

In a similar vein, Flett and Hewitt (2002) underscored the need to consider contextual circumstances when determining the nature of perfectionism, remarking that “conclusive statements about whether perfectionism is positive or negative cannot be made without taking into account [that which] the perfectionist is experiencing in his or her environment”. They explain that even adaptive perfectionism when combined with the experience of life stressors, particularly “ego-involving situations that threaten the self” (p.19), can result in negative psychological outcomes.

Other evidence to support the importance of the context of perfectionism, includes a study by Hewitt and Flett (1993), which examined the diathesis-stress model of perfectionism and depression in two separate studies of psychiatric patients. The primary finding in both studies, was that self-oriented perfectionism interacted with the presence of personal achievement hassles to predict higher levels of depression. A similar finding was reported by Dunkley, Blankstein, Halsall, Williams, and Winkworth (2000), who found that the effect of perfectionism on depression in females was moderated by perceived ‘hassles’, defined as minor interpersonal and achievement-related problems. Additionally, O’Connor and O’Connor (2003) found that hopelessness and psychological distress among college students could be predicted by the interaction between perfectionism and avoidance coping, defined as dealing with problems by avoiding them.
Thus, the point that many partakers in this debate appear to converge on, and which this discussion has demonstrated, is that whether or not perfectionism is good or bad is likely to be attendant on, among other things, contextual factors, including underlying psychological processes, and motivational mechanisms – that is, the function that perfectionism serves for individuals who adopt such beliefs and behaviours. As discussed, there are many researchers who have deferred or tempered judgments regarding the conclusiveness of their findings, citing the importance of contextual factors to the interpretation of these. Despite this, much less empirical attention has been given to this approach to investigating perfectionism.

### 1.1.2 The Structure of Perfectionism

#### 1.1.2.1 Dimensional versus Categorical Models of Perfectionism

A closely related issue in the perfectionism debate, is that the positive-negative distinction assumes that qualitatively different kinds (or categories) of perfectionism exist. The alternative perspective, is that differences in perfectionism are primarily dimensional (i.e. people differ in degrees of perfectionism). Whether perfectionism is best conceptualized as a categorical or dimensional construct is also contested. This issue is important since it has implications for determining whether positive and negative perfectionism are real categories, or artifacts of a particular research methodology or interpretation approach, which consequently has repercussions for assessment and treatment.

Historically, the predominant view of perfectionism is that it represents a dimensional construct, implying that individuals vary in degree of perfectionism (e.g. Burns, 1980; Hollender, 1978). Individuals with higher levels of perfectionism have often been described as setting high standards and being overly self-critical of their performance
(e.g. Frost et al., 1990), thus making them more susceptible to a variety of negative psychological phenomena. Consistent with this dimensional perspective, much of the early perfectionism research has focused on investigating the relation between high levels of perfectionism and various forms of psychopathology including, depression, eating disorders, social anxiety, phobias, obsessive-compulsive disorder (OCD), somatic complaints (see Shafran & Mansell, 2001, and Hewitt & Flett, 2002, for reviews), as well as other psychological vulnerabilities to distress (Flett, Hewitt, Blankstein, & Gray, 1998; Hewitt & Flett, 2002). However, as noted earlier, accumulating evidence appears to suggest that perfectionism is not exclusively associated with negative outcomes as was once assumed. Rather, research has linked perfectionism with a variety of positive consequences as well (for a summary, see Stoeber & Otto, 2006) including the achievement of high standards, the attainment of various rewards for achieving those standards, and higher aptitude test performance (Stoeber & Kersting, 2007).

The emergence of the dual model of perfectionism is associated led to a categorical approach to conceptualizing perfectionism since the model maintains that there are two distinct kinds of perfectionism – positive and negative. This model has raised questions about the latent structure of perfectionism. Many experts have asserted that perfectionism may be the product of a child’s interactions with perfectionist and demanding parents (e.g., Frost, Lahart, & Rosenblate, 1991), yet relatively little systematic research is available regarding the causes of perfectionism. It has been proposed that a taxonic or categorical latent structure is generally suggestive of a discrete aetiological source, such as a particular gene, nervous system disorder, environmental stressor, or specific interaction of such variables (Broman-Fulks, Hill and Green, 2008). A dimensional structure on the other hand, can imply that the phenomenon is multiply determined and has an additive or graded
aetiology (Broman-Fulks et al., 2008). Thus, knowledge of the latent structure of
perfectionism is important because it can help guide researchers with respect to the most
appropriate measurement techniques for assessing perfectionism, and may also be used to
inform aetiological research.

With the aim of expanding the empirical research base that has investigated the
latent structure of perfectionism, Broman-Fulks et al. (2008) applied a series of taxometric
procedures to data gathered from two non-clinical samples using three commonly used
perfectionism measures, including the MPS-F, MPS-HF, and the Perfectionism Inventory
(PI; Hill, Huelsman, Furr, Kibler, Vicente, & Kennedy, 2004). Results across taxometric
procedures, non-clinical samples, and perfectionism measures supported a latent
perfectionism dimension. Thus, the findings suggest that heterogeneity in perfectionism
reflects a difference in degree, rather than kind of perfectionism experienced.

In a sense, the issue of latent structure is one which transcends perfectionism.
Rather, it applies more generally to the way in which all psychological disorders are
conceptualized, and to the clinical utility of such conceptualizations. The current DSM
classification is built on a categorical model of psychological disorders which assumes that
mental disorders are valid, discrete entities, separated from each other and from normality,
by natural boundaries or ‘zones of rarity’ (Kendell & Jablensky, 2003). Clinicians
typically think in terms of diagnostic categories, since these can provide useful
information about common presentation, possible treatment response and prognosis.
Categorical classification is considered to be clinically useful. This is best exemplified in
the opening statement to the DSM: ‘The highest priority has been to provide a helpful
guide to clinical practice’ (APA, 2000, p. xxiii).
Other researchers have argued that categorical classification is limiting because it does not allow examination of the full spectrum of disorders. An unfortunate consequence of the DSM system, to date\(^2\), has been the rigid adoption or ‘reification’ of the criteria by researchers and clinicians alike (Kendell & Jablensky, 2003). It is proposed that such an approach can hinder investigations of disorder aetiology, because researchers tend to study what is defined (Kendell & Jablensky, 2003; Shafran et al., 2001). Van Praag (1998) concurred with this view describing current classification systems as ‘a strait jacket for conceptual progress’ (p. 767). Cloninger (1999) firmly asserted that ‘there is no empirical evidence for natural boundaries between major syndromes’, that ‘no one has ever found a set of symptoms, signs or tests that separate mental disorders fully into non-overlapping categories’ and that ‘the categorical approach is…fundamentally flawed’ (p.176). Overall, this criticism has prompted discussion about the potential advantages of adopting a dimensional approach to classification in future editions of the DSM (most notably, the ability to capture the variation in disorder symptomatology more accurately), as well as, in empirical studies. This discussion of the limitations of categorical approaches and advantages of dimensional approaches to psychological research, underscores the justification of analogue samples used in this thesis. The use of such analogue samples is based on the assumption that the phenomena of interest lie on a continuum from normality.

1.1.2.2 Unidimensional versus Multidimensional Perfectionism

Another way of investigating the structure of perfectionism is on the basis of whether it is unidimensional or multidimensional. In pre-1990s perfectionism literature, a

\(^2\) It is important to note that this thesis was mostly completed before DSM-5 was published. Thus, characterizations of OCD and EDs, and discussion of proposed changes to these classifications, pertain to the fourth edition of the DSM.
unidimensional approach dominated and is reflected in early assessment measures such as, the Burns Perfectionism Scale (Burns, 1980) and the perfectionism subscale of the Eating Disorder Inventory (EDI; Garner, Olmsted and Polivy, 1983), which address personal or _self-oriented_ characteristics of perfectionism.

Over time, the focus of research shifted from determining the prevalence of perfectionism traits, to examining the role of perfectionism in the aetiology and maintenance of psychological disorders. It was argued that clinical descriptions of people with perfectionism depicted them as being preoccupied with mistakes, doubting their actions, overvaluing parents’ expectations and orderliness (Frost et al., 1990). Moreover, clinical observation led to the view that perfectionism also comprises interpersonal aspects and that these are important in adjustment difficulties (Hewitt & Flett, 1991). Thus, perfectionism became viewed as a multidimensional construct, to accommodate a broader, more complex understanding of the phenomenon. Two commonly used multidimensional perfectionism measures include the Frost Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990) and the Hewitt and Flett Multidimensional Perfectionism Scale (MPS-HF; Hewitt & Flett, 1991). These instruments reflect a change in perspective on perfectionism, as they address personal _and_ interpersonal aspects of perfectionism.

The emergence of multidimensional measures led some researchers to re-examine earlier unidimensional models for possible sub-factors (Flett & Hewitt, 2002). For example, Joiner and Schmidt (1995) reviewed the EDI-Perfectionism subscale (Garner, Olmsted & Polivy, 1983), a commonly employed index of perfectionism in EDs which includes such items as “I hate being less than best at things”, and determined that it may better fit a two-factor model. They conducted a factor analysis of the six items comprising the EDI-Perfectionism subscale and found that the items loaded onto two factors: self-
oriented perfectionism and socially-prescribed perfectionism. Similarly, Sherry, Hewitt, Besser, McGee and Flett (2004) provided support for a multidimensional representation of the EDI-P.

More recently, Hewitt et al. (2002) proposed another interpersonal aspect of perfectionism that involves striving to create an image of flawlessness to others rather than attempting to be perfect. This aspect of perfectionism is characterized by: (1) the need to present oneself as perfect (―perfectionistic self-promotion‖), (2) the need to avoid any behavioural demonstration of imperfection (―nondisplay of imperfection‖), and (3) the need to avoid disclosures of imperfection (―nondisclosure of imperfection‖). On the basis of research examining self-presentational concerns, the authors created the Perfectionistic Self-Presentation Scale (PSPS) which extends the social aspect of perfectionism beyond trait facets. Congruent with this, Cockell et al. (2002) argued that the ―desire to hide flaws and shortcomings reflects an interpersonal style of perfectionistic self-presentation that is a defensive extension of the social self‖ (p.746).

In addition, Shafran and Mansell (2001) proposed several criticisms of perfectionism research to-date. First, they argue that the concept of perfectionism is ―too readily equated with its method of measurement‖ rather than being a clinically-based construct. The group stated: ―its undesirable for the construct of perfectionism to be determined by its measures; rather, [it] should be clearly defined and instruments devised to measure it‖ (p.887). In reaction to what they perceived to be a broadening of perfectionism definitions, Shafran et al. (2002) developed a cognitive-behavioural construal of perfectionism which they propose captures its core characteristics, whilst maintaining clinical relevance. According to these authors, the following key conditions apply to clinically-relevant perfectionism: (1) it is dysfunctional because self-worth is
contingent on achieving personally demanding standards and extreme self-criticism often ensues from perceived failure, (2) high standards relate to personally significant domains of life, (3) adverse consequences can be emotional, social, physical, cognitive or behavioural in nature, (4) adverse consequences are tolerated because self-worth is contingent on the pursuit and achievement of goals, and may be viewed by the person as evidence of personal strength rather than aversive.

In conclusion, the widespread use of measures such as the Frost and Hewitt and Flett multidimensional perfectionism questionnaires, suggests a general trend toward viewing perfectionism as a multidimensional construct. The core aims of the current research are: to develop specificity in perfectionism measures, in content areas that are salient to OCD and EDs and their phenomena, and to elucidate the self-related mechanisms that are hypothesized to motivate perfectionism. Therefore, congruent with these aims, perfectionism is construed as a *multifaceted* construct in this thesis. Perfectionism and how it relates to self-processes will be discussed separately for OCD and EDs later in Chapter 1.

1.2 Perfectionism and links to psychopathology

Perfectionism has been linked to a wide range of psychopathology including, depression, personality disorders and dimensions, somatic complaints, anxiety disorders such as, social phobia and OCD, and EDs (Shafran & Mansell, 2001; Hewitt & Flett, 2002). Research findings on the relationship between facets of perfectionism and these psychological conditions will be discussed briefly.

1.2.1 Perfectionism and depression

Depression has been described as the “common cold” of psychopathology (Rosenhan & Seligman, 1995). Traditionally, perfectionism is viewed as representing a
vulnerability for depressive states on the basis that low mood is the result of perceived failures to achieve excessively high goals, expectations or standards (Beck, 1967, Blatt et al., 1995; Hewitt & Flett, 1991; Hill et al., 1997; Lynd-Stevenson & Hearne, 1999). In a series of studies, Flett et al. (1998) demonstrated that perfectionist thoughts accounted for unique variance in distress, in excess of the variance accounted for by negative automatic thoughts and perfectionist traits. In studies conducted at the University of Pennsylvania Mood Clinic, Burns and colleagues (1980) found that perfectionistic individuals were likely to respond to the perception of failure or inadequacy with a loss in self-esteem, triggering episodes of severe depression and anxiety. They suggested that the reason why perfectionists appear to be vulnerable to negative emotional states, may be related to a variety of factors undermining a perfectionist's motivation and sense of competence, including distorted thinking patterns and self-defeating coping strategies.

Studies have found positive relationships for self-oriented and socially-prescribed aspects of perfectionism with depression, in both clinical and non-clinical subjects (Enns & Cox, 1999; Flett, Hewitt, Blankstein, & O’Brien, 1991; Hewitt & Flett, 1991; Hewitt, Flett, & Ediger, 1996; Wyatt & Gilbert, 1998). By definition, individuals with socially-prescribed perfectionism attribute their high standards to external forces over which they have no perceived control. This external attribution of control is correlated with depression (Benassi, Sweeney & Dufour, 1988).

In a study of depressed inpatients in a psychiatric unit, self-oriented perfectionism was found to predict depression (Hewitt & Flett, 1993). Low self-esteem is also a factor that has been investigated in relation to perfectionism, and is related to depression (Fennell, 1997). Self-esteem has been found to mediate the relationship between perfectionism and depression (Preusser, Rice & Ashby, 1994). Another non-clinical study
explored whether obsessive-compulsive and depressive phenomena share common cognitive personality vulnerabilities including, self-oriented and socially-prescribed aspects of perfectionism (Bhar & Kyrios, 1999). Results revealed a significant relationship between depression and OC variables, with both relating significantly to socially-prescribed perfectionism. Self-oriented perfectionism related to OC phenomena but not to depressive features. The authors suggested that this finding may have been due to the association of self-oriented perfectionism with resourcefulness and conscientiousness, as described in the literature. The correlation between OC phenomena and socially-prescribed perfectionism was still significant after controlling for depression. Depression predicted unique OC variance, controlling for socially-prescribed perfectionism, supporting theories that implicate depressive features in the amplification of OCD symptoms (Bhar & Kyrios, 1999).

### 1.2.2 Perfectionism and personality disorders

Perfectionism is also implicated in personality disorders, most notably obsessive-compulsive personality disorder (OCPD). The overlap between this diagnosis and perfectionism is described in the DSM-IV characterization of OCPD:

→ a pervasive pattern with orderliness, perfectionism, [and] mental and interpersonal control at the expense of flexibility, openness, and efficiency. This is demonstrated by a preoccupation with details, lists and order, perfectionism that interferes with task completion, excessive devotion to a task...and an inflexible, rigid and stubborn mental set” (American Psychiatric Association, 2000, p. 729). → The perfectionism and self-imposed high standards of performance cause significant dysfunction and distress in these people...They may also be mercilessly self-critical about their own mistakes” (American Psychiatric Association, 1994, p. 669).
OCPD has a cluster of characteristics, but perfectionism is the aspect which is most frequently studied (Parikh & Halmi, 2006). Empirical literature supports that idea that some of the comorbidity that exists among PDs, as well as with Axis I disorders (e.g. OCD and EDs), can be attributed to shared dimensions of perfectionism (Ayearst, Flett, & Hewitt, 2012; Parekh & Halmi, 2006). However, despite the common descriptors, the actual prevalence of OCPD in EDs appears to be low (Parekh & Halmi, 2006). In a study exploring the prevalence of OCPD in various eating disorder diagnostic categories, only 9% of 105 patients met the criteria for OCPD (Braun, Sunday, & Halmi, 1994). Furthermore, higher perfectionism scores have been found in individuals with OCPD, whether alone or in combination with OCD (Halmi, Tozzi, Thornton, Crow, Fichter, Caplan, et al., 2005). In addition, as Shafran et al. (2002) highlight, it is possible to receive a diagnosis of OCPD and not have elevated perfectionism. Thus, despite being closely related, perfectionism and OCPD are not the same construct. Findings such as these have prompted growing suggestion that the association between perfectionism and comorbid disorders, may be due to a broader role for perfectionism in personality dysfunction, found in complex clinical cases. For instance, other features of OCPD include ‘rigidity’ in thinking (typified by dichotomous thoughts) and the application of inflexible rules (Beck & Freeman, 1990). Both are characteristics that have been related to perfectionism in clinical and non-clinical samples on the MPS-F (Egan, Piek, Dyck, & Rees, 2007), and in non-clinical samples on the MPS-HF (Ferrari and Mautz, 1997).

Aside from OCPD, there is little evidence supporting the role of perfectionism in other personality disorders. One study compared perfectionism in patients with borderline personality disorder, schizophrenia, and normal controls (Hewitt, Flett & Turnbull, 1994). Results showed that borderline patients reported higher socially-prescribed perfectionism
than both of the other groups (Hewitt, Flett & Turnball, 1994). These authors suggested that high socially-prescribed perfectionism may explain the other-directed anger, depression, and learned helplessness observed in individuals with borderline personality disorder. Socially-prescribed perfectionism has been found to be significantly higher in individuals with Narcissistic Personality Disorder, compared to those with Antisocial Personality Disorder and mood disorders (McCown & Carlson, 2004).

An analysis of the relationships between dimensions of perfectionism and indices of personality disorders in a mixed patient group, found that socially-prescribed perfectionism was positively associated with schizoid, avoidant, passive aggressive, schizotypal, and borderline personality (Hewitt & Flett, 1991). Other-oriented perfectionism was positively associated with histrionic, narcissistic, and antisocial personality patterns, and negatively associated with schizotypal personality.

From an aetiological viewpoint, investigations of the relationship between perfectionism and personality may be most informative when explored at the facet level, since personality factors or "source traits" might elucidate the possible origins of perfectionism (Enns & Cox, 2002, p. 53). Early theories of the origins of perfectionism emphasized neuroticism. For example, it was thought that perfectionism emerges, in part, from a neurotic need to please others, fear of failure, and trait-based anxiety and self-doubt (Adler, 1956; Hamachek, 1978). Indeed, socially-prescribed perfectionism has been found to correlate with the depression facet of the neuroticism factor of the Big Five model of personality, consistent with previous studies that have described this dimension of perfectionism as maladaptive (Hill et al., 1997). For example, in an effort to explain the correlation between MPS-HF socially-prescribed perfectionism and Eysenck's neuroticism for both student and clinical samples, Hewitt, Flett and Blankstein (1991), the latter was
described as being associated with a fear of negative evaluation, desire for social approval and indices of emotional instability, such as depression and anxiety. In a review of the relationship between perfectionism and depression, Blatt (1995) described a combination of high socially-prescribed and high self-oriented perfectionism as "neurotic" perfectionism. Further, neurotic perfectionism was described as the need to avoid failure, an inability to derive satisfaction from one's performance, feelings of inferiority, and extreme need for approval and acceptance from others (i.e. a poorly-differentiated sense of self), resulting in chronic negative affect, distress and increased potential for suicide (Blatt, 1995).

Self-oriented perfectionism has been found to be associated with conscientiousness, high neuroticism, and high agreeableness (Hill et al., 1997). In particular, two facets of conscientiousness, high achievement striving and dutifulness, were found to contribute most to this perfectionism dimension. Finally, other-oriented perfectionism has been associated with low agreeableness and low compliance (e.g. a tendency to compete rather than co-operate) (Hill et al., 1997), as well as, other-blame and several dimensions of narcissism (Hewitt & Flett, 1991; Hewitt et al., 1992).

It has been argued, however, that the interpretation of these correlational findings is complicated. For example, neuroticism could reflect either a general fearfulness leading to a striving for excessively high standards for work and social approval. Alternatively, it could reflect negative affect resulting from failure to achieve high standards (Shafran & Mansell, 2001). A study by Flett et al. (1989), suggests that the latter explanation may be more accurate. Using regression analyses they found that perfectionism interacted with high life stress to predict neuroticism in a sample of undergraduates.
1.2.3 Perfectionism and somatic conditions

With regard to somatic complaints, perfectionism has been associated with exhaustion in career mothers (Mitchelson & Burns, 1998), fatigue in night shift workers (Magnusson, Nias, & White, 1996), general somatic symptoms in college students (Martin, Flett, Hewitt, Krames, & Szanto, 1996), greater severity of head pain in children and adolescents with chronic headaches (Kowal & Pritchard, 1990). It has also been noted that patients with chronic fatigue often hold rigid perfectionist attitudes (Puffer & McShane, 1992; Surawy, Hackmann, Hawton, & Sharpe, 1995), although this is an inconsistent finding (Blenkiron, Edwards, & Lynch, 1999). Some authors have found that patients with psychosomatic disorders report more perfectionist beliefs than patients with medical disorders (Forman, Tosi, & Rudi, 1987). Others have found that differences in perfectionism between psychosomatic and medical patients were better accounted for by levels of depression (e.g. Wood & Wessely, 1999).

1.2.4 Perfectionism and social phobia

Of the anxiety disorders, social phobia, along with OCD, are most often linked with perfectionism (Antony, Purdon, Huta, & Swinson, 1998). The core characteristic of social phobia is marked by a persistent fear of social or performance situations in which embarrassment may occur (American Psychiatric Association, 1994). This fear is associated with anxiety, avoidance of social situations, and the assumption that such social humiliation can only be avoided by a perfect social performance (Heimberg, Juster, Hope, & Mattia, 1995). Not surprisingly, social anxiety has been found to correlate strongly with socially-prescribed perfectionism (Blankstein, Flett, Hewitt, & Eng, 1993; Saboonchi & Lundh, 1997), concerns over mistakes, doubts about actions (Saboonchi & Lundh, 1997), and parental criticism (Juster, Heimberg, Frost, & Holt, Mattia, & Faccenda, 1996).
1.2.5 Perfectionism related to Obsessive-Compulsive Disorder and Eating Disorders

The majority of research linking perfectionism and psychopathology has focused on the construct in OCD and EDs. Perfectionism is proposed to be a “necessary but insufficient trait for the development of OCD” (Rheaume, Freeston, Dugas, Letarte & Ladouceur, 1995, p.793). The Obsessive Compulsive Cognitions Working Group (1997) considered perfectionism to be a risk factor for the development of the disorder. Many patients with OCD have described the need to perform compulsions in “just the right way” in response to obsessions (Goodman et al., 1989). These individuals are described as having a drive for exactness and perfect certainty, the absence of which leads to increased doubt about whether they have performed an action correctly (Rasmussen & Eisen, 1992). Doubts about actions are considered such a key feature of OCD phenomenology that the disorder was originally called ‘‘folie du doubt’’ or the ‘‘doubting disease’’ (Berrios, 1985). Frost and Steketee (1997) acknowledged this writing: “Doubting of the quality of one's actions has been a hallmark of OCD and indeed, may reflect symptoms of patients with checking rituals” (p. 294). A range of other researchers have also commented on the association of perfectionism and OCD (Guidano & Liotti, 1983; Doron, Kyrios, & Moulding, 2007, 2008; Rachman, 1997). This will be detailed in a following section.

Eating disorders have long been associated with perfectionism from a theoretical and phenomenological perspective. From a theoretical perspective, perfectionism is considered a necessary condition for the development of anorexia nervosa (Slade, 1982). From a phenomenological viewpoint, perfectionism is considered a core part of eating disorder presentation (Vitousek & Manke, 1994). Accordingly, some eating disorder questionnaires have built in perfectionism subscales including, the Eating Disorders...
Despite the marked differences between the psychological conditions described, it is well documented that OCD and EDs share substantial comorbidity, and perfectionism has been identified as a key phenomenological link for both of these disorders. It is for this reason that this thesis compares aspects of perfectionism, so that similarities and differences can be observed across OCD and EDs. Perfectionism is offered as one possible explanation for the co-occurrence of OCD and ED symptomatology.

1.3 Summary

This chapter began by defining the phenomenology of perfectionism, and describing the various conceptualizations, both historical and current. This was followed by a discussion of the continuing debates over the nature of perfectionism. The chapter presented evidence to support the construal of perfectionism as a multifaceted, and dimensional rather than categorical, construct. In addition, the research demonstrated that perfectionism is linked with multiple disorders, particularly OCD and EDs, and their co-occurrence. The chapter also underscored the importance of considering the motivational bases underlying perfectionism, including perceived threats to self-worth (i.e. self-vulnerabilities), since these are likely to influence the nature of the perfectionist beliefs and behaviours adopted, and consequent outcomes. Indeed, there is very little research that has explored self-vulnerabilities underlying perfectionism, let alone that which has differentiated specific self-vulnerabilities for aspects of perfectionism linked to different disorders.

The next chapter examines theories and research relating perfectionism to OCD, EDs, and their comorbidity. It includes a discussion of OCD and EDs separately including,
general definitions, clinical features, and classification issues. In addition, aetiological models of perfectionism for each disorder are presented, with an emphasis on cognitive theory given its prevalence in the literature and basis for effective treatments. Theories and research on the role of self-vulnerabilities in perfectionism is explored. Furthermore, the chapter reviews some important limitations of the cognitive understanding of OCD and EDs, providing justification for further exploration of self-processes related to perfectionism in these disorders, in particular, self-vulnerabilities.
Chapter 2: Introduction to Obsessive-Compulsive Disorder and Eating Disorders

2.1 The Phenomenology of Obsessive Compulsive Disorder

2.1.1 Definition

In the Diagnostic and Statistical Manual (DSM-IV\(^3\); American Psychiatric Association [APA], 1994), OCD is classified as an anxiety disorder that is characterized by obsessions (recurrent, persistent thoughts, images or impulses that are experienced as intrusive and inappropriate and cause marked anxiety and distress) and compulsions (repetitive behaviours or mental acts that are performed to prevent harm or reduce distress. Accounting for variations in criteria and methodologies, lifetime prevalence rates for OCD are considered to be between 1% and 2.5% (Clark, 2004), and these rates have been found to be consistent across ethnicity, religion, and socio-economic status (Antony, Downie, & Swinson, 1998; Kano, Golding, Sorenson, & Burnham, 1988; Valleni-Basile, Garrison, Jackson, Waller, McKeown, Addy, et al., 1994). Although the nature of OCD presentations observed may differ across cultures, the types and frequency of symptoms tend to be consistent (Rasmussen & Tsuang, 1986; Veale, 2007; Weissman, Bland, Canino, Greenwald, Hwu, Lee, et al., 1994).

Aside from the presence of obsessions or compulsions, the diagnosis of OCD is founded on the impairment and distress caused by the symptoms, symptom cause(s) and the presence of insight. For example, the diagnosis of OCD is applicable only when the obsessions or compulsions cause marked distress, take more than one hour a day, or significantly interfere with an individual’s usual routine, occupation, academic

---

\(^3\) It is important to reiterate that this thesis was commenced and mostly completed before DSM-5 was published. Thus, characterizations of OCD and EDs, and discussion of proposed changes to these classifications, pertain to the fourth edition of the DSM.
functioning, social activities or relationships (American Psychiatric Association, 1994). The diagnosis of OCD is not applicable if the symptoms are due to the direct physiological effects of a substance or general medical condition, or are restricted to the presence of another Axis 1 disorder (American Psychiatric Association, 1994). Furthermore, for adults, the diagnosis of OCD is relevant only for individuals who recognize that the obsessions and compulsions are excessive or unreasonable (American Psychiatric Association, 1994). The description of OCD including its essential features has remained relatively constant across the various DSM iterations.

2.1.2 Differentiation from ICD definition

The International Classification of Diseases (ICD-10; World Health Organization, 1992) and DSM-IV definitions for OCD are similar. In fact, the DSM-IV criteria were developed with ICD-10 compatibility in mind (First & Pincus, 1999). This compatibility is reflected in the international version of DSM-IV, where ICD-10 codes are included alongside DSM-IV disorders. Research has found a moderate to high level of diagnostic reliability across the two classification systems for OCD (64%) (Andrews, Slade & Peters, 1999).

Given the similarity between ICD-10 and DSM-IV descriptions of OCD, the choice to use one classification system over the other for the diagnosis of OCD is arbitrary, and reflects national and cultural preferences and practices (Farmer & McGuffin, 1999). In this thesis, the DSM-IV definitions of OCD and EDs were used. The rationale for this was that the DSM-IV is more likely to be used in clinical contexts. Moreover, many researchers believe the DSM-IV system is based on more rigorous research on phenomenology than the ICD-10. Thus, it has become the preferred classification system for research (First & Pincus, 1999) and mental health professionals (Andrews et al., 1999).
2.1.3 Issues of classification

Classification is a complex issue in the OCD field. Clinical researchers have frequently commented on the heterogeneous nature of the symptoms used to define the disorder. Types of OCD obsessions and compulsions include washing, checking, contamination, sexual and aggressive thoughts, somatic concerns, hoarding, need for symmetry and precision, and religious preoccupations (Rasmussen & Eisen, 1998; Steketee, Grayson, & Foa, 1985). Due to its varied clinical presentation, not all researchers agree that OCD belongs with the anxiety disorders. Some argue that it should comprise a separate category of OCD „spectrum disorders‘. In ICD-10, OCD is classified separately from the anxiety disorders, although within the same larger category as anxiety disorders (as one of the „neurotic, stress-related, and somatoform disorders‘) (World Health Organization, 1992).

From Leckman, Denys, Simpson, Mataix-Cols, Hollander, Saxena, et al.’s (2010) review, the working group for the DSM-5 is considered several possible changes to the definition of OCD that may improve diagnostic validity and clinical utility. The proposed changes included: 1) modifying how obsessions are defined, replacing the term „impulsive” with „urge” to distinguish OCD from impulsive control disorders, 2) the addition of a proviso which recognizes that obsessions usually, but do not always, cause marked anxiety or distress, 3) more flexibility around the stipulation that obsessions and compulsions are time-consuming, 4) the addition of other possible differential diagnoses, and 5) modifying the Insight specifier criterion to reflect that insight varies along a continuum in OCD (APA, 2010).

Another key revision for OCD classification in DSM-5, includes it under a new category, Obsessive-Compulsive Spectrum Disorders (OCSD), along with a range of
disorders with complex underlying dimensionality (e.g., anxiety, impulsive-compulsive, somatoform) (Hollander & Zohar, 2004). In general, however, the view that OCD should be distinguished from other anxiety disorders is not universally supported, both within and across, various mental health professions (see Mataix-Cols, Pertusa, & Leckman, 2007; Stein, Fineberg, Bienvenu, Denys, Lochner, Neustadt & Phillips, 2010; Storch et al., 2008). These authors argue that there is neither sufficient justification for the inclusion of specific disorders in the OCD spectrum disorders category (nor for the exclusion of other potential candidates). The proposed OCSD category includes Body Dysmorphic Disorder (BDD), but not Hypochondriasis - a disorder that is considerably similar to OCD. Skin picking and Trichotillomania are included in the OCSD category, but could just as easily be seen as behavioural addictions or impulse control disorders. Such authors contend that the core presenting characteristic of OCD is anxiety.

Furthermore, the hoarding subtype of OCD has been proposed as a separate disorder with its own diagnosis (APA, 2010). Indeed, the differences between hoarding and other OCD symptoms are thought to outweigh the similarities, and hoarding symptoms tend to occur independently from OCD symptoms (Pertusa, Fullano, Singh, & Allonso, 2008). However, a number of concerns have been raised about subtyping on the basis of symptom profile. First, subtyping studies to date have focused exclusively on symptom features (e.g. the frequency and content of obsessions and compulsions). One symptom-based approach to subtyping is by clinical observation. This approach has been criticized as neither systematic nor reliable (Clark, 2005).

A second, more empirical, symptom-based subtyping approach identifies OCD subgroups based on statistical cluster methods (Calamari, Wiegartz & Janeck, 1999; Calamari, Wiegartz, Riemann, Cohen, Greer, Jacobi, et al., 2004; Leckman et al., 1997;
Factor analyses have generally derived four to five symptom dimensions including, contamination/washing, obsessions/checking, symmetry/ordering, hoarding (Abramowitz, Franklin, Schwartx, & Furr, 2003; Calamari et al., 2004; Haslam, Williams, Kyrios, McKay, & Taylor, 2005; Leckman et al., 2007; Mataix-Cols et al., 2002).

Nonetheless, statistical methods have had limited success in establishing consistency in the number and type of subtypes derived across studies (see Calamari et al., 2004; Mataix-Cols et al., 1999; Summerfeldt et al., 1999).

In addition, a taxometric analysis of three OBQ-beliefs and three OCD symptom dimensions within a sample of 404 diagnosed cases of OCD, investigated whether contamination, checking and obsessionality symptom-based subtypes would occur in responses to the Padua Inventory (PI) (Haslam, Williams, Kyrios, McKay, & Taylor, 2005). The authors also sought to determine whether responsibility/threat estimation, perfectionism/intolerance of uncertainty, and importance/control of thoughts cognition-based subtypes could be found in the Obsessive Beliefs Questionnaire (OBQ). Overall, the study found that OCD symptoms were best conceptualized as dimensional rather than categorical, raising doubts about whether meaningful discrete subtypes of the disorder can be formed (Haslam et al., 2005). The same research group recently replicated the study in a larger sample of 1,005 student participants (Olatunji, Williams, Haslam, Abramowitz, & Tolin, 2008). The findings of this study concurred with the group's initial study. That is,

---

4 As such, hoarding items comprising the OCI-R will not be excluded from the total OCI score that will represent OCD severity in the current research. This approach is consistent with the use of reference to the DSM-IV in this thesis.
OCD symptoms were dimensional, rather than categorical (with the exception of hoarding symptoms).

Whilst a dimensional approach may not be free of the conceptual and methodological problems discussed thus far, it may make them more easily decipherable. For example, Mavissakalian, Hamann, Haidar, & deGroot (1993) found that while an OCD group did not differ from comparison groups in terms of prevalence of global compulsive, dependent, or histrionic personality disorders, it did score significantly higher on a number of component traits (e.g. perfectionism and indecisiveness). This suggests that dimensional perspectives can reveal meaningful relationships that might otherwise be missed in a categorical analysis.

Another problem with symptom-based subtypes is that mixed presentations are common. Individuals with OCD rarely present with only one type of obsession or compulsion (Rasmussen & Tsuang, 1986, Summerfeldt, 2004; Tallis, 1995). Moreover, the phenomenology of OCD can change over time (Haslam et al., 2005; Rasmussen & Tsuang, 1986; Skoog & Skoog, 1999). For example, an individual classified as a ‘checker’ may later present with washing compulsions. As well, obsessions and compulsions often serve mixed functions (Radomsky and Taylor, 2005). Thus, even attempts to classify an individual on a functional basis (e.g. classify it as a religious obsession if the threat involves fear of God’s punishment) can pose challenges (Radomsky and Taylor, 2005).

In response to these limitations, other subtyping approaches have been proposed. These include defining subtypes on the basis of: (1) cognitive phenomena (Emmelkamp, Visser, & Hoekstra, 1988; Rachman & Hodgson, 1980; Salkovskis, 1985), (2) presence versus absence of tics (Hoehn-Saric & Barksdale, 1983), (3) early versus late onset (Jenike, Baer & Minichiello, 1990), (4) comorbidity with other disorders (Bejerot, 2007;
Coles, Pinto, Mancebo, Rasmussen, & Eisen, 2008; Garyfallos et al., 2010), and (5) whether symptoms can be attributed to internal or external stimuli (Lee & Kwon, 2003; Moulding, Kyrios, Doron, & Nedeljkovic, 2007).

While it is possible that reported inconsistencies with regard to OCD may be due to differences in the measures and analytical methods used (Calamari et al., 2004, this discussion highlights the heterogeneous nature of the disorder, as well as, the potential issues it raises for research and treatment. It also underscores justification for the dimensional approach employed in the current thesis, including the use of nonclinical samples, which are commonly used in both OCD and ED research spheres.

2.2 Aetiological Models of Perfectionism in OCD

Perfectionism has played a central role in theorizing about OCD. Considerable theory and empirical evidence suggests that individuals with OCD are more perfectionistic than those without OCD. This theory and empirical research, including historical, psychodynamic, developmental and cognitive-behavioural perspectives, are discussed below.

2.2.1 Historical Perspectives

In medieval Europe, people who experienced blasphemous, sexual, or other obsessive thoughts were believed to be possessed by the Devil (Aardema & O’Connor, 2007). The medical community used latin terms such as obsessio, compulsio, impulsio, and scrupulous to deal with OCD-like phenomena (Berrios, 1989). Treatment of the condition involved exorcism to banish the evil from the so-called possessed person (Aardema & O’Connor, 2007).

Over time theories on OCD shifted from religious explanations to medical ones, and finally psychological explanations. Between the 1830s and 1900, OCD went through a
succession of classification changes from insanity (or _monomania’) to neurosis, psychosis, and finally, one of a particular class of neuroses (Berrios, 1989). The component symptoms of OCD also underwent revisions; obsession was differentiated from delusion, and both symptoms from their antecedent, _idées fixe’ (translated literally to mean _fixed ideas’)\(^5\). Likewise, compulsion was separated from impulsion, the latter term being the name given to a class of symptoms comprising sudden, stereotyped, and uncontrollable behaviours (Berrios, 1989). One of the most well-known and influential French psychologists of the second half of the 19\(^{\text{th}}\) century, Théodule-Armand Ribot, wrote of OCD:

_The mental state called _insanity of doubt’ or ruminative mania...consists in hesitation over futile issues, and incapacity to make decisions. The hesitation affects the intellectual sphere and the patient faces endless self-questioning...”_ (Ribot, 1904; cited in Berrios, 1989, p.290).

Despite these writings, it was not until Pierre Janet’s (1903) work that the link between perfectionism and OCD was explicitly articulated.

### 2.2.2 Psychodynamic Models

Janet delineated three stages in the development of OCD (Janet, 1903; as cited in Pitman, 1987). He attributed a primary, predisposing role in the evolution of OCD symptoms to the first stage, the _psychasthenic state‘. This state was thought to be characterized by negative subjective appraisals of one’s performance, and perceptions, and elusive satisfaction. An analysis of 236 cases reported by Janet showed that the _psychasthenias‘ included OCD, panic, phobic and tic disorders, hypochondriacal and

\(^5\) OCD was, at this stage, characterized by obsessional and delusional beliefs that were described as having a fixed, incorrigibility about them.
confusional states, and some forms of epilepsy. According to Janet, the psychasthenias resulted from a loss of the ‘function of reality’. However, he believed that most central to the psychasthenias, was an inner sense of imperfection, associated with the perception that actions or intentions had been incompletely achieved: —Psychasthenics are continually tormented by an inner sense of imperfection...this is perhaps the most basic factor in the illness, out of which the symptomatic agitations and efforts arise” (Janet, 1903, cited in Pitman, 1987, p.226). Janet contended that these feelings of imperfection developed in childhood. In line with this, Rasmussen and Eisen (1989) found that in their interviews with adult OCD patients, childhood perfectionist traits were frequently reported.

The second stage, which Janet (1903, cited in Pitman, 1987) labeled ‘forced agitations’, was thought to involve attempts to achieve perfection in thoughts and behaviour, in order to overcome the feelings of imperfection, described in the first stage. The perfectionist features of the psychasthenic and forced agitations stages of OCD development, were considered requisites for the third stage - ‘fully developed obsessions and compulsions’. Although Janet’s contribution was pivotal in terms of illuminating the role of perfectionism in OCD, his was more of a theoretical than clinical contribution. Nevertheless, it secured OCD’s place among the neuroses, reinforced by Freud’s account of obsessional neurosis, representing the other main tradition from which perspectives relating OCD and obsessional personality derived (Summerfeldt, Huta and Swinson, 1998).

Freud (1913) suggested that obsessional neurosis was more likely to develop in an individual with an anal character or personality structure, defined by a triad of features, including orderliness, parsimony, and obstinacy. Both symptoms and traits were thought to represent defence responses to unconscious anxiety. This was unlike Janet, who
considered anxiety to be a secondary issue in OCD, resulting from the symptoms rather than the converse. Although there is some overlap in the traits hypothesized by Freud and Janet, Janet’s central emphasis was on uncertainty, indecisiveness and incompleteness, whereas Freud’s account was anxiety-driven.

Freud’s formulations have had an enduring influence; the features of his anal-triad are incorporated in the DSM-IV diagnostic criteria for obsessive-compulsive personality disorder, and the importance of anxiety is underscored by the inclusion of this personality pattern in the _anxious’ Cluster C of Axis II. Janet’s _psychasthenic state’, on the other hand, appears to be more closely aligned with the compulsive or _anankastic‘ personality disorder described in the ICD-10, for which the defining criterion is _doubt‘.

_Indecisiveness’ was removed from DSM-IV diagnostic criteria for OCPD (American Psychiatric Association, 1994).

The perceived importance of perfectionism in the conceptualization of OCD is shared by other psychodynamically-oriented writers (e.g., Jones, 1948, Mallinger, 1984; Salzman, 1968). For instance, Jones (1948) described OCD as a _pathologically intolerant insistence on the absolute necessity of doing things in exactly the _right way_” (p. 417). Straus (1948) too emphasized the intolerance of uncertainty in conceptualizing OCD, and considered its symptomatology to be the direct result of perfectionism. According to Straus, being perfect is a way for the obsessive person to cope with the fear of uncertainty and to avoid criticism, social disapproval and punishment. Rado (1974) referred to the obsessive individual as _the ultimate perfectionist_”.

Other analytic theorists have provided a different but related explanation for the appearance of perfectionism in OCD (e.g. Mallinger, 1984; Mallinger & DeWyze, 1992; Salzman, 1979). These theorists suggested that perfectionism arises in individuals with
OCD from attempts to achieve and maintain control over their environment. Thus, perfectionism can be viewed as symptomatic of the need for excessive control to avoid risk of harm (e.g. perceived criticism) (Frost & DiBartolo, 2002). The perception of control is achieved by cognitive distortions (i.e. obsessions) and by compulsive behaviour (Frost & DiBartolo, 2002).

2.2.3 Psychobiological and Developmental Models

A web search of the scientific literature yielded no results for studies examining genetic substrates of perfectionism. However, genetic epidemiological studies have demonstrated that most personality dimensions receive approximately equal contributions from genetic and environmental determinants (Jang, Livesley, Vernon, & Jackson, 1996). Thus, with respect to the latter, consistent clinical evidence supports the role of family in the development of perfectionism in OCD. Baslev-Olesen and Geert-Jorgensen (1959) noted that almost half of their sample of 62 individuals with obsessive-compulsive neuroticism, had perfectionistic parents or siblings, and were described as having experienced a “perfectionistic or rigorous” upbringing.

Hoover and Insel (1984) studied the relatives of patients with OCD, and noted that many of these families emphasized perfectionism. Clark and Bolton (1985) reported that OCD patients perceive greater demands from their parents. Honjo, Hirano and Murase (1989) evaluated a group of children with OCD symptoms and concluded that more than half of the parents presented with perfectionism and other OCPD characteristics. Allsopp and Verduyn (1990) examined case notes of a group of adolescent OCD patients, and found that perfectionism and precision were the most commonly noted characteristics describing patients’ parents. Despite the evidence, much of this literature is based on
clinical observations and not supported by empirical evidence. Furthermore, it neglects to explain the process by which OCD develops in perfectionistic family environments.

Lo (1967) was one theorist who attempted to explain the relationship between perfectionism in families and the development of OCD symptoms in individuals. In a study of OCD patients, Lo found that almost one third had parents who demonstrated perfectionistic traits. He attributed childhood OCD traits to perfectionistic parenting, characterized by demands for high standards of performance, which the child feels pressured to fulfill in order to gain approval from their parents. Driven by the need for parental acceptance, Lo proposed that the child will strive to achieve those standards. Over time, parental standards are internalized by the child and become their own personal standards. Finally, if and/or when perfectionist standards are not met, anxiety and demands for even higher standards are perpetuated. Compulsive symptoms emerge as maladaptive perfectionistic strategies, in an effort to restore a positive self-identity. Lo’s account was limited however, in that the process by which OCD emerged in these families was not described in detail, it was not a systematic study, and did not use validated measures of perfectionism.

In a similarly developmental vein, Guidano and Liotti (1983) proposed that children who experience anxious and ambivalent attachment relationships with their primary caregivers, are vulnerable to obsessionality. According to their theory, children in ambivalent attachment contexts experience both validation and rejection from primary caregivers, and find it difficult to reconcile these conflicting feelings. Consequently, they develop an insecure base for self-worth and exercise vigilance with respect to possible rejection by others. Perfectionism, compulsive behaviours and approval seeking are adopted as a way of establishing a unified sense of self. Parenting measures that assess the
parenting style characterized by Guidano and Liotti are not yet generally available (Kyrios, Hordern, & Bhar, 2001), although some attempt is being made to develop these in order to evaluate the theorized association between ambivalent parenting and OCD (Kyrios & Ahern, 2013). Initial data has supported this association but further work continues on the development of measures of ambivalent parenting (Kyrios & Ahern, 2013).

2.2.4 Cognitive Behavioural Models

Contemporary cognitive theorists also emphasize the importance of perfectionism in OCD. Similar to psychodynamic models, cognitive and behavioural models feature issues related to control, security and concern over criticism (Beck, Emery & Greenberg, 1985; McAndrews, 1989). McFall and Wollersheim’s (1979; as cited in Frost & Steketee, 1999) cognitive-behavioural model of OCD focuses on the appraisal of threat. This model proposes that there are four core assumptions that individuals with OCD have learned, which lead them to viewing the world as a dangerous and threatening place. Two of the four characteristic assumptions reflect perfectionist cognitive styles. The first perfectionist assumption, is that “one should be perfectly competent, adequate, and achieving in all possible respects” (p. 335). This assumption implies that people with OCD believe they need to be perfect in order to avoid criticism and disapproval from others. The second perfectionistic assumption, is that the failure to reach set goals and mistakes are catastrophes that warrant punishment.

Guidano and Liotti (1983) proposed a cognitive theory of OCD. Like McFall and Wollersheim (1979), they contended that perfectionism is fundamental to the development of OCD among people with obsessional personalities. They proposed that OCD symptoms are the result of certain perfectionist assumptions, including the need for certainty, and belief in the ‘perfect solution’. Such assumptions are thought to cause individuals who
hold them to ruminate over mistakes, and to view solutions that are subjectively ‘less-than-perfect’, as indications of personal failure.

Similarly, Pitman’s (1987) cybernetic model of OCD hypothesized a lack of tolerance for error in individuals with OCD. This approach proposed that behaviour is controlled by an ongoing process in which perceptual input is matched to internal reference signals. The degree of mismatch between input and internal representation, is communicated as an error signal, which then prompts compensatory behaviour intended to reduce the error signal. Pitman suggested that in OCD the generated error signal does not respond to compensatory behaviours. The result is "the core problem ...the persistence of high error signals, or mismatch, that cannot be reduced to zero through behavioural input" (p. 336). In this model, obsessive-compulsive rituals represent compensatory attempts to reduce error signals, which are inevitably followed by chronic feelings of doubt and uncertainty. Importantly, the OCD phenomena Pitman cited as most illustrative of the breakdown of this regulatory system, and least amenable to behavioural solutions, include pathological perfectionism, slowness, and feelings of dissatisfaction.

Cognitive models have typically placed inflated responsibility beliefs at the core of obsessional problems (Salkovskis, 1983; Rachman, 1993). The OCCWG (1997) defined inflated responsibility as “the belief that one has power which is pivotal to bring about or prevent subjectively crucial negative outcomes” (p. 677). These outcomes are perceived as essential to prevent. They may have consequences in the real world, and/or at a moral level. More recent cognitive-behavioural approaches to OCD emphasize the role of various dysfunctional beliefs in the development and maintenance of the disorder (Clark, 2004; Rachman, 1997; Salkovskis, 1999). For instance, Freeston and colleagues (Freeston & Ladoucer, 1997; Freeston, Rheaume & Ladoucer, 1996) contended that perfectionism is
one of five types of faulty beliefs characterizing OCD. Freeston and colleagues identified
the following perfectionist appraisals as being typical of OCD: the need for certainty, the
need to know and the need for control (particularly of thoughts). Similarly, they proposed
that these beliefs are based on the idea that a perfect state is achievable. Other OCD
symptoms which may be associated with perfectionism, include obsessions with
symmetry, completeness and ‘not just right’ experiences (Leckman, Walker, & Goodman,
1994, Rasmussen & Eisen, 1992) described as uncomfortable sensations of things not
being just right (Coles, Frost, Heimberg & Rheame, 2003).

Similarly, the Obsessive Compulsive Cognitions Working Group (OCCWG, 1997)
identified perfectionism as one of six core OCD-relevant belief domains. Perfectionism
was defined as ‘the tendency to believe there is a perfect solution to every problem, that
doing something perfectly (i.e., mistake free) is not only possible, but also necessary, and
that even minor mistakes will have serious consequences” (p.678). The six theoretically-
derived factors formed the Obsessive Beliefs Questionnaire (OBQ; 2001, 2003), an 87-
item instrument and most widely used measure of dysfunctional beliefs in OCD.

Several potential weaknesses have been identified with regard to the OBQ. The
first relates to the dimensionality of the instrument. Faull, Joseph, Meaden & Lawrence
(2004) performed a principal components analysis on the six belief scales comprising the
OBQ-87. Results showed that the first extracted component had an eigenvalue of 4.82
compared to the second component which had an eigenvalue of 0.35. Hence, the authors
concluded that the OBQ is a unidimensional construct.

Likewise, the OCCWG (2005) carried out a factor-analytic study, the results of
which supported a revised 44-item version of the OBQ comprising the following three
subscales: Responsibility/threat estimation, Importance/control of thoughts and
Perfectionism/certainty. The group found that perfectionism and inflated responsibility subscales were highly correlated. Woods, Tolin and Abramowitz (2004) conducted a confirmatory factor analysis with a large student sample with the aim of testing the six- and three-factor models proposed by the OCCWG. Results of this study showed that both models fit the data poorly. Myers, Fisher and Wells (2008) proposed a four-factor model including, Responsibility, Threat estimation, Importance/control of thoughts, and Perfectionism/certainty).

In a confirmatory factor analysis, Wu and Carter (2008) compared Myer et al.’s (2008) four-factor model to the single-factor and three-factor OCCWG (2005) models, and found all three models to be inadequate. The authors proposed a different three-factor solution including, Importance/control of thoughts, Responsibility, and Perfectionism. Although Wu and Carter found their model to have a good fit, the validity of their model comparison study has been questioned. Specifically, Moulding, Anglim, Nedeljkovic, Doron, Kyrios, and Ayalon (2011), underscored that the fit statistics for Wu and Carter's model were calculated on a smaller sample size than was used to test the other models. The authors contended that the fit improvement Wu and Carter (2008) achieved was due to the fact that the primary fit statistic is sensitive to sample size, and tends to worsen in larger samples.

In their study, Moulding et al. (2011) examined the OBQ using multiple exploratory methods including, exploratory factor analysis, cluster analysis by variable, and multidimensional scaling. In addition, confirmatory factor analyses were performed in two large nonclinical samples from Australia and Israel. Results suggested a four-factor solution including the following dimensions: Threat, Responsibility, Importance of thoughts, and Control of thoughts. The revision was labeled the OBQ-TRIP. The model
reportedly demonstrated superior fit statistics across the two samples, compared with the models suggested by previous researchers.

A further reported weakness of the OBQ, concerns the discriminant validity of the instrument. According to the OCCWG (2001, 2003), the OBQ scales appear to be as highly correlated with non-OCD symptom measures as they are with OCD symptom measures. Furthermore, there are important inconsistencies among studies comparing OCD patients and non-OCD anxious controls on OCD-specific beliefs (Anholt, Emmelkamp, Cath, van Oppen, Nelissen, & Smit, 2004; OCCWG, 2001, 2003; Tolin, Worhunsky, & Maltby, 2006). For example, the OCCWG (2001) initially found that perfectionism was the only belief domain that did not discriminate between OCD and anxious controls, although the small number of anxious controls in this study limited the strength of the conclusions. Later studies using larger clinical samples did not find significant differences between OCD and anxious controls in overestimation of threat, intolerance of uncertainty and perfectionism, suggesting that these beliefs may be relevant for OCD but not specific to this disorder (OCCWG, 2003). Later still, the OCCWG (2005) found that OCD and anxious controls differed on two subscales of the OBQ-44 (Responsibility/Threat estimation and Importance/Control of thoughts) but not on Perfectionism/Certainty.

In addition, the results of a study by Tolin et al. (2006) did not support the existence of OCD-specific beliefs. Using the original six-factor structure (OBQ-87), they found that Importance of controlling one's thoughts was the only belief domain able to distinguish between OCD and anxious controls. Moreover, controlling for depression and trait anxiety, Tolin et al. observed that OCD subjects did not differ from anxious controls on any of the OBQ-44 scales. Similarly, other authors have found no differences between
the dysfunctional beliefs of OCD and pathological gamblers (Anholt et al., 2004). A cluster analysis of the OBQ has shown that 55% of the OCD patients had a total OBQ-44 score that was similar total scores obtained by the anxious and non-clinical controls on the same measure (Calamari, Cohen, Rector, Szacun-Shimizu, Riemann, & Norberg, 2006; Taylor, Abramowitz, McKay, Calamari, Sookman, & Kyrios, 2006). Twenty-six percent of the OCD sample showed low scores on all the OBQ scales (Calamari et al., 2006).

More recently, Belloch, Morillo, Luciano, García-Soriano, Cabello and Carrió (2010) conducted a series of confirmatory factor analyses on the Obsessive Beliefs Spanish Inventory-Revised (OBSI-R) designed to assess OCD-related dysfunctional beliefs. These factor analyses were carried out using non-clinical subjects. Findings supported an eight-factor model. The OBSI-R was then administered to OCD patients, depressed patients, and non-OCD anxious patients. Although OCD patients differed from non-clinical patients on all of the OBSI-R subscales, there was no evidence of OCD-specificity for any of the belief domains that were measured. Overall, these findings raise doubts about the specificity of the dysfunctional belief domains hypothesized as being important to current conceptualizations of OCD.

Meanwhile, other empirical studies have provided support for the unique influence of perfectionism in such models. In a study of college students, Rheaume, Freeston, Dugas, Letarte & Ladoucer (1995) found that perfectionism, as measured by the MPS-F (Frost et al., 1990), accounted for a significant proportion of variance in OC symptoms after the influence of inflated responsibility was controlled for (Rheaume et al., 1995). These authors concluded that perfectionism and inflated responsibility are differentially related to OCD. More recently, Wu and Cortesi (2009) determined that perfectionism
predicted OC symptoms beyond inflated responsibility, and that this finding was particularly robust.

There is evidence to suggest that aspects of perfectionism may be differentially related to certain OC symptoms (Rheaume, 2005), which may in part explain the discrepancy in the findings of studies comparing perfectionism and inflated responsibility. Investigating how constructs might be linked to OCD at a symptom rather than global level, is a relatively recent research trend. Consistent with this development, some studies have looked at the association between aspects of perfectionism and OC symptom dimensions. These associations will be discussed in more detail further on in this chapter.

Overall, despite the different theories linking perfectionism with OCD, they share common themes, the core theme being that perfectionistic thinking and behaviour represent ways of coping in situations that are experienced as unpleasant (e.g. criticism, uncertainty and lack of control) (Frost & DiBartolo, 2002), and are used to guard against perceived threats to self-worth, and to re-establish that the self is worthwhile (Guidano & Liotti, 1983).

2.3 Perfectionism and OC symptom dimensions

With regard to perfectionism related to specific OC symptom types, Tolin, Woods and Abramowitz (2003) examined the construct in a student sample, as measured by the OBQ, related to each of the six scales of the revised Obsessive Compulsive Inventory (OCI-R; Foa, Huppert, Leiberg, Langner, Kichic, & Hajcak, 2002). Regression analyses showed that perfectionism was most strongly related to OCI-R Ordering, after controlling for social anxiety and depression. In a clinical sample, Tolin, Brady and Hannan (2008) found that perfectionism, in addition to OCI-R Ordering, was also strongly related to OCI-R Obsessing and Hoarding.
In contrast, Julien, O'Connor, Aardema and Todorov (2006) examined relations between perfectionism and OC scales of the Padua Inventory (PI-R; van Oppen, Hoekstra & Emmelkamp, 1995) in participants with OCD. They found that perfectionism significantly predicted PI-R Checking and Precision, but not Washing, after controlling for depression and general anxiety. The findings of these studies highlight the general problem that the relationship between perfectionism and different OC symptoms depends on the particular measure used (Wu & Cortesi, 2009).

To address this concern, Wu and Cortesi (2009) used a 2-study design to investigate whether two different but commonly used measures of perfectionism, the OBQ revised Perfectionism/Certainty scale and the Frost MPS would each uniquely predict OC symptoms after accounting for responsibility and depression. Three measures were used to assess OC symptoms including, the Schedule of Compulsion, Obsessions, and Pathological Impulses (SCOPI; Watson & Wu, 2005), the OCI-R (Foa et al., 2002) and the Padua Inventory – Washington State University Revision (PI-WSUR; Burns, Keortge, Formea & Sternberger, 1996). The aim of using multiple measures of perfectionism and OC symptoms was to determine whether results would replicate across the measures and thereby support generalizability (Wu & Cortesi, 2009). This research demonstrated that both perfectionism measures had significant unique correlations with OCD, beyond the variance contributed by responsibility and depression predictors.

Specificity in the relationship between perfectionism and OCD has also been questioned in the context of research findings that have demonstrated similarly elevated perfectionism scores in patients with other anxiety disorders (Juster et al., 1996; Frost & Steketee, 1997; Antony et al., 1998). In Frost and Steketee’s (1997) study, scores on the
MPS-F Doubts About Actions subscale were higher in OCD patients than patients with panic disorder. Similarly, higher scores on the same dimension have distinguished OCD patients from patients with social phobia (Juster et al., 1996). However, there is some criticism with regard to this dimension measuring perfectionism. It was derived from the Maudsley Obsessional Compulsive Inventory (Hodgson & Rachman, 1977), a measure of OCD symptoms. Thus, some have questioned whether it is a true measure of perfectionism (e.g. Shafran and Mansell, 2001). In general, few studies have examined what aspects of perfectionism, if any, uniquely differentiate OCD symptoms from other disorders associated with perfectionism. The little evidence that does suggest a unique relationship appears to specifically focus on comparisons between OCD and social anxiety or social phobia (Frost & DiBartolo, 2002).

2.4 The Phenomenology of Eating Disorders

2.4.1 Definition

Eating disorders, as conceptualized in the DSM-IV (American Psychiatric Association, 1994), include two major diagnoses, AN and BN. AN is characterized by a relentless pursuit of thinness marked by excessively stringent standards. BN is characterized by cycles of strict dieting and recurrent binge eating and purging behaviours. AN is further divided into a binge-purge subtype and a restricting subtype, and BN is either of the purging, or nonpurging subtype. A third diagnostic category, „eating disorders not otherwise specified‟ (EDNOS), is reserved for individuals with clinically significant EDs, who do not meet full criteria for AN or BN. Binge eating disorder (BED) was included in the DSM-IV as a diagnosis worthy of further study, for which a set of provisional criteria was created. BED is considered part of the EDNOS category.
Some authors have argued that people with BN differ in character from those with AN (e.g., Casper, 1983). Others contend that AN and BN share perfectionist traits and that those traits play a crucial role in the development and maintenance of both disorders (Heatherton & Baumeister, 1991; Slade, 1992). One such shared characteristic is a preoccupation with the pursuit of perfection in particular with respect to body weight, shape, diet, exercise regime and physical attractiveness (APA, 2000; Goldner et al., 2002). When perfection is not achieved in these domains, individuals with an eating disorder will often experience intense feelings of shame and self-deprecation (Goldner et al., 2002).

EDs are thought to have a low lifetime prevalence (Wade, Begen, Tiggemann, Bulk, & Fairburn, 2006). Community studies of EDs in Caucasian women found a lifetime prevalence for AN ranging between 1.1% to 4.6% (Favaro et al., 2003; Lewinsohn et al., 2000; Striegel-Moore et al., 2000; Wade, Bulik, Prescott, & Kendler, 2009). The lifetime prevalence for BN range between 1.4% to 2% (Favaro, Ferrara, & Santonastaso, 2003) or 2% to 3% for ED cases that meet partial criteria (e.g., where there is absence of amenorrhea) (Favaro et al., 2003; Garfinkel, Lin, Goering, Goldbloom, Kennedy, et al., 1996) and close to 4% for more broadly defined cases (Lewinsohn et al., 2000; Walters & Kendler, 1995). The lifetime prevalence for BN is ranging between 1.4% to 2% (Favaro, Ferrara, & Santonastaso, 2003; Lewinsohn, Striegel-Moore, & Seeley, 2000; Striegel-Moore, Dohm, Krane, Taylor, Daniels, Crawford et al., 2003) or 2% to 3% for ED cases that meet partial criteria (Garfinkel, Lin, Goering, Goldbloom, Kennedy, et al., 1996). The lifetime prevalence for AN is ranging between 1.4% to 2% (Favaro, Ferrara, & Santonastaso, 2003; Lewinsohn, Striegel-Moore, & Seeley, 2000; Striegel-Moore, Dohm, Krane, Taylor, Daniels, Crawford et al., 2003) or 2% to 3% for ED cases that meet partial criteria (Garfinkel, Lin, Goering, Goldbloom, Kennedy, et al., 1996).

Moreover, a recent Australian community study of female twins (Wade et al., 2006) found similar lifetime prevalence rates for AN (1.4%) and BN (1.1%), with partial cases rising to 2.4% and 3%, respectively. In the same study, the prevalence for EDNOS-p (labeled EDNOS-p) was found to be 2.9% and 4.6% for AN and BN, respectively. Generally, there are few data on the residual ED category EDNOS (labeled EDNOS-p).
due to lack of agreed diagnostic criteria (Fairburn & Bohn, 2005). Keel and Klump (2003) explored the extent to which EDs represent culture-bound syndromes, with particular focus on DSM-IV definitions of AN and BN. The authors found that AN was not culture-bound, whereas BN was culture-bound. However, it was suggested that the conclusion for BN might be weaker since there are fewer articles concerning BN than AN.

2.4.2 Differentiation from ICD definition

The ICD-10 diagnostic criteria for EDs includes eight categories, some of which have been criticized on the basis that they are not mutually exclusive (Nicholls, Chater, & Lask, 2000). For example, there are two separate diagnoses of other eating disorder (F50.8) and eating disorder unspecified (F50.9). In addition, atypical AN is defined as either a milder form of AN or “when one or more key features of AN are absent”. Some authors have contended that by these criteria, it is possible that a typical case of AN might receive a diagnosis of atypical AN (Nicholls et al., 2000). In a comparison of three diagnostic systems, including DSM-IV and Great Ormond Street (GOS) criteria, ICD-10 had the lowest interrater agreement (Nicholls et al., 2000). The DSM-IV, by constrast, has fewer categories for EDs which may account for the greater interrater reliability it has shown compared to ICD-10. However, the main issue with the DSM-IV classification of EDs is the inclusion of the EDNOS category, in which a large proportion of presentations fall, despite their varied presentations. This issue and others will be discussed in the following section. In any case, the DSM-IV is most likely to be used in clinical contexts, and as such ED definitions used in the current research will relate to this diagnostic system.
2.4.3 Issues of classification and assessment

As we strive toward improving the clinical and research utility of diagnostic classifications, specific issues have been raised concerning ED categories in the DSM-IV. These issues warrant consideration for the present study. First, the ED categories, as with all psychiatric classifications, are based on expert consensus and have never been empirically validated. This has raised questions about the validity of the categories. For example, EDNOS is a residual diagnostic category, designed to include clinically significant ED presentations that do not fit into specific ED categories. Despite this, at least half of the cases seen in clinical practice are relegated to the EDNOS diagnosis (see Fairburn, Cooper, Bohn, O’Connor, Doll, & Palmer, 2007). Furthermore, individuals with EDNOS display the same distinct attitudes, behaviours and level of psychiatric comorbidity as those with an AN or BN diagnosis (Fairburn et al., 2007). Many represent ‘atypical cases’ of AN and BN (e.g. AN without amenorrhea) and could be reclassified as such by loosening the criteria (Fairburn et al., 2007). As the EDNOS category comprises a heterogeneous group of ED presentations, it has little utility in formulating clinical description and treatment. Moreover, it fails to define the course of an ED and possible changes in symptom profile associated with different stages of the illness (Fairburn et al., 2007).

Further problems that have been identified with the DSM-IV classification of EDs, include the two AN subtypes: restricting and binge-purging. Prospective longitudinal studies have failed to find significant evidence of differences in psychiatric comorbidity, recovery, relapse or mortality rates between these subtypes (Fairburn et al., 2007). Moreover, most individuals with restricting AN, are likely to report some binge-purging behaviours during the course of their illness (Eddy, Keel, Dorer, Delinsky, Franko, &
Other criticisms relate to specific diagnostic criteria. For example, one of the key diagnostic indicators for AN is a body weight that is below the 'minimally normal level', defined as less than 85% of expected body weight for age and height. This cut-off is criticized as being arbitrary, non-predictive of treatment outcome, and inconsiderate to issues of age, gender, frame size, and ethnicity (Andersen, Bowers & Watson, 2001). Similarly, the definition for binge eating, a central feature of BN, has also been criticized. Binge eating is defined as eating an unusually large amount of food within a short time period during which a loss of control over eating is experienced. However, the criterion, "a short period of time", has not been empirically validated; there is no evidence that the distinction between longer or shorter binge episodes holds any clinical significance. Other BN criteria also stipulate time cut-offs that are not evidence-based. In addition, the criterion, "large amount of food", has been difficult to operationalize. Studies examining binge size on clinical correlates show conflicting results (Crow, Agras, Halmi, Mitchell & Kraemer, 2002; Devlin, Goldfein, Dobrow, 2003; Glasofer, Tanofsky-Kraff, Eddy, Yanovski, Theim, Mirch, et al., 2007), and the reliability of subjective recall of binge episodes has been questioned (Peterson, Miller, Johnson-Lind, Crow, Thuras, 2007).

Despite differences in demographics, clinical course and the treatment of different eating disorders, there is some evidence of shared core psychopathology that is expressed in similar attitudes and behaviours (Fairburn, Cooper & Shafran, 2003). Casper (1987) described EDs as having "remarkably consistent phenomenology but very varied psychopathology" (p. 159). The core psychopathology that EDs are proposed to share includes the over-evaluation of shape, weight and its control. There are findings which have demonstrated that AN, BN and BED patients do not differ from each other in their level of shape and weight concern, but do differ from those without eating disorders.
(Devlin et al., 2003). For example, patients with AN restrict their food intake in a similarly rigid and extreme way as patients with BN, and may also vomit, use laxatives, and overexerci
Like BN, body-checking and binge-eating (with or without compensatory purging), can also feature in AN, and both groups report preoccupation with thoughts about eating, shape and weight. The key difference between the two disorders is the relative under- and over-eating (i.e. predominantly under-eating in AN, and over-eating in BN), and the effects of this on body-weight (i.e. body weight is usually unremarkable in BN and extremely low in AN).

In addition to the cross-diagnostic commonalities described above, there is evidence to suggest that ED patients tend to move between the diagnostic categories of AN, BN and atypical EDs, over time (Milos, Spindler, & Schnyder, 2005). Longitudinal research has shown that a common outcome of AN, is an atypical ED (Sullivan, Bulik, Fear, & Pickering, 1998). BN often begins as AN, or an atypical ED, and a common outcome of BN is a chronic, atypical ED (Fairburn, Norman, Welch, O’Connor, Doll, & Peveler, 1995). On review of these findings, Fairburn, Cooper and Shafran (2003) proposed a transdiagnostic approach to treating eating disorders which focuses on common mechanisms underlying the maintenance of a range of EDs, not just specific diagnostic categories (Fairburn et al., 2003).

Given the phenomenological overlap between EDs, Fairburn et al. (2003) proposed a transdiagnostic theory of EDs that extends the focus of standard cognitive behaviour therapy to encompass additional mechanisms that serve to maintain an ED, including perfectionism. Perfectionism is considered to be a transdiagnostic process, because it contributes to the aetiology and maintenance of multiple psychiatric disorders (and disorder subtypes). The transdiagnostic perspective on perfectionism is relatively new, and
has led to the modification of cognitive-behavioural treatments, suitable for patients with a range of ED presentations. These treatments are currently being trialed. Supporters maintain that the key advantage of the transdiagnostic approach, is that it is more practical and parsimonious than developing disorder-specific treatment interventions (Egan, Wade, & Shafran, 2011; Fairburn, et al., 2003; Fairburn, 2005; Shafran, McManus, & Lee, 2008). Furthermore, the authors suggest that clinicians should routinely assess for and address perfectionism when it is present, as an early focus on perfectionism may prevent the need to address specific psychopathology later in therapy (Egan et al., 2011).

Overall, this research points to an important emerging trend away from investigating disorder subtypes, towards an across-subtype or transdiagnostic approach. The recent work on both the transdiagnostic model and on the instability of diagnoses highlights the similarities among OCD and EDs subtypes. It contributes further support for the appropriateness of the dimensional design used in the present program, incorporating analogue samples and combining scores across disorder subtypes to create total OC and ED severity scores for the analyses.

2.5 Aetiological Models of Perfectionism in Eating Disorders

While clinical experience and empirical research have converged regarding the phenomenology of EDs, there is less agreement regarding aetiology. The nature of the disorder is such that a wide variety of theories from different conceptual perspectives exist to account for its development. Theories emphasize Freudian drive constructs, object relations, ego functions, self-phenomena, underlying cognitive assumptions, as well as, familial, intrapersonal, biological, psychosocial, and cultural factors (Agras and Kirkley, 1986; Blouin, Zuro, & Blouin, 1990; Mirkin, 1990; Nussbaum, 1992; Steiger et al., 2001; Strober, 1986; Woodside et al., 1995). These diverse models are not mutually exclusive.
Studies have shown that EDs have a multifactorial aetiology. Hence, these models may be integrated in the understanding of the varied aetiological pathways that lead to the development of EDs. The following section examines historical, psychodynamic, developmental and cognitive-behavioural theories that describe the role of perfectionism in EDs.

### 2.5.1 Historical Perspectives

The pursuit of perfectionism has been observed in the earliest known cases of disordered eating. In a historical review, Brumberg (1988) described a link between the pursuit of perfection and restrictive eating behaviour among female Catholic saints in medieval Italy. Among these religious figures, food restriction was seen to represent spiritual ideals such as self-sacrifice, control over urges (Casper, 1983) and importantly, perfection in the eyes of...God” (Brumberg, 1988, p.46). According to Bell (1985), the ascetic practices of these women are similar to contemporary AN patients, and may constitute the earliest cases of AN. Still today, individuals with eating disorders often identify purity, cleanliness, godliness, and stoicism as important qualities (Ramplin, 1985). Some individuals express the view that food, particularly fats, are toxins, impurities or evils' that must be avoided or eliminated from the body (Goldner et al., 2002). Others express the desire to attain an ethereal state” in which they might rise above the basic human need to eat (Goldner et al., 2002, p.320). However, while the medieval saints were clear that they were trying to free their souls or minds from the body (which was perceived as sinful), modern day AN patients, whilst highly motivated to relentlessly pursue their goal of perfect thinness, do not seem to know what motivates them (at least consciously) (Lawrence, 2008). The oft-given explanation is that they are too fat”, reflecting some unpleasant internal states of mind (Lawrence, 2008).
2.5.2 Psychodynamic Models

Psychodynamic theorists have described the appearance of perfectionism in AN. Hilde Bruch (1978) identified specific perfectionist characteristics and behaviours in her AN patients, such as excessive compliance and studiousness. Of these patients she wrote:

―the overconscientious, overstudious, and compliant performance is a warning sign of something wrong. In many ways these children fulfill every parent's and teacher's idea of perfection, but they do it in an exaggerated way. It is the extra push, the being not good but ―better,” that makes the significant difference between these unhappy youngsters who starve themselves and other adolescents who are capable of enjoying life” (p. 59).

Thus, according to Bruch (1973, 1978), the difference between individuals who watch their weight and those who go on to develop AN, is that the latter are more compliant, perfectionistic, and approval-seeking. She named this characteristic AN behaviour, ―superperfection” (Bruch, 1978, p.59). Bruch (1973, 1978) ascribed such needs for control and perfection to an underlying, pervasive sense of ineffectiveness or a response to perceived self-deficits arising from early childhood problems.

Other theorists expanded on Bruch's work using object relations and self-psychology perspectives. These theorists proposed that individuals with eating disorders often develop a _false self_ or psychological mask (Goodsitt, 1997; Johnson & Connors, 1987; Sours, 1980; Striegel-Moore, Silberstein, & Rodin, 1993). That is, interpersonally they present as confident, capable and infallible, but underneath this persona, they feel frightened, empty and isolated by their false relationships with others. Other psychodynamic models have proposed that perfectionism functions in EDs as a _compensatory_ mechanism used to overcome perceived self-deficits (Goldner et al., 2002).
2.5.3 Psychobiological and Developmental Models

Research has indicated that genetic and biological factors are important determinants of EDs. Strober (1991) reported that these determinants may operate through temperamental and personality variables, such as perfectionism. Drawing on Cloninger’s (1987) psychobiological model of temperament and character, Strober (1991) hypothesized that people with AN, are typically characterized by extreme tendencies towards harm avoidance, low novelty seeking, and high reward dependence. Individuals who are high on harm avoidance demonstrate poor adaptability to change, extreme worry over minor things, and slow recovery from emotional distress. Low novelty seeking is indicative of a preference for stable, invariant and emotionally temperate environments. People who are high on reward dependence condition easily to behaviour reinforcement, are hypersensitive to signs of approval and rejection, and are prone to reward-seeking behaviour. In support of Strober’s model, Casper (1990) found women who had recovered from AN scored higher on harm avoidance and lower on novelty seeking than age-matched non-psychiatric controls. In addition, the recovered group rated higher on reward dependence than their biological siblings.

Hewitt, Flett and Ediger (1995) linked the personality traits in Strober’s (1991) model to their multidimensional model of perfectionism. The authors argued that perfectionism is associated with the personality characteristics Strober described, in that highly perfectionist people tend to worry about negative evaluations (i.e. harm avoidance), are often sensitive to the approval of others (i.e. reward dependence), and tend to avoid activities that are novel or unfamiliar for fear of less than perfect performance (i.e. low novelty seeking). These findings have led to the conclusion that perfectionism may be an important, partially genetically determined risk factor for EDs.
Later, Lilenfeld, Kaye, Greeno, Merikangas, Plotnicov, Pollice, et al. (1998) found that OCPD, of which perfectionism is a diagnostic feature, was increased among relatives of AN probands even when some of the probands themselves did not have OCPD. In addition, perfectionism was found to be one of five personality traits that were the strongest vulnerability factors for the development of AN (Lilenfeld, Devlin, Bulik, Stober, Berretini, Fichter, et al., 2001). The group also found that female relatives of BN patients have been found to have elevated levels of perfectionism, irrespective of whether relatives themselves had an ED. In support of Lilenfeld and colleagues’ (1998) findings, Woodside, Bulik, Halmi, Fichter, Kaplan, & Berretini (2002) compared parents of ED probands with healthy controls. These authors found that mothers of probands demonstrated elevated levels of perfectionism. The group also contended that perfectionism may be the result of environmental modeling or genetic inheritance.

The typical family environment of individuals who develop EDs, according to Guidano and Liotti (1983), is characterized by disguised, contradictory communication. There is a tendency toward concealing problems and difficulties. Definite expressions of individuality, including personal emotions and opinions, are not acknowledged or confirmed. Instead, self-expressions are redefined until they conform to the general family pattern of interaction. Guidano and Liotti argued that from this communicative context, an ambiguous and indefinite attachment style emerges. Typically, the self-image that is drawn from such an attachment style is marked by a vague sense of personal worth and lovability. The authors reported that the AN patients they interviewed showed an “empty…evanescent self [identity]” and an imprecise attributional style whereby there was nothing definite inside or outside of them to which they could attribute successes and failures. These patients gave the impression of a vagueness of boundaries between the self
and the world, as recognized by one anorectic patient who stated that her “mind was in the mind of other people” (Eissler, 1943, as cited in Guidano & Liotti, 1983, p.283). Consequently, in the absence of any precise standards of reference, individuals in these environments tend to develop a rigid attitude toward themselves, continuously monitoring and evaluating their own value and loveableness which are felt to waver (Guidano & Liotti, 1983). Indeed, researchers have shown that when confronted with personal uncertainty, self convictions tend to heighten in order to defend against the uncertainty (McGregor, Zanna, Holmes and Spencer (2001).

Selvini-Palazzoli (1974, as cited in Guidano & Liotti, 1983) also described the contradictions that characterize interpersonal relationships in the families of individuals with EDs:

–Parental stimulation serves to stifle any of the child’s own initiative…During the childhood and latency period, an insensitive parent constantly interferes, criticizes, suggests, takes over vital experiences preventing the child from developing feelings of his own” (p.286).

Similarly, commenting on a family analysis of 51 AN patients, Bruch (1973, as cited in Guidano & Liotti, 1983) reported that:

–encouragement or reinforcement of self-expression had been deficient, and thus [patients’] reliance on their own inner resources, ideas or autonomous decisions had remained undeveloped” (p.286).

Minuchin, Rosman and Baker (1978, as cited in Guidano & Liotti, 1983) listed four basic characteristics of the family process leading to AN: enmeshment, overprotectiveness, rigidity, and lack of conflict resolution - the most significant of these, according to
Guidano and Liotti (1983), is enmeshment. Minuchin et al. described the way that enmeshment can hinder the process of individuation within these families:

―interpersonal differentiation in an enmeshed system is poor…the boundaries that define individual autonomy are so weak that functioning in individually differentiated ways is radically handicapped…Family members intrude on each others’ thoughts and feelings‖ (p.286).

Thus, the general belief held by these theorists, is that unresolved issues surrounding individuation and self-definition may predispose individuals to EDs.

Overall, family systems and psychodynamic theories on the developmental origins of EDs, tend to broadly emphasize the role of disrupted parent-child relationships in vulnerability to *either* disordered eating *or* perfectionism. Little research has explored familial links to particular aspects of temperament or cognitive-personality domains such as perfectionism, or specific environmental factors (e.g. perfectionistic rearing style adopted by parents), as they relate to EDs.

### 2.5.4 Cognitive Models

Cognitive-behavioural models of EDs have emphasized the important role of both cognitive and behavioural factors in the maintenance of the disorder (Fairburn, 1981; Fairburn, Shafran & Cooper, 1999; Vitousek, 1996). These models tend to ascribe the presence of perfectionism to faulty cognitions that reflect unrealistic, self-imposed standards about eating, weight and shape (Goldner et al., 2002) and interpretations of what constitutes ‘failure’ to meet these standards. Faulty cognitions and perfectionism are attributed to two kinds of reasoning errors observed in individuals with EDs: (1) dichotomous thinking (i.e. approaching experiences in extreme, all-or-nothing terms), and (2) overgeneralization (i.e. applying a principle or consequence of one event to dissimilar
situations) (Barrow & Moore, 1983). An example of dichotomous thinking in someone with AN might be a situation where exceeding one’s desired calorie limit is interpreted as a complete loss of control over eating. Overgeneralization is a reasoning error commonly observed in people with AN, who tend to interpret any deviations from a goal weight as evidence of overall failure as a person.

Guidano and Liotti (1983) attributed perfectionism observed in individuals with ED, to the lack of recognition of individuals‘ personal thoughts and opinions within the family frame (described earlier), and a subsequent sense that one’s self is not acceptable to others. According to Guidano and Liotti (1983), for these families, personal identity is intrinsically linked to love and approval. Perfectionism emerges driven by a lack of fulfillment in the need for approval and love. The expectation from any goal-directed activity becomes approval, not competence per se. The belief which transpires is that ―one must develop their own mental and emotional potentialities to the highest level in order to be adequate to the…other‖ (p.293).

Slade (1982) proposed that perfectionism is one of two main “setting conditions” that can lead to AN. He attributed the need for control over eating, weight and shape in people with EDs, and attainment of total success in these domains, to perfectionist tendencies combined with a general dissatisfaction with life and one's self. This theory formed the basis for the SCANS (Slade & Dewey, 1986) that was created to identify individuals at risk of developing an ED. It includes a perfectionism subscale that has demonstrated poor internal consistency, and is thus considered an inadequate measure of perfectionism (Slade & Dewey, 1986; Slade, Dewey, & Kiemle, 1990).

Heatherton and Baumeister (1991) argued that ED behaviours in particular, binge eating in BN, offer a way of reducing negative affect and of restoring one's self-worth.
Beebe and Lachmann’s (1994) integrative model posited that negative self-worth triggers dieting, but that this dieting can result in a spiraling effect of increasing negative affect, negative self-worth and increasing disordered eating patterns. They suggested that perfectionism may be a cause of both dieting and negative self-awareness.

Drawing from research that supports an association between perfectionism and depression (Frost, Heimberg, Holt, Mattia & Neubauer, 1993; Hewitt & Flett, 1991), Joiner, Heatherton, Rudd and Schmidt (1997) developed a diathesis-stress model to describe the relationship between perfectionism and bulimic symptoms. The diathesis-stress model proposes that perfectionism is a risk factor for bulimic symptoms in the presence of negative life stress, where negative life stress is defined as failed efforts to meet unrealistic expectations for shape and weight.

Hence, like OCD theories of perfectionism, similar themes have emerged in the ED literature in the proposed explanations for the development and maintenance of perfectionism. The central theme being that perfectionism emerges from an underlying, pervasive sense of ineffectiveness and perceived self-deficits. The self-vulnerability observed in individuals with EDs is proposed to have arisen from early environments marked by disguised, ambiguous or contradictory communication, leading to similarly ambiguous and indefinite attachment. In the absence of any concrete standards of reference for one’s self-worth, individuals in these environments tend to develop rigid attitudes toward themselves. The adoption of high standards is thought to provide standards of reference, against which one’s self-acceptability can be evaluated and validated. Some theories highlighted the importance of others’ approval as part of the drive for perfection in individuals with EDs. Other research has found that this social aspect of perfectionism (and other aspects) may be differentially linked to ED symptoms.
2.6 Perfectionism and ED symptom dimensions

With regard to perfectionism as it relates to specific aspects of EDs, Hewitt, Flett and Ediger (1995) found that anorexic symptoms were related only to self-oriented perfectionism, whereas dieting, concerns with being thinner, body image avoidance, and self-esteem seemed to be driven by standards that were perceived to be set by others. Cockell, Hewitt, Goldner, Srikameswaran and Flett (1996) also used the MPS-HF to investigate trait levels of perfectionism among women with AN and BN. Women with AN and BN were elevated on Self-Oriented and Socially-Prescribed Perfectionism subscales, compared with normal controls, and the two groups did not differ from each other on the same dimensions.

In reviewing the literature, Bardone-Cone, Wonderlich, Frost, Bulik, Mitchell, and Uppala et al. (2007) concluded that AN patients scored higher than nonclinical controls on the MPS-F Personal Standards as well as Concern over Mistakes subscales. There is some evidence supporting these findings using the MPS-HF. For example, Cockell, Hewitt, Seal, Sherry, Goldner, Flett et al. (2002) found higher levels of both Self-Oriented and Socially-Prescribed Perfectionism among individuals with AN, compared to a mixed sample of mood disorder patients and nonclinical controls. Bardone-Cone et al. (2007) also discovered that scores on the MPS-F Personal Standards subscale tended to be higher in studies of AN patients than scores on the same dimension reported in studies of anxious and depressed patients. In a large twin study, Concern over Mistakes was associated with a higher odds ratio for EDs, but not for depression or anxiety disorders. Doubts about Actions was associated with a higher odds ratio for EDs and anxiety disorders, but not for depression. However, the latter finding is in contrast to numerous other studies that have found higher levels of Concern over Mistakes and Doubts about Actions in anxiety
disorders and depression (Antony et al., 1998; Enns & Cox, 1999; Frost & Steketee, 1997; Juster et al., 1996; Shafran & Mansell, 2001). Personal Standards was not associated with an elevated odds ratio for EDs or any of the disorders.

More recently, Sassaroli, Lauro, Ruggiero, Mauri, Vinai, and Frost (2008) compared patients with major depression, OCD and EDs on MPS-F perfectionism dimensions. Concern over Mistakes was elevated in each of the patient groups. Doubts about Actions was elevated in OCD and EDs, but not in depressed patients. Moreover, analyses of covariance revealed that Concern over Mistakes accounted for most of the variance in the relationship of perfectionism to the disorders.

2.7 Perfectionism as an explanation for OCD and ED comorbidity

The literature reveals a well-documented comorbidity between EDs and OCD, in which perfectionism is identified as a key phenomenological link for the disorders. Numerous studies have investigated the comorbidity between EDs and OCD. The majority of studies of comorbidity in ED samples have found rates of current and/or lifetime OCD that are higher than would be expected given the base rate of OCD in the general population (e.g. Braun, et al., 1994; Fornari, Kaplan, Sandberg, & Braun, 1992; Matsunaga, Kiriike, et al., 1999; Milos, Spindler, Ruggiero, Klaghofer, & Schnyder, 2002; Rubenstein, Pigott, Altemus, L’Heureux, Gray, & Murphy, 1993; Schwalberg, Barlow, Alger, & Howard, 1992; Speranza, Corcos, Godart, Loas, Guilbaud, Jeammet, et al., 2001; Thiel, Broocks, Ohlmeier, Jacoby, & Schüßler, 1995). Conversely, although less research has examined the prevalence of EDs in individuals with OCD, the majority of these studies have found rates of EDs in females with OCD that are higher than expected given the base rates of EDs in the general population (e.g. Fahy, Osacer, & Marks, 1993; Flament, Whitaker, & Rapoport, 1988; Grabe, Thiel, & Freyberger, 2000; Kasvikis, Tsakiris,
Marks, Basoglu, & Noshirvani, 1986; Ronchi, Abruzzese, Erzegovesi, Diaferia, Sciuto, Bellodi, et al., 1992; Tamburrino, Kaufman, & Hertzer, 1994). The prevalence of EDs in individuals with OCD is typically lower than the prevalence of OCD in individuals with EDs (e.g. Shafran, 2002). Individuals with EDs often suffer from symptoms of OCD, even if they do not meet full criteria for a diagnosis of OCD (e.g. Cassidy, Allsopp, & Williams, 1999; Halmi, Sunday, Klump, Strober, Leckman, Fichter, et al., 2003; Kaye, Weltzin, McKee, Mcconaha, Hansen, & Hsu, 1992; Shafran, Bryant-Waugh, Lask, & Arscott, 1995). Some evidence also indicates that individuals recovered from EDs still suffer from OCD symptoms (e.g. Pollice, Kaye, Greeno, & Weltzin, 1997; von Ranson, Kaye, Weltzin, Rao, & Matsunaga, 1999). There is also evidence, albeit limited, that individuals with OCD may have elevated levels of ED symptoms (e.g. Grabe et al., 2000; Pigott, Altemus, Rubenstein, Hill, Bihari, & L'Heureux, 1991).

Early theorists to espouse a close connection between these disorders, include Palmer and Jones (1938), who provided four case studies of AN as demonstrating “the basic personality of compulsion neurosis” (p.857). Similarly, Waller, Kaufman and Deutsch (1940) asserted that the personality structure of two AN patients “follows lines recognized as obsessive-compulsive” (p.15). Du Bois (1949) also drew clinical parallels between the two disorders based on personality. He argued that AN be renamed as “compulsion neurosis with cachexia”. Commenting on the relationship between OCD and EDs, Shafran (2002) posed the following questions: “might [perfectionism] be the link between the elevated comorbidity between OCD and eating disorders? Is it possible that people with high levels of perfectionism are more at risk of developing both eating disorders and OCD than people with lower levels of perfectionism?” (p. 222). In addition,
Rasmussen (1995) summarized the literature on the phenomenological similarities between the two disorders:

—Anorexia nervosa and OCD have many phenomenological similarities. Preoccupations with fear of gaining weight and of being fat can be seen as obsessions and the accompanying exercise and eating rituals and excessive checking or avoidance of checking weight provide relief of tension and anxiety, similar to compulsions” (p. 111).

In the DSM-IV-TR (APA, 2000), OCD and EDs are assigned to separate categories. Despite this, researchers continue to examine the potential relations between them. Research has revealed similar cognitive, behavioural and personality characteristics including, repetitive thoughts and preoccupations about a certain feared stimulus (e.g. EDs: food/body, image/weight preoccupation; OCD: obsessive preoccupation with symmetry, contamination, harm avoidance, self-morality etc.) which are usually accompanied by some negative affect (e.g. anxiety or fear) (Buree, Papageorgis & Hare, 1990; Rachman, 1997), and compensatory behaviours (EDs: restriction, binge/purge, compulsive exercise; OCD: handwashing/checking/other compulsion) aimed at reducing the negative affect (Rachman & Hodgson, 1980; Shupak, Neuberg & Nemeroff, 1993).

Additionally, in clinical observations, it was noted that some AN patients reported they felt morally superior due to their food restriction, and that successful restriction made them feel triumphant, powerful, and proud (Vitousek & Manke, 1994). Similarly, a number of authors have linked EDs to concerns about morality (e.g. Ferrier & Brewin, 2005; Goldner et al., 2002; Rachman & Hodgson, 1980; Rampling, 1985). More generally, Hatfield and Sprecher (1986) noted that the belief in a positive relationship between beauty and ‘goodness’ is common and can be traced back to philosophers such as Plato.
Focault (1978; as cited in Gentry, Martin & Kennedy, 1996) too noted that in Western cultures, one’s body has been interpreted as a material sign of the moral character ‘within’.

There are several different explanations for how and why psychiatric disorders co-occur. To help explain the co-occurrence of disorders, Klein and Riso (1993) developed five broad models of comorbidity. With the aim of improving our understanding of the relationship between OCD and EDs specifically, Altman and Shankman (2009) examined which of Klein and Riso’s models of comorbidity were supported by epidemiological, longitudinal and family studies related to OCD and EDs. Although the pool of literature is relatively small, the evidence from these studies largely suggests that OCD and EDs co-occur because of a shared aetiological relationship. Klein and Riso’s aetiological relationship model attributes comorbidity to aetiological commonalities. The model proposes that comorbidity occurs where conditions are either alternate expressions or different phases of the same underlying condition, or where one disorder is a risk factor for the development of the other (Klein & Riso, 1993).

Acknowledging any common aetiology between OCD and EDs is essential to understanding these conditions, but so too is discerning the exact nature of this shared aetiology. To this end, it has been suggested that personality characteristics may represent the common dispositional tendencies underlying (or mediating) OCD and ED comorbidity. Perfectionism is one such cognitive-personality characteristic that has been shown by numerous studies to be a core trait in individuals with OCD and EDs (Shafran & Mansell, 2001; Summerfeldt, 1998; Summerfeldt, 2004; Wade, Tiggemann, Bulik, Fairburn, Wray & Martin, 2008).

Aside from evidence linking perfectionism to OCD and ED comorbidity, other general evidence of comorbidity, includes similar scores on measures of general anxiety,
eating pathology, and OCD symptoms (Pigott, Altemus, Rubenstein, Hill, Bihari & L‘Heureux, 1991); neurochemical commonalities (Jarry & Vaccarino, 1996); areas of common neuropsychological impairment (Sherman, Savage, Eddy, Blais, Deckersbach & Jackson, 2006); and family studies (Halmi, Eckert, Marchi, Sampugnaro, Apple & Cohen, 1991). By examining perfectionism across OCD and EDs in this thesis, including the similarities and differences in types of perfectionism and related vulnerabilities, we may discover important shared processes and maintenance mechanisms that could have significant implications for diagnosis and treatment. Importantly, it may help to advance our knowledge of the role of perfectionism in psychological disorders. In terms of the mechanisms by which perfectionism operates, it has been linked to underlying self-vulnerabilities in both OCD and ED literature. This link will be discussed in further detail below.

2.8 Perfectionism and self-vulnerabilities

It is well known that negative or maladaptive self-beliefs are associated with the development and maintenance of a variety of psychological disorders including, but not limited to, OCD and EDs. This understanding has been mostly driven by questionnaires developed to assess important negative self-beliefs in these disorders. However, the questionnaires have been criticized for lacking specificity in terms of their ability to identify negative self-beliefs that are unique to OCD and EDs, as opposed to those which may be specific to other disorders (Fairchild & Cooper, 2010). Negative and insecure self-views have also been implicated in motivating perfectionism, yet few studies investigating perfectionism as a risk factor for psychopathology have integrated self-related vulnerabilities.
A couple of authors have studied the relationship between perfectionism and the self, including Zeigler-Hill and Terry (2007). Their study examined whether individuals with discrepant low self-esteem would report higher levels of maladaptive perfectionism. Discrepant low self-esteem was defined as the presence of both low explicit self-esteem and high implicit self-esteem. Their hypothesis was derived from the idea that the attitudinal ambivalence resulting from discrepant low self-esteem may motivate behaviours (e.g. perfectionist standards) intended to resolve the inconsistency between conscious and nonconscious feelings of self-worth (Newby-Clark, McGregor & Zanna, 2002; Spencer, Jordan, Logal & Zanna, 2005).

Previous research has shown that explicit self-esteem, defined as self-evaluations that are rational, deliberative, conscious, and within one’s awareness (Brown, 1993; Kernis, 2003), is negatively associated with maladaptive perfectionism. Implicit self-esteem, defined as automatic, nonconscious, over learned self-evaluations that are outside of a person’s awareness (Greenwald & Banaji, 1995; Pelham & Hetts, 1999), was positively correlated with adaptive self-esteem (Ashby & Rice, 2002). However, Zeigler-Hill and Terry (2007) argued that this research presented an incomplete picture of the relationship between self-esteem and perfectionism. They suggested that a more complete examination should include implicit self-esteem, to examine whether it might moderate the relationship. Interestingly, individuals with discrepant low self-esteem (high implicit self-esteem and low explicit self-esteem) were found to have higher levels of both maladaptive and adaptive perfectionism than those with congruent low self-esteem (i.e. low explicit and low implicit self-esteem). Thus, this research provided some evidence, albeit generic, for an association between incongruent or discrepant self-views and attempts to establish a
unitary, stable self-view through the adoption of perfectionist self-enhancement strategies. However, this research did not link this relationship to psychopathology.

A key issue that has been raised with regards to research and treatment of OCD and EDs, is that there is too narrow a focus on overt behaviours, rather than on important underlying cognitive processes. Some maintain that this one-side approach explains the development of treatments which do not address core psychopathology, and which consequently offer limited success in terms of recovery and relapse prevention (Cooper, 2005; Summerfeldt, 2004). For instance, despite the reported benefits of CBT for OCD (NICE, 2006; Vogel, Stiles, & Gotestam, 2004), approximately 50% of patients fail to show significant improvement when high refusal, dropout and differential response rates are considered (Abramowitz, Whiteside, & Deacon, 2005). A meta-analysis on clinically significant change in OCD following CBT revealed that for those who completed treatment, only 43.8% showed significant improvement in symptoms or functioning (Abramowitz, 1998). Fisher and Wells (2005) reported that exposure with no response prevention and CBT demonstrated low recovery rates (25%) when using asymptomatic criteria. In addition, Foa, Franklin and Kozak (1998) found that between 20% and 30% of patients who completed therapy failed to maintain treatment gains at follow-up two to six years later.

The effectiveness of current treatments for EDs is similarly modest. Although empirically supported treatments exist for adult patients with BN, a large subset (between 30% and 50%) of patients remain symptomatic post-treatment to the extent that quality of life is diminished (Fairburn, 2008; Wilson & Shafran, 2005). For adults with AN, brief manualized CBT appears to have little efficacy, although more conclusive studies are
needed (McIntosh, Jordan, Carter, Luty, McKenzie, Bulik et al., 2005; Wilson, Grilo, & Vitousek, 2007).

Commenting on the focus on OCD behaviours in definitions of the disorder, Summerfeldt (2004) proposed that subtyping OCD symptoms “on the basis of overt behavioural similarities can overlook more meaningful underlying themes” (p. 1155-1156). This is because different OCD symptoms can stem from a single shared motivation or from qualitatively different motivations. To illustrate this point, Summerfeldt provided the following example: “checking, like washing, may serve to alleviate anxious apprehension and allay fears about potential harm”, which is the “manifestation that has most influenced contemporary views on the diagnosis and treatment of OCD” (p.1156).

Alternatively, Summerfeldt proposed that there is another distinct theme in OCD, which may underlie these same symptoms, and that is, the drive to “correct profound feelings of imperfection” (p.1156).

Similar sentiments can be found in the ED literature. Some authors assert that there is an overemphasis on specious variables such as, weight, shape and eating, as opposed to more specific or detailed cognitions related to self (Anderson & Maloney, 2001; Cooper, 1997; 2005). According to these researchers, this focus has led to superficial, symptomatic treatments that do not address the core intrapsychic processes and psychopathology underlying EDs. Indeed, the DSM-IV and ICD-10 are not helpful in this regard, as they use physical (e.g. weight and menses) and behavioural (e.g. binge eating) indices to define the disorder, with no regard to, or assessment of, psychological aspects of EDs. In developing the EDI, Garner, Olmstead and Polivy (1983) too noted that earlier ED scales tended to be focused on behavioural symptoms and patterns. Thus, the EDI was developed
with the intention of assessing a wide range of psychological variables relevant to AN and BN (Enns & Cox, 2002), including perfectionist beliefs.

In a review of empirical research on EDs and theoretical revisions made to cognitive ED models since 1997, Cooper (2005) highlighted the importance of maladaptive self-related constructs and associated cognitions as vulnerability factors for the development of EDs. Cooper (2005) noted that self-statements were popular in the 1980s amongst researchers in several fields where cognitive models were being developed, but had declined considerably since. More recently, there appears to be renewed theoretical interest and recognition of the importance of maladaptive self-related constructs as vulnerability factors for psychopathology (e.g. Bhar & Kyrios, 2007). There is growing impetus in both OCD and ED spheres towards adopting an idiographic approach: that is, identifying aspects of self and beliefs that are specific to these disorders, with the aim of improving theory underlying treatment, and treatment efficacy. This will be discussed further below.

Self-concept has been well-established as a vital construct in psychology (Craven & Marsh, 2008). It is fundamental to psychological wellbeing, since people who think positively about themselves are likely to achieve more, be happier, healthier, and get more out of life, than individuals with negative self-views. Historically, in a similar way to perfectionism, self-concept was conceptualized as a unidimensional construct rather than comprising different facets. Reviews prior to the 1980s (e.g. Burns, 1979; Shavelson, Hubner & Stanton, 1976; Wells & Marwell, 1976; Wylie, 1979) opined that self-concept research was dominated by atheoretical, poor quality measurement instruments, methodological problems, and paradoxical findings. After reviewing the theoretical and empirical research, Shavelson et al. (1976) proposed a multidimensional, hierarchical
model of self-concept that provided direction for a new generation of self-concept theory, research and practice.

In general, self-concept can be described in terms of: (1) content (i.e. the types of self beliefs and the valence of these beliefs), and (2) structure (i.e. the coherence of one's self-concept, certainty of beliefs about the self and self-complexity). Content-related aspects of self-concept that are associated with psychopathology include low self-esteem, and global perceptions of self as being inadequate, helpless and vulnerable. The set of self-information that is activated at any given time is known as the 'working self-concept' (Markus & Wurf, 1987). Motivation and emotion are thought to be greatly affected by a person's working self-concept (Markus & Wurf, 1987). It has been shown that the contents of one's self-concept are not stored randomly in memory, but are associatively linked features which comprise a mental representation of the self – a repository of stored impressions about the self (Klein & Loftus, 1993; Markus, 1977).

William James (1890) noted that people tend to stake their self-esteem on success in some areas of life but not others. Accordingly, research has revealed that individuals value some domains of self more highly than others, and that competence in domains of personal importance is more highly correlated with feelings of self-worth than competence in domains judged to be less important (Crocker, Thompson, McGraw & Ingerman, 1987; Harter, 1998; Messer & Harter, 1986; Neemann & Harter, 1986). For example, some individuals might stake their worth on professional success, wealth, or sporting ability. In a similar vein, Beck's (1976) cognitive model of psychopathology stipulates that each emotional disorder can be characterized by cognitive content regarding the self that is specific to the disorder.
With respect to self-structure, structural aspects of self that are associated with psychopathology include low consistency and integration of self-views (Campbell, 1990), discrepancies between actual and ideal selves (Higgins, Klein & Strauman, 1985), and low conviction and/or stability of self-views (Swann, 1990). The bulk of research in both OCD and ED fields, has focused on the content of self-perceptions in vulnerability models whereas, relatively little attention has been given to the process by which self-worth is maintained as a risk for the disorders (Crocker and Knight, 2005).

The self-structure of an individual reflects information processing biases (as outlined by Ingram, 1984). That is, the content of self-information that enters the working self-concept at any given time, depends on the way in which the self is structured (Markus & Wurf, 1987). For example, a study tracking undergraduates’ positive and negative daily life events showed that self-esteem lability (fluctuations in self-esteem) was a better indicator of vulnerability to depression than overall mean level of self-esteem (Butler, Hokanson, & Flynn, 1994) (i.e. heightened lability was associated with greater vulnerability to depression). Thus, in order to gain an understanding of the process by which negative self-concept confers risk for vulnerability to OCD and EDs, it is important to consider self-structure in addition to self-content. This approach is certainly advocated by self theorists (e.g. Strauman, Vookles, Berenstein, Chaiken, & Higgins, 1991).

Guidano and Liotti (1983) are among few theorists to propose a structural theory of the relationship between self and OCD. According to Guidano and Liotti, OCD sufferers are highly ambivalent about their personal characteristics; they concurrently hold conflicting and polarized self-views (e.g. I am moral and immoral), and struggle to arrive at a unitary, stable conception of their own attributes. Guidano and Liotti asserted that such self-ambivalence underlies the need to maintain high standards of personal conduct and
perfectionism in order to avoid thoughts related to perceived personal inadequacies which may endanger the individual’s sense of self-worth (Mikulincer, Dolev & Shaver, 2004). Guidano and Liotti proposed that perfectionism works as a sort of protective belt” or compensatory strategy aimed at establishing the self as worthwhile, moral and lovable (p. 267). In this model, perfectionist beliefs and behaviours emerge in response to perceived threats to valued aspects of self (Bhar & Kyrios, 2007). To this end, Guidano and Liotti noted:

“In the face of a split identity, with an attitude toward oneself and an attitude toward reality that simultaneously have opposite valences…there are only two possible approaches…Only one of the two opposites must be true”, or must at least become “true” through a constant effort toward perfection” (p.262).

To date, no empirical studies have explored this particular conceptualization of perfectionism (i.e., as a perceived mechanism to protect against challenges to highly valued self-domains). Guidano and Liotti’s conceptualization of perfectionism was based on their clinical observations, not empirical evidence.

Drawing on Guidano and Liotti’s (1983) structural theory of self in OCD, Bhar and Kyrios (2007) developed an operational measure of self-ambivalence, the Self Ambivalence Measure (SAM). The SAM comprises two subscales, the first subscale comprising items designed to tap into general ambivalence about self-worth (e.g. I feel I am full of contradictions). The second subscale comprises items representing ambivalence about moral self-worth (e.g. I question whether I am a moral person), a construct that has been frequently associated with OCD (Doron et al., 2007; 2008; Ferrier & Brewin, 2005; Rachman, 1987). Bhar and Kyrios (2007) used the SAM to investigate the relationship between self-ambivalence and OCD phenomena. Results showed that, although
participants with OCD scored significantly higher than non-clinical participants on general and moral self-ambivalence, they did not differ from anxious controls on either of these subscales. There is also evidence linking self-ambivalence to compulsive hoarding (Frost, Kyrios, McCarthy & Matthews, 2007) and BDD (Labuschagne, Castle, Dunai, Kyrios, & Rossell, 2010). Thus, it appears that self-ambivalence may be a non-specific vulnerability for OCD. In any case, substantial research has demonstrated that the self is a multidimensional construct (Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee, 1989; Harter, 1990; Marsh, 1990). Therefore, it is possible that while SAM has failed to establish a unique relationship between overall self-ambivalence and OCD, ambivalence in certain specific self-domains may be more salient for some disorders than others. Doron and Kyrios (2005) suggested that:

- in order to establish a clearer understanding of the relationship between self-perceptions and OCD, it is important to consider the multifaceted nature of the self and the relationship of specific facets of self to obsessive or compulsive symptoms” (p. 421).

Bhar and Kyrios (2007) encouraged future studies to compare ambivalence in specific self-domains across different disorders. To-date, no such research has been conducted.

Marsh and Craven’s (1997) research led to an analogous conclusion. The authors stated that:

- if the role of self-concept research is to better understand the complexity of self in different contexts, to predict a wide variety of behaviour, to provide outcome measures for diverse interventions, and to relate self-concept to other constructs,
then...specific domains of self-concept are more useful than a general domain” (p.191).

Insecure self-views are also implicated in EDs. While there is no known research that has explored self-ambivalence in EDs, a comparable dysfunctional process of self-evaluation has been identified as a key maintaining factor in cognitive behavioural theories of EDs. This process is known as dichotomous thinking (Fairburn, Cooper & Shafran, 2003; Garner & Bemis, 1982). Dichotomous thinking is defined as an inflexible, rigid cognitive style whereby individuals tend to perceive themselves or the world in polarized categories of “either-or” (e.g. “I think of myself as either ugly or good-looking”) rather than as a continuum of possibilities (Byrne, Allen, Dove, Watt & Nathan, 2008; Byrne, Cooper & Fairburn, 2004).

Dichotomous thinking and self-ambivalence are similar constructs in the sense that individuals hold polarized views of themselves. However, dichotomous thinking involves holding only one polar view at any given time, whereas individuals who are self-ambivalent hold both views simultaneously. Moreover, dichotomous thinking is a broader concept in that it can pertain to a person's general world-view, as well as, one's appraisals of self.

Cognitive-behavioural models of EDs incorporating dichotomous thinking, propose that this cognitive style may contribute to the maintenance of EDs in two ways: (1) by contributing to the development of rigid dietary rules, and (2) by increasing the likelihood of binge eating following any diversion from these dietary rules (Byrne et al., 2004, 2008; Fairburn et al., 2003; Garner & Bemis, 1982). Although there are several scales which appear to have items reflecting dichotomous thinking, such as the Dysfunctional Attitude Scale (DAS; Weissman, 1979), several perfectionism scales (Burns, 1980; Frost et al.,
1990; Garner, 1991; Hewitt & Flett, 1991), and two Tolerance of Ambiguity scales 
(Budner, 1962; MacDonald, 1970, as cited in Byrne et al., 2008), none focus specifically 
on dichotomous thinking in EDs. Thus, in order to address this gap, Byrne et al. (2004) 
developed the Dichotomous Thinking in Eating Disorders Scale (DTEDS). The DTEDS 
includes two subscales, one assessing eating-specific aspects of dichotomous thinking, and 
the other assessing general aspects of dichotomous thinking.

Byrne et al. (2008) examined the relationship between ED symptoms, 
perfectionism, as well as, general and eating-specific dichotomous thinking in a sample of 
eating disorder patients and an overweight/obese subgroup. The authors found that general 
and eating-specific dichotomous thinking scores were higher in the ED sample than in the 
overweight/obese sample. Further, perfectionism correlated more strongly with general 
scores than eating scores on the DTEDS. This latter finding is perhaps not surprising given 
that a broad measure of perfectionism was used (the perfectionism subscale of the EDI). It 
may be reasonable to suggest that if perfectionism is linked to dichotomous thinking, a 
broad measure of perfectionism would perhaps correlate more strongly with a general 
dichotomous thinking subscale, than a more specific eating subscale.

Shafran et al. (2002) also related dichotomous thinking to perfectionism. Their 
model of clinical perfectionism proposed that dichotomous thinking is a central 
maintaining factor for perfectionism. The authors suggested that perfectionists make 
decisions in a dichotomous manner, as to whether or not they have met their high personal 
standards. Depending on which view is taken, the perfectionist will regard themselves as 
*either* a complete success *or* a complete failure. Indeed, Riley and Shafran (2005) found 
that dichotomous thinking was present in most individuals that were qualitatively 
determined as having clinical perfectionism.
Burns and Fedewa (2005) examined a similar construct to dichotomous thinking which they labeled ‘categorical thinking’. In this study, categorical thinking was defined as the tendency to view the world in black-or-white terms, and its relationship to both positive and negative dimensions of perfectionism was explored in a group of undergraduate students using The Positive and Negative Perfectionism Scale (PNP; Terry-Short, Owens, Slade, & Dewey, 1995). The PNP assesses perfectionism from a functional or behaviorist perspective, and comprises two subscales representing the different types of reinforcers a person might experience (i.e. positive and negative). The results showed that categorical thinking was significantly correlated with negative perfectionism, but had no relationship with positive perfectionism. In another study, the relationship between dichotomous thinking, and negative and positive perfectionism, was examined in three samples: clinical, athletes and students (Egan et al., 2007). Results supported the importance of dichotomous thinking in negative perfectionism across all sample groups, whereas positive perfectionism and dichotomous thinking were not strongly related. Additionally, perfectionism and dichotomous thinking have been found to mediate the relationship between extreme concerns about shape and weight, binge eating, and intense and rigid dieting (Fairburn, 1997).

With regards to content, negative beliefs that are often reported as being typical of EDs include ‘I’m a failure”, “I’m worthless”, “I’m weak”, “I’m disgusting”, and “I’m all alone” (Cooper, Todd & Wells, 1998), the content of which is unrelated to patients’ specific concerns with eating, food, weight and shape (Fairchild & Cooper, 2010). The lack of cognitive specificity seems counter-intuitive when self-beliefs are held as being crucial in determining specific psychopathology (Beck & Freeman, 1990).
In any case, some literature suggests that individuals with EDs tend to judge their self-worth largely, or even exclusively, in terms of their physical appearance (Slade, 1982; Fairburn, Shafran & Cooper, 1999). Dissatisfaction with body image is a major predictor of developing disordered eating (McKnight, 2003; Stice, 2002), and is the strongest predictor of relapse in EDs (Keel, Dorer, Franko, Jackson, & Herzog, 2005). According to Slade (1982), people who develop EDs may experiment with controlling various aspects of their lives, such as work, sport or other interests (Bruch, 1973), but interests tend to become narrowly focused on control over eating, weight and shape. This narrow focus is thought to be experienced as “successful behaviour in the context of perceived failure in all other areas of functioning” (p. 173). The phenomenon has been referred to as “cognitive narrowing” (Heatherton & Baumeister, 1991). It describes the shifting of levels of self-awareness to relatively low levels. Such shifts have been exhibited by individuals who experience failure (Vallacher & Wegner, 1985, 1987) or other stresses (Pennebaker, 1989). It is thought that this process of “cognitive deconstruction” enables these individuals to avoid any meaningful thought about identity, and removes any threatening or worrying implications from awareness (Heatherton & Baumeister, 1991, p.94). This process is evidenced by concrete thinking, immediate proximal goals, cognitive rigidity and constricted temporal focus (Baumeister, 1990).

The narrowing of interests seen in individuals with EDs could be thought of as a lowering of “self-complexity” (defined as the number of different aspects of self a person has) (Linville, 1987). A person who is high in self-complexity has a wide range of roles and interests which can act as a buffer against the effects of stress, if failure (real or perceived) affects one of the self-roles. This is because the person has a range of
alternative roles and interests available to them. Low self-complexity has been related to proneness to depression (Linville, 1987).

In any case, Guidano and Liotti (1983) proposed that individuals with EDs place importance on looks as a means of interpersonal attraction and ultimately, approval. Lack of attractiveness is connected to the image of being fat. Being fat is equated with being rejected, which these individuals fear and fiercely avoid by abstaining from food. Perceived success with achieving appearance-related goals are reinforcing and particularly salient for those who value asceticism, a value system commonly endorsed by people with EDs (Bruch, 1973; Vitousek and Ewald, 1993).

Nonetheless, relatively little is known about perfectionism related to physical appearance concerns. To the author’s knowledge, only four studies have been published that directly examine appearance perfectionism. In the first study, Zhang, Yang and Zhao (2007) developed a domain-specific perfectionism instrument for college students with five subscales, one of which was physical appearance perfectionism. This group found that appearance perfectionism was the only subscale to show a negative correlation with mental health, whereas the other subscales demonstrated positive correlations with the same, suggesting that physical appearance perfectionism may be uniquely related with mental health issues, compared to other forms of perfectionism.

The second study conducted by Cain, Bardone-Cone, Abramson, Vohs and Joiner (2008), modified the items of the perfectionism subscale of the EDI, to capture perfectionism in three specific domains: academic, interpersonal and physical appearance (weight/shape). Results showed that while all three domain measures predicted disordered eating (dieting, binge eating), physical appearance perfectionism showed higher correlations with disordered eating than the other two perfectionism domains, suggesting
that physical appearance perfectionism might be an important factor when investigating disordered eating.

The third study by Stoeber and Stoeber (2009) investigated the prevalence of perfectionist tendencies in 22 different life domains including physical appearance, in a sample of university students and a sample of internet users within a wide age range. Results showed that physical appearance was the fourth most frequent domain for which student reported being perfectionist (i.e. 40% of students reported being perfectionist in this domain), and the eighth most frequent for internet users (i.e. 27% of internet users reported being perfectionist in this domain). Hence, these findings suggest that a considerable percentage of students and internet users are perfectionist in the physical appearance domain.

Finally, Yang and Stoeber (2012) conducted eight studies with the aim of developing and validating the Physical Appearance Perfectionism Scale (PAPS), a brief multidimensional measure of physical appearance perfectionism. Exploratory and confirmatory factor analyses indicated that the PAPS comprised two distinct subscales: (1) worry about imperfection and (2) hope for perfection. The relationship between each subscale with measures of general perfectionism, physical appearance self-perceptions and concerns, body weight control, and impression management were examined. Results showed that the two subscales capture different aspects of physical appearance perfectionism – that is, worry about imperfection was positively correlated with mainly maladaptive aspects of perfectionism (i.e. concern over shortcomings, socially prescribed perfectionism, physical appearance concerns, and body control behaviours such as, restrained eating). In contrast, hope for perfectionism was positively correlated with mostly adaptive aspects (i.e. striving for high goals, self-oriented perfectionism, positive
self-perceptions, and appearance management behaviours for example, personal grooming).

Although Yang and Stoeber's (2012) findings are promising, several important limitations were identified. First, all eight studies comprised university students who were mostly young adults in their early 20s. Consequently, it is unclear whether the results generalize to different samples, for example, young adults not attending uni, adolescents, older adults or clinical samples. Physical appearance is an important aspect of young adults’ self-concept, and is often a source of stress and worry (Steinberg, 2008). Moreover, early adulthood is the period of life in which stable individual differences in maladaptive perfectionism develop (Stoeber & Childs, in press, cited in Yang & Stoeber, 2012). Over the course of adult development, perfectionism (particularly maladaptive perfectionism) appears to decline and show weaker associations with psychological maladjustment (Chang, 2000; Landa & Bybee, 2007, cited in Yang & Stoeber, 2012). The authors suggest that future studies examine whether these age trends hold for physical appearance perfectionism (Yang & Stoeber, 2012).

Second, although perfectionism, body image and appearance concerns are proposed to be associated with disordered eating, only one study looked at the relationship between physical appearance perfectionism and body weight control behaviours (which constitute only one aspect of disordered eating). Consequently, the authors concluded that future studies should include complete measures of disordered eating and generate ED severity scores, to gain a better perspective between appearance perfectionism and overall ED psychopathology.

Third, comparisons with different forms of psychopathology would be useful in terms of validating the specificity of appearance perfectionism to disordered eating.
Finally, aside from the variable ‘physical appearance self-esteem’, the study did not consider the various self-vulnerability mechanisms which are hypothesized to underlie perfectionism. Thus, future studies should include additional self-concept measures (both general and specific).

Aside from self-ambivalence, research has identified other kinds of self-structures implicated in psychopathology, which may be associated with self-protective strategies such as, perfectionism. Contingent self-worth (also referred to as contingent self-esteem), and sensitivity in self-domains are two examples (Baumeister, Heatherton & Tice, 1993; Crocker, Thompson, McGraw, & Ingerman, 1987). Contingent self-worth refers to feelings of self-worth that are dependent upon achievement or success in highly valued self-domains (Crocker & Wolfe, 2001).

Contingencies represent the domains in which people are most likely to pursue self-esteem, and in which self-esteem is particularly vulnerable (Crocker, 2002). Crocker, Sommers and Luhtanen (2004) maintain that contingency of self-worth is not another name for domain importance. Motivation researchers have often noted that people may have different reasons for wanting to succeed in a domain, and that self-esteem contingency is but one reason (Crocker et al., 2004). However, the authors acknowledge that empirically it is difficult to distinguish domain importance and self-esteem contingency, since there is evidence to suggest they are significantly correlated (i.e. the greater the rated importance of a domain, the greater the extent to which self-esteem is based on the same domain).

Contingencies of self-worth are said to provide specific standards and serve as self-regulatory functions for behaviour in valued self-domains where self-esteem is invested; self-esteem increases or decreases dependent upon whether these standards are or are not
perceived to be met (Crocker & Wolfe, 2001). According to Crocker et al. (2004), contingent self-worth is conceptually distinct to levels of self-esteem (i.e. high/low), in that self-esteem level refers to the overall level of positive or negative evaluation about oneself (i.e. represents the evaluative component of self-concept, whereas contingent self-worth concerns the extent to which self-esteem is invested in a specific domain. Therefore, the level (high/low) and type of self-esteem (contingent/non-contingent) are independent of each other, and as such, provide unique, yet complementary information about an individual. Still, some researchers advocate the utility of contingent self-worth above that of self-worth level. Indeed, there is evidence to suggest that contingent self-worth better predicts change in depressive symptoms than self-worth level, and is not hampered by methodological problems inherent in studying self-worth as both a predictor and a symptom of depression (Burwell and Shirk, 2006; Crocker, 2002).

The core problem with having contingent self-worth lies in the preoccupation with the pursuit of self-esteem as opposed to having self-esteem, or whether self-esteem is high or low per se (Crocker, 2002). Contingencies are motivating because of the increases in self-esteem and positive affect that accompany success in contingent self-domains, and decreases in self-esteem and negative affect that accompany failure (Crocker, Luhtanen, Cooper, & Bouvrette, 2003). Ultimately, contingencies cause people to engage in self-protective or self-validation behaviours (e.g. perfectionism), in order to maximize success and avoid failure in these domains. Detrimental consequences ensue for mental and physical well-being (Crocker, 2002; Wolfe & Crocker, 2002). A caveat of this research is that it is too focused on trait levels of self-concept, and insufficiently on the specific domains which individuals base their self-worth on, or what people do to try to achieve self-esteem (Crocker et al., 2004). The present research intends to address this imbalance.
In order to assess contingencies of self-worth, Crocker et al. (2003) developed the Contingencies of Self-Worth Scale (CSWS) which measures seven common contingencies of self-worth for college students. The contingencies represent domains that have been identified as important sources of self-esteem for students. These include academics, appearance, others’ approval, outdoing others in competition, love and support from family, virtue and religious faith (see Crocker et al. 2003 for a full discussion).

Crocker et al. (2003) argued that there are two types of contingencies: internally-validated or externally-validated. Internally validated are characterized as being dependent on internal values. These included family support, virtue, and religious faith. In contrast, externally validated contingencies are thought to be dependent on validation from other people. These include appearance, competition, and the approval of others. External contingencies are described as less healthy, more related to neuroticism and negatively related to self-esteem than internal contingencies. Accordingly, in a longitudinal study of college students, Crocker and Luhtanen (2002) found support for the specific involvement of appearance-related contingent self-worth in disordered eating. That is, students who based their self-worth on physical appearance were found to be higher in symptoms of disordered eating and other appearance-related behaviours (e.g. exercising and grooming).

Although the extent to which a particular self-domain is valued is an important factor, this alone does not lead to negative psychological consequences. Domains that people invest their self-worth in are not necessarily the domains in which they are, or think they are, successful. Thus, perceived competence in a valued domain is thought to be a necessary determinant of the valence of any psychological consequences. For instance, discrepancies involving highly valued-low perceived competence self-domains are associated with negative psychological consequences (Crocker et al., 2003). Additionally,
valuing success in one self-domain to the exclusion of other self-domains, can also lead to negative consequences if success is not achieved in that domain (Crocker et al., 2003). Given the importance of all of these factors, an important limitation of the CSWS is that it does not assess perceived domain competence. Thus, it will not be used in this thesis.

A closely related concept that does incorporate perceived competence is sensitivity in self-domains. Doron and Kyrios (2005) integrated this concept in a multidimensional cognitive theory of OCD, which proposes that vulnerability to OCD could develop through particular attachment, self and world view structures. According to this theory, a domain of self is considered sensitive if it is highly valued and, at the same time, an individual believes that they are not competent in the same domain (Doron & Kyrios, 2005).

In particular, a number of theoretical and empirical studies have linked OCD to sensitivity in the domain of morality. It is often noted that intrusive thoughts related to themes and beliefs about self-morality are associated with obsessional content (e.g. Abramowitz, 2004). Salkovskis (1989) contended that individuals with OCD would be particularly sensitive to intrusive thoughts that challenge their moral beliefs. Rachman (1997) argued that individuals who strive for moral perfectionism are more prone to obsessions, as they view their actions and thoughts as significant indications of their moral standing.

Empirically, Doron et al. (2007) used Neemann and Harter's (1986) multidimensional measure of importance and competence in valued self-domains, to examine the relationship between domains of self-sensitivity (including, morality, job
competence and social acceptability) and OCD in a large group of college students. Students who were sensitive in these self-domains reported higher levels of OCD symptoms, with morality and job competence relating to symptoms once global self-worth was controlled for. In addition, moral sensitivity was related to higher levels of OC-beliefs including, perfectionism (as measured by the OBQ), and OC-symptoms including, checking and contamination (as measured by the Padua Inventory-Revised (PI-R, Burns, Keortge, Formea & Sternberger, 1996).

Another empirical study conducted by Ferrier and Brewin (2005), compared individuals with OCD to anxious and normal controls. It found that those with OCD were more likely to draw negative inferences about their own morality from intrusive thoughts. Individuals with OCD reported a “feared self”, subjectively described as bad and immoral. It has been suggested that intrusive thoughts activate negative self-evaluations in specific valued self-domains (e.g. relating to morality) (Doron et al., 2008) leading to the development of obsessions, as well as, other dysfunctional cognitive processes and behaviours, such as perfectionism (OCCWG; 2005).

In summary, the research presented describes how within-self structural disturbances (e.g. self-ambivalence, dichotomous thinking about one’s self and sensitivity in self-worth) are higher-order vulnerabilities for perfectionism related to OC and ED phenomena. However, the literature has also identified specific domains of self (i.e. self-content) that are particularly salient for the disorders (i.e. morality and physical appearance), which combined with the aforementioned self-vulnerabilities, may differentiate specific self-vulnerabilities for perfectionism associated with the syndromes.

Note: an identical measure was developed by Harter and Messer (1986) for adults. It is known as the Adult Self-Perception Profile (ASPP).
2.9 Conclusion

This chapter presented the definitions for, and described the phenomenology of OCD and EDs. It examined the key aetiological models of perfectionism for the disorders. Particular focus was given to cognitive behavioural accounts, since evidence supports the efficacy of related treatment modalities for the same disorders. The limitations of cognitive behavioural theories of OCD and EDs were highlighted, and it was proposed that a greater focus on self-cognitions in both spheres may help to address these. This led to a discussion of the role of self-vulnerabilities in perfectionism for OCD and EDs. The literature identified general types of self-vulnerabilities that have been associated with perfectionism such as, self-ambivalence, dichotomous thinking, and sensitivity in self-worth. It was noted that although there is support for the involvement of self-vulnerabilities in the development of perfectionism for OCD and EDs, in a general sense, there is no evidence to suggest that these self-vulnerabilities differentiate between disorders. However, empirical evidence was presented that has identified specific, highly-valued domains of self that distinguish OCD and EDs. Moral and physical appearance self-domains have been identified as salient for OCD and EDs, respectively. Despite this research, models that investigate the link between disorder-salient self-vulnerabilities and related aspects of perfectionism are yet to be developed and tested. Consequently, this chapter provides justification for the core aim of this thesis: to examine general and disorder-specific self-vulnerabilities as potential mechanisms for related aspects of perfectionism (i.e. general and disorder-specific) in OC and ED difficulties (i.e. using analogue rather than clinical samples).
Chapter 3: Thesis Overview

The literature review presented in Chapters 1 and 2 provided the theoretical and empirical basis for understanding the nature of perfectionism, including the potential underlying mechanisms by which it may develop, and lead to psychopathology. Research and the majority of current conceptualizations provide support for the construal of perfectionism as a multifaceted, dimensional construct (Broman-Fulks et al., 2008, Frost et al., 1990, Hewitt & Flett, 1991; Sherry et al., 2004). It has been labeled a ‘transdiagnostic’ process, because it contributes to the aetiology and maintenance of multiple psychiatric disorders. In particular, it has been identified as a key phenomenological link for OCD and EDs.

In addition, the review revealed that perfectionism is often referred to in dichotomous terms, distinguishing positive and negative facets (Adkins & Parker, 1996; Bieling et al., 2004; Frost et al., 1993; Hamachek, 1978; Kempke et al., 2011; Rheaume, 1995; Slade & Owens, 1998; Stoeber & Otto, 2008; Stumpf & Parker, 2000). Although, many maintain that clinically-relevant perfectionism (i.e. perfectionism that is associated with psychopathology) is intrinsically negative (Burns, 1980; Pacht, 1984; Shafran et al., 2002). Despite ongoing debate, there is growing recognition that whether perfectionism is a problem or not, may be in part due to contextual factors (e.g. the underlying processes driving it) (Flett & Hewitt, 2002; Dunkley et al., 2000; Hewitt et al., 2003; O’Connor & O’Connor, 2003; Owens & Slade, 2008; Rice et al., 2003; Stoeber & Otto, 2008). At the same time, this contextual approach to examining perfectionism is relatively understudied. Hence the current thesis intends to address this gap by examining proposed mechanisms for perfectionism.
With regard to potential underlying mechanisms, negative and insecure self-views have been implicated in motivating perfectionism, yet few empirical investigations of perfectionism also consider self-vulnerabilities. Overall, relevant research that has examined self-vulnerabilities, emphasizes the role of these to *either* perfectionism *or* OCD *or* EDs. No studies have explored the relationship of self-vulnerabilities to perfectionism across both disorders.

According to cognitive accounts, self-ambivalence is one such self-vulnerability proposed to underlie the need to maintain high standards of personal conduct observed in perfectionism (Guidano & Liotti, 1983). Guidano and Liotti (1983) proposed that perfectionism represents a “protective belt” – a compensatory strategy used to reaffirm that the self is worthwhile. In other research, dichotomous thinking (i.e. “all-or-nothing” thinking) about one’s self has been associated with higher levels of perfectionism (Burns & Fedewa, 2005; Byrne, et al., 2008; Riley & Shafran, 2005; Shafran et al., 2002). Another self-vulnerability construct that has been implicated in perfectionism is sensitivity in self-worth (Doron et al., 2007), that is, a self-domain that is highly valued, but in which one believes they are not competent. It is the pairing of high contingent self-worth with perceived incompetence that is thought to confer particular risk for psychopathology.

A major limitation of these studies, is that the instruments which are used to assess perfectionism and self-vulnerabilities are non-specific, such that they do not differentiate unique psychological outcomes. Due to the broad construal of perfectionism, it has been labeled a transdiagnostic process because it has been implicated (in a general sense) in a wide range of psychopathologies (Fairburn et al., 2003), particularly OCD and EDs, and their co-occurrence. While perfectionism may be transdiagnostic to the extent that it is linked to many different disorders, there is growing empirical evidence to support the
involvement of specific facets of self (i.e. moral and physical appearance) that appear to be uniquely relevant to OCD and EDs. Assuming this research is valid, it would seem to support an idiographic rather than transdiagnostic approach to treatment. In line with cognitive accounts of the role of self-vulnerabilities in motivating perfectionist beliefs, it is expected that vulnerabilities in moral and physical appearance self-worth, would likely lead to perfectionist beliefs in related domains (i.e. moral and physical appearance perfectionist beliefs), and associated OCD and ED phenomena, respectively.

The overall aim of the thesis was to develop aetiological models of perfectionism for OCD and ED-related phenomena, incorporating both general and specific facets of perfectionism and self-vulnerabilities. More specifically, the thesis had three aims. The first aim was to develop disorder-salient moral and physical appearance measures of perfectionism, for OCD and EDs, respectively. The second aim was to examine the relationships between general and specific aspects of perfectionism, underlying self-vulnerabilities, and the influence of these same constructs on OC and ED pathology. The third aim was to develop two separate aetiological models of perfectionism related to OC and ED phenomena, based on theory and the findings of the previous two studies. To address each of these aims, three separate studies were conducted.

In Study 1 (Chapter 4), items representing moral and physical appearance perfectionism and self-vulnerabilities, were subjected to an exploratory factor analysis to assess whether content-related items would factor together to form specific subscales. Some of the items were derived from existing measures. For example, items related to moral self-ambivalence were taken from the SAM moral subscale (SAM-M). Items representing general perfectionism from the MPS-F were also included in the factor analysis.
In Study 2 (Chapter 5), the relative influence of common and specific perfectionism facets (developed and validated in Study 1) on OC and ED phenomena was examined. Two hierarchical regressions were performed controlling for the influence of age, depressive symptoms and global self-esteem. The first regression predicted OC symptoms, and the second predicted ED symptoms. In addition, general negative perfectionism (MPS-Fgnp), as well as, general and specific (moral and physical appearance) self-vulnerability variables were included in the regressions, to investigate the extent to which specific perfectionism influences OC and ED phenomena, above that which might be predicted by the other variables. Another aim of Study 2, was to investigate potential mechanisms underlying perfectionism, specifically self-vulnerabilities, and to compare these with other general vulnerabilities that have been linked to perfectionism. Thus, two further regression analyses were performed, to examine the important predictors of moral and physical appearance perfectionism facets, respectively.

In Study 3 (Chapter 6), two aetiological models of perfectionism (each relating separately to OC and ED phenomena) were constructed using a structural equation modelling approach. These models were validated on a different sample group to that used in Study 2. The aim of this study was to develop some preliminary models that differentiate specific aspects of perfectionism for OCD and ED, but which also examine potential mechanisms underlying perfectionism, specifically self-vulnerabilities.

The final chapter summarises the findings of previous chapters. It discusses the theoretical implications of the current research to our understanding of perfectionism related to OCD and EDs, and clinical applications. In addition, this chapter presents the limitations of the studies, and offers suggestions for future research. Although each of the
three studies have their own separate aims, the content discussed in each is related. Thus some of the literature presented in each study may overlap with that presented in previous chapters.
PART II – EMPIRICAL ANALYSES

Chapter 4: Study 1 Development of disorder-specific perfectionism and self-vulnerability scales

4.1 Introduction

A wide variety of methods are employed to assess perfectionism and self-concept. These methods include, but are not limited to, adjective checklists, projective tests, actual-ideal measures, interviewer-based methods, and self-report questionnaires (Brimthaupt & Lipka, 1992). The most commonly used technique of assessing both perfectionism and self-concept is the self-report questionnaire (Keith & Bracken, 1996; Shafran & Mansell, 2001).

In spite of the various questionnaires that measure perfectionism, few examine specific aspects of perfectionism related to OCD and EDs. In addition, despite the well-documented link between self-vulnerability, motivation to achieve perfectionist standards and predisposition to psychopathology, there is a paucity of research incorporating disorder-relevant, specific self-vulnerabilities to examine this relationship.

The most commonly used measures of perfectionism, are the MPS-F (Frost et al. 1990) and MPS-HF (Hewitt & Flett, 1991). However, the majority of perfectionism measures are single subscales that are part of a broader measure. Examples include the perfectionism subscales of the OBQ (OBQ-P; OCCWG, 2001) and the EDI (EDI-P; Garner et al., 1983). The OBQ-P and EDI-P were developed to assess perfectionism in OCD and EDs, respectively. However, both subscales construe perfectionism in such a general way, that there is nothing unique about the relationship between the perfectionism measured and the disorder for which the scale was originally designed.
Additionally, some debate exists about whether the MPS questionnaires measure ‘true’ perfectionism. For instance, the MPS-H has been criticized for including scales which measure beliefs about other people’s high expectations for the individual, and an individual’s own high expectations for others. In Shafran and Mansell’s (2001) opinion, these dimensions may be relevant to perfectionism, but are not integral. The authors contend that individuals who score high on these scales are unlikely to regard themselves as perfectionists, unless their perceptions lead them to impose high standards (Shafran & Mansell, 2001).

In addition, some of the MPS-F subscales (e.g. Parental Expectations and Parental Criticism) have been criticized on the basis that they are retrospective and developmentally-focused measures and as such, are not able to indicate whether an individual is currently perfectionist (Rheaume et al. 2000; Shafran & Mansell, 2001). Rheaume et al. (2000) lamented “the fact that certain subscales represent…developmental aspects of perfectionism makes it difficult to interpret results and understand perfectionism itself” (p.120).

Second, the MPS-F Doubts about Actions were derived from the Maudsley Obsessional Compulsive Inventory (Hodgson & Rachman, 1977), a measure of OCD symptoms, and as such is considered not to be a ‘pure’ measure of perfectionism (Shafran and Mansell, 2001). Moreover, after controlling for MPS-F Concern over Mistakes, Sassaroli et al. (2008) found that Doubts about Actions was no longer elevated among OCD and ED patients. The authors suggested that this finding might reflect some redundancy among certain indicators of maladaptive perfectionism (MEC), and that it might be assessed more efficiently with fewer measures.
Third, the Organization subscale was found to have low intercorrelations with other subscales in the measure. Thus, Frost et al. (1990) recommended that it not be included in the total score. Furthermore, when clusters of adaptive versus maladaptive perfectionists have been identified, a defining feature of the adaptive perfectionists group is a high level of organization (e.g. Parker, 1997; Rice & Mirzadeh, 2000). Otherwise, the MPS-F is broadly related to psychopathology (Enns & Cox, 2002).

Finally, some researchers have argued that the concept of perfectionism is determined by its measures, rather than first being defined and then devising instruments to measure it (Shafran & Mansell, 2001). Along these lines, in their study of the influence of parenting styles on perfectionism, Kawamura, Frost, and Harmatz (2002) omitted MPS-F Parental Expectations, or Parental Criticism, since these two subscales measure perceived perfectionistic expectations held by parents and were not considered central to the aspect of perfectionism under investigation, namely perfectionistic expectations one has for oneself. Thus, for the aforementioned reasons, only MPS-FPS and MPS-FCM subscales were used in this research program. These were combined to form a composite general negative perfectionism measure.

In addition, for reasons of parsimony, the current thesis examined only self-oriented aspects of perfectionism. Although, self-oriented facets of perfectionism are considered by some researchers to represent adaptive perfectionism, as discussed earlier, in certain contexts or circumstances (e.g. perceived threats to self-worth), self-oriented perfectionism can be associated with negative outcomes. This view was also echoed by Sassaroli et al. (2008) who found evidence that MPS-F Personal Standards (widely considered to be a self-oriented aspect of perfectionism) was associated with EDs, and concluded that their findings —must be evidence against considering [high Personal
Standards] healthy” (p. 763). The authors also explained that exposure to individuals with other-oriented perfectionism (e.g. in the family context) may exacerbate socially-prescribed perfectionism, which if internalized, may intensify self-oriented perfectionism. Other investigations showed that self-oriented perfectionism is associated with fear of failure and an intolerance to failure (e.g. Flett, Hewitt, Blankstein, Hewitt, & Koledin, 1992; Flett, Hewitt, Blankstein, & Mosher, 1991). Hence, perfectionism was explored from a self-oriented perspective.

The aim of Study 1 was to construct and validate hypothesized disorder-specific dimensions of perfectionism and self-vulnerabilities, in order to examine the theorized interrelationships between these constructs, and OCD and ED severity. In particular, the study investigated the psychometric properties of _general negative perfectionism_, as measured by the composite of MPS-FCM and MPS-FPS. General perfectionism items were included in the analysis to assess whether they would factor separately from items representing specific facets of perfectionism (i.e. moral and physical appearance perfectionism items).

In addition, items were developed on the basis of the original OBQ-P and EDI-P, to form two distinct perfectionism dimensions: _moral perfectionism_ and _physical appearance perfectionism_. Moral and physical appearance perfectionism dimensions were hypothesized to be specific to OCD and EDs, respectively. Self-vulnerabilities comprised the moral self-ambivalence subscale of the SAM. In addition, items were created to establish a _physical appearance self-ambivalence_ dimension. Although the MPS-F and moral self-ambivalence subscales were derived from already established measures, these were included in the analysis to examine whether the newly created dimensions were distinct from existing ones.
First, a pool of 51 items was generated, comprising 16 general negative perfectionism items, 8 moral perfectionism items, 10 physical appearance perfectionism items, 6 moral self-ambivalence items, and 11 physical appearance self-ambivalence items. These were created based on general scale items, theoretical postulations, and where possible, empirical findings concerning specific facets of perfectionism and self-vulnerabilities that have been observed in OCD and EDs (Guidano, 1987; Guidano & Liotti, 1983). This was done in consultation with a clinical psychologist familiar who had worked in an inpatient eating disorders ward for over 10 years and who was also familiar with the research area having been involved in the development of the SAM (Professor Michael Kyrios).

The full pool of items was subjected to factor analysis using data from a sample of female first year university students studying psychology and community participants. Individuals in early adulthood are said to be actively engaged in formulating a sense of identity, including a commitment to ethical principles (Erikson, 1968; Kilpatrick, 1974). In addition, one of the most critical domains for global self-worth among young adults, particularly females, is physical appearance (Harter, 1999). Accordingly, young adult women are more likely than young adult men to endorse higher levels of physical appearance contingencies (Burwell and Shirk, 2006) and report more body dissatisfaction compared with men (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Thus, it was assumed that a female student sample would serve as an appropriate non-clinical analogue group.

The majority of studies that have documented women’s body satisfaction or dissatisfaction, have used samples drawn from narrow age ranges (e.g. student populations) and thus, provide little information about potential age effects. However,
appearance concerns are considered salient for women across the adult life span (Allaz, Bernstein, Rouget, Archinard, & Morabia, 1998; Cash & Henry, 1995; Garner, 1997; Stevens & Tiggemann, 1998; Tiggemann & Lynch, 2001). Research has shown that women are more concerned than men about the effects of ageing on their appearance (Gupta & Shork, 1993). However, despite the potential for body dissatisfaction to increase as women age and appearance changes and moves further away from societal ideals, the results of previous research do not support this assumption (Tiggemann & Lynch, 2001). Rather, several studies have found similarly high levels of body dissatisfaction for women across younger and older adult age groups (Altabe & Thompson, 1993; Fallon & Rozin, 1985; Stevens & Tiggemann, 1998; Tiggemann & Lynch, 2001).

Another study has shown that body appearance and body function are independent components of satisfaction among middle-aged and older adult women (e.g. Reboussin, Rejeski, Martin, Callahan, Dunn, King et al., 2000). In this study, satisfaction with body function was more strongly related to subjective wellbeing, compared to satisfaction with body appearance. Thus, it was concluded that older adults may value body function more than appearance. In the current study, female community participants were sought to increase age representation, in order to maximize generalizability of the findings. Furthermore, the rationale for employing a dimensional approach (see Chapter 1 for this discussion) also supports the appropriateness of studying the phenomena of interest in nonclinical subjects.

Due to the lack of research that has examined the relationship between general and specific perfectionism dimensions and self-vulnerabilities for OCD and EDs, exploratory factor analyses were conducted. First, General negative perfectionism comprised MPS-F Concern over Mistakes and Personal Standards. Thus, it was expected that general
negative perfectionism would demonstrate between one and two factors, either a global
general negative perfectionism factor, or the two same subscales. Second, it was
hypothesized that moral and physical appearance perfectionism items would represent
distinct factors. Finally, SAM was conceptualized as incorporating two different self-
ambivalence domains – one moral, and one self-ambivalence domain related to physical
appearance. Thus, it was expected that the SAM would demonstrate between one and two
factors - either a global self-ambivalence domain, or two separate self-ambivalence
dimensions. It was unclear whether these a priori distinctions would remain after the factor
analysis.

4.2 Method

4.2.1 Participants

A total of 502 females comprising students and individuals from the community
participated in this study. The student sample included 261 undergraduate psychology
students ($M_{age} = 20.68; SD = 4.79$). Student participants were recruited through the
Research Experience Program (REP) at Swinburne University of Technology.
Involvement in the REP is a hurdle requirement for students in the first year of
undergraduate psychology at Swinburne. The community sample comprised 241
individuals ($M_{age} = 33.42; SD = 11.34$). Community participants were recruited primarily
through online social medium, Facebook, and via the student researcher's professional and
social networks.

Student and community data were combined to form one large data set. Then, a
random sample of approximately 50% of the data set was taken, and two separate groups
(i.e. Sample 1 and Sample 2) of mixed student and community participants were
established ($N = 249$ and $N = 253$ for Sample 1 and 2, respectively). This was done to
create two homogeneous samples that were closer representations of the population, which could be used to compare and validate results.

For Sample 1, the majority of participants indicated that they were born in Australia, with the balance of participants reporting Asia (2.4%), Europe (2%), North America (1.2%) and New Zealand (0.4%) as their birth place. The majority reported English as their usual language, with a minority listing Chinese dialects (1.6%) and European languages (0.8%) as their usual tongue. Most had completed or were completing a tertiary level qualification at the time they participated in the study. Fewer participants selected secondary school as their highest level of educational attainment. The majority were employed in some capacity. Approximately one half described their relationship status as single, one third reported being married or in a de facto relationship, and the balance were divorced, separated or widowed. A comparison of the demographic details for the two sample groups can be seen in Table 4.1.
Table 4.1

Demographic characteristics across the two sample groups

<table>
<thead>
<tr>
<th></th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>t(248) = -1.36, p &gt; 0.05</td>
</tr>
<tr>
<td>Age</td>
<td>27.37 (11.26)</td>
<td>26.24 (10.08)</td>
<td></td>
</tr>
<tr>
<td>% Born in Australia</td>
<td>91.97%</td>
<td>95.26%</td>
<td>$\chi^2(2) = 4.49, p &gt; 0.05$</td>
</tr>
<tr>
<td>Other country</td>
<td>8.03%</td>
<td>4.74%</td>
<td>$\chi^2(48) = 406, p &lt; 0.001$</td>
</tr>
<tr>
<td>% Usual language spoken</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>93.2%</td>
<td>94.6%</td>
<td>$\chi^2(2) = .634, p &gt; 0.05$</td>
</tr>
<tr>
<td>Other(^a)</td>
<td>6.8%</td>
<td>5.4%</td>
<td></td>
</tr>
<tr>
<td>% Educational attainment</td>
<td></td>
<td></td>
<td>$\chi^2(20) = 71.94, p &lt;$</td>
</tr>
<tr>
<td>Secondary school(^b)</td>
<td>15.3%</td>
<td>13.8%</td>
<td>0.001</td>
</tr>
<tr>
<td>University degree(^c)</td>
<td>84.7%</td>
<td>86.2%</td>
<td></td>
</tr>
<tr>
<td>% Employment</td>
<td></td>
<td></td>
<td>$\chi^2(12) = 20.287, p &gt;$</td>
</tr>
<tr>
<td>Not employed</td>
<td>22.5%</td>
<td>19%</td>
<td>0.05</td>
</tr>
<tr>
<td>Employed(^d)</td>
<td>77.5%</td>
<td>81%</td>
<td></td>
</tr>
<tr>
<td>% Relationship status</td>
<td></td>
<td></td>
<td>$\chi^2(24) = 59.06, p &lt;$</td>
</tr>
<tr>
<td>Not married(^e)</td>
<td>80.3%</td>
<td>84.6%</td>
<td>0.001</td>
</tr>
<tr>
<td>Married</td>
<td>19.7%</td>
<td>15.4%</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) = 98% of cells had expected count less than 5 and the minimum expected count was 0.00; \(^b\) = completed secondary school; \(^c\) = currently completing or completed university degree; \(^d\) = includes casual, part-time and full-time employment; \(^e\) = includes defacto, single, widowed and separated/divorced.

Table 4.1 indicates that there was no significant difference between the ages of Sample 1 and Sample 2 participants. Both groups of subjects tended to be Australian-born. However, on average, Sample 1 had a higher proportion of individuals born overseas than
Sample 2, although both groups comprised greater than 90% Australian-born participants. There were no significant differences between the samples in terms of the number of individuals who nominated English as their usual language. Compared to Sample 1, a greater proportion of Sample 2 participants had attained, or were studying for, a tertiary level qualification. More participants in Sample 2 had employment. There were no significant differences in relationship status between the samples.

In addition, the demographic items asked subjects to self-report whether they: (1) had a current clinical diagnosis of OCD, ED, or ‘other’ psychiatric diagnosis, (2) were currently receiving treatment for OCD, ED, or ‘other’ psychiatric diagnosis, (3) had ever (in the past) received a diagnosis of OCD, ED, or ‘other’ psychiatric diagnosis, or (4) had ever (in the past) received treatment for OCD, ED, or ‘other’ psychiatric diagnosis. Participants’ self-reported clinical diagnoses across the samples are presented in Table 4.2. Some indicated they had a current OCD or ED diagnosis and responded affirmatively to ‘other’ psychiatric disorder categories (i.e. current diagnosis, current treatment, ever diagnosed, ever had treatment), but did not specify the ‘other’ psychiatric disorder. For these cases, the indication of ‘other’ psychiatric disorder was taken to be the OCD or ED diagnosis indicated initially. This approach is reflected in the counts presented in Table 4.2. The number of individuals that responded in this way and the ratio of self-reported OCD to ED diagnoses for these people was roughly the same in Sample 1 and Sample 2. Therefore, no data was excluded for the comparison analysis.

It is also important to note that, although only two individuals from Sample 1 and Sample 2 (i.e. four participants in total) self-reported a current diagnosis of OCD, 36 (14.3%) and 32 (12.85%) participants in each sample, respectively, scored one standard
deviation above the norm on the OCI-R\textsuperscript{7}. In contrast, two and six participants from Sample 1 and 2, respectively, reported a current ED diagnosis. However, none of these scored one standard deviation above the norm on the EDE-Q\textsuperscript{8}.

\textsuperscript{7} This calculation is based on a normative mean of 18.82 for subclinical populations provided by Foa et al. (2002). One standard deviation above this norm (i.e. total OCI-R score = 29.92) was considered indicative of clinically-significant OC pathology.

\textsuperscript{8} This calculation was based on the norm given by Mond et al. (2006). One standard deviation above this norm (i.e. total EDE-Q score = 2.77) was considered indicative of clinically-significant disordered eating pathology.
Table 4.2
Primary diagnoses and psychological treatment across the two samples

<table>
<thead>
<tr>
<th></th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 249</td>
<td>N = 253</td>
<td></td>
</tr>
<tr>
<td>No. of dx</td>
<td>Percentage</td>
<td>No. of dx</td>
<td>Percentage</td>
</tr>
<tr>
<td>Current dx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCD</td>
<td>2</td>
<td>.8%</td>
<td>2</td>
</tr>
<tr>
<td>ED</td>
<td>2</td>
<td>.8%</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>25</td>
<td>10%</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>11.6%</td>
<td>28</td>
</tr>
<tr>
<td>Current tx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCD</td>
<td>4</td>
<td>1.6%</td>
<td>1</td>
</tr>
<tr>
<td>ED</td>
<td>1</td>
<td>.4%</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>7.6%</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>9.6%</td>
<td>23</td>
</tr>
<tr>
<td>Ever dx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCD</td>
<td>3</td>
<td>1.2%</td>
<td>3</td>
</tr>
<tr>
<td>ED</td>
<td>12</td>
<td>4.7%</td>
<td>20</td>
</tr>
<tr>
<td>Other</td>
<td>43</td>
<td>17.3%</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>23.2%</td>
<td>58</td>
</tr>
<tr>
<td>Ever tx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCD</td>
<td>3</td>
<td>1.2%</td>
<td>1</td>
</tr>
<tr>
<td>ED</td>
<td>11</td>
<td>4.3%</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>39</td>
<td>15.7%</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>21.2%</td>
<td>55</td>
</tr>
</tbody>
</table>

Note: No. of dx = number of diagnoses, Current dx = current psychiatric diagnosis (at the time of completing the questionnaire), Current tx = currently receiving psychological treatment (at the time of completing the questionnaire), Ever dx = ever (in the past) diagnosed with a psychiatric condition, Ever tx = Ever (in the past) received psychological treatment.
As seen in Table 4.2, 11.6% of Sample 1 self-reported having a current psychiatric disorder (either OCD, ED or 'other' disorder), compared to 11.1% of participants in Sample 2 who self-reported having a current psychiatric disorder. Similarly, compared to 9.6% of Sample 1, 9.1% of Sample 2 reported that they were currently receiving psychological treatment. The percentage of individuals who reported having ever had a psychiatric diagnosis was 23.2% for Sample 1 and 22.9% for Sample 2. Compared to 21.2% of Sample 1, 21.7% of Sample 2 reported having ever received psychological treatment. There were no significant differences between the samples on any of the diagnostic or treatment demographics.

4.2.2 Procedure

The research program was approved by Swinburne University Human Research Ethics Committee (SUHREC). This included approval for all three studies comprising the program (see Appendix H for copy of email confirming ethics approval). Thus, the issue of ethics will not be discussed again. Furthermore, data collection was identical for all studies and as such, will not be repeated. Data for each study were collected simultaneously, and the same participants were used in each case. Some community participants were recruited online via a weblink to the survey posted on social medium Facebook (see Appendix A). Others were recruited through the student researcher's professional and social networks by way of an email invitation with an embedded weblink to the questionnaires. The student sample comprised first year undergraduate psychology students of Swinburne University, who participated as part of a hurdle requirement for their first year studies (see Appendix B). All participants were presented with information about the research (see Appendices C and D) and were required to indicate their consent to participate by means of a tick box, before being able to proceed to the survey (see bottom
of Appendices C and D). They were informed that their survey responses would be anonymous and kept confidential. Questionnaires took approximately 40 minutes to complete. On completion, participants were given further background information about the research (see Appendices E and F). Students were given the option of printing out a receipt as proof of partial fulfillment of the REP hurdle requirement (see Appendix G).

4.2.3 Measures

The questionnaires relevant to this study are outlined below.

4.2.3.1 Demographic Questionnaire

All participants answered standard questions about demographics. See Appendix I for a copy of the questions.

4.2.3.2 Frost Multidimensional Perfectionism Scale (Frost et al., 1990)

The FMPS is a 35-item questionnaire designed to measure six dimensions of perfectionism: Concern over Mistakes (CM), Doubts about Actions (DA), Personal Standards (PS), Parental Expectations (PE), Parental Criticism (PC) and Organisation (ORG). Responses are scored on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Internal consistency for the subscales (α = .73 to .93) and the overall scale (α = .90) is satisfactory (Frost et al., 1993). Similar investigations on Australian populations have also supported the internal consistency of the subscales (α = .77 to .90) and the overall scale (α = .91) (Lynd-Stevenson & Hearne, 1999). Satisfactory convergent and discriminant validity of FMPS has been demonstrated through its significant positive correlations with the Burns Perfectionism scale (Burns, 1980), the Self-Evaluative scale from the Irrational Beliefs test (Jones, 1968) and the Perfectionism subscale from the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983). For the purposes of the
current thesis, only the CM and PS subscales were employed. The rationale for this is provided in Chapter 3. See Appendix K for a copy of this measure.

4.2.3.3 Obsessive Beliefs Questionnaire-44 – Perfectionism subscale (OBQ-P; OCCWG, 2005)

The OBQ consists of 44 items reflecting beliefs and appraisals that are considered characteristic of obsessive thinking (OCCWG, 1997, 2001). For each item, respondents indicate their general level of agreement ("the answer that best describes how you think") on a seven-point rating scale that ranges from "disagree very much" to "agree very much". The items represent three theoretically determined subscales thought to embody the key belief domains of OCD identified by the OCCWG (1997). The subscales are: responsibility/threat estimation, perfectionism/certainty, and importance/control of thoughts. Subscale scores are calculated by summing across their respective items. Higher scores represent greater levels of OC beliefs.

The OBQ has demonstrated good to excellent internal consistency for clinical (Cronbach’s alpha ranges between .88 and .93) and non-clinical groups (Cronbach’s alpha ranges between .86 and .93) (OCCWG, 2005). There is also evidence of good convergent validity in analysis of sample differences and in correlations with other OC symptom measures (OCCWG, 2005). Reliability analyses indicate that OBQ dimensions can be assessed in a consistent, stable way over time (OCCWG, 2005). Findings for criterion-related validity and convergent validity are also good (OCCWG, 2005). However, discriminant validity may be problematic as the OBQ has been found to be as highly correlated with total scores on non-OCD symptom measures (e.g. Beck Depression Inventory; Beck & Steer, 1993a and Beck Anxiety Inventory; Beck & Steer, 1993b), as
with OCD measures (e.g. Padua Inventory-Revised; Burns, Keortge, Formea & Sternberger, 1996 and Yale-Brown Obsessive Compulsive Scale; Goodman et al., 1989).

For the purposes of the current study, 8 new items were developed based on the OBQ-P, to capture moral perfectionism. This was done in consultation with Professor Michael Kyrios. Moral perfectionism items were created based on theory and research linking moral concerns to OC symptoms (Bhar & Kyrios, 2007; Doron & Kyrios, 2005; Ferrier & Brewin, 2005; Guidano & Liotti, 1983; Rachman, 1997; Salkovskis, 1989), with the aim of improving specificity in the perfectionism-OC relationship. Refer to Appendix L for a copy of this measure, including the new items.

4.2.3.4 Physical Appearance Perfectionism scale (PAP)

For the purposes of this study, a new scale was developed to capture physical appearance-related concerns, with the aim of improving specificity in the relationship between perfectionism and ED symptomatology. See Appendix M for a copy of this scale.

4.2.3.5 Self-Ambivalence Measure (SAM; Bhar & Kyrios, 2007)

The SAM was developed as an operational measure of Guidano and Liotti’s (1983) concept of self-ambivalence. It comprises 19 items and two subscales: self-ambivalence about self-worth (e.g. “I feel torn between different parts of my personality”) and ambivalence about morality (e.g. “I question whether I am a moral person”), each with 13 items and 6 items, respectively. Items are scored on a five-point Likert scale from “not at all” to “totally agree”. Item scores range between 0 and 4, with higher scores indicating greater self-ambivalence. For the purpose of this study, an additional 11 items were added to the SAM, in order to capture ambivalence in the self-domain of physical appearance, to distinguish the specific self-concerns of those with disordered eating, from those
exhibiting OC symptoms (i.e. 30 items in total). See Appendix N for a copy of this measure including the additional physical appearance self-ambivalence items.

The SAM has been found to have acceptable reliability and convergent validity in non-clinical and clinical samples (Bhar & Kyrios, 2007). Both general self-ambivalence and moral self-ambivalence subscales appear to have high internal consistency, demonstrated by alphas of .88 and .85 respectively (in a non-clinical sample). Mean item-total correlations were .57 and .63 for the respective subscales. In a clinical sample, alphas were .88 and .86 for general self-ambivalence and moral self-ambivalence respectively and mean item-total correlations were .57 and .65 respectively. Subscales were shown to have acceptable test-retest reliability correlations ranging from .44 to .57 over an average of a 10.8 week interval (Bhar & Kyrios, 2007). Convergent validity was evidenced by high correlations between the subscales and various measures of self-evaluation.

4.3 Results

4.3.1 Exploratory Factor Analyses

To investigate the factor structure of the newly created dimensions: moral perfectionism (MP), physical appearance perfectionism (PAP), and physical appearance self-ambivalence (PASA), exploratory factor analyses (EFA) were conducted. EFAs were carried out on Sample 1 using SPSS 20.0. Factors that emerged from these analyses were then validated by conducting confirmatory factor analyses (CFA) on Sample 2, using AMOS version 20.0.

4.3.1.1 Preliminary data analyses: factorability of general and specific perfectionism and self-vulnerability items

The critical assumptions underlying factor analysis are more conceptual than statistical (Hair, Anderson, Tatham and Black, 1998). From a statistical perspective,
departures from normality, homoscedasticity, and linearity apply only to the extent that they diminish the observed correlations. Normality is necessary only if a statistical test is applied to the significance of the factors. Some degree of multicollinearity is desirable, because the aim is to identify interrelated sets of variables.

First, all items including MPS-F general negative perfectionism items, as well as, moral and physical appearance perfectionism and self-vulnerability items, were combined to form a pool of 51 items in total. The factorability of the data set was determined using several well-established criteria. An inspection of the inter-item correlation matrix showed that there were many significant correlations at the .01 probability (p) level. Another method of determining factorability, is to examine the overall significance of the correlation matrix with Bartlett’s test of sphericity. The test is used to establish the probability that at least some of the variables in the correlation matrix are significantly correlated (i.e. the presence of non-zero correlations) - a necessary requirement for grouping variables to create factors. Bartlett’s test was significant: $\chi^2 (1176) = 10258.784, p = .000$, suggesting that there was some common variance among items.

Other indicators of suitability for factor analysis, include the Kaiser-Meyer-Olkin measure of sampling adequacy (MSA), which was .921 for the correlation matrix as a whole - above the recommended acceptable value of .6, revealing a “marvelous” proportion of common covariance among the items (Tabachnick & Fiddell, 1996). MSA values are also calculated for each variable and appear on the diagonal of the anti-image correlation matrix in SPSS. MSA values for all individual variables were > .804. Thus, the adequacy of the data was considered to be in the “meritorious” to “marvelous” range (Kaiser, 1981). Values on the off-diagonal represent partial correlations, that is, the correlations between variables when the effects of other variables are taken into account. If
true factors exist in the data, the partial correlations should be small (i.e. large partial correlations are indicative of a data matrix that is not suitable for factor analysis). Accordingly, the anti-image correlation matrix showed small correlations on the off-diagonal. On the basis of these indicators, factor analysis was deemed suitable for this data set. Due to the high degree of covariance between items, no adjustments were made to normality or outliers.

4.3.1.2 Extraction and rotation procedures

Maximum likelihood estimation (MLE) was used for the factor analysis. In general, factor analysis is recommended when the primary objective is to identify the latent dimensions within an empirical data set (Widaman, 1993). A central aim of the current research program was to identify the latent factors arising from patterns of observed covariation between items. The MLE procedure was employed for the following reasons: (1) it is the most commonly used and theoretically desirable estimation procedure, and (2) so that results from the EFA could be compared with CFA conducted in AMOS (which uses MLE). It is generally accepted that a sample of size of at least 200 is required to ensure the appropriate use of MLE (Hair et al., 1998). Based on this recommendation, the size of Sample 1 ($N = 249$) was deemed sufficient.

The factor analysis was run. Six components appeared with Eigen values greater than 1 (14.836, 6.366, 4.871, 2.668, 2.204, 1.306). In addition, Cattell’s (1966) scree test showed a leveling off of the plot slope after 6 factors. Five and 7-factor solutions were also explored using various combinations of extraction and rotation methods, but a 6-factor solution using MLE provided the most clearly defined factor structure. The demarcation between underlying dimensions in a 5-factor solution was less clear, with items across different measures loading together and several items with cross-loadings. A
7-factor solution showed no loadings on the seventh component, and as such, was unsatisfactory. Factor correlations indicated a sufficient amount of overlap in variance among factors, thus an oblique rotation was warranted in this case. Again, a direct oblimin rotation was conducted for the final solution. A maximum likelihood extraction and direct oblimin rotation were performed, and the data were constrained to a 6-factor solution. This solution was found to explain 63.149% of the total variance.

Two items were excluded because they did not load on any factor, including MP item 25 (―I feel satisfied that I am moral‖), and MPS-F item 4 (―If I do not set the highest standards for myself, I am likely to end up a second-rate person‖). The final solution was run with the remaining 49 items. The six-factor solution, including the factor loadings for the 49-items, is shown in Table 4.3.

4.3.1.3 Content Validity

Factor items were examined for their representation of the perfectionism facets and self-vulnerabilities. As expected, perfectionism linked to moral and physical appearance concerns were represented, on factors 4 and 2, with 7 and 10 items respectively. Factors 1 and 5 appeared to assess self-ambivalence relating to physical appearance and morality (11 and 6 items, respectively). The remaining factors 3 and 6, represented MPS-F Personal Standards (6 items) and Concern over Mistakes (9 items) subscales, respectively. Thus, each factor was given a label based on the content of the items loading on them. The six factors were (in order): (1) physical appearance self-ambivalence (PASA), (2) physical appearance perfectionism (PAP), (3) MPS-F Personal Standards (MPS-FPS), (4) moral

---

9 The factor correlation matrix showed three pairs of factors correlated above .314, indicating there was at least 10% overlap in variance among the factors, enough to warrant an oblique rotation (Tabachnick & Fiddell, 1996).
perfectionism (MP), (5) moral self-ambivalence (SAM-M), and (6) MPS-F Concern over Mistakes (MPS-FCM).
Table 4.3

**Six-Factor Solution for Sample 1 Item Pool**

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. I worry about how I look physically</td>
<td>.915</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. I am constantly concerned about whether I am physically attractive</td>
<td>.845</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. I am constantly worried about whether I have a good or bad body shape</td>
<td>.824</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I question whether I am physically attractive</td>
<td>.820</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. I question the extent to which I look good</td>
<td>.802</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I doubt whether I am physically attractive</td>
<td>.775</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I am insecure about the way I look physically</td>
<td>.770</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I have mixed feelings about my physical attractiveness</td>
<td>.718</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. I tend to think of myself in categories such as “attractive” or “unattractive”</td>
<td>.677</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. I feel torn about my weight</td>
<td>.672</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. I tend to move from one extreme to the other in how I think about my appearance</td>
<td>.549</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I must have a perfect body</td>
<td></td>
<td>.868</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I am worthless if I don’t have a perfect body</td>
<td></td>
<td>.864</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. There is nothing more important to me than having a perfect body</td>
<td></td>
<td>.855</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I should do everything in my power to make my body perfect</td>
<td></td>
<td>.817</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. When I am with others, I must be the most attractive person in the group</td>
<td></td>
<td>.815</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. My body must look at least as good as, if not better than the bodies of my friends</td>
<td></td>
<td>.805</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. My clothes should always fit me perfectly</td>
<td></td>
<td>.743</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I hate appearing less than perfect physically</td>
<td></td>
<td>.706</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I have extremely high standards for how I look</td>
<td></td>
<td>.656</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. My body does not have to look perfect for me to be satisfied with it</td>
<td></td>
<td>.490</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I set higher goals for myself than most people</td>
<td></td>
<td></td>
<td>.835</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. I have extremely high goals</td>
<td></td>
<td></td>
<td></td>
<td>.764</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. I expect higher performance in my daily tasks than most people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.736</td>
<td></td>
</tr>
<tr>
<td>24. Other people seem to accept lower standards from themselves than I do</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.668</td>
<td></td>
</tr>
<tr>
<td>16. I am very good at focusing my efforts on attaining a goal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.531</td>
</tr>
<tr>
<td>6. It is important to me that I be thoroughly competent in everything I do</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.460</td>
</tr>
</tbody>
</table>
### Table 4.3

**Six-Factor Solution for Sample 1 Item Pool (continued)**

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. I need to adhere to a moral code in order to be the best person that I can be</td>
<td>.877</td>
</tr>
<tr>
<td>12. I should do everything that I can do to act ethically</td>
<td>.860</td>
</tr>
<tr>
<td>4. In order to be a perfect person, I need to act morally at all times</td>
<td>.762</td>
</tr>
<tr>
<td>17. I have moral standards for myself</td>
<td>.716</td>
</tr>
<tr>
<td>10. Not following my moral principles makes me a bad person</td>
<td>.692</td>
</tr>
<tr>
<td>18. I cannot be a ‘decent’ human being if I do not conduct myself ethically</td>
<td>.669</td>
</tr>
<tr>
<td>24. I must maintain high moral standards in order to be a perfect person</td>
<td>.630</td>
</tr>
<tr>
<td>16. I question whether I am morally a good or bad person</td>
<td>.866</td>
</tr>
<tr>
<td>15. I question whether I am a moral person</td>
<td>.844</td>
</tr>
<tr>
<td>26. I am constantly worried about whether I am a good or bad person</td>
<td>.683</td>
</tr>
<tr>
<td>23. I am constantly concerned about whether I am a ‘decent’ person</td>
<td>.579</td>
</tr>
<tr>
<td>12. I tend to think of myself in categories such as ‘good’ or ‘bad’</td>
<td>.474</td>
</tr>
<tr>
<td>18. If I inadvertently allow harm to come to others, this proves that I am untrustworthy</td>
<td>.449</td>
</tr>
<tr>
<td>14. If I fail partly, it is as bad as being a complete failure</td>
<td>.767</td>
</tr>
<tr>
<td>23. If I do not do as well as other people, it means I am an inferior human being</td>
<td>.734</td>
</tr>
<tr>
<td>13. If someone does a task better at work/school than me, then I feel like I failed the whole task</td>
<td>.730</td>
</tr>
<tr>
<td>25. If I do not do well all the time, people will not respect me</td>
<td>.711</td>
</tr>
<tr>
<td>21. People will probably think less of me if I make a mistake</td>
<td>.681</td>
</tr>
<tr>
<td>34. The fewer mistakes I make, the more people will like me</td>
<td>.633</td>
</tr>
<tr>
<td>9. If I fail at work/school, I am a failure as a person</td>
<td>.620</td>
</tr>
<tr>
<td>10. I should be upset if I make a mistake</td>
<td>.529</td>
</tr>
<tr>
<td>18. I hate being less than best at things</td>
<td>.479</td>
</tr>
</tbody>
</table>
4.3.2 Confirming factor structure in Sample 2: confirmatory factor analyses

To determine whether the initial factor analytic results generalized to a different sample group, factor solutions from the EFA for PASA, PAP, MPS-FPS, MP, SAM-M, and MPS-FCM were validated on Sample 2. This was done by carrying out multi-factor CFAs, using structural equation modeling (SEM). SEM was conducted using AMOS version 20.0 MLE. MLE is the most frequently used iterative procedure in SEM and is a technique that seeks to minimize discrepancy between model and sample covariance matrices (Hair et al., 1998). The sample size that is recommended to ensure the appropriate use of MLE, and to achieve adequate power in SEM, is approximately 200 (Hoelter, 1983). Generally, a ratio of 10 respondents per parameter is considered most appropriate, however the minimum acceptable ratio is 5 respondents per parameter (Floyd & Widaman, 1995; Hair et al., 1998; Kline, 2005; Schreiber, Stage, King, Nora & Barlow, 2006). Thus, the sample size of 253 was within the recommended range for the number of variables under investigation.

To evaluate model fit, it is generally recommended that multiple indicators capturing different aspects of fit are employed, particularly when normality cannot be assumed (Hoyle & Panter, 1995). Absolute fit measures determine overall model fit in CFA. They directly assess how well a priori models reproduce sample data. Absolute fit indices and their respective cutoffs for acceptable model fit include: (1) the likelihood-ratio chi-square ($\chi^2$; labeled CMIN in AMOS output) with a non-significant $p$-value$^{10}$, (2) the goodness-of-fit-index (GFI) above .95, (3) the standardized root mean square residual

$^{10}$ This statistic assumes normality. Non-normality can cause inflated $\chi^2$ values which may lead to an erroneous conclusion that a model does not fit well. Thus, it is best to use several fit indices in interpreting the good-of-fit for a particular model, many of which are robust to departures from normality.
(SRMR), defined as the standardized difference between observed and predicted correlations, and (4) the root mean square error of approximation (RMSEA), which assesses the discrepancy per degree of freedom. Following the recommendations of Hu and Bentler (1998), an SRMR and RMSEA of less than .05 was considered an excellent fit, and less than .10 was an acceptable fit.

Other fit measures include overall fit indices, such as incremental and parsimonious indices. The former assesses the incremental fit of a model compared to a null model (typically a single-construct model with all indicators perfectly measuring it) (Hair et al., 1998). Incremental fit indices, include the Tucker-Lewis Index (TLI), comparative fit index (CFI) and the normed fit index (NFI). Values above .95 correspond to a good fit, and greater than 0.90, to an adequate fit. Finally, parsimonious fit measures evaluate model fit, taking into account the number of estimated coefficients (degrees of freedom) needed to achieve that level of fit. Such indices include the adjusted goodness-of-fit-index (AGFI) and normed chi-square (chi-square divided by degrees of freedom, CMIN/df). An AGFI above .95 is considered a good fitting model, and above 0.90 is indicative of an acceptable fit. A CMIN/df between 1 and 2 indicates an excellent fit, whereas a value less than 3 is an acceptable fit. For an extensive discussion of the requirements for SEM, including the goodness-of-fit indices, see Hair et al. (1998).

4.3.2.1 Preliminary data analyses: the suitability of Sample 2 data for SEM

SEM shares three assumptions with other multivariate methods. These include: independent observations, random sampling of respondents and linearity of all relationships. The recruitment plan for this study was driven by the need to maximize sample size for the analyses, hence participants were selected largely on convenience and accessibility, which has obvious implications for the assumption of independence of observations. Statistics that assume independence of observations will yield smaller-than-
expected standard errors which can lead to the conclusion that an effect (e.g. difference between group means, correlation or regression etc.) is statistically significant regardless of whether an effect is actually present in the population. In the current study, this situation was addressed by combining the student and community samples, and creating two random samples from the combined data set. In addition, it is proposed that the $p$-values used were sufficiently small to ensure that the results were robust against possible sampling effects. Normality tests were conducted for each of the factors in AMOS. These revealed some kurtosis. Two factors demonstrated some skewed items (i.e. PAP and SAM-M) however, these items displayed skewness values of 1.136 and 1.170 which is not much above the accepted cutoff of 1 (Tabachnick & Fidell, 1996). Although normality could not be assumed in this case, this issue was addressed by using goodness-of-fit indices that are robust to violations of non-normal data. With regard to linearity, if the model fit is acceptable, then this suggests that the linearity assumption is valid.

4.3.2.2 Factor Models: evaluating goodness-of-fit criteria

The first step in evaluating the results is an initial inspection for offending estimates. Offending estimates are estimated coefficients that exceed acceptable limits. Common examples of offending estimates include: (1) negative or non-significant error variances, (2) standardized coefficients exceeding or close to 1, or (3) large standard error estimates relative to others on the same scale (Hair et al., 1998; Lei & Wu, 2007). Examining the results for improper solutions such as these, revealed that the estimates for each factor model were acceptable.

Next, the overall model fit for each of the six factors derived from the EFA was assessed using a number of fit indices. For PASA, the standardized residual matrix showed
no indication of any significant covariance reproduction error\textsuperscript{11}. However, the modification indices suggested that the factor structure derived from EFA could be improved. On this basis, and considering some items were almost identical to others (and thus, redundant), item 7 ("I worry about how I look physically"), item 8 ("I have mixed feelings about my physical attractiveness"), item 17 ("I question whether I am physically attractive"), and item 25 ("I tend to move from one extreme to the other in how I think about my appearance") were removed. A total of 6 items out of the 10-item EFA solution were retained. The fit indices for the improved PASA factor model were: $\chi^2 (9, N = 253) = 12.274, p = .198$; GFI = .984; SRMR = .014; RMSEA = .038; TLI = .996; CFI = .998; NFI = .991; AGFI = .962; CMIN/df = 1.364. These results showed that this factor model provided an acceptable fit to the sample data.

For PAP, the standardized residual matrix revealed that the model did not accurately reproduce covariances between items 3 and 4 (3.951). The modification indices showed that if a covariance between error terms for items 3 and 4 was freed to be estimated, chi-square would be improved by approximately 98.160 units. Item 4 ("I hate appearing less than perfect physically") was removed, since this improved the model fit more than the removal of item 3 ("I have extremely high standards for how I look"). Another two items were removed, including item 7 ("When I am with others, I must be the most attractive person in the group") and item 9 ("There is nothing more important to me than having a perfect body") due to large modification indices. Finally, item 3 was

\textsuperscript{11} Standardized residuals represent the differences between observed and estimated correlation or covariance matrices (Hair et al., 1998). These, along with modification indices, can be used to inform how a model can be re-specified to improve the fit.
removed because this also improved the model fit. The indices representing the best possible model fit for PAP were: $\chi^2 (9, N = 253) = 16.808, p = .052; \text{ GFI} = .977$; SRMR = .022; RMSEA = .059; TLI = .986; CFI = .991; NFI = .982; AGFI = .947; CMIN/df = 1.868. This factor model retained 6 items out of a total of 10 items derived from the EFA.

For the third factor, MPS-FPS, the standardized residual matrix showed no indication of any significant covariance reproduction, although the modification indices suggested that the EFA-derived factor structure could be improved by removing item 30 (―I expect higher performance in my daily tasks than most people‖) and item 16 (―I am very good at focusing my efforts on attaining a goal‖). The fit indices for the MPS-FPS scale comprising the remaining 4 items, were: $\chi^2 (2, N = 253) = 3.095, p = .213; \text{ GFI} = .994; \text{ SRMR} = .016; \text{ RMSEA} = .047; \text{ TLI} = .990; \text{ CFI} = .997; \text{ NFI} = .991; \text{ AGFI} = .971; \text{ CMIN/df} = 1.548$, indicating a good-fitting factor model.

The initial fit indices for the fourth factor, MP, indicated that it was not an acceptable fit. An examination of the standardized residual matrices for items representing moral perfectionism revealed that the model did not accurately reproduce covariances between items 6 and 30 (2.799)$^{12}$. The modification indices showed that if a covariance between error terms for items 6 and 30 was freed to be estimated, chi-square would be improved by approximately 52.143 units. Item 30 (―I must maintain high moral standards in order to be a perfect person‖) was therefore removed, since this improved chi-square more than removing item 6 (―In order to be a perfect person, I need to act morally at all times‖). The model was re-run and the process of removing items one-at-a-time was

$^{12}$ Standardized residuals are shown in parentheses. Residuals greater than ± 1.96 are considered significant. Significant residuals indicate a substantial prediction error for a pair of indicators (Hair et al., 1998).
repeated until the best possible model fit was achieved. A total of three items including 30, 22 and 17 were removed leaving 4 items. The fit indices for the resulting MP factor model were: $\chi^2 (2, N = 253) = 1.833, p = .400; GFI = .996; SRMR = .0125; RMSEA = .000; TLI = 1.00; CFI = 1.00; NFI = .995; AGFI = .981; CMIN/df = .916$, demonstrating an acceptable model fit.

The standardized residual matrix for the fifth factor, SAM-M, indicated that the EFA factor structure model did not accurately reproduce covariances between items: 12 and 18 (3.405), 26 and 23 (2.984), 23 and 18 (2.309), 12 and 23 (2.055), and 26 and 12 (2.033). Modification indices suggested that removing item 18 ("If I inadvertently allow harm to come to others, this proves that I am untrustworthy") should be removed. Although the modification indices indicated that item 26 ("I am constantly worried about whether I am a good or bad person") should also be removed, item 15 was removed instead, since semantically it was almost identical to item 16. Moreover, this led to a better model fit. The final solution for SAM-M included 4 items, and the model indices were: $\chi^2 (2, N = 253) = 2.396, p = .302; GFI = .995; SRMR = .014; RMSEA = .028; TLI = .998; CFI = .999; NFI = .995; AGFI = .977; CMIN/df = 1.198$, indicating a good-fitting factor model.

Finally, for the sixth factor, MPS-FCM, the standardized residual matrix indicated that the model did not accurately reproduce the covariance between items 13 and 18 (2.180) and the large modification index for this item pair, also lent support to removing one of these items. Accordingly, item 13 ("If someone does a task at work/school better than me, then I feel like I failed the whole task") was removed, because this improved the model fit more than excluding item 18. Similarly, the covariance for items 9 and 10 was poorly reproduced by the model. Item 10 ("I should be upset if I make a mistake") was removed because it improved the fit more than eliminating item 9. The
modification indices for item 18 (‘I hate being less than best at things”) indicated that further improvement could be made by removing this item, therefore it was removed. The final MPS-FCM factor comprised 5 items and the fit indices were: $\chi^2 (9, N = 253) = 15.993$, $p = .067$; GFI = .974; SRMR = .0279; RMSEA = .056; TLI = .988; CFI = .989; NFI = .975; AGFI = .956; CMIN/df = 1.777. This result was taken to support the adequacy of fit between this factor model and the data set.

Finally, MPS-FPS and MPS-FCM scales were combined to form one model representing general negative perfectionism, MPS-Fgnp. In order to achieve an acceptable fit for this model, a further 2 items needed to be removed due to large modification indices. These items were: 12 (‘I set higher goals for myself than most people”) and 9 (‘If I fail at work/school, I am a failure as a person”). MPS-Fgnp comprised 7 items and was found to be an acceptable fit: $\chi^2 (25, N = 253) = 45.059$, $p = .136$; GFI = .975; SRMR = .034; RMSEA = .038; TLI = .989; CFI = .990; NFI = .965; AGFI = .961; CMIN/df = 1.368.

Once the overall fit of the factor models was evaluated, the measurement of each construct was assessed. The estimated loadings of items for each factor was examined and found to be statistically significant. Across each factor, standardized loadings were at least > 0.50 (see Table 4.4). Thus, items were contributing well to the measurement of their respective constructs. Squared multiple correlations (SMCs; or item reliabilities) values ranged mostly from moderate to high, indicating that the constructs accounted for a good proportion of variance in each of their indicators. Guidelines suggest that SMCs should exceed .50 for a construct. Higher SMCs occur when indicators are truly representative of the latent construct (Hair et al., 1998).
the factor models, also supported the notion that the constructs they measured
demonstrated acceptable construct validity.

Table 4.4

Ranges of Estimated Loadings for Construct Items

<table>
<thead>
<tr>
<th>Construct</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASA</td>
<td>.598 - .796</td>
</tr>
<tr>
<td>PAP</td>
<td>.379 - .814</td>
</tr>
<tr>
<td>MPS-FPS</td>
<td>.432 - .659</td>
</tr>
<tr>
<td>MP</td>
<td>.497 - .643</td>
</tr>
<tr>
<td>SAM-M</td>
<td>.491 - .747</td>
</tr>
<tr>
<td>MPS-FCM</td>
<td>.525 - .679</td>
</tr>
</tbody>
</table>

*Note: PASA = physical appearance self-ambivalence; PAP = physical appearance perfectionism; MPS-FPS = Frost Multidimensional Perfectionism Scale-personal standards subscale; MP = moral perfectionism; SAM-M = Self-Ambivalence Measure-moral self-ambivalence subscale; MPS-FCM = Frost Multidimensional Perfectionism Scale-concern over mistakes subscale.*

4.3.2.3 Discriminant Validity – a stronger test

Discriminant validity analyses tested whether (1) MPS-Fgnp and MP, (2) MPS-Fgnp and PAP, (3) MPS-Fgnp and PASA, (4) MPS-Fgnp and SAM-M, (5) MP and PAP, (6) PASA and SAM-M, (7) MP and SAM-M, and (8) PAP and PASA were best represented as identical or as distinct constructs. This was done using Bagozzi, Yi and Phillips’ (1991) commonly used nested models method. Bagozzi’s method is considered to be one of the stronger approaches available to assess discriminant validity, as compared to
older correlational and factor method approaches which have been criticized for their arbitrary rules.

The group proposed that if the correlation between two constructs is 1, then it can be concluded that they represent a single construct rather than two distinct constructs. In SEM, the extent to which constructs differ is assessed by running an _unconstrained_ model and an alternative _constrained_ model (i.e. where the correlation between constructs is forced to equal 1), simultaneously. If by restricting the correlation to equal 1, the model fit is significantly worse compared to the unconstrained version of the model, it can be concluded that the constructs are distinct.

As shown in Table 4.5, each factor was compared with all other factors. For each comparison, constraining the correlation between factors to 1, led to a significant deterioration in overall model fit (represented by the difference in $\chi^2$ and corresponding $p < .001$). Thus, all factors were found to be distinct from each other.
Table 4.5

Discriminant Validity Analysis for Factors

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Difference in $\chi^2$</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPS-Fgnp – PASA</td>
<td>66.25</td>
<td>1</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>MPS-Fgnp – PAP</td>
<td>113.88</td>
<td>1</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>MPS-Fgnp – MP</td>
<td>45.29</td>
<td>1</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>MPS-Fgnp – SAM-M</td>
<td>79.04</td>
<td>1</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>MP – PAP</td>
<td>99.26</td>
<td>1</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>PASA – SAM</td>
<td>26.73</td>
<td>1</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>MP – SAM-M</td>
<td>44.24</td>
<td>1</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>PAP – PASA</td>
<td>72.91</td>
<td>1</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Note. MPS-Fgnp = Frost Multidimensional Perfectionism Scale-general negative perfectionism; PASA = physical appearance self-ambivalence; PAP = physical appearance perfectionism; MP = moral perfectionism; SAM-M = Self-Ambivalence Measure-Moral subscale.

4.4 Summary

Although perfectionism is recognized as an important vulnerability factor for a range of psychopathologies, attempts at delineating aspects of perfectionism that differentiate between disorders have generally been unsuccessful. Consequently, the aim of Study 1 was to develop measures of perfectionism that were uniquely related to OCD and ED phenomena, based on cognitive theories and empirical evidence. Two specific measures of perfectionism – moral and physical appearance perfectionism - were developed and validated. Both scales were found to be differentiated from general negative perfectionism. Two specific self-vulnerability measures were also included in the factor
analysis. These were moral self-ambivalence and the physical appearance self-ambivalence (developed for this thesis). The results showed that the specific perfectionism facets were separate constructs to the specific self-vulnerabilities. The study confirmed the factor structure of the three types of measures across two separate samples of student and community participants. Further research is required to determine: (1) whether specific facets of perfectionism predict OC and ED symptomatology as hypothesized (i.e. moral perfectionism is expected to predict OC symptoms and physical appearance perfectionism is hypothesized to predict ED symptoms), and if so, (2) whether these specific factors are stronger predictors of disorder symptoms than general perfectionism, and (3) which variables contribute to perfectionism, particularly the specific facets.
Chapter 5: Study 2 Common and specific vulnerabilities for perfectionism related to OC and ED phenomena

5.1 Introduction

Research has consistently demonstrated that poor self-esteem, negative mood, insecure or uncertain self-views, are common vulnerabilities for perfectionism. Moreover, there is evidence to show that these vulnerabilities are linked. For example, self-esteem has been found to mediate the relationship between perfectionism and depression (Preusser et al., 1994). Poor self-esteem has been found to be concomitant with perfectionism, when high personal standards are not achieved. Furthermore, it is thought that negative self-views are influenced by negative mood states, such as, anxiety and depression (DeSteno & Salovey, 1997). There is also suggestion that self-ambivalence and depressive symptoms have some shared phenomena. It is possible that the shared experience relates to feelings of helplessness (e.g. self-ambivalence may lead to helplessness when faced with continual perceptions of failure at managing conflicting feelings). This is perhaps not surprising given that both involve negative cognitions and self-views.

Despite the plethora of research that have described general vulnerabilities for perfectionism, the processes by which perfectionism functions are still not well understood. A commonly held view among those who uphold that there is a maladaptive side to perfectionism, is that it operates as a coping strategy which serves to validate self-worth in the face of perceived failure. Despite this, there is a paucity of empirical research which has explored perfectionism in this way. Thus, an aim of Study 2 was to address this gap by exploring perfectionism related to self-worth vulnerabilities, and to compare self-vulnerabilities with other common vulnerabilities (as mentioned above) in the prediction of perfectionism.
It has been suggested that individuals tend to value some domains of self more than others, and that perceived competence in specific self-domains that people stake their worth on, is more highly correlated with feelings of self-worth, than perceived competence in self-domains that are less personally salient. Hence, in this thesis, it is expected that perceived competence in domains of self that are salient for individuals who display OC and ED phenomena, will have a greater influence on OCD and ED severity scores, than perceived competence in less salient self-domains. This research is aligned with a growing idiographic approach toward understanding disorders that has emerged from dissatisfaction with current treatment modalities, and the view that there is potential for greater treatment efficacy.

Several authors have proposed a specific domain of self that may be particularly relevant to OCD. For example, Guidano and Liotti (1983) observed that for individuals with OCD, maintaining high moral standards is particularly important for their self-worth. Similarly, Rachman (1997) argued that individuals who strive for moral perfectionism are more prone to obsessions since all actions and thoughts are considered to be significant markers of their moral standing.

Empirical support for the importance of moral self-worth for individuals with OCD, includes the work of Ferrier and Brewin (2005), who compared individuals with OCD to anxious and community controls, and found that the former were more likely to make negative moral inferences about themselves based on their intrusions. The authors also reported that the ‘fear self’ described by individuals in the OCD group tended to be characterized by bad and immoral traits, as opposed to the ‘fear selves’ of individuals in other groups, which were not as focused on moral features. Furthermore, in a group of undergraduate psychology students, Doron et al. (2007) found that the salience of moral self-worth and concurrent perceived incompetence in the same domain (i.e. moral self-
predicted OC beliefs and symptom severity, even when general self-esteem was statistically controlled for. A separate study found that moral self-sensitivity was more related to OCD than to other anxious disorders or a nonclinical control group (Doron et al., 2008).

In addition, Shafran, Thordarson and Rachman (1996) contended that individuals with OCD tend to perceive unacceptable thoughts as morally equivalent to unacceptable actions. This process was labeled Moral Thought Action Fusion (Moral-TAF). Moral-TAF is construed as an appraisal process that leads an individual to inflate the significance of their thoughts. In response, the individual will try to suppress the thoughts, which paradoxically causes the thoughts to intensify and become obsessions. Accordingly, Moral-TAF has been found to predict thought suppression and consequently, OCD symptoms, in psychology undergraduate students (see Rassin, Muris, Schmidt & Merckelbach, 2000).

Just as similar behavioural symptoms seen in individuals with OCD can be based on a variety of different underlying motivations (Summerfeldt et al., 1999), moral intrusions experienced by individuals with OCD can relate to a range of different themes, such as, sex (Gordon, 2002), religiosity (Abramowitz, Deacon, Woods, & Tolin, 2004) or ethics (Ferrier & Brewin, 2005). Even thoughts that are seemingly unrelated to morality can be interpreted as having implications for one’s morality (Guidano & Liotti, 1983). For instance, in a case analysis, O’Neill (1999) reported on a woman with OCD who judged her intrusions regarding symmetry to be morally unacceptable. In another case analysis, a man was described as finding thoughts of harming his son distressing because of the negative way he perceived these thoughts reflected on his moral self-worth (O’Neil, Cather, Fishel, & Kafka, 2005). In any case, taken together, theoretical, empirical and case
analyses provide evidence that moral self-concept may be specifically linked with OCD phenomena.

Other authors have proposed a specific domain of self which they believe may be associated with EDs. Researchers and clinicians have implicated self-concept disturbances related to physical appearance to disturbed eating patterns and EDs (Cash & Green, 1986; Markus, Hamill & Sentis, 1987). For instance, in a study of college students, Crocker and colleagues (2002) found that students who based their self-esteem on physical appearance were higher on symptoms of disordered eating than students whose self-worth was not contingent on appearance concerns. This effect was found even after controlling for level of self-esteem and membership in a college sorority or fraternity, which also predicted disordered eating symptoms. Cain et al. (2008) added items to the EDI to capture physical appearance perfectionism (among two other specific perfectionism domains). Results showed that perfectionism in the self-domain of physical appearance, showed a stronger association with disordered eating compared with the other perfectionism domains. Stoeber and Stoeber (2009) also studied physical appearance concerns in college students, and found a large percentage to be perfectionist in the physical appearance self-domain. Thus, there is empirical support for the relationship between physical appearance self-concerns related specifically and ED phenomena.

The aims of Study 2 were (1) to compare the relative influence of common and specific facets of perfectionism on OC and ED phenomena, (2) to examine potential self-vulnerabilities underlying perfectionism, and (3) to compare the relative influence of self-vulnerabilities with more general vulnerabilities for perfectionism (for example, self-esteem and negative mood). First, two separate hierarchical regressions were run, the first with OC severity as the dependent variable, and the second with ED severity as the dependent variable. A range of predictors were entered in five steps. The variables entered
in steps 1, 2, 3 for both regressions were age, negative mood, and global self-esteem respectively. These were entered in first to account for any influence these may have had on the other variables. In addition, given that the likelihood of co-occurrence of OCD and EDs is higher than expected in individuals with either condition, given the base rate of both disorders in the general population (prevalence of OCD in individuals with EDs: Braun et al., 1994; Fornari et al., 1992; Matsunaga, Kiriike, Miyata, Iwasaki, Matsui, Fujimoto, et al., 1999; Milos, Spindler, Ruggiero, Klaghofer, & Schnyder, 2002; Rubenstein et al., 1993; Schwalberg, Barlow, Alber, & Howard, 1992; Speranza et al., 2001; Thiel, Broocks, Ohlmeier, Jacoby, & Schüßler, 1995; prevalence of EDs in individuals with OCD: Fahy, Osacar, & Marks, 1993; Flament et al., 1988; Grabe, Thiel, & Freyberger, 2000; Kasvikis, Tsakiris, Marks, Basoglu, & Noshirvani, 1986; Ronchi et al., 1992; Tamburrino, Kaufman, & Hertz, 1994), the severity score for the disorder that was not being predicted was entered in step 4, to account for potential comorbidity. Finally, in line with aetiological perspectives and empirical evidence linking general and specific self-vulnerabilities to perfectionism, and both self-vulnerabilities and perfectionism to OC and ED phenomena, variables representing these constructs (i.e. general and specific self-vulnerabilities and perfectionism facets) were entered at step 5.

Three general self-vulnerability constructs were examined, including self-ambivalence, dichotomous beliefs about the self, and self-sensitivity. This is in line with research providing evidence that self-vulnerability is implicated in OC and ED phenomena, at least in a general sense (e.g. Bhar & Kyrios, 2007; Byrne et al., 2004; Doron & Kyrios, 2005; Guidano & Liotti, 1983). In addition, the measures focus on structural aspects that are important when examining self-concept. Self-ambivalence and dichotomous thinking measures were included, as they have been used by previous researchers to examine their relationship with OC and ED symptoms, respectively. The
self-sensitivity measure was employed because it reportedly captures not only information about which domains of self are highly-valued, but importantly, it assesses perceived competence in those domains (Harter & Messer, 1986). Perceived inadequacy in a highly valued domain represents a self-discrepancy that can be viewed as a threat to self-worth. This dimension is a critical part of risk or vulnerability to disorder, because it is the perceived lack of competence that motivates the adoption of certain belief systems and use of strategies (e.g. perfectionism) that are intended to protect self-worth. High positive scores on these measures indicated high self-vulnerability.

Four measures of specific self-vulnerability were employed, including two measures of specific self-ambivalence: moral and physical appearance, two measures of specific self-sensitivity: moral and physical appearance. These measures incorporate structural and content aspects of self – both important features of self-concept. The specific self-vulnerability concepts were derived from the same measures as the general self-vulnerability scales. The specific self-ambivalence and self-sensitivity measures represented insecure views about moral self-worth and physical appearance, based on research supporting the link between these specific concerns and OCD and ED symptoms, respectively (Guidano & Liotti, 1983; Bhar & Kyrios, 2007; Doron & Kyrios, 2005; Slade, 1982; Fairburn et al., 1999). As with the general measures, high positive scores were indicative of high self-vulnerability.

In addition, two measures of specific perfectionism, moral and physical appearance perfectionism, were incorporated. This was in accordance with theorists such as Guidano and Liotti (1983) and Rachman’s (1997), who contended that individuals with a focus on moral perfectionism are predisposed to developing OCD. Likewise, studies have shown links between physical appearance perfectionism and disordered eating (e.g. Cain et al., 2008; Yang & Stoeber, 2012). Beck (1976) too proffered a cognitive model of
psychopathology based on the premise that each disorder is characterized by cognitive self-content that is specific to the disorder. Taken together, these theories seem to suggest that self-vulnerabilities in disorder-salient domains are related to higher levels of symptomatology associated with the same disorder, than negative self-views in less salient domains. Congruent with this perspective, it was anticipated that specific self-vulnerabilities and specific facets of perfectionism would be more strongly associated with OC and ED severity, than general self-vulnerabilities and general negative perfectionism, controlling for age, negative, global self-esteem, and comorbidity with the other disorder. Furthermore, consistent with both the specificity hypothesis and theory which has proposed that self-vulnerabilities are antecedent to perfectionism (e.g. Guidano & Liotti, 1983), it is anticipated that specific self-vulnerabilities will predict salient perfectionism facets, controlling for age, negative mood, global self-esteem. That is, moral self-vulnerabilities (ASPP-M and SAM-M) will significantly predict moral perfectionism, and physical appearance self-vulnerabilities (ASPP-PA and PASA) will significantly predict physical appearance perfectionism. Finally, from an aetiological perspective, self-vulnerabilities and the setting of impossibly high standards of success involved in perfectionism have been linked to lowered self-esteem and depression (Byrne, 1980; Higgins, 1987). Thus, these relationships will also be explored. Together with theoretical discourse, the results of this study will inform separate aetiological models of perfectionism for OC and ED phenomena, to be constructed and validated in Study 3 (Chapter 6).

5.2 Method

5.2.1 Participants, Procedure and Materials

Sample 1 from Study 1 was used in this study, and comprised a random selection of both student and community participants. The size, composition and demographics of
Sample 1 have been described in Chapter 4. Various questionnaires measuring perfectionism, self-vulnerabilities, self-esteem, mood state and psychopathology were administered to participants. The questionnaires for this study were completed at the same time as Study 1 questionnaires. This study is not different from Study 1 in terms of methodology, but it focuses on different aspects of the data set. Details of the procedure were described in Chapter 4.

The measures relevant to this study included: (1) MPS-Fgnp, (2) MP, (3) PAP, (4) Self-Ambivalence Measure subscales (SAM-M, PASA, and general self-ambivalence, SAM-G), (5) Adult Self-Perception Profile subscales (general, morality, and physical appearance – denoted as ASPP-G, ASPP-M and ASPP-PA), (6) Dichotomous Thinking in Eating Disorders Scale-11 (DTEDS-11), (7) Obsessive Compulsive Inventory-Revised (OCI-R), and (8) Eating Disorder Examination Questionnaire-6 (EDE-Q), (9) Rosenberg Self-Esteem (RSE), (10) Depression Anxiety and Stress Scale-21 (only the depression subscale – denoted as DASS-D). The first four questionnaires were described in Chapter 4. Descriptions of the remaining six questionnaires are provided below.

5.2.1.1 Adult Self-Perception Profile (ASPP; Messer and Harter, 1986)

The ASPP is a multidimensional measure of adult self-concept. It includes eleven scales representing different domain-specific self-concept dimensions, as well as, items measuring global self-worth. Respondents are asked to indicate which of two types of adults they are most like and decide whether that description is “sort of true” or “really true” for him or her. A sample question is “Some adults like the way they are leading their lives BUT other adults don’t like the way they are leading their lives” (see sample item below).
Items within each scale are counterbalanced such that half begin with a statement reflecting high competence or adequacy, and the remainder begin with a statement reflecting low competency or adequacy. Typically, the procedure for scoring is to rate each item on a scale from 1 to 4, where 1 represents the least adequate self-judgment and 4 represents the most adequate self-judgment. However, in this study, high scores represent perceived low competency or adequacy in a particular self-domain. This was done to maintain consistency across self-vulnerability variables (i.e. higher scores represent greater self-vulnerability). In addition to global self-worth, two of the eleven scales were administered to participants in this study; morality and physical appearance. These three subscales were selected due to their relevance to the particular aims and hypotheses of this thesis.

The ASPP has adequate psychometrics, including internal consistencies ranging from .65 to .90 in a sample of women, and has been validated on adults (defined as persons aged 18 years and over) (Messer & Harter, 1986).

5.2.1.2 Dichotomous Thinking in Eating Disorders Scale-11 (DTEDS-11; Byrne et al., 2004)

The DTEDS is a short, 11-item self-report measure that is used to assess the presence of a rigid —black-and-white” cognitive thinking style. It was designed to specifically capture dichotomous thinking in the context of eating-related problems, and is primarily intended for use with dieters, overweight/obese patients and eating disordered
patients. The instrument was developed after a review of existing scales with items that appeared to represent dichotomous thinking, yet at the time, there was no stand-alone measure which captured the construct.

A total of 24 items were originally developed, consisting of two subscales: (1) an “eating” subscale which contained items related to eating, diet and weight (e.g. “I think of food as either –good‖ or –bad‖”), and (2) a “general” subscale comprising items related to more general issues (e.g. “I think of myself as either –clever‖ or –stupid‖”). Following a pilot study with obese participants, the number of items was reduced to 16 (Byrne et al., 2004), and finally to 11 items (Byrne et al., 2008). The eating and general subscales are comprised of 4 and 7 items respectively. Items are rated on a 4-point Likert-type scale from “not at all true of me” to “very true of me”. Item scores range between 1 and 4, with higher scores indicating a greater degree of dichotomous thinking. Total scores on the DTEDS are generated by averaging the two subscale scores.

The factor structure and psychometric properties of the DTEDS have been examined in a study of ED patients attending an outpatient ED clinic and obese women attending a university-based weight loss program (Byrne et al., 2008). A confirmatory factor analysis provided support for a two-factor model of the DTEDS-11, and reliability estimates were excellent both for the full sample of participants and the two sub-samples (i.e. overweight/obese participants and ED outpatients. For the full sample, alphas for the eating and general subscales were .78 and .86, respectively. For ED outpatients, alphas for the eating and general subscales were .61 and .81, respectively. All eating items were more correlated with the eating subscale than the general subscale, and vice versa, general items were more strongly correlated with the general dimension than the eating dimension. For the purposes of this study, only the general DTEDS scale was used, since it taps dichotomous thinking about one’s self (self-vulnerability), as opposed to one’s eating
behavior (which is most often the focus of research in the ED field), and is therefore consistent with the aims of the current research.

5.2.1.3 Obsessive Compulsive Inventory-Revised (OCI-R; Foa et al., 2002)

The OCI-R is a shortened version of the 42-item OCI self-report measure designed for use as a screening instrument to measure levels of obsessive or compulsive behaviours in subclinical individuals. This revised version contains 18 items and 6 subscales, including Washing (e.g. “I have saved up so many items that they get in the way”), Checking (e.g., “I check things more often than necessary”), Ordering (e.g., “I get upset if objects are not arranged properly”), Obsessing, Hoarding, and Mental Neutralizing. Each subscale comprises three items and each item is rated on a 5-point Likert scale (0-4) of symptom frequency and associated distress. Total scores on each of the symptom dimensions can be summed to generate an estimate of overall OCD severity. Higher scores are indicative of higher OC psychopathology. In this study, OCI-R was employed as an index of total OCD severity.

The normative mean for subclinical populations given by Foa et al. (2002) is 18.82; one standard deviation ($SD = 11.10$) above this norm was considered indicative of clinically-notable OC pathology (i.e. total OCI-R score = 29.92).

5.2.1.4 Eating Disorder Examination Questionnaire-6 (EDE-Q; Fairburn & Beglin, 2008)

The EDE-Q is the self-report version of Fairburn and Cooper’s (1993) Eating Disorder Examination (EDE), a well-established investigator-based interview that was designed to provide a standardized instrument for the assessment of the broad range of specific ED psychopathology, including anorexia nervosa, bulimia nervosa, and their variants (Fairburn & Cooper, 1993). Both the self-report and interview-based measures have been found to perform comparably (Fairburn & Beglin, 1994). The EDE-Q is
considered suitable for use in both community and clinical settings. The EDE-Q is scored in the same way as the EDE. The measure was employed as an indicator of disordered eating severity in this thesis.

The EDE-Q comprises 28 items concerned with the present state of respondents, and as such, all items refer exclusively to the past 4 weeks. Items comprise four subscales measuring characteristic ED psychopathology, including restraint (5 items), eating concern (5 items), shape concern (8 items) and weight concern (5 items). A global ED severity score is calculated by summing the total scores for the four subscales and dividing the sum by the number of subscales (i.e. four). The remaining 6 items are for diagnostic purposes. Since the current program focused on non-clinical participants, scores on diagnostic items were not analysed.

The majority of items are rated on a 7-point Likert scale ranging from 0 = “not one day” to 6 = “every day”, except for items related to the frequency of particular ED behaviours, which are rated in terms of how many times the behaviour occurred over the previous 28 days. Sample items include, “Over the past 28 days (4 weeks) indicate the number of days that you have felt fat”, and “Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?” Higher scores are indicative of greater ED pathology.

Several studies have examined inter-rater reliability for the original EDE. These have demonstrated good to excellent agreement for the majority of items (Cooper & Fairburn, 1987; Rosen, Vara, Wendt & Leitenberg, 1990; Wilson & Smith, 1989). Other studies have shown satisfactory internal consistency (Beumont, Kopec-Schrader, Talbot & Touyz, 1993; Cooper, Cooper & Fairburn, 1989) and test-retest reliability (Berg, Peterson, Frazier, & Crow, 2011; Rizvi, Peterson, Crow & Agras, 2000) for the EDE subscales. Studies of the discriminant validity of the EDE have found that the measure appears to
discriminate well between eating disordered and non-eating disordered groups (Cooper et al., 1989; Fairburn & Cooper, 1993; Rosen et al., 1990, Streiner & Norman, 2012).

With regard to validity, the extent to which the EDE-Q measures what it is supposed to measure, is not yet clearly established (Aardoom et al., 2012). For example, Rosen and colleagues (1990) correlated certain EDE items (e.g. dietary rules, self-induced vomiting) and subscales (e.g. Restraint, Bulimia, Eating Concern) with a number of self-report measures of eating behaviour derived from eating diaries however, only modest associations were found. It was concluded that this result may have been due to there being only one week of overlap between the two forms of measurement. Hence, it was only a partial test of concurrent validity (Fairburn & Cooper, 1992).

Normative data on the EDE-Q are available for numerous general population samples. (Carter, Stewart, & Fairburn, 2001; Lavender De Young & Anderson, 2010; Luce, Crowther, & Pole, 2008; Mond, Hay, Rodgers & Owen, 2006; Oyvind, Reas, & Lask, 2010; Villarroel, Penelo, Portell, & Raich, 2011; Welch, Birgegard, Parling, & Ghaderi, 2011) are available for the EDE-Q. However, some of these studies used versions of the EDE-Q that were translated from English. EDE-Q scores and norms can vary among countries or subpopulations (Aardoom, Dingemans, Slof Op ‘t Landt & Van Furth, 2012; Welsh et al., 2011) due to cultural differences in the prevalence of ED behaviours. For this reason, it was thought that the norms presented in Mond et al.’s study would be the most applicable to the present research, because it is an Australian-based study of young adult women between the ages of 18 to 42 (a similar age range to participants in this thesis). Thus, one standard deviation above the norm given by Mond et al. (total EDE-Q score = 2.77) was considered indicative of clinically-significant disordered eating pathology.
5.2.1.5 Rosenberg Self-Esteem scale (RSE, Rosenberg, 1965).

The RSE is the most widely-used measure of global self-esteem in social science research (Demo, 1985). There are several advantages to using the RSE. First, it is generally considered to be the standard against which other measures of self-esteem are compared. Second, it is short, easy and therefore, takes relatively little time to complete. Third, extensive and acceptable reliability and validity information exists for the measure (e.g. Blascovich & Tomaka, 1991).

The original measure was developed to assess state self-esteem in a non-clinical sample of adolescents. Respondents are asked to reflect on their current feelings of self-acceptance, self-respect and self-worth. The RSE consists of ten items that are typically answered on a 4-point scale Likert scale however, some researchers rate items on larger scales. The present research has chosen to rate items on a 9-point Likert scale, with the aim of maximizing the spread of total scores. Responses range from “definitely disagree” to “definitely agree”. Items 2, 4, 6, 7, 8, and 9 are reverse scored.

The RSE has been tested for validity and reliability in many settings. In a test of eight measures of self-esteem, Demo (1985) found that the Rosenberg was one of two scales that performed best in factor analysis. The factor structure of the measure has been studied extensively. Research examining the psychometric properties of the RSE has found acceptable to high reliability, with Cronbach’s alpha ranging from .72 to .88, and test-retest correlations ranging from .53 (1 year) to .82 (1 week) (Gray-Little, Williams, & Hancock, 1997). Construct validity of the instrument has been demonstrated by its correlation with measures of depression, anxiety, self-discrepancy and other self-esteem scales (Rosenberg, 1979). Examples of items include, "I feel I am a person of worth" and "On the whole I am satisfied with myself".
One potential problem with the RSE is that researchers have identified separate _positive_ and _negative_ factors that is, negatively framed questions have been found to load on the _negative_ factor and positively framed questions have been found to load on the _positive_ factor. However, as both factors have been found to correlate almost identically (in terms of strength, direction and consistency) with a criterion variable, it was thought that they appear to measure the same general construct (Rosenberg, 1979).

5.2.1.6 The Depression, Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995)

The depression subscale of the DASS-21 was chosen as an indicator of negative mood in the current study. The DASS-21 is a short form of Lovibond and Lovibond’s (1993) 42-item questionnaire comprising three self-report scales designed to measure the negative emotional states of depression, anxiety, and stress. It was originally developed due to criticism over the failure of other self-report questionnaires to discriminate between these same three states (Lovibond & Lovibond, 1995). Thus, it was designed to maximize internal consistency.

The major development of the DASS scales was carried out with normal, non-clinical samples (Lovibond & Lovibond, 1995). The Depression scale assesses features that are proposed to be unique to depression (e.g. low positive affect) (Antony et al., 1998; Watson et al., 1995). Items comprising the Anxiety scale assess features that are proposed to be unique to anxiety (e.g. physical hyperarousal) (Antony et al., 1998; Watson et al., 1995). The Stress scale assesses proposed features of stress (e.g. psychological tension, agitation and irritability) (Antony et al., 1998; Watson et al., 1995).

Items are scored on a 4-point Likert scale from “did not apply to me at all” to “applied to me very much, or most of the time”, capturing the extent to which the state described in the item was experienced over the past week. Item scores range between 0
and 3, with higher scores denoting greater depression, anxiety or stress. Total scores for
the Depression, Anxiety and Stress scales are generated by summing the scores for the
relevant items, and are evaluated according to a severity-rating index.

Using a clinical sample, Antony et al. (1998) examined the psychometric properties
of the DASS-21. Internal consistency for the Depression, Anxiety, and Stress scales, was
.94, .87 and .91, respectively. The study also showed the measure to have excellent
concurrent validity. Furthermore, the authors proposed that the 21-item version had several
advantages over the 42-item version, including fewer items, a cleaner factor structure, and
small interfactor correlations.

5.3 Results

5.3.1 Factor Scores versus Factor Scale Scores

In order to perform further analyses using the factors developed in Study 1 as
variables, one approach would be to take the variables that loaded on a factor and add
together the scores for those variables to create a summed scale score. However, this
approach assumes that each variable is equally representative of the factor (Hair et al.,
1998). If factor loadings are not equal, there is no justification for weighting each item
similarly in forming a total. Thus, it may be more appropriate to use the differential
information in the factor loadings to get a better estimate of scores representing factors.
This can be done by forming factor scores.

Factor scores are composite measures of factors that are calculated based on
weighting each item that load on a factor according to the degree to which the variable
represents that factor (Hair et al., 1998). SPSS can compute factor scores by selecting the
factor score option when running CFA. However, if factor scores and factor scale scores
are highly correlated, then it is acceptable to use the summed scales since a strong
correlation is evidence that the scale is an accurate representation of the factor it is
representing (i.e. no information will be lost by assuming factor loadings are equal and adding the scores). If the assumption holds, the reliability coefficient should be a reasonable estimate of the test reliability, or, if not, reliability will be under-estimated.

Factor scores were estimated in SPSS using a regression method. This method was chosen because it is the preferred estimation approach where validity (i.e. factor scores correlate with relevant common factors) is an important requirement. Table 5.1 displays the correlations between factor scores and summated scales.

Table 5.1

Correlations between Factor Scores and Summated Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Factor Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1.PASA</td>
<td>.972**</td>
</tr>
<tr>
<td>2. PAP</td>
<td>.150*</td>
</tr>
<tr>
<td>3. MPS-FPS</td>
<td>.219**</td>
</tr>
<tr>
<td>4. MP</td>
<td>.308**</td>
</tr>
<tr>
<td>5. SAM-M</td>
<td>.654**</td>
</tr>
<tr>
<td>6. MPS-FCM</td>
<td>.437**</td>
</tr>
</tbody>
</table>

Note. PASA = physical appearance self-ambivalence; PAP = physical appearance perfectionism; MPS-FPS = Frost Multidimensional Perfectionism Scale-Personal Standards subscale; MP = moral perfectionism; SAM-M = Self-Ambivalence Measure-Moral subscale; MPS-FCM = Frost Multidimensional Perfectionism Scale-Concern over Mistakes subscale.

** denotes correlation is significant at 0.01 level (2-tailed); * denotes correlation is significant at 0.05 level (2-tailed).

Table 5.1 shows that each of the six factor scores correlated strongly with their relevant summated scale ($r > .90$); that is, factor scores and factor scales similarly
characterized the concepts they were designed to represent (see bolded correlations). For example, PASA, is significantly and strongly correlated \( r = .972 \) with its factor score. In this case, either factor scales or factor scores would be suitable to use in further analyses. Proceeding with summated scales was justifiable given these are more appropriate where data are used across sample groups and generalizability is a key priority (Hair et al., 1998). In addition, this method is most desirable when scales used to collect the original data are untested and exploratory, with little or no evidence of reliability or validity” (Hair, Black, Babin, Anderson, & Tatham, 2006, p. 140). Summed scales preserve the variation in the original data and can be more useful clinically. Tabachnick and Fidell (2001) noted that this approach is generally acceptable for most exploratory research situations.

5.3.2 Descriptive statistics

To assess the internal consistency of the six factor scales from Study 1, Cronbach’s alpha (α) coefficients were calculated. Table 5.2 displays the inter-item correlation means and ranges, as well as, reliabilities of the factor scales. These are compared across Sample 1 and 2. The typical benchmark for an acceptable alpha coefficient is .70 (Hair et al., 1998). Results indicated that all six scales showed satisfactory internal consistency across the samples. Means, standard deviations and score ranges for the factor scales are compared across samples in Table 5.3. A comparison of means, standard deviations, ranges and reliabilities for all other variables is seen in Table 5.4.
Table 5.2

*Internal Consistency for Factor Scales Across Sample Groups*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Sample 1 (N = 249)</th>
<th></th>
<th>Sample 2 (N = 253)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized Alpha (α)</td>
<td>Inter-item Correlations</td>
<td>Standardized Alpha (α)</td>
<td>Inter-item Correlations</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>Range</td>
<td>Mean</td>
<td>Range</td>
</tr>
<tr>
<td>PASA</td>
<td>.933</td>
<td>.699</td>
<td>.579-.827</td>
<td>.944</td>
</tr>
<tr>
<td>PAP</td>
<td>.898</td>
<td>.594</td>
<td>.414-.762</td>
<td>.891</td>
</tr>
<tr>
<td>MPS-FPS</td>
<td>.738</td>
<td>.483</td>
<td>.406-.582</td>
<td>.747</td>
</tr>
<tr>
<td>MP</td>
<td>.867</td>
<td>.619</td>
<td>.560-.704</td>
<td>.840</td>
</tr>
<tr>
<td>SAM-M</td>
<td>.906</td>
<td>.707</td>
<td>.597-.782</td>
<td>.858</td>
</tr>
<tr>
<td>MPS-FCM</td>
<td>.878</td>
<td>.589</td>
<td>.491-.719</td>
<td>.883</td>
</tr>
</tbody>
</table>

*Note.* PASA = physical appearance self-ambivalence; PAP = physical appearance perfectionism; MPS-FPS = Frost Multidimensional Perfectionism Scale-Personal Standards subscale; MP = moral perfectionism; SAM-M = Self-Ambivalence Measure-Moral subscale; MPS-FCM = Frost Multidimensional Perfectionism Scale-Concern over Mistakes subscale.
Table 5.3

Comparison of Means, Standard Deviations and Ranges of Factor Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Sample 1 (N = 249)</th>
<th>Sample 2 (N = 253)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>PASP</td>
<td>8.44</td>
<td>6.49</td>
</tr>
<tr>
<td>PAP</td>
<td>6.86</td>
<td>4.77</td>
</tr>
<tr>
<td>MPS-FPS</td>
<td>10.12</td>
<td>2.45</td>
</tr>
<tr>
<td>MP</td>
<td>14.92</td>
<td>5.30</td>
</tr>
<tr>
<td>SAM-M</td>
<td>3.81</td>
<td>3.96</td>
</tr>
<tr>
<td>MPS-FCM</td>
<td>9.87</td>
<td>3.96</td>
</tr>
</tbody>
</table>

Note. PASA = physical appearance self-ambivalence; PAP = physical appearance perfectionism; MPS-FPS = Frost Multidimensional Perfectionism Scale-Personal Standards subscale; MP = moral perfectionism; SAM-M = Self-Ambivalence Measure-Moral subscale; MPS-FCM = Frost Multidimensional Perfectionism Scale-Concern over Mistakes subscale.
### Table 5.4

Comparison of Means, Standard Deviations, Ranges and Reliabilities of the Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sample 1 ($N = 249$)</th>
<th>Sample 2 ($N = 253$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>27.37</td>
<td>11.26</td>
</tr>
<tr>
<td>RSE</td>
<td>62.45</td>
<td>13.72</td>
</tr>
<tr>
<td>DASS-D</td>
<td>4.41</td>
<td>4.68</td>
</tr>
<tr>
<td>SAM-G</td>
<td>19.49</td>
<td>11.10</td>
</tr>
<tr>
<td>ASPP-G</td>
<td>12.86</td>
<td>3.74</td>
</tr>
<tr>
<td>ASPP-M</td>
<td>7.63</td>
<td>2.54</td>
</tr>
<tr>
<td>ASPP-PA</td>
<td>10</td>
<td>2.59</td>
</tr>
<tr>
<td>OCI-R</td>
<td>13.41</td>
<td>13.50</td>
</tr>
<tr>
<td>EDE-Q</td>
<td>1.44</td>
<td>.36</td>
</tr>
</tbody>
</table>

Note. RSE = Rosenberg Self-Esteem; DASS-D = Depression Anxiety Stress Scale-Depression subscale; SAM-G = Self-Ambivalence Measure-General subscale; DTEDS-G = Dichotomous Thinking in Eating Disorders Scale-General subscale; ASPP-G = Adult Self-Perception Profile-General subscale; ASPP-M = Adult Self-Perception Profile-Moral subscale; ASPP-PA = Adult Self-Perception Profile-Physical Appearance subscale; OCI-R = Obsessive Compulsive Inventory-Revised; EDE-Q = Eating Disorder Examination-Questionnaire. The reliability ranges given for OCI-R and EDE-Q represent the highest and lowest reliability scores for their subscales.
5.3.3 Preliminary data screening

Data screening and subsequent analyses were performed using SPSS version 20.0. Before running the analyses, the assumptions of multiple regression were addressed. Multiple regression requires $N$ to be at least 50 (Green, 1991). On this basis, there was sufficient power to carry out the analyses. No univariate outliers were identified. These were defined as cases with a score of at least 3.29 ($p < .001$, two-tailed) (Tabachnick & Fidell, 2001).

5.3.4 Intercorrelations

Table 5.5 presents the intercorrelations for age, global self-esteem, negative mood, perfectionism facets, self-vulnerabilities, and disorder severity, for Sample 1. The combined sample of students and community participants avoided the problem of having a restricted range of scores on the variables (Gravetter & Wallnau, 1996).
### Table 5.5

_Pearson Correlations Between Dependent and Independent Variables_

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.Age</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.DASS-D</td>
<td>.172**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.RSE</td>
<td>.292**</td>
<td>.644**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Self-Vulnerabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.SAM-G</td>
<td>.304**</td>
<td>.607**</td>
<td>-.629**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.DTEDS-G</td>
<td>.233**</td>
<td>.559**</td>
<td>-.550**</td>
<td>.721**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.ASPP-G</td>
<td>.109</td>
<td>.575**</td>
<td>-.635**</td>
<td>.537**</td>
<td>.493**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Self-Vulnerabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.SAM-M</td>
<td>.313**</td>
<td>.548**</td>
<td>-.580**</td>
<td>.877**</td>
<td>.683**</td>
<td>.495**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.PASA</td>
<td>.322**</td>
<td>.505**</td>
<td>-.538**</td>
<td>.740**</td>
<td>.667**</td>
<td>.479**</td>
<td>.676**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.ASPP-M</td>
<td>.162*</td>
<td>.291**</td>
<td>-.345**</td>
<td>.391**</td>
<td>.335**</td>
<td>.577**</td>
<td>.456**</td>
<td>.263**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Negative Perfectionism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.ASPP-PA</td>
<td>.016</td>
<td>.365**</td>
<td>-.458**</td>
<td>.407**</td>
<td>.419**</td>
<td>.568**</td>
<td>.360**</td>
<td>.586**</td>
<td>.196**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Perfectionism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.MPS-Fgnp</td>
<td>.090</td>
<td>.308**</td>
<td>-.414**</td>
<td>.574**</td>
<td>.487**</td>
<td>.307**</td>
<td>.506**</td>
<td>.448**</td>
<td>.226**</td>
<td>.361**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.MP</td>
<td>.160*</td>
<td>.300**</td>
<td>-.358**</td>
<td>.433**</td>
<td>.362**</td>
<td>.217**</td>
<td>.457**</td>
<td>.695**</td>
<td>.177**</td>
<td>.524**</td>
<td>.420**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.PAP</td>
<td>.291**</td>
<td>.152*</td>
<td>.036</td>
<td>.123</td>
<td>.169**</td>
<td>.153*</td>
<td>.408**</td>
<td>.323**</td>
<td>.034</td>
<td>.153*</td>
<td>.238**</td>
<td>.10</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disorder Severity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.OCI-R</td>
<td>-.209**</td>
<td>.411**</td>
<td>-.506**</td>
<td>.604**</td>
<td>.583**</td>
<td>.330**</td>
<td>.582**</td>
<td>.508**</td>
<td>.189**</td>
<td>.228**</td>
<td>.456**</td>
<td>.369**</td>
<td>.016</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>15.EDE-Q</td>
<td>-.132*</td>
<td>.476**</td>
<td>-.428**</td>
<td>.508**</td>
<td>.497**</td>
<td>.407**</td>
<td>.444**</td>
<td>.742**</td>
<td>.178**</td>
<td>.562**</td>
<td>.358**</td>
<td>.284**</td>
<td>.229**</td>
<td>.333**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note. DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; SAM-G = Self-Ambivalence Measure-General subscale; DTEDS-G = Dichotomous Thinking in Eating Disorders Scale-General subscale; ASPP-G = Adult Self-Perception Profile-General subscale; SAM-M = Self-Ambivalence Measure-Moral subscale; PASA = Physical Appearance Self-Ambivalence; ASPP-M = Adult Self-Perception Profile-Moral subscale; ASPP-PA = Adult Self-Perception Profile-Physical Appearance subscale; MPS-Fgnp = Frost Multidimensional Perfectionism Scale-general negative perfectionism; MP = Moral Perfectionism; PAP = Physical Appearance Perfectionism; OCI-R = Obsessive Compulsive Inventory-Revised; EDE-Q = Eating Disorder Examination-Questionnaire. The DASS-D, OCI-R and EDE-Q variables that appear in this table are the transformed variables. N = 249. *p < 0.05, **p < .001*
The correlations revealed that self-vulnerabilities, perfectionism, and OC and ED symptoms tended to decrease with age, with the exception of sensitivity in self-worth and perfectionism, related to physical appearance, which tended to increase with age. Self-vulnerabilities, both general and specific, corresponded to lower self-esteem and greater depressive symptoms. Higher levels of moral perfectionism were associated with greater depressive symptoms and lower self-esteem. To a lesser extent, higher levels of physical appearance perfectionism were also significantly correlated with greater depressive symptoms, but not with global self-esteem. Of the three self-vulnerability measures, higher levels of general and specific self-ambivalence were most related to greater symptoms for both disorder measures, as well as, to higher levels of general and specific perfectionism facets. Interestingly, moral and physical appearance self-ambivalence were significantly related to greater symptom severity for both disorder measures. Although, these specific self-ambivalence measures were highly correlated with each other and with general self-ambivalence (which was also highly correlated with both disorder measures). In addition, higher levels of both moral and physical appearance perfectionism corresponded significantly with greater ED severity. In contrast, only moral perfectionism was significantly related to OCD severity.

5.3.5 Regression analyses

To investigate the relative contribution that general and specific perfectionism facets and self-vulnerabilities have in predicting OC and ED symptoms (controlling for age, global self-esteem and depressive symptoms), two hierarchical regression analyses were conducted, each predicting OCD severity and ED severity, separately. In line with the assumptions of multiple regression, no multivariate outliers were detected using the

---

14 This may have been due to some cases of comorbid ED and OC symptoms.
Mahalanobis distance method \[\chi^2(12) > 32.91, p < .001\]. Multicollinearity was not a problem among all pairs of predictors \((r < .742)\)\(^{15}\), except for SAM-G and SAM-M which were highly correlated \((r = .877)\). Tolerance values for the variables also indicated high collinearity.\(^{16}\) The similar effect of these two variables on OCI-R, dictated that only one of the variables was needed in the prediction of OCI-R. Therefore, SAM-G was omitted from the model. SAM-M (along with the rest of the IVs) was retained in the regression since it was more integral to the hypotheses being investigated. Skewness and kurtosis statistics showed a positively skewed distribution. In addition, linearity and homoscedasticity\(^{17}\) assumptions were violated (as indicated by an examination of the distribution of scatterplot residuals). Thus, the OCI-R scale was transformed to its square root, which eliminated these problems. The transformed OCI-R scale was used in the regression analyses.

5.3.6 Regression predicting OCD severity.

The first regression predicted OCD severity. The following variables were entered at step 1, 2, 3 and 4, respectively: Age, DASS-D, RSE and EDE-Q\(^{18}\). These variables were entered first, to control for any influence they may have had in predicting OCI-R. EDE-Q was entered to account for possible comorbidity with OCI-R. All remaining variables including: MPS-Fgnp, DTEDS-G, SAM-M, ASPP-G, ASPP-M, ASPP-PA, MP and PAP, were entered in the regression at step 5.

\(^{15}\) The typical cutoff for multicollinearity is .80 (i.e. correlations above this indicate multicollinearity).

\(^{16}\) Tolerance values were .192 and .216 for SAM-G and SAM-M, respectively. A tolerance value < .30 is indicative of collinearity.

\(^{17}\) Assumes constancy of residuals across values of the IVs (i.e. no pattern of increasing or decreasing residuals).

\(^{18}\) EDE-Q was also transformed due to violation of multivariate assumptions, the details of which will be discussed later. The transformed EDE-Q variable was used in this regression predicting OCI-R.
Results showed that PASA had a tolerance value < .30 (.239) indicating
collinearity. Therefore, this variable was removed and the regression was re-run. As shown
in Table 5.6, Age and DASS-D initially appeared to significantly predict OC symptoms,
explaining 4% and 14% of the variance in OCI-R, respectively. However, these variables
did not remain significant predictors through the proceeding stages of the regression. In
step 3, an additional 10% of the variation in OCI was explained by the addition of RSE.
EDE-Q did not contribute significantly to the prediction of OCI at step 4. Finally, the
remaining variables entered at step 5, explained a further 19% of the variance in OC
symptoms. The significant predictors of OCI-R were (in order from least to most
significant): ASPP-M, MPS-Fgnp, SAM-M, and DTEDS-G.
Table 5.6

*Hierarchical regression predicting OCI-R*

<table>
<thead>
<tr>
<th>Step</th>
<th></th>
<th></th>
<th></th>
<th>Δ R²</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.04</td>
<td>11.30***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.03</td>
<td>.01</td>
<td>-.17**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.14</td>
<td>40.70***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.02</td>
<td>.01</td>
<td>-.14*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>.54</td>
<td>.08</td>
<td>.38**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>.10</td>
<td>32.14***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.01</td>
<td>.01</td>
<td>-.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>.215</td>
<td>.15</td>
<td>.03*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>-.05</td>
<td>.01</td>
<td>-.40**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>.01</td>
<td>3.58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.10</td>
<td>.01</td>
<td>-.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>.17</td>
<td>.10</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>-.05</td>
<td>.01</td>
<td>-.37***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDE-Q</td>
<td>1.42</td>
<td>.75</td>
<td>.117</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. ASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; EDE-Q = Eating Disorder Examination-Questionnaire.*

N = 249

*p < 0.05, **p < .01, ***p < .001*
Table 5.6 (continued)

*Hierarchical regression predicting OCI-R*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>Δ R²</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 5</td>
<td>.19</td>
<td></td>
<td></td>
<td>.19</td>
<td>10.40***</td>
</tr>
</tbody>
</table>

- Age .01 .01 .04
- DASS-D .02 .09 .01
- RSE -.03 .01 -.20**
- EDE-Q .28 .77 .02
- DTEDS-G .11 .03 .30***
- ASPP-G .01 .04 .02
- ASPP-M .10 .05 .14*
- ASPP-PA .08 .05 .12
- SAM-M .12 .03 .26***
- MPS-Fgnp .06 .02 .18**
- MP .01 .02 .01
- PAP .04 .02 .11

*Note.* DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; SAM-G = Self-Ambivalence Measure-General subscale; EDE-Q = Eating Disorder Examination-Questionnaire; DTEDS-G = Dichotomous Thinking in Eating Disorders Scale-General subscale; ASPP-G = Adult Self-Perception Profile-General subscale; ASPP-M = Adult Self-Perception Profile-Moral subscale; ASPP-PA = Adult Self-Perception Profile-Physical Appearance subscale; SAM-M = Self-Ambivalence Measure-Moral subscale; MPS-Fgnp = Frost Multidimensional Perfectionism Scale-general negative perfectionism; MP = Moral Perfectionism; PAP = Physical Appearance Perfectionism.

N = 249. *p < 0.05, **p < .01, ***p < .001
5.3.7 Regression predicting ED severity

Likewise, a five-step hierarchical regression was performed with EDE-Q as the dependent variable, using the same variables at each step as the first regression. The only differences were: (1) OCI-R replaced EDE-Q at step 4, and (2) SAM-M was included, since the tolerance value for the variable was acceptable. Again, with respect to multiple regression assumptions, no multivariate outliers were found using Mahalanobis [chi (13) > 34.53, p < .001]. Issues of non-normality, non-linearity and heteroscedasticity were present. Thus, EDE-Q was transformed to its square root which eliminated these problems. The transformed EDE-Q scale was used in the regression. The same alpha criterion used in the first regression was employed.

As shown in Table 5.7, at step 1, age significantly predicted ED symptoms, although it did not remain a significant predictor from step 2 onwards. In step 2, an additional 17% of the variation in EDE-Q was explained by the addition of DASS-D which was a significant predictor of ED severity. The inclusion of RSE at step 3 contributed relatively little to the prediction of EDE-Q (4%), but was nonetheless a significant predictor. In addition, OC symptoms did not significantly predict ED symptoms at step 4. General and specific self-vulnerabilities and perfectionism variables were added to the model at step 5. Together these explained 36% of the variance in ED symptoms. Furthermore, ASPP-PA and PASA were the most significant predictors of EDE-Q.
### Table 5.7

*Hierarchical regression predicting EDE-Q*

<table>
<thead>
<tr>
<th>Step</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>Δ $R^2$</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
<td>4.41*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age</td>
<td>-.002</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.13*</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.17</td>
<td></td>
<td></td>
<td></td>
<td>52.40***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age</td>
<td>-.001</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DASS-D</td>
<td>.05</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.42***</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td>13.09***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age</td>
<td>n/a</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DASS-D</td>
<td>.03</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.28***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RSE</td>
<td>-.003</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.26**</td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
<td>3.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age</td>
<td>n/a</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DASS-D</td>
<td>.03</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.26***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RSE</td>
<td>-.002</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.21**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OCI-R</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.12</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; OCI-R = Obsessive-Compulsive Inventory-Revised.

n/a denotes a value smaller than 3 decimal places

$N = 249$

*p < 0.05, **p < .01, ***p < .001
Table 5.7 (continued)

*Hierarchical regression predicting EDE-Q*

<table>
<thead>
<tr>
<th>Step 5</th>
<th></th>
<th></th>
<th>β</th>
<th>Δ $R^2$</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.001</td>
<td>.001</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>.01</td>
<td>.01</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>n/a</td>
<td>.001</td>
<td>-.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCI-R</td>
<td>.003</td>
<td>.01</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTEDS-G</td>
<td>n/a</td>
<td>.002</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-G</td>
<td>.002</td>
<td>.003</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-M</td>
<td>.002</td>
<td>.003</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-PA</td>
<td>.01</td>
<td>.003</td>
<td>.16*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAM-M</td>
<td>.01</td>
<td>.003</td>
<td>.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASA</td>
<td>.02</td>
<td>.002</td>
<td>.69***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPS-Fgnp</td>
<td>n/a</td>
<td>.002</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP</td>
<td>.003</td>
<td>.001</td>
<td>.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAP</td>
<td>.002</td>
<td>.002</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; SAM-G = Self-Ambivalence Measure-General subscale; EDE-Q = Eating Disorder Examination-Questionnaire; DTEDS-G = Dichotomous Thinking in Eating Disorders Scale-General subscale; ASPP-G = Adult Self-Perception Profile-General subscale; ASPP-M = Adult Self-Perception Profile-Moral subscale; ASPP-PA = Adult Self-Perception Profile-Physical Appearance subscale; SAM-M = Self-Ambivalence Measure-Moral subscale; PASA = Physical Appearance Self-Ambivalence; MPS-Fgnp = Frost Multidimensional Perfectionism Scale-general negative perfectionism; MP = Moral Perfectionism; PAP = Physical Appearance Perfectionism.

n/a denotes a value smaller than 3 decimal places.

$N = 249$

$p < .05$, **$p < .01$, ***$p < .001$
5.3.8 Regression analyses predicting general and specific perfectionism facets

The current study was also interested in exploring the relationship between self-vulnerabilities and perfectionism, in order to elucidate the potential mechanisms for perfectionism. In particular, in line with theory and empirical research, it was expected that salient domains of perfectionism linked to OC and ED phenomena, would be motivated by self-vulnerabilities in the same specific domains (i.e. moral self-vulnerabilities would lead to moral perfectionism and physical appearance self-vulnerabilities would underlie physical appearance perfectionism). Furthermore, it was anticipated that specific self-vulnerabilities would be more strongly related (than general self-vulnerabilities), to specific perfectionism facets. Conversely, general self-vulnerabilities were expected to be more strongly linked (than specific self-vulnerabilities) to general negative perfectionism. Thus, to examine these hypotheses, three additional hierarchical regressions were performed.

The first regression investigated the influence of self-vulnerabilities in predicting MP, controlling for age, DASS-D and RSE at steps 1, 2 and 3, respectively. Self-vulnerability variables were entered in step 4. These included: DTEDS-G, ASPP-G, ASPP-M, ASPP-PA, PASA and SAM-M. In line with expectations, moral self-vulnerabilities significantly predicted moral perfectionism (i.e. ASPP-M and SAM-M). Physical appearance self-vulnerabilities did not predict MP. More generally, low RSE was associated with significantly higher levels of MP (see Table 5.8).

The second regression model examined the contribution of self-vulnerabilities in the prediction of PAP, controlling again for the influence of age, DASS-D and RSE at steps 1, 2 and 3, respectively. The same variables entered at step 4 in the previous regression, were entered in this regression. As expected, the strongest predictor of PAP
was a physical appearance self-vulnerability variable (ASPP-PA). Age was the only other significant predictor of PAP (see Table 5.9).

Finally, a regression analysis was run to establish the significant predictors of general negative perfectionism, in order to determine whether general or specific self-vulnerabilities would be stronger predictors of general perfectionism dimensions. The same variables were entered in 4 steps, as per the previous two regressions. As expected, the most significant predictor of general negative perfectionism was a general self-vulnerability (dichotomous thinking about self) (see Table 5.10). Other significant general predictors were age and depressive symptoms.
Table 5.8

*Hierarchical regression predicting moral perfectionism*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>Δ R²</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
<td>6.49*</td>
</tr>
<tr>
<td>Age</td>
<td>-.08</td>
<td>.03</td>
<td>-.16*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
<td>17.63***</td>
</tr>
<tr>
<td>Age</td>
<td>-.05</td>
<td>.03</td>
<td>-.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>1.11</td>
<td>.27</td>
<td>.26***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
<td>13.39***</td>
</tr>
<tr>
<td>Age</td>
<td>-.03</td>
<td>.03</td>
<td>-.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>.43</td>
<td>.32</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>-.11</td>
<td>.03</td>
<td>-.28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem*

*N = 249*

*p < 0.05, **p < .01, ***p < .001*
Table 5.8 (continued)

*Hierarchical regression predicting moral perfectionism*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>Δ $R^2$</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 4</td>
<td>.05</td>
<td>13.39*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.002</td>
<td>.03</td>
<td>-.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>.01</td>
<td>.33</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>-.07</td>
<td>.03</td>
<td>-.18*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTEDS-G</td>
<td>.14</td>
<td>.10</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-G</td>
<td>.10</td>
<td>.14</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-M</td>
<td>.51</td>
<td>.16</td>
<td>.24***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-PA</td>
<td>.20</td>
<td>.17</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAM-M</td>
<td>.43</td>
<td>.12</td>
<td>.32***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASA</td>
<td>.01</td>
<td>.08</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; DTEDS-G = Dichotomous Thinking in Eating Disorders Scale-General subscale; ASPP-G = Adult Self-Perception Profile-General subscale; ASPP-M = Adult Self-Perception Profile-Moral subscale; ASPP-PA = Adult Self-Perception Profile-Physical Appearance subscale; SAM-M = Self-Ambivalence Measure-Moral subscale; PASA = Physical Appearance Self-Ambivalence.

$N = 249$

*p < 0.05, **p < .01, ***p < .001*
Table 5.9

Hierarchical regression predicting physical appearance perfectionism

<table>
<thead>
<tr>
<th>Step</th>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>Δ R²</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>.09</td>
<td></td>
<td></td>
<td></td>
<td>22.93***</td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>.12</td>
<td>.03</td>
<td>.29</td>
<td>.03</td>
<td>9.37**</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>.14</td>
<td>.03</td>
<td>.33</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DASS-D</td>
<td>.72</td>
<td>.24</td>
<td>.19</td>
<td>.19</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>.001</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>.14</td>
<td>.03</td>
<td>.33</td>
<td>.33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DASS-D</td>
<td>.65</td>
<td>.29</td>
<td>.17</td>
<td>.17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RSE</td>
<td>-.01</td>
<td>.03</td>
<td>-.03</td>
<td>-.03</td>
<td></td>
</tr>
</tbody>
</table>

Note. DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem

N = 249

* p < 0.05, ** p < .01, *** p < .001
Table 5.9 (continued)

Hierarchical regression predicting physical appearance perfectionism

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>ΔR²</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.13</td>
<td>.03</td>
<td>.30**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>.31</td>
<td>.30</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>.04</td>
<td>.03</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTEDS-G</td>
<td>.19</td>
<td>.09</td>
<td>.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-G</td>
<td>.10</td>
<td>.12</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-M</td>
<td>.19</td>
<td>.14</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-PA</td>
<td>.39</td>
<td>.15</td>
<td>.21*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAM-M</td>
<td>.18</td>
<td>.11</td>
<td>.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASA</td>
<td>.10</td>
<td>.07</td>
<td>.13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; DTEDS-G = Dichotomous Thinking in Eating Disorders Scale-General subscale; ASPP-G = Adult Self-Perception Profile-General subscale; ASPP-M = Adult Self-Perception Profile-Moral subscale; ASPP-PA = Adult Self-Perception Profile-Physical Appearance subscale; SAM-M = Self-Ambivalence Measure-Moral subscale; PASA = Physical Appearance Self-Ambivalence.

*N = 249

*p < 0.05, **p < .01, ***p < .001
### Table 5.10

*Hierarchical regression predicting general negative perfectionism*

<table>
<thead>
<tr>
<th>Step</th>
<th>B</th>
<th>SE B</th>
<th>B</th>
<th>ΔR²</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>0.002</td>
<td>0.387</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.02</td>
<td>0.03</td>
<td>-0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td>0.26</td>
<td>85.69***</td>
</tr>
<tr>
<td>Age</td>
<td>0.05</td>
<td>0.03</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>2.28</td>
<td>0.25</td>
<td>0.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td>0.04</td>
<td>12.39***</td>
</tr>
<tr>
<td>Age</td>
<td>0.07</td>
<td>0.03</td>
<td>0.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>1.63</td>
<td>0.30</td>
<td>0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>-0.09</td>
<td>0.03</td>
<td>-0.25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem

N = 249

*p < 0.05, **p < .01, ***p < .001*
Table 5.10 (continued)

Hierarchical regression predicting general negative perfectionism

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>ΔR²</th>
<th>F-change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 4</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td>6.62***</td>
</tr>
<tr>
<td>Age</td>
<td>.09</td>
<td>.03</td>
<td>.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>1.12</td>
<td>.31</td>
<td>.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSE</td>
<td>-.03</td>
<td>.03</td>
<td>-.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTEDS-G</td>
<td>.32</td>
<td>.08</td>
<td>.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-G</td>
<td>.05</td>
<td>.11</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-M</td>
<td>.18</td>
<td>.12</td>
<td>.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPP-PA</td>
<td>.10</td>
<td>.14</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAM-M</td>
<td>.06</td>
<td>.12</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PASA</td>
<td>.09</td>
<td>.07</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; DTEDS-G = Dichotomous Thinking in Eating Disorders Scale-General subscale; ASPP-G = Adult Self-Perception Profile-General subscale; ASPP-M = Adult Self-Perception Profile-Moral subscale; ASPP-PA = Adult Self-Perception Profile-Physical Appearance subscale; SAM-M = Self-Ambivalence Measure-Moral subscale; PASA = Physical Appearance Self-Ambivalence.

N = 249

*p < 0.05, **p < .01, ***p < .001
5.4 Discussion

To begin, moral perfectionism and physical appearance perfectionism were moderately\(^{19}\) and significantly related to OCD severity and ED severity, respectively. However, after removing the influence of age, depressive symptoms, global self-esteem, potential comorbidity with the other disorder (i.e. the disorder not predicted in the regression), and other predictors, specific facets of perfectionism were no longer significantly related to their respective disorder symptoms, as hypothesized. This was unexpected, given the moderate correlations between scores on disorder severity measures and salient perfectionism facets (see Table 5.5). The reasons for this are complex and could relate to the possibility that specific facets of perfectionism are differentially related to symptom subtypes. There is some empirical evidence to suggest this explanation. For example, in a study of college students (Doron et al., 2007), those who scored higher on moral concerns reported greater OC symptoms, specifically, checking and contamination. Similarly, in the ED literature, Yang and Stoeber (2012) found that physical appearance perfectionism predicted body weight control behaviours, although this was the only symptom subtype of EDs that was explored in this study. In any case, the fact that disorder symptom subtypes were subsumed within global severity scores in the current study may have diluted any such relationships. Another plausible explanation for the nonsignificant relationship between specific perfectionism and disorder severity, is that it may due to the interrelations between all predictor variables. For example, the association between OCI and MPS-Fgnp may have subsumed MP in the regression. Nonetheless, other hypotheses were supported.

In the first regression model predicting OCD severity, the most important predictors included global self-esteem, dichotomous thinking, general negative perfectionism, and moral self-ambivalence. In particular, global self-esteem was inversely related to OCI, that is, lower

\(^{19}\) For a description of the strength of effect sizes refer to Cohen (1988).
self-esteem was associated with greater OC severity. Additionally, individuals who tended to think in ‘all-or-nothing’ terms, showed higher OCI scores. This was not surprising given that self-ambivalence, which is in part characterized by the tendency to make dichotomous self-appraisals, is associated with OCD symptoms (Bhar & Kyrios, 2007). High scores on general negative perfectionism were related to greater OC severity. This finding is also consistent with the literature, as studies of OCD patients have shown elevated scores MPS-FCM (Sassaroli et al., 2008). Finally, those who were ambivalent about their morality (i.e. showed higher scores on SAM-M), displayed more OC symptoms. In line with this finding, Bhar and Kyrios (2007) found that self-ambivalence was significantly associated with OCD phenomena and OCD-related beliefs, after controlling for self-esteem, depression and anxiety. In the current study, the strongest predictors of OCI were dichotomous thinking about self and moral self-ambivalence, both of which showed moderate associations with OC symptoms.

In the second regression model predicting ED severity, significant predictors included sensitivity in physical appearance, and physical appearance self-ambivalence. That is, individuals who indicated that they were not satisfied with their physical appearance on the ASPP-PA, or were ambivalent about their physical appearance (i.e. scored high on PASA), tended to show higher ED severity scores. The effect of physical appearance self-ambivalence on ED symptoms was strong, whereas the influence of sensitivity in physical appearance on ED severity was weak to moderate. These results are congruent with research which has found body dissatisfaction to be a major predictor of disordered eating (Fairburn, 1997; McKnight, 2003; Stice, 2002).

In order to elucidate the potential mechanisms for perfectionism, three further hierarchical regressions were performed, exploring the relationship between self-vulnerabilities and perfectionism facets. The first of these regressions predicted moral perfectionism. As hypothesized, results showed that after controlling for age, depressive symptoms, and self-
esteem, sensitivity in moral self-worth and moral self-ambivalence significantly predicted moral perfectionism (and both ASPP-M and SAM-M were shown to have moderate effects on moral perfectionism). Consistent with this finding, moral self-vulnerabilities have been found to be related to broad dimensions of perfectionism (e.g. Doron et al., 2007). In this way, the current study extends previous research by examining the relationship between moral self-vulnerabilities and a specific (moral) dimension of perfectionism. Furthermore, these results lend support for empirical studies that have found stronger correlations between specific (as opposed to general) self-concepts and specific outcomes (e.g. Craven & Marsh, 2008, Marsh & Hattie, 1996; O'Mara et al., 2006).

General self-vulnerabilities and specific self-vulnerabilities related to physical appearance perfectionism, were not significantly associated with moral perfectionism. This provides some evidence for a unique association between moral perfectionism and self-vulnerabilities in the same domain. In addition, lower self-esteem, predicted higher levels of moral perfectionism (although this effect was weak to moderate), supporting research which found that low self-esteem was related to the adoption of perfectionistic self-enhancement strategies (Ziegler-Hill & Terry, 2007).

The second additional regression predicted physical appearance perfectionism. As expected, vulnerability in physical appearance significantly predicted physical appearance perfectionism. However, only sensitivity in physical appearance predicted PAP (this effect was moderate at the .05 significance level). Physical appearance self-ambivalence was not significantly related to PAP. In addition, age had a moderately strong positive effect on physical appearance perfectionism. That is, perfectionist beliefs regarding physical appearance perfectionism appeared to increase with age. This trend is in contrast with age trends for malaptive perfectionism reported in previous research, which has shown decline and weaker associations with psychological maladjustment over the course of adult development (Yang &
Stoeber, 2012). Another study found that body dissatisfaction was stable across both younger and older adult female groups. One interpretation for this, is that the relationship between age and perfectionism related to physical appearance is not linear. It is possible that the importance of physical appearance to a person changes over the life course (i.e. becomes more or less important dependent on life stage and individual differences). This is exemplified by the results of a study that showed improvements in physical appearance satisfaction was linked to decreases in depressive symptoms in older adults (Umstattd, Wilcox, & Dowda, 2011). Another outcome of this regression was that, as anticipated, general self-vulnerabilities were not significantly related to physical appearance perfectionism.

Finally, the same predictors for the previous two regressions were regressed on general negative perfectionism, controlling for age, depressive symptoms and self-esteem. As expected, the strongest predictor was a general self-vulnerability (dichotomous thinking about self). Other significant predictors included age and depressive symptoms. These results, along with those for the previous two regressions, appear to validate empirical studies that have demonstrated stronger correlations between higher-order self-vulnerabilities and other general self-concept related variables (e.g. Craven & Marsh, 2008; Marsh & Hattie, 1996; O’Mara et al., 2006).

In conclusion, the results of Study 2 helped to elucidate the important relationships between age, negative mood, global self-esteem, general and specific self-vulnerabilities and perfectionism facets, and OC and ED disorder symptoms. Overall, the results appeared to support some specificity in the relationships between self-vulnerabilities, facets of perfectionism, and symptoms severity scores for both OCD and EDs. In particular, moral self-vulnerabilities were associated with moral perfectionist beliefs and OC symptoms, whereas physical appearance self-vulnerabilities tended to relate to physical appearance perfectionist beliefs and ED symptoms. These findings will inform the aetiological models, to be developed and validated in Study 3, using SEM and Sample 2.
Chapter 6: Study 3 Developing aetiological models of perfectionism related to OC and ED phenomena incorporating self-vulnerabilities

6.1 Introduction

Perfectionism has emerged as an important construct with respect to the aetiology, maintenance and course of a broad range of psychopathology. Specifically, it is identified as a risk factor for both OCD and EDs, and is implicated in their maintenance. Additionally, there is evidence to suggest that perfectionism may impede the successful treatment of these disorders (Blatt et al., 1995). The particular characteristics of perfectionism have been well described by clinicians and researchers alike. In general, clinical descriptions tend to emphasize the self-imposed nature of standards that are personally demanding, and self-evaluation dependent upon success and achievement in highly-valued domains. Furthermore, perfectionists tend to pay particular attention to their perceived failures at the expense of their successes, and are highly self-critical as a result of perceived deficits.

Positive and negative characterizations of perfectionism exist, however it is argued that clinically-relevant perfectionism is negative (Burns, 1980b; Flett & Hewitt, 2006; Shafran et al., 2002), the crucial distinction being that in clinical samples, high standards are pursued despite significant adverse consequences for the individual. It is generally agreed that perfectionism is a multifaceted construct with respect to there being different perfectionism dimensions. While there is evidence to suggest that some facets may be more salient to certain disorder phenomena than others, no studies have compared specific perfectionism dimensions across different forms of psychopathology.

For instance, several studies have investigated physical appearance perfectionism (e.g. Cain et al., 2008; Stoeber & Stoeber, 2009; Zhang et al., 2007; Yang & Stoeber, 2012), all of which involved university students. Therefore, it is not clear whether the results would
generalize to different samples. Only one study has explored the link between physical appearance perfectionism and a single aspect of disordered eating (i.e. body weight control).

In the OCD field, researchers have found links between concerns about moral self and higher levels of perfectionism and OC symptoms (Guidano & Liotti, 1983; Bhar & Kyrios, 2007; Doron et al., 2007; Ferrier & Brewin, 2005; Rachman, 1997). However, it has not known whether these relationships are unique for OCD. Broadly speaking, studies that have compared general perfectionism dimensions across different types of psychopathology, have mostly failed to find unique relations between the dimensions and disorders. Furthermore, the findings have been inconsistent across studies.

According to cognitive accounts of the development of OCD and EDs, perfectionist beliefs and behaviours function as protective strategies that emerge in response to perceived threats to one’s self-worth, particularly threats to highly-valued aspects of self (e.g. Goldner et al., 2002; Guidano & Liotti, 1983). Maladaptive accounts construe perfectionism as a strategy used to avoid thoughts related to perceived personal inadequacies or failure, which might harm one’s sense of self-worth. Its function is thought to be compensatory, aimed at restoring and validating self-worth. Furthermore, this account suggests that self-vulnerabilities underpin one’s motivation to pursue the kind of high personal standards and extreme self-criticism in response to perceived failure that is observed in negative perfectionism. Despite this, motivational mechanisms underlying perfectionism have yet to be empirically established. Thus, a key aim of this thesis has been to explore the relationship between self-vulnerabilities and perfectionism.

Theories have postulated about the kinds of self-vulnerabilities that may be associated with perfectionism. These include: dichotomous thinking about one’s self (also referred to as “all-or-nothing” thinking), self-ambivalence and sensitivity with regards to self-worth. These concepts relate to the way in which the self is structured. Some authors have argued that there is a general lack of attention to within-construct issues such as self-structure in self-concept
research (Craven & Marsh, 2008). They argue that this has led to an incomplete picture of self-concept. This limitation of research-to-date supports justification for exploring structure, as well as, the content of self-concepts in this study.

Like research in the perfectionism field, recent theoretical advances in self-concept theory have advanced from unidimensional characterizations to multidimensional conceptualizations (see Byrne, 1996, Marsh, Craven & Martin, 2007; Marsh, 2007; Shavelson et al., 1976, for reviews supporting this perspective). After reviewing theoretical and empirical research, Shavelson et al. (1976) developed a multidimensional, hierarchical model of self-concept. In this model, general self-concept represented the apex of the hierarchy (i.e. the highest-order factor), divided into academic and non-academic components that were further divided into more specific components. Academic self-concept was represented by subject specific facets of self (e.g. Maths and English). Non-academic self-concept was divided into social, emotional and physical self-concepts that were further divided into more specific components (e.g. physical self-concept was divided into physical ability and physical appearance). Although the model appears to have been designed to assess schooling outcomes, the proposed importance of the model lies in the hierarchical and multifaceted nature of self-concept that it describes, rather than the specific facets per se.

Numerous factor analyses have provided strong support for Shavelson et al.‘s (1976) self-concept model. For instance, higher-order factor analysis studies have demonstrated that global measures of self-esteem correlate at about .95 with the highest-order factor of responses to multidimensional self-concept instruments (e.g. see Marsh & Hattie, 1996 for an overview). Furthermore, in presenting research evidence for the multidimensionality of self-concept, Craven and Marsh (2008) emphasized that the most powerful effects of self-concept are based on specific, rather than general components, or global self-esteem. In other words, the authors
believe that specific facets of self-concept are most logically related to specific outcomes, more so than general self-concepts.

Other empirical studies which support the multidimensionality of self-concept include that by O’Mara and colleagues (2006). The group conducted a meta-analysis of self-concept intervention studies, and found that effect sizes were substantially larger for self-concept scales that were directly related to an intervention, and substantially smaller for those components that were not. These authors also found that interventions targeting children and adolescents with diagnosed problems produced larger effect sizes. Consequently, they recommended that an array of interventions that target domain-specific facets of self-concept should be developed to enhance psychological wellbeing.

Marsh, Parada and Ayotte (2004) related responses from the Self-Description Questionnaire-2 (SDQ-II), designed to measure specific facets of self-concept, and the Youth Self-Report which measures adolescent mental health problems. Marsh et al. found that although the correlations between self-concept factors and mental health problems varied substantially, general self-esteem explained only 3 per cent of the covariation between mental health and self-concept factors, whereas specific components of self-concept accounted for 97 per cent of this covariation. Thus, the study also highlights the multifaceted nature of self-concept and the importance of specificity for self-concept research related to mental health.

The aim of Study 3 was to construct and validate two separate models of perfectionism that explore potential aetiological processes using a cross-sectional design. While there are limitations to this type of design, its advantage is that it allows an exploration of possible interrelations between various predictors and outcomes. The first model investigated here related to OC symptoms, while the second was linked to ED phenomena, incorporating self-vulnerabilities that have been hypothesized to motivate perfectionistic coping mechanisms. In general, both models propose that, accounting for age, depressive symptoms, and self-esteem,
self-vulnerabilities lead to maladaptive coping strategies including, perfectionist beliefs and disorder symptoms.

With respect to OCD, consistent with the findings of Study 2 and those of previous researchers, both general self-vulnerabilities (dichotomous thinking and sensitivity in general self-worth) (Beck & Freeman, 1990; Doron et al., 2007), and specific self-vulnerabilities (moral self-ambivalence and sensitivity in moral self-worth) (Guidano & Liotti, 1983; Doron et al., 2008) were hypothesized as leading to greater OC symptom severity. In particular, drawing on theory and empirical evidence demonstrating the strong effects of specific versus general facets of self-concept on specific related outcomes (Beck, 1976; Craven & Marsh, 2008; Marsh et al., 2004; O’Mara et al., 2006), it was anticipated that individuals with moral self-vulnerabilities would be more likely to endorse OC beliefs as measured by the OCI-R. In addition, consistent with findings linking self-vulnerabilities to perfectionist coping strategies (Burns & Fedewa, 2005; Doron et al., 2007; Egan et al., 2007; Guidano & Liotti, 1983; Riley & Shafran, 2005; Shafran et al., 2002), it was proposed that individuals with vulnerable self-profiles would be more likely to adopt perfectionism as a way of defending against personal uncertainty. Drawing from the same research described above, it follows that specific moral self-vulnerabilities are more likely to be related to moral perfectionism, than general self-vulnerabilities. Moreover, in line with research that has found negative perfectionism to be a common vulnerability for OCD, it is expected that general negative perfectionism will be associated with OC phenomena. Although, moral perfectionism is anticipated to predict OC phenomena more strongly than general negative perfectionism. Model 1 will also include age, global self-esteem and depressive symptoms variables, to control for their influence. With respect to these control variables, as indicated by previous researchers, it is expected that lower global self-esteem and greater depressive symptomatology will be related to both general and specific self-vulnerabilities (Demal, Lenz, Mayrhofer, Zapotoczky, & Zitterl, 1993; DeSteno & Salovey, 1997; Jin, Samuels,
Bienvenus, Cannistraro, Grados, Riddle, et al., 2004; Quarantini, Torres, Sampaio, Fossaluza, Mathis, do Rosario, et al., 2010; Rasmussen & Eisen, 1992; Tuckel, Polat, Oezdemir, Aksuet, & Tuerksoy, 2002) as well as, general and specific facets of perfectionism. Finally, consistent with developmental models that describe the consolidation of self-identity with age (Erikson, 1968; Marcia, 1966, Waterman, 1982), age was expected to be negatively related to general and specific self-vulnerabilities, and indirectly, to less perfectionism and fewer OC symptoms.

The direction of relationships are similar for Model 2, with the exception that specific vulnerabilities proposed to precede ED symptoms include, physical appearance self-ambivalence and sensitivity in physical appearance self-worth. This is consistent with previous research and the results of Study 2 which support these hypothesized links. In addition, physical appearance self-vulnerabilities, as well as, age, predicted physical appearance perfectionism. More specifically, age was found to be positively related to physical appearance perfectionism, which appears to be contrary to previous research that has generally found similarly high levels of body dissatisfaction for younger and older groups of adult women (Altabe & Thompson, 1993; Fallon & Rozin, 1985; Stevens & Tiggemann, 1998; Tiggemann & Lynch, 2001). However, other research has found that body function satisfaction is more strongly related to subjective wellbeing in older adult women, than body appearance per se (Reboussin, Rejeski, Martin, Callahan, Dunn, King et al., 2000), although it is possible that there is some overlap between perceived physical appearance and body function that was captured in this study, which may have contributed to the positive relationship between PAP and age. In any case, physical appearance has been found to be important and relevant among older adults. Improvements in physical appearance satisfaction have been linked to decreases in depressive symptoms in older adults, particularly women (Umstattd, Wilcox, & Dowda, 2011). Therefore, it is expected that physical appearance perfectionism will be positively related to age in Model 2.
More generally for both models, in line with previous research (e.g. Preusser et al., 1994) and Study 2 results, it is expected that global self-esteem will be negatively related to general and specific self-vulnerabilities, and perfectionism. Moreover, as with previous research (e.g. DeSteno & Salovey, 1997), it is anticipated that negative mood will influence self-vulnerabilities (i.e. depressive symptoms will be positively related to self-vulnerabilities).

While the results of Study 2, support the hypothesized relationships between self-vulnerabilities, negative perfectionism, and OCD and ED symptoms, it was not intended to be a rigorous examination of these relationships per se. Rather, it was designed to provide some preliminary empirical support for the variables (and relationships between them) to be included in OC and ED-related aetiological models of perfectionism in this study. In order to fully appreciate the psychological processes associated with perfectionism and its link with OC and ED phenomena, we need to better understand the relationships between all of the variables. Clarification of these will enhance our understanding of the development and maintenance of perfectionism, and its specific relevance for OCD and EDs. It may also lead to improved treatment approaches. Furthermore, it is unknown whether the same significant relationships found in Study 2, can be generalized beyond the participant group used in that study. Consequently, Study 3 aims to address these limitations, as it assesses how a group of variables fit together within an aetiological framework, as opposed to regression which only considers individual coefficients within a predictive framework. In addition, Study 3 will help to validate the results found in Study 2, by examining variable relationships for a different sample group.

6.2 Method

6.2.1 Participants, Procedure and Materials

The sample used in Study 3 is Sample 2 which was employed to conduct the CFAs in the second part of Chapter 4, and was also used to validate the specific perfectionism and self-
vulnerability scales. Sample 2 comprised a random selection of student and community participants. The size, composition and demographics of this sample are described in Chapter 4.

The questionnaires measuring perfectionism, self-vulnerabilities, global self-esteem, negative mood and disorder severity, are identical to those described in Study 1 and Study 2. The methodology for Study 3 follows that used in the previous studies and is outlined in Study 1. The measures relevant to this study are: (1) MPS-Fgnp, (2) MP, (3) PAP (4), (5) SAM-G, SAM-M and SAM-PA, (6) ASPP-G, ASPP-M, ASPP-PA (7) DTEDS-G (8) OCI-R, (9) EDE-Q, (10) RSE, and (11) DASS-D.

6.2.2 Statistical methods

SEM analyses were performed using AMOS (Arbuckle, 1997) version 20.0 and MLE. Two models were tested, Model 1 predicting OCD severity, and Model 2 predicting ED severity. Model 1 comprised two latent variables – one related to specific self-vulnerabilities (moral self-ambivalence and sensitivity in moral self-worth), and another representing general self-vulnerabilities (dichotomous thinking and sensitivity in general self-worth). Likewise, Model 2 comprised two latent variables – specific self-vulnerabilities (physical appearance self-ambivalence and sensitivity in physical appearance self-worth), and the same general self-vulnerability latent variable as for Model 1. Of the measures, those chosen to represent general self-vulnerabilities were DTEDS-G and ASPP-G. The SAM-M and ASPP-M were selected to indicate specific self-vulnerabilities for Model 1. Likewise, the PASA and ASPP-PA represented specific self-vulnerabilities for Model 2. Specific perfectionism variables included the MP and PAP, for Model 1 and 2, respectively. General negative perfectionism was defined as a composite MPS-FPS and MPS-FCM scales (the rationale for this was provided at the end of Chapter 4). The OCI-R and EDE-Q denoted obsessive-compulsive severity and eating disorder severity, respectively. Finally, depressive symptoms and global self-esteem were assessed by the DASS-D and RSE, respectively.
SEM was conducted to test the two models. AMOS produces several goodness-of-fit indices that assess how well a model accounts for the observed correlational structure of a data set. In the present study, the following goodness-of-fit indices were used: $\chi^2$, GFI, SRMR, RMSEA, TLI, CFI, NFI, AGFI and CMIN/df. These indices, along with their respective cut-off values, were described in Study 1 (Chapter 4).

6.3 Results

6.3.1 Descriptive statistics

The means, standard deviations, ranges and reliabilities of the measures used in this study, were presented in Study 2 (Chapter 5), and therefore will not be repeated here. All variables showed satisfactory internal reliability.

6.3.2 Preliminary data analyses

The data was screened for influential points using the Mahalanobis distance method that was used in Study 1. In accordance with requirements for SEM, no multivariate outliers were observed ($p < .001$). Scores on DASS-D showed significant skewness, thus this variable was transformed. The assumptions of linearity and equal variances were met. The sample size was adequate for the number of parameters in each model. The generally agreed-on value is 10 participants for every free parameter estimated, however 5 participants per parameter is still considered acceptable (Floyd & Widaman, 1995; Hair et al., 1998; Kline, 2005; Schreiber, Stage, King, Nora & Barlow, 2006). The participant-to-estimand ratio for this study was closer to 10. Additionally, Hoelter (1983) stipulated a sample size of 200 to achieve a satisfactory model fit. The sample for this study exceeds that number. Thus, it appears to satisfy accepted criteria.

6.3.3 Intercorrelations

Table 6.1 presents the intercorrelations for age, negative mood, global self-esteem, general self-vulnerabilities, specific self-vulnerabilities, general negative perfectionism, specific perfectionism facets and disorder severity measures for Sample 2 data.
Table 6.1
Pearson Correlations between Dependent and Independent Variables

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>-2.63**</td>
<td>1.00</td>
<td>.291**</td>
<td>.648**</td>
<td>-.650**</td>
<td>.647**</td>
<td>.635**</td>
<td>.617**</td>
<td>.503**</td>
<td>1.00</td>
<td>.568**</td>
<td>.706**</td>
<td>.617**</td>
<td>.565**</td>
<td>.702**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Self-Vulnerabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>-2.58**</td>
<td>.648**</td>
<td>-.650**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Self-Vulnerabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>-.326**</td>
<td>.565**</td>
<td>-.605**</td>
<td>.796**</td>
<td>-.702**</td>
<td>.527**</td>
<td>1.00</td>
<td>.568**</td>
<td>.617**</td>
<td>.565**</td>
<td>.796**</td>
<td>.702**</td>
<td>.527**</td>
<td>1.00</td>
<td>.568**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Negative Perfectionism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>.497**</td>
<td>.447**</td>
<td>.566**</td>
<td>.547**</td>
<td>.381**</td>
<td>.475**</td>
<td>.448**</td>
<td>.241**</td>
<td>.289**</td>
<td>1.00</td>
<td>.568**</td>
<td>.617**</td>
<td>.527**</td>
<td>1.00</td>
<td>.568**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disorder Severity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>.421**</td>
<td>.408**</td>
<td>.490**</td>
<td>.420**</td>
<td>.332**</td>
<td>.510**</td>
<td>.393**</td>
<td>.262**</td>
<td>.344**</td>
<td>.250**</td>
<td>.393**</td>
<td>.262**</td>
<td>.344**</td>
<td>.250**</td>
<td>.250**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>.424**</td>
<td>.418**</td>
<td>.486**</td>
<td>.533**</td>
<td>.414**</td>
<td>.460**</td>
<td>.729**</td>
<td>.197**</td>
<td>.536**</td>
<td>.319**</td>
<td>.319**</td>
<td>.536**</td>
<td>.319**</td>
<td>.536**</td>
<td>.319**</td>
</tr>
</tbody>
</table>

Note. DASS-D = Depression Anxiety Stress Scale-Depression subscale; RSE = Rosenberg Self-Esteem; SAM-G = Self-Ambivalence Measure General subscale; DTEDS-G = Dichotomous Thinking in Eating Disorders Scale-General subscale; Adult Self-Perception Profile-General subscale; SAM-M = Self-Ambivalence Measure-Moral subscale; PASA = Physical Appearance Self-Ambivalence; ASPP-M = Adult Self-Perception Profile-Moral subscale; ASPP-PA = Adult Self-Perception Profile-Physical Appearance subscale; MPS-Fgnp = Frost Multidimensional Perfectionism Scale-general negative perfectionism; MP = Moral Perfectionism; PAP = Physical Appearance Perfectionism; OCI-R = Obsessive Compulsive Inventory-Revised; EDE-Q = Eating Disorder Examination-Questionnaire. The DASS-D, OCI-R and EDE-Q variables that appear in this table are the transformed variables.

N = 253
*p < 0.05, **p < .001
6.3.4 Structural equation modeling analyses

6.3.4.1 Model 1

The relationships between variables in the prediction of OC severity for Model 1 are presented in the path diagram shown in Figure 6.1.

Figure 6.1. Model 1 predicting OC severity.

Figure 6.1 shows Model 1 presenting hypothesized relationships between age, general and specific self-vulnerabilities and perfectionism facets, global self-esteem, negative mood and OCD severity. Rectangles denote measure variables and ovals denote latent variables. Unbroken lines represent significant relationships between variables \( (p < .001; \text{two-tailed}) \). The direction of relationships is from left to right (as shown in Table 6.1), with the exception of age predicting specific self-vulnerabilities. The direction of the relationship between latent variables is from general to specific self-vulnerabilities. Age appears twice in this figure to preserve figure clarity. Errors for ASPP-G and ASPP-M were correlated, since these variables overlap conceptually.

The hypothesized Model 1 appeared to provide a good fit to the observed data. The goodness-of-fit indices for the model were: \( \chi^2 (26 N = 253) = 56.468, p = .000; \text{GFI} = .954; \)
SRMR = .044; RMSEA = .068; TLI = .947; CFI = .969; NFI = .946; AGFI = .903; CMIN/df = 2.172. Results shown in Figure 6.1 and Table 6.1 support the predicted relationships between latent and measure variables for Model 1.
As seen in Table 6.2, the results demonstrate, as anticipated, that specific self-vulnerabilities had a greater effect on specific perfectionism facets and OC symptoms, than
general self-vulnerability measures. In particular, for Model 1, the total effect (i.e. indirect and
direct effects combined) of general self-vulnerabilities on MP was weak to moderate\(^{20}\) (\(\beta = .199,\)
\(p < .01\)). As expected, general self-vulnerabilities were more strongly and directly associated
with MPS-Fgnp (\(\beta = .635, p < .01\)), than with MP. Specific self-vulnerabilities were strongly
related to MP (\(\beta = .593, p < .001\)), but not to MPS-Fgnp. In addition, findings revealed, as
expected, that specific self-vulnerabilities, were more strongly associated with OC severity (\(\beta =
.587, p < .001\)), than general self-vulnerabilities (which were moderately to strongly related to
OC phenomena) (\(\beta = .477, p < .001\)). Furthermore, the effect of general self-vulnerabilities on
OC severity was indirect via the relationship with specific self-vulnerabilities (which were
directly linked to OC symptoms). Contrary to expectations, neither MPS-Fgnp nor MP were
significantly related to OC symptoms.

Age was negatively and indirectly related to MP through MPS-Fgnp, although this
relationship was non-significant (\(\beta = -.047, p > .05\)). The direct effect of age on MPS-Fgnp was
weak (\(\beta = .13, p > .05\)). As expected, age was weakly to moderately and negatively related to
moral self-vulnerabilities (\(\beta = -.168, p < .01\)). DASS-D was directly and moderately to strongly
related to general self-vulnerabilities (\(\beta = .395, p < .001\)). It was also indirectly related to moral
self-vulnerabilities (\(\beta = .321, p < .001\)), MPS-Fgnp (\(\beta = .251, p < .001\)), and MP (\(\beta = .079, p <
.01\)). RSE was strongly and negatively related to general self-vulnerabilities (\(\beta = -.597, p < .001\)),
and indirectly to specific self-vulnerabilities (\(\beta = -.485, p < .001\)), MPS-Fgnp (\(\beta = -.379, p <
.001\)), and MP (\(\beta = -.119, p < .01\)).

In summary, for Model 1, higher scores on general self-vulnerabilities corresponded to
greater levels of general negative perfectionism, and were indirectly related to greater OC
severity through the relationship with specific self-vulnerabilities. Higher scores on moral self-

---

\(^{20}\) According to Cohen (1988), an effect size > .50 is strong, > .40 is moderate to strong, .35 to .25 is moderate, < .25
and > .10 is weak to moderate, and < .10 is weak.
vulnerabilities were directly related to higher levels of moral perfectionism and greater OC severity. In line with the results of Study 2, general and moral perfectionism facets were not significantly related to disorder symptoms. Moral self-vulnerabilities showed a weak to moderate decline with age. Higher scores on general self-vulnerabilities, moral self-vulnerabilities, general negative perfectionism and moral perfectionism, were related to greater depressive symptoms and lower levels of self-esteem.

6.3.4.2 Model 2.

The relationships between variables for Model 2 predicting ED severity, are presented in the path diagram shown in Figure 6.2 and Table 6.2. The results support the predicted relationships between latent and measure variables.

![Diagram](image)

Figure 6.2. Model 2 predicting ED severity.

Figure 6.2 shows Model 2 demonstrating hypothesized aetiological relationships between age, negative mood, self-esteem, general and specific self-vulnerabilities and perfectionism facets, and ED severity. Rectangles represent measure variables. Unbroken lines denote
significant relationships \((p < .001; \text{two-tailed})\). The direction of relationships is from left to right. The direction of the relationship between latent variables is from general to specific self-vulnerabilities. Errors for ASPP-G and ASPP-PA are correlated for the same reason given in Model 1.

The goodness-of-fit indices were: \(\chi^2 (28, N = 253) = 83.771, \; p = .000; \; \text{GFI} = .935; \text{SRMR} = .041; \text{RMSEA} = .089; \text{TLI} = .923; \text{CFI} = .952; \text{NFI} = .931; \text{AGFI} = .873; \)

\(\frac{\text{CMIN}}{\text{df}} = 2.992.\) Although the value of AGFI, which takes account of the number of estimated coefficients needed to achieve a particular level of fit (i.e. model parsimony), was a little below the generally agreed-on cutoff criterion of \(\ge .90\), taken together, the goodness-of-fit indices indicated that Model 2 fit the observed data well.

For Model 2, the effect of general self-vulnerabilities on PAP was moderate \((\beta = .358, \; p < .01)\). Moreover, this effect was indirect. The effect of specific self-vulnerabilities on PAP was moderate and direct \((\beta = .334, \; p < .001)\). Similar to Model 1, general self-vulnerabilities related more strongly to MPS-Fgnp \((\beta = .66, \; p < .01)\), than to specific perfectionism (i.e. PAP) (indirect effect \(\beta = .358, \; p < .01\)). Likewise, specific self-vulnerabilities were more strongly associated with ED severity \((\beta = .78, \; p < .001)\), than general self-vulnerabilities \((\beta = .612, \; p < .001)\). Moreover, the effect of general self-vulnerabilities on ED symptoms was indirect through the relationship with specific self-vulnerabilities.

Age was weakly related to MPS-Fgnp \((\beta = .15, \; p < .05)\) and moderately related to PAP \((\beta = .382, \; p < .001)\). Age was also indirectly related to PAP through MPS-Fgnp. Thus, the total effect of age on PAP was \(\beta = .40, \; p < .05\). Depressive symptoms were moderately to strongly related to general self-vulnerabilities \((\beta = .40, \; p < .01)\), and indirectly related to specific self-vulnerabilities \((\beta = .314, \; p < .001)\). Global self-esteem was strongly and negatively related to general self-vulnerabilities \((\beta = -.536, \; p < .001)\), and indirectly related to specific self-vulnerabilities \((\beta = -.421, \; p < .001)\).
In summary, for Model 2, higher scores on general self-vulnerabilities corresponded to higher levels of general negative perfectionism. In addition, higher scores on general self-vulnerabilities were indirectly related to: (1) higher levels of physical appearance perfectionism through the relationship with general negative perfectionism, and (2) greater ED severity through the relationship with specific self-vulnerabilities. Higher scores on specific self-vulnerabilities directly related to higher levels of physical appearance perfectionism and greater ED severity. Contrary to expectations, general and specific perfectionism facets were not significantly related to disorder symptoms. Age was weakly to moderately associated with higher levels general negative perfectionism, and moderately related to greater levels of physical appearance perfectionism. That is, levels of general and specific perfectionism increased with age, although to varying extents. Higher scores on general and specific self-vulnerabilities were related to greater depressive symptoms and lower levels of self-esteem.

6.4 Discussion

Cognitive accounts of perfectionism emphasize the importance of the phenomena for a range of psychopathologies, including OCD and EDs. Perfectionism is described as a perceived protective strategy, that is motivated by underlying self-vulnerabilities characterized by uncertain, discrepant, insecure self-views (Goldner et al., 2002; Guidano & Liotti, 1983), that as such, are permeable and susceptible to perceived challenges or threats (i.e. perceived failures). Thus, perfectionist beliefs and behaviours are thought to emerge as coping responses to perceived threats to self-worth, to defend against personal uncertainty, and restore a positive sense of self (Guidano & Liotti, 1983).

Furthermore, researchers have emphasized the importance of specificity for the relations between self-concept and associated constructs (Craven & Marsh, 2008; O’Mara et al., 2006). There is growing empirical support relating specific self-vulnerabilities to specific perfectionist beliefs and disorder pathology (e.g. Doron et al., 2007; Ferrier & Brewin, 2005; Shafran et al.,
In further support of this work, Study 3 demonstrated, as predicted, that general and specific self-vulnerabilities were related to perfectionism facets. More specifically, moral self-vulnerabilities were associated with moral perfectionist beliefs for Model 1 predicting OCD severity. Similarly, physical appearance self-vulnerabilities were associated with physical appearance perfectionism for Model 2 predicting ED severity. Contrary to expectations, perfectionism (general and specific) did not predict disorder symptoms in the models, however specific self-vulnerabilities that drive particular aspects of perfectionism did relate to both OC and ED symptom severity. The models and pathways are discussed below.

6.4.1 Pathways shared by Model 1 and Model 2

The predicted path from self-vulnerability to perfectionism was shown in both models, and was consistent with the findings of Study 2 and previous research. This relationship pattern was found for both general and specific variables. In particular, general self-vulnerabilities were related to the general negative perfectionism composite measure. Likewise, moral self-vulnerabilities were related to moral perfectionist beliefs in Model 1, and physical appearance vulnerabilities were related to physical appearance perfectionist beliefs in Model 2. Interestingly, for both models, self-ambivalence accounted for much of the specific self-vulnerabilities latent variable, whereas dichotomous thinking and sensitivity in general self-worth were more equally representative of general self-vulnerabilities. In addition, contrary to hypotheses, neither general nor specific perfectionism facets were related to disorder symptoms in the models. This is in contrast the results of Study 2 regression analyses which showed that general negative perfectionism predicted OC symptoms. It is possible that the strength of the association between specific self-vulnerabilities and OC severity overwhelmed the relationship between general negative perfectionism and OC. Model 1 depicts perfectionism as an epiphenomenon (i.e. a secondary or additional phenomenon) related to common mechanisms (e.g. general self-vulnerabilities), rather than a cause of OCD per se.
More generally, the patterns of relationships between age, depressive symptoms, global self-esteem, and other predictors, were similar for the models. Age was weakly related to higher levels of general negative perfectionism, depressive symptoms were moderately to strongly related to higher scores on general self-vulnerabilities and moderately associated with higher scores on specific self-vulnerabilities (indirectly through the relationship with general self-vulnerabilities). Lower levels of self-esteem were strongly related to higher scores on general self-vulnerabilities and indirectly associated with higher scores specific self-vulnerabilities. In a general sense, it is likely that perceived failure to manage the uncertainty that characterizes self-vulnerabilities, may lead to a sense of helplessness (i.e. depressive symptoms) and lowered self-esteem.

6.4.2 Unique pathways of Model 1

As theorized by Guidano and Liotti (1983), perfectionism is thought to represent a strategy that is adopted in the context of personal uncertainty to defend against negative self-views, and to establish that the self is worthwhile. For individuals with OCD, uncertain self-views are often related to moral self-worth (Bhar & Kyrios, 2007; Doron et al., 2007, 2008; Ferrier & Brewin, 2005; Guidano & Liotti, 1983; Rachman, 1997). Hence, in the current study, it was expected that individuals who displayed high scores on moral self-vulnerabilities would score higher on moral perfectionist beliefs and obsessive symptoms. Consistent with this hypothesis, individuals who demonstrated higher scores on moral self-vulnerabilities (i.e. moral self-ambivalence and sensitivity in moral self-worth) tended to endorse more perfectionist beliefs related to self-morality, thus leading to neutralization and related strategies that maximize obsessive-compulsive symptoms. Moral self-ambivalence contributed most to the influence of specific self-vulnerabilities on related variables. Sensitivity in moral self-worth was less influential in terms of its contribution to overall specific self-vulnerabilities. Nevertheless, it was still an important predictor of moral perfectionist beliefs and OC phenomena. Thus, Model 1
supports the importance of considering perceived inadequacy with regard to one's moral self (in addition to moral self-ambivalence) in future models of OCD.

6.4.3 Unique pathways of Model 2

Consistent with research that has implicated physical appearance self-vulnerabilities in the development of perfectionist beliefs and ED symptoms (Guidano & Liotti, 1983), Study 3 revealed that individuals who showed high levels of ambivalence about their physical appearance and reported dissatisfaction with their appearance, tended to endorse more perfectionist beliefs about their appearance and ED symptoms. Overall, these findings demonstrated that physical appearance self-vulnerabilities, particularly physical appearance self-ambivalence, warrant inclusion in future ED models. Additionally, the results suggest that physical appearance self-vulnerabilities and related perfectionist beliefs are important issues to explore with ED clients.

Naturally, replication of these findings is necessary. In particular, a larger sample size is recommended, with particular attention to representativeness and use of clinical cohorts to validate the current findings. It is important to note that the cross-sectional design of the studies in this thesis is associated with particular limitations. Nonetheless, as far as the author is aware, this research was the first to develop models comparing general and disorder-specific facets of perfectionism related to OC and ED phenomena, incorporating self-vulnerabilities that are hypothesized to underlie perfectionism.
Chapter 7: General Discussion and Conclusion

7.1 Introduction

This thesis was concerned with perfectionism, an important psychological construct that has long been described in the literature. Although it is not a diagnosable condition, there is a multitude of evidence linking perfectionism to the development and maintenance of a range of psychopathology, including, but not limited to, OCD and EDs (Bhar & Kyrios, 1999; Blatt et al., 1995; Burns et al., 1980; Doron et al., 2007; Enns & Cox, 1999; Fairburn et al., 2003; Garner et al., 1983; Guidano & Liotti, 1983; Hewitt & Flett, 2002; Lynd-Stevenson & Hearne, 1999; OCCWG, 1997; Pacht, 1984; Rheaume et al., 1995; Shafran & Mansell, 2001). Moreover, research suggests that perfectionism may impede the successful treatment of these disorders, regardless of the treatment modality employed (Blatt et al., 1995). Thus, ongoing efforts to improve our understanding of perfectionism and factors that contribute to its development and maintenance are important, so that they can be targeted in treatments, to improve treatment outcomes.

This thesis asserts that perfectionist beliefs and behaviours (although not explicitly examined here) manifest themselves in susceptible individuals with particular vulnerable self-representations. Moreover, it was suggested that perfectionism may be thought of as a compensatory strategy used to validate self-worth in contexts where there are perceived threats to self-worth, particularly in highly valued self-domains (Guidano & Liotti, 1983). In addition, it was proposed that there are specific domains of self-vulnerability which may differentiate disorder symptoms. In line with this notion, empirical evidence suggests that individuals with OC symptoms tend to express moral concerns (Bhar & Kyrios, 2007; Doron et al., 2007, Ferrier & Brewin, 2005; Guidano & Liotti, 1983; Rachman, 1997; Salkovskis, 1989), whereas those with ED symptoms value physical appearance (Fairburn, 1997; McKnight, 2003; Stice, 2002).
This chapter briefly reviews the findings for each of the three empirical investigations comprising this thesis, and relates the significance of these to relevant literature presented in earlier chapters. Specifically, the chapter discusses the relationship between self-vulnerability, perfectionism and both OC and ED disorder symptoms, including the influence that vulnerability in salient self-domains has on specific perfectionist beliefs relevant to each disorder (i.e. the potential pathways leading to perfectionism and OC and ED phenomena). The limitations of the research are discussed, theoretical and practical implications are proposed, and suggestions for future research are offered. Finally, an overall summary of the research and concluding statement are presented.

It is important to note that in both OCD and ED research fields, OC and disordered eating phenomena are considered dimensional in nature, rather than categorical. Recognition of this provides justification for the common practice (present thesis included) of recruiting nonclinical groups in OCD (Garcia-Soriano et al., 2011; Gibbs, 1996; Haslam et al., 2005; Mavissakalian et al., 1993) and ED research (Fairburn, 2003, 2005; Sullivan et al., 1998). In the OCD sphere, such studies have shown that nonclinical participants experience similar intrusive thoughts to clinical participants, although with lesser frequency and consequent distress (Rachman & de Silva, 1978). Similarly, researchers have found higher levels of disordered eating symptoms in analogue groups for whom self-worth was contingent on physical appearance (Cain et al., 2008; Crocker, 2002; Crocker & Luhtanen, 2002; Stoeber & Stoeber, 2009; Yang & Stoeber, 2012).

With regard to categorical research, authors in both research fields have bemoaned the potential problems with subtyping. Fairburn (2003; 2005) cited evidence of shared psychopathology between different ED categories, including overevaluation of weight, shape and its control, and longitudinal research demonstrating that ED patients tend to move between diagnostic categories over time. Thus, he recommended utilizing a ‘transdiagnostic’ approach to researching and treating EDs. Similarly, in the OCD literature, Summerfeldt (1999; 2004),
asserted that caution should be taken when subtyping OC symptoms on the basis of overt behaviours, since other important clinical information may be overlooked, such as specific motivations and cognitive themes underlying the behaviours. The stated issues with subtyping underscore the justification for using total OCD and ED severity scores in this thesis. Despite growing recognition of the importance of perfectionism in the development, maintenance and treatment of particular disorders like OCD and EDs, there are some lines of theory which remain unexplored. These, along with the key thesis findings are discussed below.

7.2 Summary of findings

7.2.1 Constructing and validating perfectionism and self-vulnerability scales.

In response to the lack of psychometrically sound measures of theoretically important perfectionism and self-related constructs, the current research began by constructing and validating disorder-specific self-vulnerability and perfectionism scales in order to examine hypothesized interrelationships between these and OCD and ED symptoms. In addition, a general negative perfectionism scale was constructed and validated incorporating two dimensions from the MPS-F that have been shown to be most related to clinical outcomes (i.e. Personal Standards and Concern over Mistakes), particularly when high standards are perceived to have not been met (DiBartolo et al., 2004; Frost & DiBartolo, 2002).

A pool of relevant items, were subjected to an exploratory factor analysis. Results revealed six factors comprising the following scales: PASA, PAP, SAM-M, MP, MPS-FPS and MPS-FCM. These factors were validated on Sample 2 using SEM. MPS-F Personal Standards and MPS-F Concern over Mistakes scales were combined to form a composite measure labeled ‘general negative perfectionism’ (MPS-Fgnp). Study 1 validated the factor structure of all six scales (or five counting MPS-Fgnp) across two separate samples, each comprising a random selection of approximately half of the total number of student and community participants.
7.2.2 Relationship between self-vulnerability, perfectionism and OC and ED phenomena

Cognitive theories and models of OCD and EDs alike contend that perfectionism, particularly negative perfectionism, features prominently in the development, maintenance and treatment of the disorders. Although this thesis acknowledges the purported clinical relevance of negative perfectionism, it also subscribes to the notion that whether perfectionism leads to adverse consequences may also depend on contextual factors, including core motivational bases. With respect to this point, few studies to date have adequately addressed these factors. Hence, an important aim of the current research program was to address this gap.

With regard to potential motivational mechanisms for perfectionism, Guidano and Liotti (1983) theorized that perfectionism is motivated by an underlying sense of self-vulnerability characterized by uncertain, insecure and unstable self-views. These theorists maintain that constant efforts toward perfectionism represent attempts to achieve certain, secure, stable views of self. Other theories reflect similar notions. For example, dichotomous thinking, defined as an inflexible, rigid cognitive style whereby individuals tend to hold all-or-nothing self-views, has also been implicated in perfectionism (Byrne et al., 2004; Byrne et al., 2008; Riley & Shafran, 2005; Shafran et al., 2002;). In addition, sensitivity in self-worth, characterized by perceived inadequacy in a highly valued domain has been linked to higher levels of perfectionist beliefs (Doron et al., 2007; 2008). Whether an individual holds ambivalent, dichotomous, or sensitive self-views, the common link for these theories seems to be that these self-views are undesirable because they result in a kind of cognitive dissonance, “unpleasant state of internal conflict” (Bybee et al., 1997), or “split identity” (Guidano & Liotti, 1983), which motivates perfectionism as a way of coping with this. Despite these theories however, there is little empirical research that explores the purported relationship between self-vulnerabilities and perfectionism. Consequently, an important goal of this thesis was to empirically examine how self-
vulnerabilities are related to perfectionism. In addition, attempts to differentiate facets of perfectionism that are unique to OCD and EDs, have been unsuccessful. An overarching aim of this thesis, was to put forward some preliminary models for future research and replication which address the aforementioned limitations.

7.2.3 General vulnerabilities

Study 3 findings supported Guidano and Liotti’s (1983) theory that perfectionism is motivated, at least in part, by self-vulnerabilities. In particular, higher scores on general self-vulnerabilities (i.e. dichotomous thinking about one’s self and sensitivity in general self-worth) corresponded to higher levels of general negative perfectionism (i.e. concern over mistakes and personal standards), for both models (i.e. Model 1 predicting OC severity and Model 2 measuring ED severity). Additionally, high-order general self-vulnerabilities predicted lower-order specific self-vulnerabilities, which in turn were related to OC and ED symptoms. Thus, general self-vulnerabilities were indirectly related to disorder symptoms. Depressive symptoms and global self-esteem predicted general self-vulnerabilities. Specifically, greater depressive symptoms and lower levels of self-esteem were associated with higher scores on general self-vulnerabilities. Contrary to expectations, general negative perfectionism was not related to disorder phenomena for either model. Explanations for this are provided in the next section, along with findings related to specific perfectionism facets.

7.2.4 Disorder-specific vulnerabilities

Research has provided some evidence of the specific domains of self that may be particularly vulnerable for individuals with OCD and EDs, as well as, salient facets of perfectionism. For instance, Guidano and Liotti (1983) observed that maintaining high moral standards was particularly important to self-worth for individuals with OCD. Various studies have shown that individuals with OCD make more negative inferences about their morality based on experienced intrusions, than their anxious or community counterparts (Ferrier &
Brewin, 2005). Perceived incompetence in the moral self-domain has been shown to predict OC beliefs and symptoms over and above the influence of general self-esteem (Doron et al., 2007). Furthermore, individuals who strive for moral perfectionism are prone to obsessions (defined as thoughts, images or impulses that are intrusive and occur repetitively) since they view their thoughts and actions as indicators of their moral standing (Rachman, 1997). Intrusions are experienced as unwanted and are associated with discomfort and distress leading to attempts to ignore, suppress or neutralize them with another thought or action (OCCWG, 2005). Neutralizing strategies are thought to be based on cognitive styles, of which perfectionism is one (OCCWG, 2005).

Similarly, the presence of appearance-related concerns has reliably been associated with eating-related issues (Bruch, 1973; Fairburn et al., 1999; Guidano & Liotti, 1983; Slade, 1982; Vitousek & Ewald, 1993). Physical appearance self-worth has been found to be an important aspect of self-concept for young adults, and is often a source of concern (Steinberg, 2008). In line with this, research has shown that university students who based their self-worth on physical appearance were found to be higher in symptoms of disordered eating and other appearance-related behaviours, such as exercising and grooming (Crocker and Luhtanen, 2002). Other authors have reported that self-concept disturbances tend to underlie body image distortion in eating-disordered subjects (Strober and Goldenberg, 1981; Sugarman, Quinlan, & Devinis, 1982). Moreover, studies have found similar levels of body dissatisfaction for women across younger and older adult age groups (Allaz et al., 1998; Cash & Henry, 1995; Garner, 1997; Stevens & Tiggemann, 1998; Tiggemann & Lynch, 2001), which suggests that appearance concerns are salient for women across the life span.

With regards to whether moral and physical appearance self-vulnerabilities are related to the adoption of perfectionist coping strategies, Doron et al. (2007) showed that sensitivity in moral self-worth was related to a higher levels of perfectionism, as measured by the OBQ
perfectionism subscale. However, in this study, moral sensitivity was related to a general
dimension of perfectionism. This thesis contended, based on relevant theories (e.g. Beck, 1976;
Craven & Marsh, 2008), that if specific components of self-concept are more closely related to
specific outcomes, then it might reasonably be suggested that personal uncertainty about one’s
morality, may be more related to coping strategies that are specifically targeted at the vulnerable
domain. Accordingly, it was hypothesized that vulnerability in moral self-worth would be more
strongly associated with similarly morality-oriented perfectionist beliefs, than with general
perfectionist beliefs.

Likewise, it was hypothesized that appearance-related self-vulnerabilities would be more
strongly related to appearance-oriented perfectionist beliefs, rather than general perfectionist
beliefs. In line with these expectations, both Study 2 and Study 3 findings demonstrated that
vulnerabilities in specific self-domains (i.e. moral and physical appearance self-vulnerabilities)
were more strongly associated with perfectionist beliefs in the same domains, than with general
negative perfectionism. In particular, moral self-ambivalence and sensitivity in moral self-worth
were related to beliefs about moral perfectionism. Similarly, physical appearance self-
ambivalence and sensitivity in physical appearance self-worth were more strongly associated
with perfectionist beliefs related to physical appearance, than with general negative
perfectionism. Additionally, the results of Study 2 indicated that the relationships between
specific self-vulnerabilities and specific facets of perfectionism were unique to each model.

Despite expectations, moral and physical appearance perfectionism did not predict OC
and ED symptoms, respectively. It was expected that if these perfectionism facets are truly
maladaptive, then they would be related to disorder phenomena. The non-significant relationship
between perfectionism (both general and specific facets) and disorder severity in this thesis could
be interpreted in a couple a ways. First, it is possible that relating perfectionism scales to global
severity scores rather than disorder subtypes, may have obscured or diluted relationships
between perfectionism and disorder phenomena. Indeed, there is evidence to suggest that OC subtypes may be differentially related to aspects of general perfectionism. For example, in student sample, Tolin et al. (2003) found that perfectionism, as measured by the OBQ-P, was most strongly related to the Ordering subscale of the OCI-R. Later the same group replicated the study with a clinical group and found that, in addition to Ordering, perfectionism was also related OCI-R Obsessing and Hoarding subscales (Tolin et al., 2008). More specifically, moral concerns have been related to checking and contamination OC symptoms (Doron et al., 2007). Thus, future investigations should explore the relationship between moral perfectionism and these specific OC subtypes.

Similarly, there is research to suggest that ED behaviours may be differentially related to perfectionism aspects. For example, using their own perfectionism scale, Hewitt et al. (1995) found that self-oriented perfectionism was specifically linked to dieting and to concerns with being thinner. In another study, Halmi, Sunday, Strober, Kaplan, Woodside and Fichter et al. (2000), observed that AN patients who engaged in purging behaviours alone (i.e., without binge eating), had higher scores on the MPS-F parental criticism scale, than AN patients who engaged in restricting behaviours. Previous studies have shown that the purging subtype of anorexia nervosa is associated with more pathology than that found among anorexic patients who engage in purely restricting behaviors. Another study showed that physical appearance perfectionism predicted body weight control behaviours. Thus, although the rationale for the decision to not explore disorder subtypes in this thesis was provided, this is a possible limitation and as such, it is a recommended avenue for future research.

Secondly, the non-significant relationship between perfectionism and disorder phenomena may be due to the construal of perfectionism in this thesis. With regard to the general negative perfectionism composite of MPS-F Concern over Mistakes and Personal Standards, it has been suggested that the latter dimension is a ‘purer’ measure of perfectionism, and is
therefore less relevant for psychopathology than the former dimension (Bardone-Cone et al., 2007; DiBartolo et al., 2004; Sassaroli et al., 2008). This suggestion was based on the premise that high personal standards are associated with psychopathology only when meeting those standards is used to define self-worth. An examination of the Personal Standards scale indicated that the items comprising it (except for a couple at most) did not appear to reflect the pairing of high standards with evaluative self-worth (DiBartolo et al., 2004). It was proposed that the composition of Personal Standards (being mostly comprised of items reflecting high standards, but including at least one item capturing high standards and negative self-evaluation in response to perceived failure to meet these standards), may explain the confusing mixture of findings in studies which have examined the correlates of Personal Standards. That is to say, Personal Standards have been related to psychopathology in some contexts (e.g. Antony et al., 1998; Enns & Cox, 1999; Frost & Steketee, 1997; Juster et al., 1996), and adaptive functioning in others (Bastiani, Rao, Weltzin, and Kaye, 1995). DiBartolo et al. (2004) suggested that the item pairing standards and negative self-evaluation, might be responsible for the extent to which the Personal Standards subscale has been correlated with psychopathology in previous studies.

To examine this hypothesis, DiBartolo et al. (2007) generated a ‘Pure Personal Standards’ scale by removing the item pairing high standards and self-evaluation (i.e. ‘If I do not set the highest standards for myself, I am likely to end up a second rate person’). The group found that Pure Personal Standards was unrelated to measures of psychopathology, although it was related to adaptive outcome measures. Even if Personal Standards is not related to OC or ED severity, studies have reliably shown an association between Concern over Mistakes and these phenomena (see Bardone-Cone et al., 2007 and Frost & DiBartolo, 2002 for reviews; Sassaroli et al., 2008). Thus, one might have expected to observe a stronger relationship between general negative perfectionism and disorder severity. However, it is possible that the inclusion of this subscale diluted the overall influence of the composite measure on OC and ED symptoms.
In addition, it could be suggested that moral and physical appearance perfectionism scales were similarly ‘pure’ measures, which may explain why they were not significantly correlated with OC and ED psychopathology in the models. On examination of the items for both scales, it was noted that only two moral perfectionism items included a component of negative self-evaluation. These were items 10 (“Not following my moral principles makes me a bad person”) and 18 (“I cannot be a decent human being if I do not conduct myself ethically”). The remainder of the moral perfectionism items captured high personal standards without negative self-evaluation.

Likewise, for the physical appearance perfectionism scale, only two items appeared to incorporate negative self-evaluation in addition to high standards. These were items 12 (“My body does not have to look perfect for me to be satisfied with it”) and 14 (“I am worthless if I don’t have a perfect body”). Hence, the rest of the items on this scale (e.g. “I have extremely high standards for how I look”) could be construed as indicators of ‘pure’ perfectionism (i.e. high standards). This same argument provides a plausible explanation for why specific self-vulnerabilities, unlike perfectionism, were related to disorder severity. The ASPP used to measure sensitivity in self-worth assesses the degree of dissatisfaction with self or perceived personal inadequacy. Thus, to some extent it captures negative self-evaluation. Similarly, the SAM assesses the degree to which an individual holds opposing self-views (simultaneously), some of which are negative. In addition, the pairing of these self-vulnerability variables with OC and ED salient self-domains, may have heightened their influence on disorder symptoms.

7.3 Theoretical implications

Cognitive behavioural accounts of OCD and EDs alike have been criticized for being too narrowly focused on overt symptoms, with insufficient attention given to potentially important underlying cognitive processes (Anderson & Maloney, 2001; Cooper, 1997, 2005; Hollon & Beck, 1994; Meyer, Waller, & Waters, 1998). That is not to say that theory underpinning these
accounts is not valid, but rather that it may not represent a complete account of the processes implicated in the development and maintenance of the disorders (Fairburn et al., 2003). Although there is evidence to support the clinical effectiveness of CBT interventions for OCD and EDs, there are still suggestions that treatment could be more effective (Abramowitz, 1998; Carter, Luty, McKenzie, Mulder, Frampton, & Joyce; Fisher & Wells, 2005; Juarascio, Forman & Herbert, 2010, Kater, 2010; McIntosh, Jordan, Carter, Luty, McKenzie, Bulik, et al., 2005). Even when the treatment is well implemented, the targeted psychopathology can be resistant to change (Fairburn et al., 2003), for example, OCD presentations where there is overvalued ideation or egosyntonic obsessions (O’Dwyer & Marks, 2000; Veale, 2002).

The current thesis supports accumulating evidence that there are important lower-order processes relevant to the development and maintenance of perfectionism in OCD and EDs (Byrne et al., 2008; Burns & Fedewa, 2005; Egan et al., 2007; Riley & Shafran, 2005; Shafran et al., 2002. Thus, there is a need for a revised conceptualization of negative perfectionism that incorporates these important processes. The current thesis contributes to the empirical support behind such ideas and to a fuller account of perfectionism in OCD and EDs. Furthermore, it extends current research by delineating unique aspects of perfectionism for OCD and EDs, as well as, the specific mechanisms by which these aspects operate.

Importantly, this thesis empirically examined Guidano and Liotti’s (1983) theory of perfectionism, although from a trait rather than state perspective (the limitations of which will be discussed further on). In line with their theory, self-vulnerability was found to be related to perfectionist beliefs. Moreover, evidence was found for specific self-vulnerabilities that were differentially related to OCD and EDs. Moral self-vulnerabilities were associated with OCD symptoms and physical appearance self-vulnerabilities were associated with ED symptoms. The specificity in the self-vulnerabilities that differentiated OCD and ED symptoms, adds to the growing body of research that supports the salience of moral and physical appearance self-
domains, for OCD and EDs, respectively. Furthermore, given that the general self-vulnerability constructs did not differentiate between disorders, the results validate previous findings that have indicated such variables may be common vulnerabilities for psychopathology (e.g. Bhar & Kyrios, 2007).

7.4 Practical implications

The current thesis supports the theory that there are particular domains of self-vulnerability that underlie motivations to adopt specific perfectionist beliefs and most likely, behaviours, as well as, disorder symptoms related to the same vulnerable domains. In particular, moral self-vulnerability was related to moral perfectionist beliefs and OCD symptoms. On the other hand, physical appearance self-vulnerability was associated with physical appearance perfectionism and ED symptoms. Considering that research has provided empirical evidence which demonstrates that perfectionism can impede successful treatment of both OCD and EDs, irrespective of the treatment modality used, it is hoped that the current research may assist with cases of OCD and EDs that are considered treatment refractory. By understanding the specific cognitive orientations that differentiate these disorders and the ensuing perfectionist beliefs, this knowledge can be used to develop more targeted, salient interventions that modify lower-order self-vulnerabilities that precede perfectionist beliefs and psychopathology. These treatments may be useful adjuncts to conventional approaches.

Guidano and Liotti (1983) suggested that children who experience anxious and ambivalent attachment relationships in which they have received contradictory messages about their acceptability are vulnerable to developing perfectionist and compulsive behaviours associated with OCD. Similarly, the authors proposed that the family context of individuals who develop EDs, is characterized by contradictory communication from which can emerge an ambiguous, insecure attachment style, and a self-image that is marked by a vague sense of personal worth and lovability. Consequently, this context motivates a need for self-validation
through the adoption of perfectionist strategies. For clinicians in clinical settings, this necessitates the need to be mindful that these clients may be particularly sensitive to perceived rejection. Establishing a positive, productive therapeutic alliance is of utmost importance. Unconditional positive regard (Rogers, 1961) of the client and validation will help them to feel understood, and provide them with a relational experience that contrasts with previous attachment relationships. The therapeutic alliance can serve as a secure base, from which the client can explore new, alternate, more adaptive self-views that can be negotiated and incorporated in the client’s self-system to modify maladaptive self-definitions (Moretti & Higgins, 1999).

Therapeutic approaches currently exist that address maladaptive and vulnerable self-themes. For example, an inference-based approach (IBA) to treating OCD focuses on the reasoning processes that form the justification for an obsessional self-doubt (O’Connor, Koszegi, Aardema, van Niekerk & Taillon, 2009). Unlike cognitive approaches, IBA does not attribute the origin of obsessions to intrusive cognitions or appraisals of these cognitions. Instead, it proposes that specific cognitions and appraisals stem from initial doubts and inferences. The aim of this approach is to modify the narrative producing the obsessional self-doubt through promoting recognition that the doubting inference is faulty, and assisting the client with developing alternative common sense perspectives. A core component of the therapy is to discover an individual’s vulnerable self-theme since, according to IBA, this theme drives the doubts. The vulnerable self-theme refers to the self an individual fears they could be or could become – a feared self that is not based in reality (O’Connor et al., 2009). For example, someone who is hypervigilant for signs that they are not conducting themselves in a moral manner is likely to consider that they could be someone who behaves immorally. Individuals with ambivalence self-worth are unable to experience certainty and confidence with regards to their self-feelings. Thus,
it may benefit such clients to gain some insight in therapy into how their symptoms relate to their feared self and contradictory self-views.

Acceptance and Commitment Therapy (ACT) has been proposed for the treatment of EDs. The ACT perspective of EDs, suggests that those with EDs tend to be fused with cognitions about their weight and shape, often referred to as body image dissatisfaction (Kater, 2010; Pearson, Heffner, & Follette, 2010; Wendell, Masuda, & Le, 2012). The aim of this approach is to help clients to mindfully observe their body dissatisfaction, for example, and the accompanying shameful, anxious and depressed feelings and thoughts (Manlick, Cochran & Koon, 2013). Mindfulness facilitates defusion from these experiences, such that clients move from defining themselves based on certain feelings and cognitions (e.g. I am ashamed of my body), to understanding that feelings and cognitions are one part of their experience (e.g. I experience a shameful feeling when I think about my physical appearance) (Manlick et al., 2013).

Similarly, ACT has been proposed as a treatment for OCD. Using ACT, OCD clients may be encouraged not to interpret their obsessive thoughts as literally true. From an ACT perspective, the most effective way to respond to these thoughts might be to observe them without directly responding to them mentally or behaviourally (Tolin, 2009). The use of ACT to treat OCD and EDs is relatively new, however there is some evidence to support the efficacy of this therapeutic modality (Eifert & Forsyth, 2005; Hefner & Eifert, 2004; Kater, 2010; Twohig, Hayes, & Masuda, 2006; Twohig, 2009).

These approaches are similar to CBT which aims to help individuals modify dysfunctional beliefs that can lead to problematic behaviours (Beck, Rush, Shaw, & Emery (1979). In fact, it has been proposed that ACT can be reasonably subsumed under the general label of ‘cognitive-behavioural therapy’ (Tolin, 2009, p. 45). At present, the majority of cognitive models of OCD and EDs identify higher order cognitive processes (e.g. self-concept,
values, attachment and other cognitive styles) as targets for change (see Taylor et al., 2007 for review). The new “enhanced” CBT formulation designed for eating disorders (CBT-E), includes two forms, a “focused” form which exclusively addresses eating disorder psychopathology, and a broad form which includes modules to address external obstacles to change, in addition to eating psychopathology (Murphy, Straebler, Cooper, & Fairburn, 2010). The latter form is recommended for patients in whom clinical perfectionism, core low self-esteem, or interpersonal difficulties are pronounced and maintaining the disorder. Although the results of this protocol appear promising (e.g. is suitable to treat about 60% of outpatients, 60% of which have good outcomes (Fairburn, 2009)), it uses a variety of generic cognitive and behavioural interventions, not unlike other similar interventions. Yet, the researchers who developed CBT-E purport that a key advantage it has over other interventions lies in its “highly individualized” format (Murphy et al., 2010, p. 626).

The findings of this thesis suggest that current CBT approaches, like CBT-E, could be improved by making them more individualized. In particular, results showed that the these treatments may benefit from including specific moral and physical appearance self-vulnerabilities in cognitive treatments for OCD and ED, as flexible augmentations where appropriate (i.e. depending on patients’ specific symptoms and belief domains that cause the most difficulty). The idea of a modular cognitive therapy approach is in keeping with a core premise of CBT-E that is based on developing tailored, idiographic treatments that are case-formulation-driven, and aimed at achieving more optimal patient outcomes.

Along these lines, the findings support recent empirical studies that have investigated the efficacy of cognitive therapy that targets specific belief domains. For example, in a recent trial (Wilhelm, Steketee, Fama, Buhlmann, Teachman, and Golan, 2009; Steketee, Siev, Fama, Keshaviah, Chosak, & Wilhelm, 2011) twenty seven individuals diagnosed with OCD underwent cognitive therapy targeting specific appraisals identified by the OCCWG as the most relevant to
OCD (OCCWG, 2005). Half the sample was wait listed, and those who received active treatment improved significantly compared to the waitlist group at posttreatment and maintained gains at three and twelve month follow-ups. In addition, 41.1% of the sample suffered from common comorbid disorders, which suggests that the therapies may be an effective option even for patients with significant comorbidity. Thus, the approach is particularly relevant for OCD and EDs which have shown substantial comorbidity (Ayearst et al., 2012; Parekh & Halmi, 2006). A limitation of the study was that its design did not permit investigators to directly explore the effects of specific modules that were used. Consequently, they recommended that future research tests the effects of specific modules, to identify the elements of cognitive therapy that are most and least effective for OCD. To this end, this thesis identified specific elements that warrant inclusion in treatment modules for future trial studies. However, before this is considered there are some important limitations to be addressed. These, and suggestions for future research are discussed below.

7.5 Limitations and directions for future research

A number of important caveats for this thesis have been noted throughout, including limitations and recommendations for improving the research design. The correlational and cross-sectional nature of the study precludes the ability to draw any firm causal inferences from the findings. It only permits the author to conclude that there are specific self-vulnerabilities that are unique to OCD and ED phenomena, and that these specific self-vulnerabilities are related to particular perfectionist coping strategies. In order for causal relationships to be established, longitudinal research is required to follow the development of self-vulnerabilities that lead to the adoption of perfectionist coping strategies and disorder symptoms over time.

Additionally, the clinical status of nonclinical participants was not formally assessed. While steps were taken to control potential confounds, it is possible that participants who were characterized by psychological disturbances may have biased the results. Indeed, there were
some discrepancies between the number of individuals who reported current OCD and ED diagnoses, and the percentage of participants who scored above subclinical norms.

It should also be noted that the samples consisted of psychology undergraduate students and members of the community, who were convenience samples sourced through the author’s social network. This poses a potential threat to external validity that needs to be considered when interpreting the results. Furthermore, participants were all female which again raises the question of whether the findings would generalize to males. This was partly due to the fact that disordered eating occurs predominantly among women (Herman & Polivy, 1980; Garfinkel & Garner, 1982), and the higher prevalence of OCD found in women (Rasmussen & Eisen, 1992; Slade, Johnston, Oakley Browne, Andrews, & Whiteford, 2009; Swinson, Antony, Rachman, & Richter, 1998; Weissman, Bland, Canino, Greenwald, Hwu, & Lee, 1994). Future research would benefit from a more representative sample of the population, beyond typical undergraduate students studying psychology and the author’s social milieu.

The use of self-report measures as the sole means of collecting data is often criticized. A key criticism is that self-report findings may be affected by self-presentational concerns. Despite this, statistical analyses revealed that all scales employed in this thesis displayed sound reliability, indicating that the measures provided an accurate representation of participant behaviours. Nevertheless, this research program is one of the first to investigate disorder-salient facets of perfectionism and related self-vulnerabilities for OCD and EDs, and as such the results remain speculative. Additional replication of the current findings is needed both in clinical and subclinical populations.

Further, on the subject of the limitations of self-report measures, the EDE-Q was originally designed as a structured interview (i.e. the EDE), to be conducted by appropriately trained clinicians. Given that the version used in the current research was the self-report, and thus, administered without guidance, it is possible that some of the items may have been
misconstrued, influencing results. In support of this possibility, studies that have evaluated the correspondence between the original EDE and EDE-Q versions have yielded inconsistent findings (Binford, le Grande, & Jellar, 2005; Black & Wilson, 1996; Carter, Aime, & Mills, 2001; Grilo, Masheb, & Wilson, 2001; Wilfley, Schwartz, Spurrell, & Fairburn, 1997). In addition, the narrow range of scores on this measure is likely to have diminished the degree to which it was correlated with other measures. This may also explain, in part, its nonsignificant relationship with perfectionism. Very few studies have investigated the reliability and validity of the EDE-Q (see Luce & Crowther, 1999 and Mond et al., 2004). Despite this, the EDE-Q is being used with increasing frequency in clinical and community investigations of ED symptoms (Anderson & Williamson, 2002). In light of these limitations, it is important that more evaluations of the psychometric properties of the EDE-Q are conducted, and future replications of the current research include other measures of ED severity (e.g. the EDE structured interview and the SCID). In a similar vein, consideration should be given to the limitations of measures developed specifically for this research program, whose reliability and validity was not evaluated extensively prior to using the measures to evaluate substantive research questions. Thus, further evaluation of the psychometric properties of the new scales would be an important priority for future research.

In order to increase the validity of findings, future studies should extend their data collection methods beyond psychometric questionnaires. Moreover, considering that Cohen (1988) recommends a sample size of between 250 and 1,500 to detect small-sized effects ($d = 0.10 – 0.30$) with 0.80 probability, the sample sizes recruited for this thesis, 253 and 249, respectively, were at the lower end in terms of having adequate power to explore the patterns of interrelationships in the models. Therefore, future studies may benefit from having larger sample sizes.
Another potential limitation elaborated earlier, might be the use of global disorder severity scores rather than scores on the disorder subtypes. Although justification for the use of global scores was provided, this may be an explanation for why none of the perfectionism scales related to disorder symptoms, since it is possible that perfectionism facets are differentially related to OC and ED subtypes. Thus, future research may benefit from exploring the relationship between facets of perfectionism used in this thesis, and subtypes of OCD and EDs.

Another explanation may lie in the way that perfectionism was construed in the models. As Frost and colleagues have argued, perfectionism is most likely to be relevant to psychopathology when the setting of excessively high standards is accompanied by critical self-evaluation, rather than high standards alone (Bardone-Cone et al., 2007; DiBartolo et al., 2004; Frost et al., 1990; Frost & DiBartolo, 2002; Sassaroli et al., 2008). In the main, general and specific perfectionism facets used in this thesis reflected high standards, which may account for the absence of significant relationships between these scales and OC and ED psychopathology. Using other measures of perfectionism may have helped to explain and strengthen the findings. It is recommended that future research does this. In addition, future work may explicate the current findings by developing perfectionism scales that reflect negative self-evaluation (paired with high standards), and comparing outcomes for the revised perfectionism scales with the ones used here.

Additionally, measuring self-evaluations in response to perceived failure in moral and physical appearance self-domains in an experimental setting, may help to clarify the relationships between specific facets of perfectionism and OCD and ED phenomena, since situational reactions to perceived failure for vulnerable individuals may elicit higher scores on self-vulnerability and perfectionism measures, which in turn might show greater correlations with disorder symptoms. Thus, comparing trait versus state perfectionism facets is another potential avenue for future research.
Another potential limitation with respect to the way that perfectionism was conceptualized in this thesis, was that the facets explored were self-oriented. Thus, it could be argued that the models do not fully account for the multidimensional nature of perfectionism, and the scales have limited utility in terms of providing complete and accurate characterizations of personality pathology and psychopathology. For instance, dysfunction in the need to appear perfect to others is not likely to have been captured by the perfectionism scales in this research. The self-oriented focus also has limitations since social and interpersonal factors have been implicated in morality and appearance related concerns. Indeed, a number of researchers have suggested that attitudinal and emotional aspects of body image arise from the mutual influence of self-evaluation and socialization patterns based on interpersonal and family relationships (e.g. Mori, Chaiken, & Pliner, 1987; Powers, Schulman, Gleghorn, & Prange, 1987). Likewise, the social components of moral thought have been reported (e.g. Bandura, 1986; Kohlberg, 1976; Piaget, 1948). The reason for the decision to explore perfectionism from a self-oriented viewpoint in this thesis was based on the core aim, which was to investigate specific and salient facets of perfectionism related to OC and ED phenomena, rather than to explore how different components of already established multidimensional perfectionism measures related to these disorders. Nevertheless, it is unlikely that any single perspective on the aetiology of perfectionism will be sufficient for understanding its complexity. Thus, future work should consider the social aspects of moral and physical appearance perfectionist beliefs and behaviours, and other aspects which are likely to combine in the development of such problems, to refine the preliminary vulnerability models presented here.

Despite its limitations, and pending replication of the reviewed findings, this thesis has several strengths. Notably, this was the first research program to empirically investigate self-vulnerability as an underlying mechanism for perfectionism. It was also the first study to elucidate unique facets of perfectionism that operate through disorder-specific self-
vulnerabilities. So far, the contribution of perfectionism to understanding these disorders has been as a general vulnerability factor. Thus the models developed in this thesis contribute some specificity. This thesis adds to the growing trend toward idiographic approaches to the research and treatment of complex disorders, such as OCD and EDs.
REFERENCES


Coombidity of psychiatric diagnoses in anorexia. *Archives of General Psychiatry, 48*, 712-718


Fairburn C.G., Cooper Z. The eating disorder examination. In: Fairburn C.G., Wilson


Harper-Collins.


Pelham, B. W., & Hetts, J. J. (1999). Implicit and explicit personal and social identity: Toward a more complete understanding of the social self. In T. Tyler & R. Kramer (Eds.), The psychology of the social self (pp. 115-143). New Jersey: Erlbaum.


Press.


Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review.


The severity and status of eating disorder NOS: Implications for DSM-V. *Behaviour Research Therapy, 45,* 1705-1715.


Widaman, K. F. (1993). Common factor analysis versus principal component analysis:


APPENDICES

Appendix A: Recruitment of community participants

The Effects of Perfectionism on the Relationship between Self-Concept, Obsessive-Compulsive Tendencies and Eating Difficulties

We are seeking participants for a study exploring perfectionistic beliefs and behaviours associated with obsessiosity and eating issues, and whether these are motivated by concerns about, and need to resolve certain problems with self-concept. This study is being conducted as part of a Swinburne University Doctor of Clinical Psychology program.

We are looking for participants who are:

- Female
- aged between 18 and 65 years old, and
- do not currently have a psychiatric disorder or substance abuse problem (or have never suffered from a psychiatric disorder or substance abuse problem in the past)

Participation in the study is entirely voluntary and participation is completely anonymous.

Please go to the following website to access further information about the background to the project, and to access the survey:

http://opinio.online.swin.edu.au/s?s=9311

Enquiries about this research may be directed to:

Narisa Vormwald (student investigator) at nvormwald@groupwise.swin.edu.au or
Professor Michael Kyrios (supervisor) at MKyrios@groupwise.swin.edu.au

This research has received approval from the Swinburne University Human Research Ethics Committee (2010/103).
Appendix B: Recruitment of student participants
REP Project

The Effects of Perfectionism on the Relationship between Self-Concept, Obsessive-Compulsive Tendencies and Eating Difficulties

Researcher: Narisa Vormwald

Participation Time: 60 minutes

This research explores whether certain perfectionistic beliefs that are associated with obsessionality and eating issues are motivated by concerns about, and need to resolve certain problems with self-concept. These processes are examined via the use of a number of questionnaires in an online survey. The total amount of time it takes to complete the survey is less than 60 minutes (however you will gain the full 60 minutes credit towards your REP).

To be eligible for this study, you must be:

- Female aged between 18 and 65 years old, and
- do not currently have a psychiatric disorder or substance abuse problem (or have never suffered from a psychiatric disorder or substance abuse problem in the past)

If you would like to participate, please click on the following link which will take you directly to the survey:

http://opinio.online.swin.edu.au/s?s=10303

If you have any further questions about the survey or your participation please contact:

Narisa (nvormwald@groupwise.swin.edu.au)

Thank you for your participation in this study.
Appendix C: Plain Language Statement for Student Participants

The Effects of Perfectionism on the Relationship between Self-Concept, Obsessive-Compulsive Tendencies and Eating Difficulties

Investigators: Prof. Michael Kyrios, Dr. Maja Nedeljkovic, Dr. Richard Moulding, Ms Narisa Vormwald

Swinburne University Human Research Ethics Committee clearance number: 2010/103

The aim of this project is to investigate the effects of perfectionism on the relationship between self-concept, obsessive-compulsive tendencies and eating difficulties. It explores whether certain perfectionistic beliefs that are associated with obsessionality and eating issues are motivated by concerns about, and need to resolve certain problems with self-concept. Participation will involve completing 11 questionnaires and should take approximately 40 minutes.

In order to be eligible for this study, you must be:

- Female aged between 18 and 65 years old, and
- do not currently have a psychiatric disorder or substance abuse problem (or have never suffered from a psychiatric disorder or substance abuse problem in the past)

Your participation in the study is strictly voluntary and you are free to withdraw at any time. Your decision to withdraw will not affect your university grades or relationship with the investigators. All information you provide is anonymous as no identifying information is being collected. Online submission of the survey that is, clicking the “Finish” button once you have completed it, will imply your consent to participate in the study. If you do not wish to complete the survey all at once, you can click the "Save" button located at the bottom of the page. This will enable you to save your responses so that you can return and complete the survey at a later time.
The project is being conducted by the student investigator as part of the requirements for the degree of Doctorate of Clinical Psychology and the results of the investigation will be presented in a Doctoral thesis. Only group data will be presented and no individuals will be identified if the results of this study are published in a scientific journal. All data is treated as strictly confidential, as required by the Swinburne University Human Research Ethics Committee, subject to legal requirements and limitations. Access to the data will be limited to the project supervisor (Professor Michael Kyrios) and investigators. Questionnaires will be kept under the supervision of Professor Michael Kyrios, and will be destroyed seven years after the findings are published.

If you experience any adverse reaction to the questionnaires and wish to talk to a trained counsellor, please contact the Swinburne Counselling Service ((03) 9214 8025) or Swinburne Psychology Clinic ((03) 9214 8653). Please note that the counselling service is free for all Swinburne students and the psychology clinic operates as a low cost service.

If you would like further information about this research project please contact:
Narisa Vormwald, Doctoral Candidate & Provisional Psychologist, AS320, Swinburne University of Technology, Hawthorn, nvormwald@groupwise.swin.edu.au.

If you have any questions or concerns about this project, please contact:
Professor Michael Kyrios, Swinburne University of Technology, PO Box 218, Hawthorn, Victoria, 3122, Tel (03) 9214 4886, or email MKyrios@groupwise.swin.edu.au

If you have any concerns or complaints about the conduct of this project, you can contact:
Research Ethics Officer, Office of Research & Graduate Studies (H68), Swinburne University of Technology, PO Box 218, Hawthorn, Victoria, 3122, Tel (03) 9214 5218, or email resethics@swin.edu.au

Thank you for participating in this study.
I have read and understood the above description and conditions of the study, and agree to allow my questionnaire responses to be used for the research purposes outlined above.

I agree

I do not agree
Appendix D: Plain Language Statement for Community Participants

The Effects of Perfectionism on the Relationship between Self-Concept, Obsessive-Compulsive Tendencies and Eating Difficulties

Investigators: Prof. Michael Kyrios, Dr. Maja Nedeljkovic, Dr. Richard Moulding, Ms Narisa Vormwald

Swinburne University Human Research Ethics Committee clearance number: 2010/103.

The aim of this project is to investigate the effects of perfectionism on the relationship between self-concept, obsessive-compulsive tendencies and eating difficulties. It explores whether certain perfectionistic beliefs that are associated with obsessionality and eating issues are motivated by concerns about, and need to resolve certain problems with self-concept. Participation will involve completing 11 questionnaires and should take approximately 40 minutes.

In order to be eligible for this study, you must be:

- Female aged between 18 and 65 years old, and
- do not currently have a psychiatric disorder or substance abuse problem
  (or have never suffered from a psychiatric disorder or substance abuse problem in the past)

Your participation in the study is strictly voluntary and you are free to withdraw at any time. All information you provide is anonymous as no identifying information is being collected. Online submission of the survey that is, clicking the “Finish” button once you have completed it, will imply your consent to participate in the study. If you do not wish to complete the survey all at once, you can click the "Save" button located at the bottom of the page. This will enable you to save your responses so that you can return and complete the survey at a later time.

The project is being conducted by the student investigator as part of the requirements for the degree of Doctorate of Clinical Psychology and the results of the investigation will be
presented in a Doctoral thesis. Only group data will be presented and no individuals will be identified if the results of this study are published in a scientific journal. All data is treated as strictly confidential, as required by the Swinburne University Human Research Ethics Committee, subject to legal requirements and limitations. Access to the data will be limited to the project supervisor (Professor Michael Kyrios) and investigators.

Questionnaires will be kept under the supervision of Professor Michael Kyrios, and will be destroyed seven years after the findings are published.

If you experience any adverse reaction to the survey and wish to talk to a trained counsellor, please contact Swinburne Psychology Clinic ((03) 9214 8653). Please note that the clinic operates as a low cost service.

If you would like further information about this research project please contact:

Narisa Vormwald, Doctoral Candidate & Provisional Psychologist, AS320, Swinburne University of Technology, Hawthorn, nvormwald@groupwise.swin.edu.au.

If you have any questions or concerns about this project, please contact:

Professor Michael Kyrios, Swinburne University of Technology, PO Box 218, Hawthorn, Victoria, 3122, Tel (03) 9214 4886, or email MKyrios@groupwise.swin.edu.au.

If you have any concerns or complaints about the conduct of this project, you can contact:

Research Ethics Officer, Office of Research & Graduate Studies (H68), Swinburne University of Technology, PO Box 218, Hawthorn, Victoria, 3122, Tel (03) 9214 5218, or email resethics@swin.edu.au.

Thank you for participating in this study.

I have read and understood the above description and conditions of the study, and agree to allow my questionnaire responses to be used for the research purposes outlined above.

I agree

I do not agree
Appendix E: Debriefing Statement for Student Participants

The Effects of Perfectionism on the Relationship between Self-Concept, Obsessive-Compulsive Tendencies and Eating Difficulties

Investigators: Prof. Michael Kyrios, Dr. Maja Nedeljkovic, Dr. Richard Moulding, Ms Narisa Vormwald

This sheet provides information about the background and aims of this project.

This study explores the effect of perfectionist beliefs on a person’s self-concept and their tendency towards obsessionality and eating difficulties. The aspects of self-concept that are examined include ambivalence and sensitivities about oneself, and feelings about one’s own self-worthiness. The focus is on aspects of self-concept that relate to morality and physical attractiveness, since these concerns are often associated with obsessive-compulsive tendencies and eating problems.

Perfectionism is a complex concept that has been recognized as a common feature of Obsessive-Compulsive Disorder (OCD) and Eating Disorders (ED). Perfectionism has been defined in many different ways and is often divided into "positive" and "negative" perfectionism. Negative perfectionism has been defined as striving for high standards despite any adverse consequences in achieving them, and is associated with severe emotional distress. Individuals with negative perfectionism feel that they can never do enough and don’t feel satisfied with their performance. In contrast, people with positive perfectionism also set high standards but are without the self-criticism associated with negative perfectionism. These individuals do feel satisfied when the standards have been achieved.

A number of theories of OCD and EDs have emphasized the importance of thoughts and feelings related to self-worth in these disorders. OCD sufferers are highly ambivalent about their personal characteristics—that is, they hold conflicting views about themselves (e.g., they are simultaneously moral and immoral) and struggle to form a stable self-view. Other research has
shown that individuals with disordered eating can be characterized as having a dichotomous thinking style, which is the tendency to view experiences and the self in ‘all-or-nothing’ terms (e.g., ‘all good’ or ‘all bad’). An individual with an ED will, once they have decided whether or not they have met their high personal standard, view themselves as either a complete success or a complete failure. Other aspects of self-concept that have been researched in relation to these disorders include contingent self-worth and sensitivity of self. Contingent self-worth refers to feelings of self-worth that are dependent upon achievement or success in relation to a specific personal goal or standard (e.g., being moral or physically attractive). Sensitivity of self refers to an aspect of self that is highly valued, but at the same time an individual feels that they are not competent within this area.

Some theorists argue that perfectionist beliefs and associated behaviours may represent protective strategies for individuals who are insecure, uncertain or ambivalent about their self-worth. These beliefs give a way of proving to themselves that they are worthwhile. Other research has shown that perfectionism interferes with treatment progress leading to poorer treatment outcomes and relapse.

This project examines whether or not perfectionism compensates for these concerns in individuals who demonstrate ambivalence, uncertainty or sensitivity with respect to their morality and physical attractiveness. In addition, the research will examine whether or not perfectionism protects individuals against developing obsessive-compulsive tendencies and eating difficulties.

Once again, thank you for your interest in this research. If you experience adverse reactions to the questionnaires and wish to talk to a trained counsellor, please contact the Swinburne Counselling Service ((03) 9214 8025) or Swinburne Psychology Clinic ((03) 9214 8653). Please note that the counselling service is free for all Swinburne students and the psychology clinic operates as a low cost service.
If you would like further information about this research project please contact:
Narisa Vormwald, Doctoral Candidate & Provisional Psychologist, AS320, Swinburne University of Technology, Hawthorn, nvormwald@groupwise.swin.edu.au.

If you have any questions or concerns about this project, please contact:
Professor Michael Kyrios, Swinburne University of Technology, PO Box 218, Hawthorn, Victoria, 3122, Tel (03) 9214 4886, or email MKyrios@groupwise.swin.edu.au.

If you are experiencing a crisis, cannot contact a counsellor and need help urgently phone Lifeline on 13 11 14 or the Suicide Help Line on 1300 651 251.
Appendix F: Debriefing Statement for Community Participants

The Effects of Perfectionism on the Relationship between Self-Concept, Obsessive-Compulsive Tendencies and Eating Difficulties

Investigators: Prof. Michael Kyrios, Dr. Maja Nedeljkovic, Dr. Richard Moulding, Ms Narisa Vormwald

This sheet provides information about the background and aims of this project.

This study explores the effect of perfectionist beliefs on a person’s self-concept and their tendency towards obsessionality and eating difficulties. The aspects of self-concept that are examined include ambivalence and sensitivities about oneself, and feelings about one’s own self-worthiness. The focus is on aspects of self-concept that relate to morality and physical attractiveness, since these concerns are often associated with obsessive-compulsive tendencies and eating problems.

Perfectionism is a complex concept that has been recognized as a common feature of Obsessive-Compulsive Disorder (OCD) and Eating Disorders (ED). Perfectionism has been defined in many different ways and is often divided into “positive” and “negative” perfectionism. Negative perfectionism has been defined as striving for high standards despite any adverse consequences in achieving them, and is associated with severe emotional distress. Individuals with negative perfectionism feel that they can never do enough and don’t feel satisfied with their performance. In contrast, people with positive perfectionism also set high standards but are without the self-criticism associated with negative perfectionism. These individuals do feel satisfied when the standards have been achieved.

A number of theories of OCD and EDs have emphasized the importance of thoughts and feelings related to self-worth in these disorders. OCD sufferers are highly ambivalent about their personal characteristics—that is, they hold conflicting views about themselves (e.g., they are simultaneously moral and immoral) and struggle to form a stable self-view. Other research has
shown that individuals with disordered eating can be characterized as having a dichotomous thinking style, which is the tendency to view experiences and the self in ‘all-or-nothing’ terms (e.g., ‘all good’ or ‘all bad’). An individual with an ED will, once they have decided whether or not they have met their high personal standard, view themselves as either a complete success or a complete failure. Other aspects of self-concept that have been researched in relation to these disorders include contingent self-worth and sensitivity of self. Contingent self-worth refers to feelings of self-worth that are dependent upon achievement or success in relation to a specific personal goal or standard (e.g., being moral or physically attractive). Sensitivity of self refers to an aspect of self that is highly valued, but at the same time an individual feels that they are not competent within this area.

Some theorists argue that perfectionist beliefs and associated behaviours may represent protective strategies for individuals who are insecure, uncertain or ambivalent about their self-worth. These beliefs give a way of proving to themselves that they are worthwhile. Other research has shown that perfectionism interferes with treatment progress leading to poorer treatment outcomes and relapse.

This project examines whether or not perfectionism compensates for these concerns in individuals who demonstrate ambivalence, uncertainty or sensitivity with respect to their morality and physical attractiveness. In addition, the research will examine whether or not perfectionism protects individuals against developing obsessive-compulsive tendencies and eating difficulties.

Once again, thank you for your interest in this research. If you experience adverse reactions to the questionnaires and wish to talk to a trained counsellor, please contact the Swinburne Psychology Clinic ((03) 9214 8653). Please note that the clinic operates as a low cost service.
If you would like further information about this research project please contact:

Narisa Vormwald, Doctoral Candidate & Provisional Psychologist, AS320, Swinburne University of Technology, Hawthorn, nvormwald@groupwise.swin.edu.au.

If you have any questions or concerns about this project, please contact:

Professor Michael Kyrios, Swinburne University of Technology, PO Box 218, Hawthorn, Victoria, 3122, Tel (03) 9214 4886, or email MKyrios@groupwise.swin.edu.au.

If you are experiencing a crisis, cannot contact a counsellor and need help urgently phone Lifeline on 131 114 or the Suicide Help Line on 1300 651 251.
Appendix G: Student REP Participation Slip

SWINBURNE UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF PSYCHOLOGY

RESEARCH EXPERIENCE PROGRAM

Participation Slip

[ ]

This is to indicate that (print Student ID here) has satisfactorily participated in a study approved for the HAY100/LSY100 Research Experience Program.

Your Psych 1 Tutor’s name: ____________________________

Name of the project: The Effects of Perfectionism on the Relationship between Self-Concept, Obsessive-Compulsive Tendencies and Eating Difficulties

Name of the researcher: Narisa Vormwald

Date: ____________________________ Time: 60 minutes

(Return this part to the investigator)

(cut here !)
Appendix H: Copy of Ethics Approval

To: Ms Narisa Vormwald (bc) for Prof M Kyrios FLSS

CC: Dr Richard Moulding; Ms Robyn Watson, Research Administration Coordinator FLSS

Dear Narisa,

Re: SUHREC Project 2010/103 An examination of the mediating effects of perfectionism on the relationship between self-concept and disorder severity in Obsessive-Compulsive Disorder and Eating Disorders

Prof M Kyrios Ms Narisa Vormwald Dr Richard Moulding FLSS

Approved duration 30/06/2010 To 30/06/2011 Extended To 30/06/2012

I refer to the ethical review of the above project protocol undertaken by Swinburne's Human Research Ethics Committee (SUHREC). Your response to the review, as e-mailed on 4/6 October 2010 with attachments, were put to and approved by a SUHREC delegate.

I am pleased to advise that, as submitted to date, the project has approval to proceed in line with standard on-going ethics clearance conditions here outlined.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the National Statement on Ethical Conduct in Human Research and with respect to secure data use, retention and disposal.

- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.

- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/ clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.

- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or
abandonment) of the project.

- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact me if you have any queries about the ethical review process, citing the SUHREC project number. Copies of clearance emails should be retained as part of project record-keeping.

Best wishes for the project.

Yours sincerely

Ann Gaeth

for Keith Wilkins

Secretary, SUHREC

10/08/2010
Appendix I: Demographic Information

Please provide the following demographic information.

What is your age?

years

Country of residence

Australia

Other - Please specify:

Usual language spoken at home

English

Other - Please specify:

Highest level of formal education

Secondary school

Current undergraduate student

Completed undergraduate degree

Current postgraduate student

Completed postgraduate degree

Employment

Full time

Part time

Casual

Not employed

Marital status

Married

Separated

Divorced
Widowed
Single
De facto
Appendix J: Screening for Psychiatric History

Please select either Yes or No for the following questions.

**OBSESSIVE-COMPULSIVE DISORDER (OCD)**

Do you currently have a diagnosis of OCD?
- Yes
- No

Do you currently receive treatment for OCD?
- Yes
- No

Have you ever been diagnosed with OCD?
- Yes
- No

Have you ever been treated for OCD?
- Yes
- No

**EATING DISORDERS (EDs)**

Do you currently have a diagnosis of ED?
- Yes
- No

Do you currently received treatment for ED?
- Yes
- No

Have you ever been diagnosed with ED?
- Yes
- No
Have you ever been treated for ED?
   Yes
   No

OTHER MENTAL ILLNESS
Do you currently have a psychiatric diagnosis (e.g. depression, anxiety, alcohol abuse, psychosis)? If yes, please specify
   No
   Yes - Please specify:

Do you currently receive treatment for any other psychiatric problem (other than OCD or ED)?
   Yes
   No

Have you ever been diagnosed as suffering from a psychiatric disorder (other than OCD or ED)?
If yes, please specify.
   No
   Yes - Please specify:

Have you ever received treatment for any other psychiatric problem (other than OCD or ED)?
   Yes
   No
Appendix K: Frost Multidimensional Perfectionism Scale (Frost et al., 1990)

Please select the option that best reflects your opinion, using the rating system below.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree or disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. My parents set very high standards for me. 0 1 2 3 4
2. Organization is very important to me. 0 1 2 3 4
3. As a child, I was punished for doing things less than perfectly. 0 1 2 3 4
4. If I do not set the highest standards for myself, I am likely to end up a second-rate person. 0 1 2 3 4
5. My parents never tried to understand my mistakes. 0 1 2 3 4
6. It is important to me that I be thoroughly competent in everything I do. 0 1 2 3 4
7. I am a neat person. 0 1 2 3 4
8. I try to be an organized person. 0 1 2 3 4
9. If I fail at work/school, I am a failure as a person. 0 1 2 3 4
10. I should be upset if I make a mistake. 0 1 2 3 4
11. My parents wanted me to be the best at everything. 0 1 2 3 4
12. I set higher goals for myself than most people. 0 1 2 3 4
13. If someone does a task at work/school better than me, then I feel like I failed the whole task.

14. If I fail partly, it is as bad as being a complete failure.

15. Only outstanding performance is good enough in my family.

16. I am very good at focusing my efforts on attaining a goal.

17. Even when I do something very carefully, I often feel that it is not quite done right.

18. I hate being less than the best at things.

19. I have extremely high goals.

20. My parents have expected excellence from me.

21. People will probably think less of me if I make a mistake.

22. I never felt like I could meet my parents' expectations.

23. If I do not do as well as other people, it means I am an inferior human being.

24. Other people seem to accept lower standards from themselves than I do.

25. If I do not do well all the time, people will not respect me.

26. My parents have always had higher expectations for my future than I have.

27. I try to be a neat person.

28. I usually have doubts about the simple everyday things I do.
29. Neatness is very important to me.

30. I expect higher performance in my daily tasks than most people.
Appendix L: Obsessional Beliefs Questionnaire – Perfectionism (OCCWG, 2005)

This inventory lists different attitudes or beliefs that people sometimes hold. Read each statement carefully and decide how much you agree or disagree with it.

For each statement below, please select the answer that best describes how you think. Because people are different, there are no right or wrong answers.

To decide whether a given statement is typical of your way of looking at things, simply keep in mind what you are like most of the time. Use the following scale.

<table>
<thead>
<tr>
<th>Disagree very much</th>
<th>Disagree moderately</th>
<th>Disagree a little</th>
<th>Neither agree nor disagree</th>
<th>Agree a little</th>
<th>Agree moderately</th>
<th>Agree very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

In making your ratings, try to avoid using the middle point of the scale (4), but rather indicate whether you usually disagree or agree with the statements about your own beliefs and attitudes.

1. If I am not absolutely sure, I'm bound to make a mistake
   1 2 3 4 5 6 7

2. Things should be perfect according to my own standards
   1 2 3 4 5 6 7

3. In order to be a worthwhile person, I must be perfect at everything I do
   1 2 3 4 5 6 7

4. In order to be a perfect person, I need to act morally at all times
   1 2 3 4 5 6 7

5. If I can't do something perfectly, I shouldn't do it at all
   1 2 3 4 5 6 7

6. I must work to my full potential at all times
   1 2 3 4 5 6 7
7. It is essential for me to consider all possible outcomes of a situation

8. Even minor mistakes mean a job is not complete

9. I must be certain of my decisions

10. Not following my moral principles makes me a bad person

11. I need to adhere to a moral code in order to be the best person that I can be

12. I should do everything that I can to act ethically

13. I should be upset if I make a mistake

14. For me, things are not right if they are not perfect

15. For me, making a mistake is as bad as failing completely
16. It is essential for everything to be clear cut, even minor matters

17. I have moral standards for myself

18. I cannot be a 'decent' human being if I do not conduct myself ethically

19. I feel satisfied that I am moral

20. I must be the best at things that are important to me

21. I must keep working at something until it’s done exactly right

22. If I don’t do a job perfectly, people won’t respect me

23. No matter what I do, it won’t be good enough

24. I must maintain high moral standards in order to be a perfect person

Moral perfectionism items (developed for this thesis) – Q4, 10, 11, 12, 17, 18, 19, 24
Appendix M: Physical Appearance Perfectionism (PAP) scale

For each statement please select the response that best describes your beliefs and attitudes. Use the following scale.

<table>
<thead>
<tr>
<th>Always</th>
<th>Usually</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. I have extremely high standards for how I look

2. I hate appearing less than perfect physically

3. When I am with others, I must be the most attractive person in the group

4. There is nothing more important to me than having a perfect body

5. I must have a perfect body

6. My body does not have to look perfect for me to be satisfied with it

7. I should do everything in my power to make my body perfect

8. I am worthless if I don't have a perfect body

9. My clothes should always fit me perfectly

10. My body must look at least as good as, if not better than the bodies of my friends
Appendix N: Self-Ambivalence Measure (Bhar & Kyrios, 2007)

Please rate the extent to which you agree with the following statements. Indicate your answer by selecting the appropriate number on the scale beside each statement.

1. I doubt about whether others really like me 0 1 2 3 4
2. I am secure in my sense of self-worth 0 1 2 3 4
3. I am insecure about the way I look physically 0 1 2 3 4
4. I feel torn between different parts of my personality 0 1 2 3 4
5. I fear I am capable of doing something terrible 0 1 2 3 4
6. I think about my worth as a person 0 1 2 3 4
7. I worry about how I look physically 0 1 2 3 4
8. I have mixed feelings about my physical attractiveness 0 1 2 3 4
9. I am constantly aware of how others perceive me 0 1 2 3 4
10. I feel that I am full of contradictions 0 1 2 3 4
11. I question the extent to which others want to be close to me 0 1 2 3 4
12. I tend to think of myself in terms of categories such as "good" or "bad" 0 1 2 3 4
13. I doubt whether I am physically attractive 0 1 2 3 4
14. I have mixed feelings about my self-worth 0 1 2 3 4
15. I question whether I am a moral person 0 1 2 3 4
16. I question whether I am morally a good or bad person 0 1 2 3 4
17. I question whether I am physically attractive 0 1 2 3 4
18. If I inadvertently allow harm to come to others, this proves that I am untrustworthy 0 1 2 3 4
19. I think about how I can improve myself

20. I tend to move from one extreme to the other in how I think about myself

21. I am constantly concerned about whether I am physically attractive

22. I am mindful about how I come across to others

23. I am constantly concerned about whether I am a "decent" human being

24. I tend to think of myself in categories such as "attractive" or "unattractive"

25. I tend to move from one extreme to the other in how I think about my appearance

26. I am constantly worried about whether I am a good or bad person

27. I question the extent to which I look good

28. I am constantly concerned about whether I have a good or bad body shape

29. I am constantly worried about whether I will make anything of my life

30. I feel torn about my weight

General self-ambivalence items – Q1, 2, 4, 5, 6, 10, 9, 11, 14, 19, 20, 22, 29
Moral self-ambivalence items – Q12, 15, 16, 18, 23, 26
Physical appearance self-ambivalence items (developed for this thesis) – Q3, 7, 8, 13, 17, 21, 24, 25, 27, 28, 30
Appendix O: Adult Self Perception Profile (Messer & Harter, 1986)

This questionnaire contains statements which allow you to describe yourself.

Please look at the pair of statements (A) and (B) in the first question. These items talk about two different kinds of people. I want to know which person is most like you.

For each pair of statements (A and B), decide whether you are more like the adults described in statement A, or whether you are more like the adults described in statement B.

Once you have selected the statement that is most like you (A or B), think about whether this statement is only "sort of true for you", or "really true for you" and select the appropriate response.

(A) is sort of true for me  (A) is really true for me  (B) is sort of true for me  (B) is really true for me
1 2 3 4

1. (A) Some adults like the way they are leading their lives
   BUT...(B) Other adults don't like the way they are leading their lives  1 2 3 4
2. (A) Some adults are happy with the way they look
   BUT... (B) Other adults are not happy with the way they look  1 2 3 4
3. (A) Some adults live up to their own moral standards
   BUT... (B) Other adults have trouble living up to their moral standards

4. (A) Some adults are very happy being the way they are
   BUT... (B) Other adults would like to be different

5. (A) Some adults sometimes question whether they are a worthwhile person
   BUT... (B) Other adults feel that they are a worthwhile person

6. (A) Some adults think that they are not very attractive or good looking
   BUT... (B) Other adults think that they are attractive or good looking

7. (A) Some adults would like to be a better person morally
   BUT... (B) Other adults think that they are quite moral

8. (A) Some adults are disappointed with themselves
   BUT... (B) Other adults are quite pleased with themselves

9. (A) Some adults like their physical appearance the way it is
   BUT... (B) Other adults do not like their physical appearance

10. (A) Some adults are dissatisfied with themselves
   BUT... (B) Other adults are satisfied with themselves

11. (A) Some adults do what they know is morally right
   BUT... (B) Other adults often don't do what they know is morally right
12. (A) Some adults like the kind of person they are
BUT... (B) Other adults would like to be someone else

13. (A) Some adults are unsatisfied with something about their face or hair
BUT... (B) Other adults like their face and hair the way they are

14. (A) Some adults often question the morality of their behavior
BUT... (B) Other adults feel that their behaviour is normal
### Appendix P: Dichotomous Thinking in Eating Disorders Scale-11 (Byrne et al., 2004)

Please read each of the following statements and decide how true it is of your thinking over the past month.

If the statement is not true of you at all, select "not true of me at all"; if it is slightly true of you, select "slightly true of me"; if it is fairly true of you, select "fairly true of me"; and if it is very true of you, select "very true of me".

<table>
<thead>
<tr>
<th>Not at all true of me</th>
<th>Slightly true of me</th>
<th>Fairly true of me</th>
<th>Very true of me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

1. I think of food as either "good" or "bad" 1 2 3 4
2. I think of things in "black and white" terms 1 2 3 4
3. I think of myself as either good or bad 1 2 3 4
4. I view my attempts to diet as either successes or failures 1 2 3 4
5. I think of myself as either in control or out of control 1 2 3 4
6. When dieting, if I eat something that I had planned not to, I think that I have failed 1 2 3 4
7. I think of myself as either clever or stupid 1 2 3 4
8. When dieting, I view my eating as having been either good or bad
9. I either get on very well with people or not at all
10. I think of myself as either ugly or good-looking
11. I think of myself as doing things either very well or very badly
Appendix Q: Obsessive Compulsive Inventory Revised (Foa et al., 2002)

The following statements refer to experiences that many people have in their everyday lives. Select the response that best describes how much that experience has distressed or bothered you during the past month.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>A lot</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

1. I have saved up so many things that they get in the way
0 1 2 3 4

2. I check things more often than necessary
0 1 2 3 4

3. I get upset if objects are not arranged properly
0 1 2 3 4

4. I feel compelled to count while I am doing things
0 1 2 3 4

5. I find it difficult to touch an object when I know it has been
touched by strangers or certain people
0 1 2 3 4

6. I find it difficult to control my own thoughts
0 1 2 3 4

7. I collect things that I don't need
0 1 2 3 4

8. I repeatedly check doors, windows, drawers, etc.
0 1 2 3 4

9. I get upset if others change the way I have arranged things
0 1 2 3 4

10. I feel I have to repeat certain numbers
0 1 2 3 4

11. I sometimes have to wash or clean myself simply because I feel
contaminated
0 1 2 3 4
12. I am upset by unpleasant thoughts that come into my mind against my will

13. I avoid throwing things away because I am afraid I might need them later

14. I repeatedly check gas and water taps and light switches after turning them off

15. I need things to be arranged in a particular order

16. I feel that there are good and bad numbers

17. I wash my hands more often and longer than necessary

18. I frequently get nasty thoughts and have difficulty in getting rid of them
Appendix R: Eating Disorders Examination Questionnaire (Fairburn & Beglin, 2008)

The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully.

Please select the appropriate number on the right.

<table>
<thead>
<tr>
<th>No days</th>
<th>1-5 days</th>
<th>6-12 days</th>
<th>13-15 days</th>
<th>16-22 days</th>
<th>23-27 days</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Over the past 28 days…

1. Have you been deliberately TRYING to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?
2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?
3. Have you TRIED to exclude food from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?
4. Have you TRIED to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?
5. Have you had a definite desire to have an EMPTY stomach with the aim of influencing your shape or weight?
6. Have you had a definite desire to have a TOTALLY FLAT stomach?
7. Has thinking about FOOD, EATING OR CALORIES made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?

8. Has thinking about SHAPE OR WEIGHT made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?

9. Have you had a definite fear of losing control over eating?

10. Have you had a definite fear that you might gain weight?

11. Have you felt fat?

12. Have you had a strong desire to lose weight?

Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

13. Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?
14. Over the past 28 days, on how many of these times did you have a sense of having lost control over your eating (at the time you were eating)?

15. Over the past 28 days, on how many days have such periods of overeating occurred (i.e., you have eaten an unusually large amount of food AND have had a sense of loss of control at the time)?

16. Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?

17. Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?

18. Over the past 28 days, how many times have you exercised in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat, or to burn off calories?
Please select the appropriate response. Please note that for these questions the term "binge eating" means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

<table>
<thead>
<tr>
<th></th>
<th>No days</th>
<th>1-5 days</th>
<th>6-12 days</th>
<th>13-15 days</th>
<th>16-22 days</th>
<th>23-27 days</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

19. Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)? Do not count episodes of binge eating.

![Response Options](image1)

20. On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape and weight? Do not count episodes of binge eating.

![Response Options](image2)

21. Over the past 28 days, how concerned have you been about other people seeing you eat? Do not count episodes of binge eating.

![Response Options](image3)
Please select the appropriate response on the right. Remember that the questions only refer to the past four weeks (28 days).

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Markedly</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

22. Has your WEIGHT influenced how you think about (judge)
yourself as a person? 0 1 2 3 4 5 6

23. Has your SHAPE influenced how you think about (judge)
yourself as a person? 0 1 2 3 4 5 6

24. How much would it upset you if you had been asked to weigh
yourself once a week (no more, or less, often) for the next four
weeks? 0 1 2 3 4 5 6

25. How dissatisfied have you been with your WEIGHT? 0 1 2 3 4 5 6

26. How dissatisfied have you been with your SHAPE? 0 1 2 3 4 5 6

27. How uncomfortable have you felt seeing your body (for
example, seeing your shape in the mirror, in a shop window
reflection, while undressing or taking a bath or shower)? 0 1 2 3 4 5 6

28. How uncomfortable have you felt about OTHERS seeing your
shape or figure (for example, in communal changing rooms, when
swimming, or wearing tight clothes)? 0 1 2 3 4 5 6
Please provide the required information.

29. What is your weight at present? (Please give your best estimate) kilograms

30. What is your height? (Please give your best estimate) centimetres

Please select the appropriate Yes or No response.

**Note:** For the first question, only select the Not Applicable (N/A) response if you have ceased menstruating permanently (i.e. you are menopausal or post-menopause).

31. During the past three to four months, have you missed any menstrual periods? If so how many?
   
   N/A
   
   No
   
   Yes - If so, how many?

32. Have you been taking the contraceptive pill?
   
   Yes
   
   No
### Appendix S: Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Please respond by selecting the appropriate response on the scale beside each item.

<table>
<thead>
<tr>
<th>Definitely disagree</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Disagree a little</th>
<th>Unsure</th>
<th>Agree a little</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Definitely agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

1. I feel I have a number of good qualities

2. I wish I could have more respect for myself

3. I feel I am a person of worth

4. I feel I do not have much to be proud of

5. I take a positive attitude towards myself

6. I certainly feel useless at times

7. All in all, I am inclined to think that I am a failure

8. I am unable to do things as well as most other people

9. At times I think I am no good at all

10. On the whole I am satisfied with myself
Appendix T: Depression Anxiety and Stress Scale (Lovibond & Lovibond, 1995)

Please read each statement and select the response which indicates how much the statement applied to you over the past week. There are no right or wrong answers.

Do not spend too much time on any statement.

Over the **past week**, how much did each of the statements below apply to you?

<table>
<thead>
<tr>
<th>Did not apply to me at all</th>
<th>Applied to me to some degree, or some of the time</th>
<th>Applied to me to a considerable degree, or a good part of the time</th>
<th>Applied to me very much, or most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

1. I found it hard to wind down

2. I was aware of dryness of my mouth

3. I couldn't seem to experience any positive feeling at all

4. I experienced breathing difficulty (eg., excessively rapid breathing, breathlessness in the absence of physical exertion)

5. I found it difficult to work up the initiative to do things

6. I tended to over-react to situations

7. I experienced trembling (eg., in the hands)

8. I felt that I was using a lot of nervous energy

9. I was worried about situations in which I might panic and make a fool of myself

10. I felt that I had nothing to look forward to

11. I found myself getting agitated
12. I found it difficult to relax 1 2 3 4
13. I felt down-hearted and blue 1 2 3 4

14. I was intolerant of anything that kept me from getting on with what I was doing 1 2 3 4
15. I felt I was close to panic 1 2 3 4
16. I was unable to become enthusiastic about anything 1 2 3 4
17. I felt I wasn't worth much as a person 1 2 3 4
18. I felt that I was rather touchy 1 2 3 4
19. I was aware of the action of my heart in the absence of physical exertion (eg., sense of heart rate increase, heart missing a beat) 1 2 3 4
20. I felt scared without any good reason 1 2 3 4
21. I felt that life was meaningless 1 2 3 4