



A CURRENT PROFILE OF SCHEMAS IN OCD AND TRICHOTILLOMANIA

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I hereby declare that this thesis is the product of my own work.

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| ACKNOWLEDGEMENTS | 1 |
| ABSTRACT | 2 |
| LITERATURE REVIEW..... | 3 |
| BACKGROUND | 3 |
| The history and definition of trichotillomania (TTM)..... | 3 |
| The history and definition of obsessive-compulsive disorder (OCD) | 4 |
| OBSESSIVE-COMPULSIVE DISORDER AND TRICHOTILLOMANIA | 7 |
| Heuristics for comparing OCD and TTM | 7 |
| The classification of TTM in the DSM-IV | 7 |
| Dimensional versus categorical classification..... | 8 |
| The 3 possible types of association between OCD and TTM | 14 |
| Epidemiology | 15 |
| Age at onset..... | 15 |
| Prevalence | 18 |
| Precipitating factors..... | 21 |
| Gender distribution..... | 23 |
| Family history | 24 |
| Comorbidity with Axis I disorders | 25 |
| Comorbidity with Axis II disorders..... | 27 |
| Symptom progression versus symptom stability | 30 |
| Summary of epidemiological findings | 31 |
| Neurobiology and pharmacotherapy..... | 31 |
| Neurochemical investigations | 32 |
| Neuropsychiatric investigations | 34 |
| Neurological soft signs..... | 35 |
| Neuropsychological dysfunction..... | 35 |
| Phenomenology | 38 |
| Behaviour | 38 |
| Affect..... | 40 |
| Sensory stimuli | 44 |
| Cognition | 45 |
| COGNITIVE-BEHAVIOURAL THEORY | 46 |
| Schema theory | 48 |
| The formation and maintenance of schemas | 49 |
| The defining characteristics of schemas..... | 54 |
| Schemas in Axis I and Axis II disorders | 59 |
| Using the YSQ in research studies | 62 |

METHOD..... 65

AIMS AND HYPOTHESES..... 65

DESIGN 67

PARTICIPANTS..... 67

THE YOUNG SCHEMA QUESTIONNAIRE (YSQ)..... 68

The development and empirical testing of the YSQ schemas..... 69

The definition of the 15 schemas included the YSQ (short form)..... 76

Internal Consistency 78

RESULTS 80

DISCUSSION..... 89

EPIDEMIOLOGICAL DATA..... 89

Age at onset..... 89

Gender..... 89

Comorbidity..... 90

COGNITION 91

YSQ schemas in OCD and TTM..... 91

 Hypothesis one 91

 Hypothesis two..... 93

 Hypothesis three..... 96

Conclusions on the current profile of schemas in OCD and TTM..... 97

GENERAL CONCLUSIONS 99

LIMITATIONS OF THE STUDY..... 100

SUGGESTIONS FOR FUTURE RESEARCH 101

REFERENCE LIST 103

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Abstract

Trichotillomania (TTM) is currently classified as an impulse disorder in the DSM-IV, but there is a growing consensus amongst researchers that trichotillomania should be placed on the putative OCD-related disorders spectrum. OCD and TTM have been compared in many fields including neurobiology, phenomenology and epidemiology. Studies of cognition in OCD and TTM typically focus on automatic thoughts and underlying assumptions and there is a paucity of research into enduring cognitive structures, or schemas, associated with the two disorders. This thesis reviews the available evidence regarding the relationship between OCD and TTM. The Young Schema Questionnaire (YSQ) was used to measure 15 maladaptive schemas in 96 OCD patients, 34 TTM patients, and 94 controls. In the comparison between OCD and TTM it was found that depression has a major impact on the profile of schemas in OCD. When controlling for depression a few differences in schema profile were found between OCD and TTM, though the schema *enmeshment* emerged as significant in both disorders. These findings are discussed in the light of the debate around the classification of trichotillomania in the psychiatric nomenclature.

BACKGROUND

The history and definition of trichotillomania (TTM)

Literary references to pulling out hair stretch back to antiquity (Christenson & Mansueto, 1999). In the earliest epic, *The Iliad*, Homer describes how Agamemnon pulls out his hair in anguish during the Trojan War (Lang, 1945, cited in Christenson et al., 1999). A reference to hair-pulling occurs, too, in a biblical reference to the prophet Ezra: “And when I heard this thing, I rent my garment and my mantle, and plucked off the hair of my head and of my beard and sat down astonished [sic]” (Ezra 9:3, cited in Christenson et al., 1999). The earliest medical accounts, by the ancient Greek physician Hippocrates, include the assessment of hair-pulling as an aspect of any general medical examination. In *Epidemics I*, Hippocrates wrote:

Then we must consider his speech, his mannerisms, his silences, his thoughts, his habits of sleep or wakefulness and his dreams, their nature and time. Next, we must note whether he plucks his hair, scratches or weeps (Lloyd, 1983, cited in Christenson et al., 1999).

In art, hair-pulling is inevitably paired with madness, or, at least, emotional extremis. *The Women From the Mad House* by the 17th century artist Artus Quellinus de Oude depicts a woman tearing at her hair (Christenson et al., 1999). The 1809 painting, *St Lukes Asylum*, by Thomas Rowlandson and August Pugin contains similar imagery: a woman whose hands clutch the hair she has pulled out.

Anthropologists have discovered that hair pulling is sanctified in some cultures. Christensen and Mansueto write: “In the current era, members of a monastic sect of the Jain community in India regularly pluck out all the hair from their scalp as a rite to denote detachment from pain” (Shome, 1993, cited in Christensen et al., 1999). Yet the concept of TTM is distinct

from socially sanctioned practices; from its earliest usage TTM denoted a pathological condition. The medical syndrome was formulated after Hallopeau made a detailed study of a young man who pulled out all his body's hair (Christenson et al., 1999). Hallopeau coined the term *trichotillomania* from the Greek words *trich* (hair), *tillo* (to pull), and *mania*, a morbid impulse, or abnormal love.

DSM-IV diagnostic criteria for trichotillomania (APA, 1994)

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- A. Recurrent pulling out of one's hair resulting in noticeable hair loss.
 - B. An increasing sense of tension immediately before pulling out the hair or when attempting to resist the behaviour
 - C. Pleasure, gratification, or relief when pulling out the hair.
 - D. The disturbance is not better accounted for by another mental disorder and is not due to a general medical condition (e.g., a dermatological condition).
 - E. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
-

The history and definition of obsessive-compulsive disorder (OCD)

As in TTM, descriptions of OCD begin in some of the earliest written and artistic records. It has been observed that OCD often intermingles with intense religiosity often making them difficult to separate (Stone, 1997). The earliest records of OCD are part of the story of religion over many centuries, though the nature of the relationship between the two is controversial. Does religious fervour predispose to obsessive ideation and ritualised behaviour, or is OCD – perhaps with a genetic aetiology - sometimes expressed in the form of religious zeal? Stone comments:

Religions that encourage the suppression of sexual urges (such as the early Christian church, Puritanism, and certain Buddhist and Orthodox Jewish groups) may foster a program of self-control, along with feelings of guilt. Condemnation of all feelings of anger (as stressed by these same religions) can likewise promote exaggerated feelings of unworthiness and lead to a redoubling of efforts to rise above one's natural impulses. These efforts

often take the form of obsessional self-criticism and of compulsive, ritualised acts of cleansing or self-mortification (1997, p.19).

In 16th century Catholic theology illegitimate ideas and urges were seen to be external. During sleep such phenomena were termed *possessio* (Stone, 1997). Unacceptable intrusions into waking consciousness were called *obsessio*. Possessions and obsessions were believed to be the result of a *daemon* insinuating itself into the body (Stone, 1997). The Protestant Reformation ushered in a new conceptualisation of obsessional and irreligious thoughts – their origin was no longer seen as supra-individual. The English writer Richard Flecknoe spoke in the mid-17th century of the obsessional person simply as a person who “when he begins to deliberate, never makes an end” (Cited in Stone, 1997, p.20). In the 18th century the English writer Samuel Johnson, himself an obsessional, declared: “No disease of the imagination is so difficult of cure, as that which is complicated with the dread of guilt” (Cited in Stone, 1997, p.20).

In the 20th century Freud described obsessions and compulsions as defence *hysteria*: obsessions occur when the ego is given the task of defending against an unbearable idea (Freud, 1997). In Freud’s conception the nucleus of intolerable feelings is transgressive sexual experience or desire. The affect is shorn off from the original sexual thought, floats freely, and then becomes attached to other ideas which are not innately unbearable but which become the focus of obsessions. Freud asserts that numerous patients make statements such as:

Once something very disagreeable happened to me, and I did my utmost to thrust it out of my mind, to think no more about it. Finally I succeeded, but then I got this, which since then I have never been rid of (1997, p.38).

A remarkable continuity extends between the early phenomenological descriptions of OCD given by Freud, Bleuler, Janet and Kraepelin and the contemporary presentation of the disorder (Attiullah, Eisen, & Rasmussen, 2000). Moreover symptoms are consistent from all corners of the world: Saudi Arabia to Canada, India to Japan and ultra-orthodox Jews. Both adults and children with OCD present with multiple obsessions and compulsions. These symptoms are ephemeral with a specific fear or concern dominating at any one time (Attiullah et al., 2000).

DSM-IV diagnostic criteria for obsessive-compulsive disorder (APA, 1994)

Either obsessions or compulsions

Obsessions as defined by (1), (2), (3) and (4)

(1) recurrent and persistent thoughts, impulses, or images that are experienced, at some time during the disturbance, as intrusive and inappropriate and that cause marked anxiety or distress

(2) the thoughts, impulses, or images are not simply excessive worries about real-life problems

(3) the person attempts to ignore or suppress such thoughts, impulses or images, or to neutralize them with some other thought or action

(4) the person recognises that the obsessional thoughts, impulses, or images are a product of his or her own mind (not imposed from without as in thought insertion)

Compulsions as defined by (1) and (2)

(1) repetitive behaviours (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the person feels driven to perform in response to an obsession, or according to rules that must be applied rigidly

(2) the behaviours or mental acts are aimed at preventing or reducing distress or preventing some dreaded event or situation; however, these behaviours or mental acts either are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive

B. At some point during the course of the disorder, the person has recognized that the obsessions or compulsions are excessive or unreasonable

C. The obsessions or compulsions are time consuming (take more than 1 hour a day), or significantly interfere with the person's normal routine, occupation (or academic) functioning, or usual social activities or relationships

D. If another Axis I disorder is present, the content of the obsessions or compulsions is not restricted to it (e.g., preoccupation with food in the presence of an Eating Disorder; hair pulling in the presence of Trichotillomania; concern with appearance in the presence of Body Dysmorphic Disorder; preoccupation with drugs in the presence of a Substance Use Disorder;

preoccupation with having a serious illness in the presence of Hypochondriasis; preoccupation with sexual urges or fantasies in the presence of a Paraphilia; or guilty ruminations in the presence of Major Depressive Disorder).

E. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

OBSESSIVE-COMPULSIVE DISORDER AND TRICHOTILLOMANIA

Heuristics for comparing OCD and TTM

The classification of TTM in the DSM-IV

The classification of trichotillomania is a contentious issue. TTM is listed as an impulse control disorder in the Diagnostic and Statistical Manual of Mental Disorders, DSM-IV (APA, 1994). Thus TTM is grouped with diverse disorders such as pyromania, kleptomania, pathological gambling and intermittent explosive disorder. Characteristic of these disorders is mounting tension before the act, and relief or pleasure caused by the discharge of tension through performance of the act. In addition impulse disorders are hypothesised to be ego-syntonic (Christenson et al., 1999). The DSM-IV states that substance abuse and paraphilias may include aspects of impulse control disorder (APA, 1994). A coherent organizing principle for the impulse control disorders is not provided in the DSM-IV (APA, 1994), and researchers are concerned about this lack of conceptual clarity (McElroy, 1992, cited in Christenson et al., 1999).

The classification of TTM in the psychiatric nomenclature as an impulse disorder belies a growing trend over the past decade for researchers to conceptualise TTM as related to obsessive-compulsive disorder, OCD (Stanley & Cohen, 1999). Swedo writes:

Trichotillomania has been variously classified as a simple habit disorder (Jillson 1983), as a symptom of psychosis (Oguchi and Miura 1977) or psychodynamic conflict (Greenberg and Sarnet 1965), and, currently, as a disorder of impulse control (DSM-III-R 312.39). Before 1980,

trichotillomania was included in *Index Medicus* under “Obsessive Compulsive Neurosis,” and recent observations have suggested that it might again be classified with obsessive-compulsive disorder (OCD) in a spectrum of disorders having in common pathological grooming compulsions (Demaret, 1973; Jenike 1989; Leonard et al., 1991; Swedo, 1989; Swedo et al., 1989b) (1993, pp.93-94).

Both OCD and TTM are being investigated and understood with ever-increasing precision. (Neurobiological research into the two disorders has been bolstered in recent years by technological advances such as Magnetic Resonance Imaging). Despite this steady tide of information, the question of the relatedness of OCD and TTM has no definitive answer. Just as we marvel that TTM was once linked with psychosis there is no reassurance that future generations of researchers will not wonder how TTM was once believed to be a variant of OCD. Categorizing and understanding TTM entails an ongoing process of examining the “best fit” of the disorder along various dimensions.

Dimensional versus categorical classification

The DSM-IV represents a categorical approach to psychiatric classification. Stein and Hollander observe: “Categories are convenient abstractions of clinically important information. They enable the clinician to readily classify different patients, and they may suggest a standard clinical approach” (1993, p.242). The explicit philosophy of the DSM-IV (APA, 1994) is an atheoretical approach to organizing psychiatric pathology. However even categorical systems use hierarchies and groupings signify relationships between clinical entities. The DSM-IV lists OCD as an anxiety disorder (a superordinate category) and TTM as an impulse disorder (another superordinate category), thus casting them as distinct and unrelated disorders.

Stein and Hollander (1993) argue that a dimensional approach to classifying psychopathology is a more instructive classification method for research purposes. They write:

First, the phenomena of the world are only rarely classifiable into categories that are homogenous, mutually exclusive, and jointly exhaustive. Psychiatric phenomena often fall on a continuum (Kendall 1975). Thus a dimensional approach allows the classification of patients who fall at the border of classical entities or who are otherwise atypical. Similarly, if a patient has the signs and symptoms of two categorical entities, these can be seen as related rather than as merely comorbid (Stein & Hollander, 1993, p.242).

Siever and Davis (1991) present a coherent dimensional model that includes the range of Axis I and Axis II disorders in the DSM-IV. First, it is noted that Axis I disorders in the DSM-IV fall broadly into four groups: (1) schizophrenic, (2) affective, (3) impulse, (4) anxiety. Siever and Davis propose a dimensional model along each of these four categories (Siever & Davis, 1991). Considerable work has already been done over the past 20 years to delineate the biology and genetics of disorders in these categories, and the dimensional model benefits from the start from this body of research.

Schizophrenia is characterised by disturbances in the fundamental psychobiology of cognitive-perceptual organization. Similarly, affective disorders represent disturbances in affective regulation; Impulse disorders result from disturbances of impulse control; and anxiety disorders are the outcome of disturbances in anxiety modulation. Siever and Davis (1991) describe each dimension in terms of a continuum: generally acute manifestations produce an Axis I disorder whereas chronic manifestations result in an Axis II disorder. Mild manifestations of a specific dimension are simply recognisable as a pattern of defence mechanisms and adaptational strategies.

Affective disorders are caused by alterations in the regulation and intensity of mood (Siever and Davis, 1991). Major affective disorders represent sustained, autonomous episodes of mood disturbance. A chronic experience of fleeting and reactive mood changes characterise

borderline personality disorder and interfere with formation of stable relationships and self-image. Affective instability, then, is a predisposition to marked, rapidly reversible shifts in affective state that are unusually sensitive to poignant events such as separation, criticism or frustration. In some cases the self is formed in an atmosphere of emotional dysregulation, and the individual's capacity for stable self-esteem is compromised. Siever and Davis posit that the interaction between the affective dimension and the anxiety/inhibition dimension determine which defence mechanisms are evoked in individuals with affective disorders. Inhibited, anxious people with affective dysregulation will avoid contact with others to minimize the chance of being hurt in relationships. Disinhibited people with affective dysregulation will use their emotionality to control others and manipulate them into helping with the ongoing task of mood stabilisation.

Impulse control disorders are manifestations of a reduced capacity to delay or inhibit action, particularly aggressive action. Impulse dyscontrol may result in episodic impulsive/aggressive action as found in Axis I disorders such as intermittent explosive disorder, pathological gambling, or kleptomania (Siever and Davis, 1991). When the predisposition to impulsive or aggressive behaviour is sustained it becomes expressed in Axis II disorders such as antisocial personality disorder and borderline personality disorder. Thus the impulsivity/aggression dimension can be conceptualised as a low threshold for active responses to internal or external stimuli. There is a predisposition towards active and aggressive behavioural strategies. There is also impairment of the ability to anticipate the likely negative effects of a specific behaviour or learn from the previous undesirable consequences of certain behaviours. Such individuals generally externalise problems and experience little guilt or anxiety. Impulsive patients generally use repression, dissociation, or enactment to avoid the experience of anxiety.

Anxiety/inhibition can be defined as a low threshold for subjective fear and autonomic arousal in anticipating aversive consequences, and is often associated with behavioural inhibition. Siever and Davis comment: “Although discrete episodes of anxiety, compulsive rituals, or phobias can be observed in Axis I anxiety disorders, attempts to cope with a pervasively low threshold for anxiety might contribute to the avoidant, compulsive, and dependent behaviours of the “anxious cluster” diagnoses” (1991, p.1468). Pathological anxiety may originate in an unusually intense fear of punishment. The anxious person is prone to interpreting the smallest cue as a sign of threat and then to manifest an excessive reaction. Siever and Davis comment: “When the anxious individual acts, it is often in the direction of avoidance of or withdrawal from the environment...Obsessive compulsive personality disorder is marked by an excessive need for order to reduce anxiety related to uncertainty regarding future consequences of behaviour” (1991, p.1653).

Where OCD and TTM lie on these four dimensions will be debated in this thesis. Simply, however, the four dimensions of the dimensional model accord with the structure of the DSM-IV. Therefore as in the DSM-IV, OCD is included on the anxiety/inhibition dimension whereas TTM lies on the impulsivity dimension. OCD and TTM are seen as distinct disorders.

However, the phenomenological and epidemiological similarities between OCD and TTM have caught the attention of researchers and an OCD-related disorders spectrum has been hypothesised to link the two disorders. Symptom overlap is perhaps the first and most intuitive reason for hypothesising the existence of a spectrum. If the phenomenology of two disorders appears to coincide it is natural to investigate the possibility that the two disorders

coexist on a spectrum. Such research looks at every aspect of psychiatry in order to conceptualise the overlap. Epidemiology is of immediate significance. If the age at onset, gender distribution, prevalence, cognition, affect and behaviour in two disorders are similar this gives credibility to a proposed spectrum. Stein and Hollander (1993) posit that a common aetiology, as revealed in family linkage, biological markers and pharmacotherapeutic response, constitutes perhaps the best supportive evidence of a spectrum. Examples of proposed OCD spectra include (1) OCD and delusions, stretching from obsessive-compulsivity to schizophrenia and (2) OCD and rumination (3) OCD and anxiety and depression (4) OCD and tourette's syndrome (6) OCD and depersonalisation disorder (7) OCD and anorexia nervosa (Stein et al., 1993). The range of these proposed spectra illustrate the complexity and heterogeneity of OCD.

OCD and TTM share the experience of irresistible and repeated urges to perform an act. For many patients with OCD or TTM, any attempt to resist the behaviour creates tension, and performance of the behaviour provides a sense of relief. One OCD spectrum currently being given research attention rests on a continuum of impulsivity versus compulsivity. Hair-pulling is characterised as *impulsive*, that is, ego-syntonic, whereas a *compulsion* is defined as ego-dystonic. In addition compulsivity concerns harm avoidance and risk reduction while impulsivity has no such focus. Stein, Simeon, Cohen and Hollander write:

... [in TTM] there is an emphasis on the patients' impulses, their failure to resist such impulses, and on the gratification experienced during enactment of impulses. In contrast, DSM-IV diagnostic criteria for OCD emphasize the patient's stereotyped thoughts and behaviours, their continuous resistance to such symptoms, and the ego-dystonic nature of these symptoms.

These differences in emphasis are, however, subtle, and a clear contrast in descriptions of the symptoms of TTM and OCD is not always readily discernable ... patients with both disorders are heterogenous; they differ in the extent to which they are able to resist their symptoms, and they differ in

the degree to which their symptoms are characterized as ego-syntonic or ego-dystonic (1995, p.29).

The compulsivity versus impulsivity spectrum has been investigated by assessing OCD, TTM and Borderline groups using the Young-Brown Obsessive-compulsive Scale (Y-BOCS) and Eysenck's Impulsivity Questionnaire (EIQ) (Stein, Simeon, Cohen, & Hollander, 1995). As expected the OCD group scored the highest on the measure of obsessionality and compulsivity (Y-BOCS), while the Borderline group scored the highest on the impulsivity scale (EIQ). TTM fell in-between OCD and Borderline Personality Disorder (BPD) on the impulsivity questionnaire, indicating the TTM may lie in the middle of the hypothesised compulsivity-impulsivity spectrum. But there are reports of a subgroup of OCD with a history of poor impulse control or primitive defences (Attiullah et al., 2000). Some research has suggested that OCD patients with comorbid tic disorder may have heightened impulsivity. There is also a hypothesised association between OCD and impulsive disorders such as conduct disorder and antisocial personality disorder (Attiullah et al., 2000). In addition, evidence has been presented of obsessive-compulsive symptoms in a few impulsive borderline patients (Stein et al., 1993). On a measure of harm avoidance with OCD, TTM and Borderline groups, OCD scored highest (Stein et al., 1993). But all clinical groups were substantially higher than control groups indicating that the "compulsive impulsive spectrum cannot be simply divided into poles of high and low harm avoidance" (Stein et al., 1993, p.260). Put together these findings are inconsistent with a compulsivity-impulsivity spectrum as it is currently hypothesised. Thus while the compulsivity-impulsivity dimension continues to be researched, crucial questions of definition remains unanswered. In addition, differentiating impulsivity from volitional behaviour, or from externally motivated behaviour, is problematic (Kavoussi & Coccaro, 1993). Finally, there is no satisfactory way to

distinguish between impulsivity and irritability, depression and other troubling emotions reported by TTM patients.

Compulsivity is linked with the anxiety/inhibition dimension in Siever and Davis' dimensional model whereas impulsivity is part of the impulsivity/aggression dimension (1991). Hence the compulsivity-impulsivity spectrum represents a bridge between two distinct psychobiological dimensions. Referring to Axis II research, Siever and Davis assert: "Variations in severity along each dimension and *interactions between dimensions* can provide a rich biological vocabulary contributing to the many temperamental styles characteristic of the personality disorders" (emphasis added) (1991, p.1648). Interactions between dimensions - the compulsivity-impulsivity spectrum is one example - are not further explored by Siever and Davis (1991). Thus there are two competing ways of viewing the relationship between OCD and TTM. The first is the dimensional model that places OCD with the anxiety/inhibition dimension and TTM with impulsivity/aggression dimension. In this conception the two disorders are distinct, though they both exhibit high levels of comorbidity with depression and anxiety. The second view holds that OCD and TTM are in fact closely related on a spectrum that spans the anxiety/inhibition and impulsivity/aggression dimensions. Though evidence has emerged to support both view points, the current trend in research circles is to regard OCD and TTM as closely associated.

The 3 possible types of association between OCD and TTM

Stanley and Cohen (1999) identify three possibilities in the relationship between TTM and OCD: (1) that TTM is a variant of OCD; (2) that TTM and OCD are both part of a larger category of OCD spectrum disorders; (3) that the similarity between OCD and TTM is an artefact of the negative affect that underpin both disorders. The remainder of this literature review will present studies that are germane to the question of what association exists

between OCD and TTM. The current study is intended to make a contribution to this literature in the field of cognition.

The range of literature will be grouped as following: epidemiology (population characteristics of OCD and TTM will be reviewed); neurobiology (a summary will be given of the neurology, pharmacology and neuropsychology of OCD and TTM) and phenomenology (the presentation of OCD and TTM will be discussed in terms of behaviour, affect, sensory stimuli and phenomenology).

Epidemiology

Age at onset

TTM symptoms have been known to emerge at any time from the first year of life to the 60s (Christenson et al., 1999). In the main, however, studies show that TTM presents in early adolescence. Stanley and Cohen (1999) state that age at onset means generally fall between 11 to 13 years. In a study of 123 respondents to media articles about TTM, the mean age at which hair-pulling began was 12 years (Cohen, Stein and Simeon, 1995, cited in Stein, Mullen, Islam, Cohen, DeCaria, & Hollander, 1995).

By contrast the onset of symptoms in OCD appears to have a bimodal distribution, with one group in middle adolescence and another in early adulthood (Stanley et al., 1999). Research on clinical populations indicates a range of between 17 and 24 years (Stanley et al., 1999). The age at onset has gendered differences: onset between 18 and 22 is quoted for males compared to onset between 21 and 24 for females. It has been discovered that there is a difference in age at onset for OCD accompanied by depression compared to “pure” OCD. The age at onset of OCD with depression was 16.7 (SD=10.4) while the age at onset for “pure” OCD was 19.8 (SD=12) (Welner, 1976 cited in Sobin, Blundell, Weiller, Gavigan,

Haiman, & Karayiorgou, 1999). Evidently secondary depression is associated with an earlier age at onset, and studies with a greater proportion of “pure” OCD should expect a later mean age at onset.

There is a stark contrast between the age distributions of clinically significant obsessive-compulsive symptom onset (which do not meet the DSM dysfunction criteria) and DSM-IV OCD onset. In the case of DSM-IV OCD onset, the onset age of OCD in males is largely even across age groups 6 to 20, though there is a small peak at the age of 15 (Sobin et al., 1999). In females the onset age has a bimodal distribution with 35% of females reporting onset in childhood and 25% of females reporting onset after the age of 25. The onset of clinically significant OC symptoms (that later evolve into DSM-IV OCD) is dramatically earlier in both males and females. About 70% of males and 60% of females first experience OC symptoms before the age of 12. Approximately 20% of males and 30% of females continue to have symptom onsets between 16 and 35 years of age (Sobin et al., 1999). Previously reported gender differences in age at onset may reflect gender differences in *onset of impairment* associated with OC symptoms rather than the emergence of the symptoms themselves.

Though relatively few comparative studies exist it is generally suggested that age at onset of TTM is younger than that of OCD (Stanley et al., 1999). The few studies that directly compare OCD and TTM have found that age at onset of TTM is significantly younger. One study with 20 TTM patients and 20 OCD patients found a mean age at onset of 12.8 for TTM and 17.6 for OCD (Himle, Bordnick, & Thyer, 1995); in another study with 15 TTM patients and 25 OCD patients, the means were 15.7 years and 20.6 years respectively (Tukel, Keser, Karali, Olgun, & Calikusu, 2001).

There is evidence of “child-onset” OCD: symptoms appearing from about age 6 to 9 (Swedo, Leonard, & Rapoport, 1997). In child-onset OCD, boys outnumber girls by as much as 1.5 to 2.5 times (Eichstedt & Arnold, 2001). In comparison there is an equal gender distribution in adult OCD or women may be in the majority (Eichstedt et al., 2001). Again, some researchers argue that gender equality exists in child-onset OCD, but males are more often *presented* to clinicians for various reasons such as differing comorbidity profiles, and increased *impairment* as a result of obsessive symptoms (Eichstedt et al., 2001; Ravizza, Maina, & Bogetto, 1997; Rettew, Swedo, Leonard, Lenane, & Rapoport, 1992). The question of whether child-onset OCD represents a distinct subtype of OCD is under investigation (Geller, Biederman, Jones, Park, Schwartz, Shapiro, & Coffey, 1998).

Paediatric TTM is also reported: the disorder is found in infancy and early childhood. This presentation has not yet been thoroughly researched. Studies of hair pulling in children have found that 27% to 90% of children failed to endorse either tension prior to pulling or relief during the act (Hanna, 1997). Thus the diagnostic criteria are highly problematic for young hair pullers. Paediatric TTM is hypothesised to be a separate disorder from adolescent onset TTM (Swedo, 1993). Swedo observes: “It is unclear from published reports whether hair pulling with onset before five years of age constitutes the same disorder as that which presents during adolescence and young adulthood; the literature is dichotomous with little overlap between the two age groups” (1993, pp.99-100). Notably, 62% of preschool-age TTM children are male versus 30% males in older onset TTM (Swedo, 1993). In addition paediatric TTM is comparatively benign and may frequently be outgrown (Swedo, 1993). Christenson and Mansueto, however, consider it premature to regard paediatric TTM as a mild form of the disorder (Christenson et al., 1999). They state:

It is not unusual for adult patients to report that detection of trichotillomania in childhood was associated with limited interventions resulting in no benefit or only short-lived improvements. Thus, it may be that inadequate follow-up has fostered a false impression of the benign, time-limited nature of this condition (1999, p.8).

A study of 36 patients in an outpatient psychocutaneous clinic found that child TTM patients with symptoms for less than 6 months exhibited spontaneous resolution or resolution after minimal intervention (Christenson et al., 1999). In this group positive hair regrowth occurred 1 to 3 months after a clinician spoke to the patient and the family about the behaviour. Patients whose symptoms had lasted more than 6 months, however, adhered to a more chronic and treatment-resistant course (Christenson et al., 1999).

Prevalence

There is no definitive information about the prevalence of TTM in the general population. Early estimates were based solely on clinical populations, and the prevalence figures given supported the widespread conviction that the disorder is very rare (Christenson et al., 1999). A more systematic study was carried out with 2579 college students in 2 American universities and one liberal arts college (Christenson et al., 1999). The findings reveal a lifetime prevalence of 0.6% for both female students and male students. These percentages rose significantly when the diagnostic criteria were restricted to visible hair loss caused by hair-pulling: 1.5% of male and 3.4% of female students had caused themselves visible hair loss at some point in their lives (Christenson et al., 1999). Evidently a proportion of the sample disclosed clinically significant hair pulling without the associated tension-reduction cycle. It is argued that about 17% of TTM patients deny experiencing tension before pulling their hair or a feeling of gratification or relief once engaged in the act (Christenson, Mackenzie and Mitchell, 1991, cited in Stanley, Borden, & Mouton, 1995). This calls into question the validity of the diagnostic criteria for TTM that specifies that the individual feel

“an increasing sense of tension immediately before pulling out the hair” and “relief when pulling out the hair” (APA, 1994).

Three further studies have been conducted on college populations. Of 490 freshmen students in an American college, 10% acknowledged non-cosmetic hair pulling, 2% had caused baldness or bald patches and 2% acknowledged significant distress due to hair pulling. Only 1% of the subjects reported all three characteristics: (1) hair pulling, (2) visible hair loss and (3) associated emotional distress (Christenson et al., 1999). Comparable figures in a replication study were: 13% of 221 students reported hair pulling, 1% showed alopecia, and 1% disclosed associated distress (Christenson et al., 1999). Stanley, Bordon and Bell conducted a study of 288 college students in which 15.3% told of hair pulling in the previous 12 months, and of these 20% stated that they pulled hair daily (Christenson et al., 1999). None of these subjects described visible hair loss and the term “nonclinical hair pulling” was popularised (1994, cited in Christenson et al., 1999). Nonclinical hair pulling is characterized by less time consumed by the act of pulling, fewer attempts to resist pulling and no significant loss of hair.

The possibility of a continuum between nonclinical hair pulling and clinical TTM has been hypothesised (Stanley et al., 1995). Nonclinical hair pulling may be considered a relatively benign condition while clinical TTM is, in some cases, debilitating. A study using 66 college nonclinical hair-pullers, and 18 TTM, and 29 patients with OCD addressed this question by comparing nonclinical hair pulling, clinical TTM, and OCD groups on measures of psychopathology (Stanley et al., 1995). If a continuum exists between nonclinical hair pulling and clinical TTM one expects that nonclinical hair pulling should be accompanied by lower levels of psychopathology than TTM patients. The results, however, run contrary to this

hypothesis. There were no significant differences on measures of psychopathology and personality traits. Where they differed – on the somaticism and psychoticism scales – the nonclinical hair pulling group recorded *higher* levels of pathology. In addition the nonclinical hair pullers and the clinical TTM group were joined in exhibiting significantly fewer obsessive compulsive symptoms, less depression and higher levels of extraversion than the OCD group. On numerous other measures the OCD, TTM and nonclinical hair pulling groups were indistinguishable. These measures include: interpersonal sensitivity, anxiety, hostility, phobia, paranoia, global psychopathology and neuroticism. The weight of the evidence suggests that nonclinical hair pulling and clinical TTM are discontinuous. The marked difference in symptom severity is not accompanied by a similar difference in anxiety, personality pathology or general psychopathology. Thus subclinical TTM symptoms appear to be associated more generally with a global anxiety profile than with symptoms of OCD, or TTM. Stanley comments: “It is possible that patients with TTM use hair-pulling as a coping mechanism to control distress and a variety of symptoms” (Stanley et al., 1995, p.185). One possibility (yet unresearched) is that TTM patients would have significantly higher anxiety levels and personality pathology were it not for the ameliorating effect of TTM.

The lifetime prevalence of OCD is 2.5%, and a 1-year prevalence of 1.5%-2.1% (APA, 1994). These prevalence figures apply in regions as diverse as Africa, Canada, Finland, Israel, Korea, New Zealand and Puerto Rico (Sobin et al., 1999). OCD is extremely heterogenous. Obsessions include contamination and illness fears, aggression, need for symmetry, religious preoccupations, superstitions, and thoughts about sexual behaviour. Compulsions are also varied, including: repeating, tapping and rubbing, checking, cleaning and washing, arranging, counting and hoarding (Sobin et al., 1999). Some patients appear to have obsessions without compulsions; others exhibit compulsions without obsessions.

Nevertheless research shows that 90-95% of patients with DSM-IV OCD exhibit both obsessions and compulsions (Sobin et al., 1999)

Precipitating factors

The genesis of TTM needs further research. Some observers believe that TTM often begins in response to loss or perceived loss (Christenson et al., 1999). Psychodynamic therapists have experience of the disorder because many sufferers have an adequate, though suboptimal, level of functioning. TTM patients are often suitable candidates for dynamic psychotherapy.

Koblenzer contends that although TTM symptoms are multidetermined, in almost every case the “symptom makes perfect sense in the inner life of the patient” (1999, p.134).

In this paradigm the symptoms represent a “compromise” created by the unconscious mind in order to satisfy at once the unconscious wishes of the individual, the demands of the conscience (the locus of internalised parental prohibitions) and the demands of the real world. In many cases a disruption in the mother-infant relationship, especially in the oral-tactile phase of development, has been noted (Koblenzer, 1999). Psychoanalytic theory suggests that inadequate physical contact in the early infancy with failure of oral stimulation, intimacy, empathic touching, or a caring reciprocal dialogue between infant and caretaker may have serious consequences in later life (Koblenzer, 1999). Poor early care may culminate in an insecure body image with unstable boundaries, masochistic tendencies and even psychosis. In milder cases there may be ego deficits with impulsivity and an increased likelihood of somaticising emotional conflict (Taylor, 1987, cited in Koblenzer, 1999).

A psychodynamic case-series study was undertaken with 19 patients. Out of this research a typical personal and family dynamic was described that did not differ significantly from other

childhood developmental disorders such as eating disorder or somaticization (Koblenzer, 1999). Koblenzer articulates this family constellation as follows:

The mother, who as a child had not had her dependency needs met, was reported to have an ambivalent but mutually dependent relationship with her daughter. Though both mother and daughter feared separation, each experienced ambivalence, hostility, and provocation toward the other. The mother, though rewarding her daughter's dependency and threatened by her competitiveness, nevertheless projected into her daughter her own unfulfilled ambitions, while the daughter, ever hopeful of having her dependency needs met, was clinging, fearful of her aggressive drives and guilty about her unconscious murderous rage toward her mother and her longings for her father. A strong hostility could be detected in their violent often physical battles while the mother's inconsistent attitude shifted among a dependent posture, adolescent friend, and rigid authoritarian (Koblenzer, 1999, pp.134-135).

Equally TTM has been linked with a wide range of precipitating factors including: childhood illness or injury; death or illness to a family member; change in residence; alienation or separation from friends; entrance into school; onset of menarche; parental divorce; brief separation from parents; medically necessitated forced immobility; birth of a sibling (Christenson et al., 1999). Some cases have been reported after injury to the scalp (e.g., "sunburn") or hair (e.g., "bad perm"). Adult onset has been correlated with quitting smoking and starting college. More often than not, however, adults with TTM report that onset was not associated with any poignant event (Christenson et al., 1999).

Occasionally, onset of OCD appears to be precipitated by stressors comparable to those described in TTM. Because the onset of OCD is often gradual there is frequently no single precipitating event that stands out as significant. (An example of this is given below in the case history under the heading *symptom progression versus symptom stability*). Alongside the expanding knowledge of the neuroanatomic, neurochemical and neuroimmunological variables that may mediate the pathogenesis of the disorder, there is newfound interest in the

association between childhood trauma and the onset of OCD (Lochner, Du Toit, Zungu-Dirwayi, Marais, Van Kradenburg, Niehaus, & Stein, 2002). In a study comparing childhood interpersonal trauma amongst 74 OCD patients, 36 TTM patients and 31 Controls, it was found that ongoing physical abuse and emotional neglect was significantly higher in the OCD and TTM groups compared to Controls (Lochner et al., 2002).

Gender distribution

Gender distribution is another dimension on which to compare OCD and TTM. Studies show that between 70% and 93% of known TTM sufferers are female (Stanley et al., 1999). Of 310 published cases of TTM from 1940 to 1991, 75 % of the individuals were female. This can be contrasted with the near-equal male-female distribution in OCD (Stanley et al., 1999). A slight preponderance of females in OCD surveys is reported in some studies (Tukel et al., 2001). The difference in gender distribution would appear to be an important distinction between the two disorders.

But differences in ability to conceal TTM may play a role: male pattern baldness can be used to camouflage the visible signs, and male facial hair can be shaved off to hide the effects of hair-pulling. In addition women are more given to seeking help for the disorder (Stanley et al., 1999). Non-clinical surveys suggest that male hair-pulling is more prevalent than previously thought. Males have a younger age at onset in both OCD and TTM and in one epidemiological survey of adolescent nonclinical hair-pulling, males slightly outnumber females (Hanna, 1997). Hanna writes: "The differences in the sex ratios between referred and nonreferred samples may reflect gender differences in age at onset, severity, comorbidity, or treatment-seeking behaviour" (Hanna, 1997, p.264). In the case of TTM, however, the consensus is that women still outnumber men by at least 1.5 to 1 (Stanley et al., 1999). Stanley and Cohen observe: "Thus, available data suggest fairly consistently that

trichotillomania occurs more often in women, a pattern notably different from that seen in OCD” (1999).

Family history

Family history is another basis of comparison between OCD and TTM. OCD has been found to be present in the first-degree relatives of TTM patients significantly more often than in matched controls (Stanley et al., 1999; Stein et al., 1993). Of 65 first-degree relatives (including children, siblings and parents) of 16 patients with TTM, it was found that 3 family members (6.4%) met the DSM-IV criterion for OCD (Leanane and colleagues, 1992, cited in Stanley et al., 1999). Another study assessed 26 parents of 15 children and adolescents with TTM (ages 9 to 17) and reported that 2 of these individuals (7.7%) met the diagnostic criterion for OCD (King and colleagues, 1995, cited in Stanley et al., 1999). It has also been found, however, that the occurrence of OCD in the first-degree relatives of TTM patients was not significantly higher than a comparison group of probands with conduct disorder (Swedo, 1993). OCD was diagnosed in the families of TTM patients significantly less often than a corresponding OCD group (Stanley et al., 1999; Stein et al., 1993). High rates of both affective and anxiety disorders are present in relatives of TTM patients, although statistical comparisons with normal controls have not been included in these studies (Stanley et al., 1999). The relatedness of OCD and TTM remains elusive on the evidence of family history. An OCD - TTM association occurs in terms of first-degree relatives with OCD, but the strength of the association is no better than with other disorders. Stanley and Cohen write: “... preliminary family history data have provided support for a trichotillomania-OCD overlap, although they also suggest the possibility that any link between the two conditions may not be unique, but instead may be the result of their common relationships with generalized anxiety or affective difficulties” (1999, p.237).

Comorbidity with Axis I disorders

Comorbidity is an important area of comparison between OCD and TTM. The coexistence of TTM and a second Axis I disorder ranges from 25% to 85% (Stanley et al., 1999). In a hair-pulling survey with 123 respondents, 13% were formally diagnosed with OCD. This is many times higher than the frequency of OCD in the general population: 1% to 3% (Christenson, 1995, cited in Christenson et al., 1999). Other studies report even higher comorbidity between TTM and OCD. 27% of 22 TTM patients were diagnosed with OCD in a study by Schlosser and Colleagues (1995, cited in Christenson et al., 1999). Hand and associates assessed OCD in a TTM population using the SCID and found a rate of 23% (1995, cited in Christenson et al., 1999). These findings support the idea that OCD and TTM are closely associated.

TTM has been found to be comorbid to a small extent with almost every diagnosis in the DSM-IV (APA, 1994). Depression, unspecified psychosis, schizophrenia, pseudoneurotic schizophrenia, anxiety, bulimia nervosa, anorexia nervosa, school phobia, animal phobias, kleptomania, body dysmorphic disorder and compulsive neurosis have all, at one time or other, been reported in case studies or small series of patients with TTM (Christenson et al., 1999). Swedo and Leonard evaluated 43 TTM patients and found the following frequencies of comorbidity: unipolar depression (39%), generalised anxiety disorder (32%), OCD (16%), substance abuse (15%), bipolar disorder (5%), panic disorder (5%), anorexia / bulimia (5%), and phobic disorder (2%) (Christenson et al., 1999). A German study with 106 TTM patients (105 of which were female) reported a 65% depression, 60% anxiety disorders, and 20% substance abuse (Hand et al., 1996, cited in Christenson et al., 1999). Of 186 adult patients presenting to a TTM clinic in California, 52% had major depression, 27% had generalised

anxiety disorder and 13.4% had OCD (Christenson et al., 1995, cited in Christenson et al., 1999).

Similar, or even higher, levels of comorbidity are reported in OCD studies. Depressive symptoms are the most common comorbid symptom with OCD (Attiullah et al., 2000). An assessment of 100 OCD patients found a lifetime history of depression of 67% while current MDD was found to be 31% (Attiullah et al., 2000). It is reported that some OCD patients understand their depression as resulting from the bitter hopelessness they experience in suffering with OCD and believe that they would not be depressed if they did not have OCD (Attiullah et al., 2000). It has also been discovered that patients who become depressed after the onset of OCD, have an earlier age at onset, longer duration of illness, and fewer remissions (Attiullah et al., 2000).

Comorbidity between OCD and anxiety disorders is also significant. A study with 100 patients with primary OCD found high lifetime rates of social phobia (18%), panic disorder (12%), and specific phobia (22%) (Attiullah et al., 2000). Comorbidity with GAD is of particular interest because of the similarity between obsessions in OCD and worries in GAD. In a DSM-IV OCD field trial with 381 patients 20% met the criteria for GAD; moreover, the percentage of women with comorbid OCD and GAD was higher than women with OCD alone (Attiullah et al., 2000).

In studies directly comparing comorbidity of OCD and TTM, no significant differences in Axis I disorders were found (Himle et al., 1995; Stanley, Swann, Bowers, Davis, & Taylor, 1991). Though the sample sizes were small, these studies support the thesis of an overlap between OCD and TTM. In addition the high rate (approximately 13% - 23%) of TTM

patients with coexisting OCD demonstrates a link though the comorbidity should be significantly *higher* if TTM were a variant of OCD. Stanley and Cohen argue, too, that the strikingly high comorbidity with anxiety and mood disorders shared by OCD and TTM has two interpretations. One, it may be evidence of the basic relatedness of the two disorders. Two, it may suggest that the *appearance* of a relationship between OCD and TTM is an artefact of their coexistence with negative affect states.

Comorbidity with Axis II disorders

Until recently the lack of structured diagnostic instruments and poor inter-rater reliability for Axis II disorders has impeded accurate surveys of personality disorder in OCD (Attiullah et al., 2000). The estimated range of comorbid Axis II disorder with OCD is 36% to 75%. Most prevalent of the personality disorders are: dependent, avoidant, passive aggressive, and obsessive-compulsive (Attiullah et al., 2000). Less frequently schizotypal, paranoid and borderline coexist with OCD, and they are predictors of poor outcome. Patients with OCD and a comorbid personality disorder score higher on measures of anxiety, indirect aggression, guilt, irritability and detachment (Attiullah et al., 2000).

In one study, 96 OCD patients were interviewed using the Structured Interview for the DSM-III Personality Disorders (SID-P) and 36% were found to have a comorbid Axis II disorder, specifically dependent (12%), histrionic (9%) and obsessive-compulsive (6%) (Baer, Jenike and Ricciardi, 1990, cited in Attiullah et al., 2000). In a similar study in Japan, 53% of 75 OCD patients were diagnosed with a comorbid personality disorder, most common was avoidant, followed by obsessive-compulsive, paranoid, dependent, and schizotypal (Matsunaga, Kiriike and Miyata, 1998, cited in Attiullah et al., 2000).

There is debate about the association between OCD and OCPD. Findings have been contradictory and the reported prevalence of comorbid OCPD has ranged from 4% to 55% (Attiullah et al., 2000). Of 114 OCD patients interviewed with the SID-P, a majority of patients had difficulty with perfectionism (82%) and indecisiveness (70%) (Eisen and Rasmussen, 1993, cited in Attiullah et al., 2000). But other traits of OCPD were very rare in amongst the OCD group, such as restricted ability to express warmth (32%), rigidity (32%) and excessive devotion to work (18%). The prevalence of these traits was not significantly different to normal controls suggesting that they are not developmental antecedents for OCD. Thus the level of comorbidity with OCPD recorded is greatly dependent on the number of criteria that need to be fulfilled in order to make the diagnosis. In addition there is some evidence that the OCPD traits in a subgroup of patients disappear with successful pharmacotherapy of OCD itself (Attiullah et al., 2000). The consensus is to regard OCD and OCPD as discontinuous. The axiom that OCPD compulsive behaviour is ego-syntonic whereas OCD neutralising behaviour is ego-dystonic has theoretical value but is not always confirmed in real-life work with patients.

There is a paucity of literature on personality factors in TTM. In the past there have been reports of passive-aggressive, hysterical, obsessive-compulsive, and schizoid personality features with TTM (Christenson et al., 1999). Others have spoken of a link between TTM and borderline traits such as poor impulse control, ego boundary problems, poor object constancy and poor frustration tolerance. These hypotheses, however, were based on small sample sizes. Of late more systematic research have been conducted. A survey by Swedo and Leonard gave the following results: histrionic (26%), borderline (18%), passive-aggressive (16%), dependent (5%) (1992, cited in Christenson et al., 1999). Another study with 22 TTM patients, 55% met the criteria for an Axis II disorder with the following specific personality

disorder levels: obsessive compulsive (27%), passive-aggressive (14%), avoidant (14%), borderline (14%) and schizoid (14%) (Schlosser, Black and Blum, 1994, cited in Christenson et al., 1999). Another study interviewed 48 TTM women using the Structured Interview for DSM-III-R Personality Disorders (SIPD-R) and administered the Minnesota Multiphasic Personality Inventory (MMPI-2) (Christenson, Chernoff-Clemetz and Clementz, 1992, cited in Christenson et al., 1999). Secondly the TTM patients were compared with 48 matched psychiatric outpatients. Axis II disorders were recorded in 42% of the TTM group, with the following specific levels: histrionic (14.6%), avoidant (10.4%), obsessive-compulsive (8.3%), dependent (8.3%), passive-aggressive (6.3%) and paranoid (4.2%). There were no patients with schizotypal, narcissistic or antisocial personality disorders. The only statistically significant difference between the TTM group and the matched psychiatric outpatients was the lower prevalence of borderline personality disorder in the TTM group. It was also found that the TTM group exhibited less cluster A features (odd or eccentric behaviours arising from schizotypal, schizoid or paranoid personality disorders), less depression and better psychological adjustment (ego strength) than the comparison psychiatric group. The composite MMPI-2 profile of the TTM group was within normal limits, a finding that is remarkable in the light of the high comorbidity of TTM with mood and anxiety disorders.

Further studies have examined self-reports of distress amongst TTM sufferers rather than DSM-IV defined diagnostic categories. 80% of TTM subjects reported low self-esteem, 82% reported a diminished sense of attractiveness, 80% spoke of shame and embarrassment, 68% told of anxiety, 66% disclosed depression (Mansueto, 1990, cited in Christenson et al., 1999). In addition 61% of the TTM patients said that they were secretive and guarded, 39% reported loss of spontaneity, 32% reported insomnia and 11% spoke of feeling weird and freakish.

To the knowledge of the author there are no studies directly comparing OCD and TTM on measures of personality disorder. However it appears that there is some association between OCD and TTM in terms of avoidant personality disorder and obsessive-compulsive personality disorder. The variability of the personality disorder findings in both OCD and TTM, however, make it unwise to make inferences from this data.

Symptom progression versus symptom stability

Symptom plasticity is another dimension on which to compare the two disorders. Primary OCD symptoms are known to constantly evolve and to be accompanied by a diffuse “outer layer” of secondary OCD symptoms. A study of obsessions and compulsions in 79 children and adolescents over an average of 8 years showed that symptom progression is not significantly related to age or gender (Rettew et al., 1992). The symptom configuration of every patient in the study changed over time from presentation to followup. In the early period after onset of OCD, the symptoms often stemmed from the precipitating circumstances: typically a stressful family or environmental event. The following excerpt from an OCD case study illustrates the impact of the precipitating events, and symptom progression:

B.B., a 16-year-old girl, developed symptoms at the age of 6 or 7 years that involved elaborate breathing rituals where she would have to breathe in good thoughts and breathe out bad thoughts. At age 11, after having seen the movie, *The Exorcist*, these breathing rituals became more severe and were associated with obsessions of being possessed and needing to push out bad thoughts. During the news coverage of the Tylenol contamination, she also became obsessed with being contaminated and would not eat or take medications, saying she saw black spots on them. She began to worry about getting rabies and AIDS and refused to touch her pets. In addition, she began to worry about something bad happening to herself or her family if she went through a doorway. Soon after this time she developed ritualistic walking patterns and counting compulsions, needing to count to a certain number on each foot. In school, her work had to be perfect, and a new obsession emerged that her handwriting had to be just right. At home, her room and bed had to be ordered a certain way.

At age 14 washing compulsions consisting of frequent handwashing and long showers of up to 45 minutes developed. She used tissues to touch faucets, telephones, and her clothes (among other things) to avoid contamination. She also began checking doors and lights repeatedly until she was “sure”. At initial presentation at age 16, however, the checking had subsided, and the patient presented with washing rituals and contamination fears, blinking rituals, and repeating actions until they felt “okay” (Rettew et al., 1992, pp.1052-1053)

By contrast TTM symptoms are circumscribed and relatively static (Swedo, 1993). On standardized measures of compulsivity TTM patients score significantly lower than OCD groups and in fact fall in the normal range (Stanley et al., 1999). Despite the above-average comorbidity with OCD, in the main the symptom presentation in TTM patients is distinct from OCD.

Summary of epidemiological findings

In sum, the epidemiological results present a mixed picture: age of onset, prevalence, gender distribution, precipitating events, family history and comorbidity all point towards a degree of epidemiological overlap between OCD and TTM. Yet analysis of the research findings is complex: the more detail one examines the more questions arise, and the more the subtle differences between OCD and TTM emerge. Furthermore symptom specificity and progression clearly differentiates the two disorders.

Neurobiology and pharmacotherapy

After almost 100 years of the dominance of the psychogenic theory of OCD, the pendulum has swung into the field of neurobiology for understanding the aetiology and presentation of OCD (Stanley et al., 1999). With the efficacy of clomiprimine as a treatment for OCD, interest and resources have been directed at investigating the neurobiology not only of OCD but all the OCD-related disorders. There is to date a paucity of neurobiological studies on TTM: of necessity OCD studies will predominate in the following section.

The possibility of neuroanatomical abnormalities in OCD was investigated because of the long-standing and well-documented association between OCD and neurological disorders (Stanley et al., 1999). OCD is associated with a gamut of neurological disorders including: seizure disorders, von Economo's, head trauma, diabetes insipidus, multiple sclerosis, encephalitis and herpes simplex (Stanley et al., 1999). Neurological disorders caused by basal ganglia disease are even more closely linked to OCD. Examples include: Sydenham's chorea, postencephalitic parkinsonism, Huntington's disease, Tourette syndrome and globus pallidus. Stanley and Cohen (Stanley et al., 1999, p.240) note: "Of relevance to the discussion of trichotillomania, many basal ganglia disorders are characterised by abnormalities in motor programs".

Neurochemical investigations

Since serotonin reuptake inhibitors were shown to be effective in OCD, a serotonergic model of OCD has been propounded (Stanley et al., 1999; Stein et al., 1995). Several studies have implicated serotonergic dysfunction in the neurobiology of disorders conceptualised as obsessive-compulsive spectrum disorders (Stanley et al., 1999). Neurotransmitter systems are highly complex and caution is exercised in interpretative analysis. Nevertheless preliminary research indicates that compulsive disorders may have increased serotonergic tone whereas impulsive disorders may have decreased serotonergic tone.

In at least a subgroup of OCD patients, elevated levels of cerebrospinal fluid (CSF) metabolites of 5-HT (e.g., 5-hydroxyindoleacetic acid [5-HIAA]) have decreased on treatment with clomiprimine and the decrease has corresponded to successful treatment (Stanley et al., 1999; Stein et al., 1995). A similar pattern has been reported in OCD-related disorders such as anorexia nervosa. Conversely patients with impulsive aggression or violent suicidality have decreased CSF levels of 5-HIAA (Stanley et al., 1999). Decreases in

serotonin receptors in the frontal cortex have also been discovered in patients who commit suicide in a violent manner. A study of 8 medication-free TTM patients and matched controls revealed no significant differences in serotonergic system functioning (CSF 5-HIAA or CSF cortisol) (Stanley et al., 1999).

Challenges with serotonergic agents, such as partial agonist m-chloro-phenylpiperazine (m-CPP), appear to have opposing responses in compulsive disorders versus impulsive disorders. In OCD challenge with m-CPP increased negative affect, increased obsessional thoughts and compulsive urges. Stein, Simeon, Cohen and Hollander write:

These findings are consistent with complex disequilibrium of the serotonin system, with hyposensitivity of some receptors and hypersensitivity of others. ... After successful treatment with SRIs, neuroendocrine and behavioural responses to m-CPP normalize, suggesting that such pharmacotherapy results in re-equilibration of the serotonergic system (1995, p.31)

In impulsive disorders such as impulsive personality disorder and pathological gambling, m-CPP challenge has not shown a dysphoric response but rather creates a euphoric or “high” feeling (Stanley et al., 1999). Stein et al. administered m-CPP and placebo to a series of 10 female TTM patients and 11 matched controls (Stein et al., 1995). Unlike in OCD, there was no significant difference between TTM and controls in terms of neuroendocrine blunting (prolactin or cortisol response). However these findings may be complicated by gender because females are known to be more robust to neuroendocrine provocation. Nevertheless challenge with m-CPP inflamed the symptoms of OCD patients both male and female whereas it did not lead to any increase in hair-pulling symptoms in TTM patients (Stein et al., 1995).

Neuropsychiatric investigations

Neuroanatomical abnormalities, both structural and functional, have been investigated using computed tomography (CT), magnetic resonance imaging (MRI), positron-emission tomography (PET), and regional cerebral blood flow (rCBF) methodologies (Stanley et al., 1999). Historical evidence of a neurobiological basis for OCD comes in the form of an association between OCD and encephalitis lethargica, a neurological sequela of the influenza epidemic early this century (Stein et al., 1995). Patients with this affliction enacted repetitive involuntary movements, possibly due to basal ganglia dysfunction. As described, OCD is also associated with disorders of the basal ganglia, such as Sydenham's chorea, Huntington's disorder, and Parkinson's disease. Notably, basal ganglia activity decreases on successful treatment of OCD.

While a full exposition of the structural and functional abnormalities in OCD and TTM patients is beyond the ambit of this thesis, a few comments will be presented here. In terms of structural brain studies, many initial findings have not been validated or successfully replicated (Stein et al., 1995). There are suggestions that compared to normal controls OCD patients have: (1) an overactive orbitofrontal-basal ganglia-thalamic loop; (2) a significantly increased ventricular-brain ratio; (3) a smaller caudate nucleus volume (4) frontal tissue abnormality (Stanley et al., 1999). The studies of functional abnormality are on firmer ground. They report that OCD is characterised by: (1) increased glucose metabolism in the orbitofrontal cortex (2) increased blood flow in the frontal cortex. The few studies on TTM indicate that the disorder is characterised by: (1) elevated glucose metabolism in right and left cerebellar and right parietal areas (2) successful clomiprimine treatment is negatively correlated with anterior cingulate and orbitofrontal metabolism (3) lowered volume in the left putamen and left lenticulate (Stanley et al., 1999). Stanley and Cohen conclude: "initial brain

imaging studies suggest similar structural and functional abnormalities in OCD and trichotillomania” (1999, p.243).

Neurological soft signs

In essence, neurological soft signs are indications of impaired performance on a motor or sensory task that cannot be attributed to any direct brain lesion. A study with 41 adult OCD patients and 20 matched controls found soft sign abnormalities in the OCD group in the following areas: fine motor coordination; involuntary and mirror movements and visual constructional functioning (cube drawing) (Stanley et al., 1999). A larger replication study reported that OCD patients exhibited more total, right and left sided soft signs.

Stein et al. conducted a study with 34 OCD, 13 TTM and 16 normal controls using a neurological soft sign battery (1994, cited in 1995). TTM patients were significantly more impaired in visual-spatial function than normal controls (Stein et al., 1995). But, importantly, there was no significant difference in total neurological soft sign score between TTM females, OCD females and normal controls. Higher levels of neurological soft signs are found in male anxiety and male OCD patients (Stein et al., 1995). The predominance of females in clinical TTM populations, therefore, will have the effect of reducing the total soft sign scores relative to disorders with a higher proportion of males. Because of the gender effect it is impossible to draw firm conclusions from the data.

Neuropsychological dysfunction

The consensus view is that OCD patients show impairments in visuospatial and visuoconstructional ability, and frontal lobe-related executive functions (i.e., ability to form, maintain, and switch cognitive sets) (Stanley et al., 1999). Stanley and Cohen observe: “Unfortunately, most neuropsychological measures of executive function are associated with presumed hypofunction of the frontal lobes secondary to lesions of various etiologies and thus may not be sensitive to hyperfrontality, which may be more characteristic of OCD”

(1999, p.244). Other tentative findings in OCD groups include: deficits in visual memory and impaired coordination of motor functioning (which is expected when there is broad evidence of basal ganglia involvement).

Direct neuropsychological comparison studies of OCD and TTM are uncommon. An early study assessed female TTM patients, patients with OCD or another anxiety disorder, and normal controls (Rettew, Cheslow, Rapoport, Leonard and Lenane, 1991, cited in Stanley, Hannay, & Breckenridge, 1997). The tests administered included the Money Road Map test, a visual spatial skills test, and the Stylus Maze, a measure of spatial memory. The OCD and TTM groups did not differ significantly from each other. Relative to normal controls both OCD and TTM were impaired on the spatial memory test. The small sample size and the small number of tests administered make it difficult to draw conclusions from this study. The findings from this study, however, provide some evidence of a potential neurobiological overlap between OCD and TTM.

A followup study with 11 TTM patients, 17 OCD patients and 16 normal controls used a wide range of neuropsychological tests thought to be sensitive to basal ganglia dysfunction, and Huntington's disease in particular (Martin et al., 1993, cited in Stanley et al., 1997). Tests included the WAIS-R Vocabulary and Block Design subtests, the Money Road Map test and a newly created Room Test, a Verbal Fluency Test, A Simple and Choice Visual Reaction Time, a Visual Search Task, and the California Verbal Learning Test. The results showed no overall group differences. Because the tests were chosen to detect falloff due to basal ganglia abnormalities, the lack of significant differences was interpreted as evidence that the neuropathy of OCD and TTM is distinct from Huntington's disease. That is, OCD and TTM

are distinct despite the suggestion that they are underpinned by basal ganglia impairment.

Stanley and Cohen dispute this conclusion, observing:

It is possible that any basal ganglia-related impairment in either trichotillomania or OCD may be more subtle than that found in Huntington's disease and that therefore detection would demand greater task difficulty, especially given the relatively high educational level of the sample (1999, p.245).

A more recent study compared 20 TTM patients with 20 matched controls on neuropsychological measures of executive functioning (Stanley et al., 1997). The TTM patients performed less well on one measure of executive functioning (the Shapes subtest of the Odd Man Out Test) and on one measure of nonverbal memory. As OCD exhibits impairment in executive functioning and nonverbal memory, these results seemed to support the thesis of an OCD-TTM overlap. Finally Stanley, Hannay and Breckenridge studied 21 TTM patients and 17 normal controls on a broad battery of tests assessing intellectual functioning, auditory perception and language, visual perception, somatosensory function, motor ability, memory, concept formation, attention and information processing speed, impulsivity and cerebral dominance (Stanley et al., 1997). It was found that the performance of the TTM group was impaired on measures of divided attention. On measures of focused attention there were no group differences. Importantly, there were significant correlations between anxiety and depression and measures of divided attention. The authors conclude:

These findings have implications for the notion that TTM may be best understood as an anxiety- or affective-based disorder. Results failed to support the suggestion that TTM is a variant of OCD given failure to document neuropsychological deficits in visuospatial ability, motor function, or executive function. On the other hand, study findings could be considered consistent with the hypothesis that any observed overlap between TTM and OCD may result from the associations of each disorder with negative affect (Stanley et al., 1997, p.485).

It is therefore in the field of neuropsychology that we find the strongest evidence that OCD and TTM are distinct, and that any overlap stems from underlying anxiety and depression.

Phenomenology

The phenomenology of OCD and TTM will be discussed under the headings, behaviour, affect, sensory stimuli and cognition. The primary focus of this thesis is on cognition in TTM and OCD.

Behaviour

Although there have been cases of hair being pulled out in clumps in TTM, typically hairs are pulled out one by one (Christenson et al., 1999). Body hair in every part of the body has been targeted, but the most commonly affected sites are scalp, lashes, brows, pubes, face, and extremities in descending order of frequency (Christenson et al., 1999). In the scalp region, hair is generally pulled out from the vertex with sparing of hair from the rest of the scalp. Great variation occurs in the pattern of hair loss. The range extends from localized to widespread thinning, to a variety of bald spots and even complete baldness. On a rare occasion patients may pull hair from spouses, parents, siblings, or others (Oranje, Peereboom-Wynia and De Raeymaecker, 1986, cited in Christenson et al., 1999). More than 50% of TTM patients target hairs described as “wiry”, “thick”, “coarse”, “stubby”, or “kinky” (Christenson et al., 1999). 34% of TTM patients acknowledge the use of mirrors for the purpose of choosing a particular hair on the basis of visual cues (Mansueto, 1990, cited in Christenson et al., 1999). TTM patients sometimes attest that they choose hairs in order to keep the hair loss symmetrical or spread out the damage. Hair-pulling is typically performed by grasping the hair between the thumb and the index finger or wrapping the hair around the index finger prior to pulling. The dominant hand is used 38% to 50% of the time; the nondominant hand is used 32% to 38% of the time and 18% to 23% of patients use both hands (Christenson, Mackenzie and Mitchell, 1991, cited in Christenson et al., 1999).

In OCD, the most common obsession is fear of contamination, followed by pathological doubt, somatic obsessions and the need for symmetry (Attiullah et al., 2000). The most frequent compulsion is checking followed by washing, counting, need to ask or confess, and symmetry. In paediatric OCD washing compulsions are most often presented, followed by repeating rituals. The presence of “pure” obsessions, or “pure” compulsions is rare in clinical samples (Attiullah et al., 2000). In many cases of apparent pure obsessions, the patient practices covert mental rituals, such as repetitive ritualised praying in addition to the obsessions.

Fear of dirt or germs, environmental hazards, or bodily wastes and excretions characterise contamination obsessions. Unlike the fear in specific phobias, a contamination obsession frequently presents as a fear of inadvertently causing harm to others through contamination. Washing is the compulsion associated with contamination fears, and the behaviour generally occurs after contact or close proximity with the feared object. The obsession of pathological doubt refers to the concern that the individual will be responsible for a dire event as a result of their carelessness. This leads to checking rituals that can consume several hours before being prepared to leave the house. In symmetry obsessions there is an urge to arrange or order things “perfectly” which often requires doing and undoing certain motor actions in an exact sequence until a “just right” feeling is achieved. There are 2 groups of symmetry obsessions: (1) those with incompleteness and (2) those with magical thinking.

Incompleteness obsessionals take inordinate amounts of time to complete the simplest of tasks, and appear to forsake goal directedness in the interests of executing a given behavioural subroutine perfectly. The magical thinking obsessionals speak of feeling unsettled unless things are “just so”. Somatic obsessions are irrational and persistent fears of developing a life-threatening illness such as cancer or Aids. This fear causes the individual to

check and recheck the body part of concern as well as repeatedly seek assurance. Sexual or aggressive obsessions typically denote the fear of harming others through violence or an unacceptable sexual act, such as molestation. Sometimes the fear is not of future transgression, but in fact that it has already happened in the past. This gives rise to intolerable levels of guilt and anxiety. Some patients develop confession rituals in which they repeatedly report themselves to the police or seek out priests to confess their imagined crimes.

The behavioural commonality between OCD and TTM is apparent: both disorders are characterised by the performance of repetitive, maladaptive motor behaviours. In both groups the patients perceive themselves to have diminished control over their behaviour. In addition in a subgroup of OCD patients (mainly symmetry obsessionals) and a subgroup of TTM patients are characterised by the urge to repeat the behaviour in order to attain a “just right” sensation.

The situational precipitants of the behaviours, however, are markedly different. TTM typically takes place when the individual is alone and engaged in a sedentary or contemplative activity. Examples include lying in bed before falling asleep, studying and watching television (Reeve, 1999). Despite the well-known secretiveness of OCD patients, neutralising behaviours are not restricted to time alone (Stanley et al., 1999). Also, a variety of stimuli can elicit intrusive thoughts (of harm to self or others) and neutralising behaviours: there is no association with sedentary activities.

Affect

Part of the diagnostic criterion for TTM is that the individual experiences increasing tension prior to pulling or in the process of resisting the urge to pull. It also specifies that there should be a felt gratification, or sense of pleasure or relief during pulling (APA, 1994). Similarly the

anxiety-reduction cycle of OCD rituals is well documented (Salkovskis, 1999). At first glance the repetitive behaviour in OCD and TTM serves the same purpose. But how and why the anxiety is reduced is unique to each disorder. The OCD ritual reduces anxiety caused by obsessive ideation. In TTM anxiety mostly arises without specific cognitive or environmental correlates (Stanley et al., 1999). In addition the emotion that leads to hair-pulling is not limited to anxiety. A wide range of emotion including boredom, fatigue, indecision, anger and depression can precipitate pulling in TTM patients. Surveys with non-clinical subjects indicate that tension, boredom, anger and sadness are alleviated by hair-pulling (Stanley et al., 1995). Some individuals attest that they use hair-pulling to *increase* arousal levels, to energise themselves. Others speak of the activity lulling them into a dissociative state.

Some patients speak of entering a “trancelike” state when they pull their hair. Research into whether hair pulling can at times represent a dissociative state is underway. Over a century ago, Hallopeau conducted an experiment in which he approached a patient who exhibited dissociative features while pulling strands of hair. Hallopeau proceeded to stick a needle into the patient’s arm without the patient noticing (1894, cited in Christenson et al., 1999).

Christenson and Mackenzie refer to this phenomenon as the “automatic style” (1994, cited in Christenson et al., 1999). The automatic style is the predominant style for three quarters of TTM patients. An atypical manifestation of the automatic style is hair pulling while asleep, which, in some cases, is the only manifestation of the disorder.

The opposite of the automatic style is “focused” hair pulling in which the patient’s attention is concentrated on the act. This phenomenon is associated with mounting anxiety prior to pulling and unwanted thoughts about pulling out the hair. As such it bears a strong similarity

to compulsions in OCD, which may explain why some TTM patients benefit from antiobsessional agents. Focused hair pulling predominates in about a quarter of TTM patients (Christenson et al., 1999). But automatic and focused pulling are not mutually exclusive. A TTM patient, for example, may generally exhibit automatic pulling but 10% of the time spent pulling may be characterised by focused pulling.

Nevertheless, “focused” hair pulling may well represent a subtype of TTM that has more in common with OCD than other TTM subtypes. The study of TTM patients with negative affect preceding pulling may prove illuminating. Christensen, Ristvedt and Mackenzie (1993) performed factorial analyses of cue profiles for trichotillomania. They discovered that high negative affect preceding pulling was correlated with the presence of focused hair pulling (pulling particular hairs because they are too curly, straight, short etc), current depression, family histories of OCD, obsessive-compulsive personality disorder, and anxiety. The implication is that TTM patients with hair pulling precipitated by negative affect may represent a subset of TTM that overlaps with OCD.

Up to 17% of TTM patients do not experience the anxiety-relief cycle at all, or only for an insignificant percentage of the time spent pulling (Christenson, Mackenzie and Mitchell, 1991, cited in Stanley et al., 1995). Furthermore many TTM patients explain that the mounting tension they experience prior to pulling is tension in response to negative internal affect states rather than stemming from the urge to pull (Christenson et al., 1999). Negative affect such as embarrassment, anger and sadness is sometimes precipitated in particular situations including: scrutinizing oneself in the mirror, feeling overweight, weighing oneself, having arguments, making decisions, being ‘in the wrong’ and ‘being late’ (Christenson et al., 1999).

Evidently hair-pulling is a multipurpose activity: a range of affective states can precipitate the behaviour and the behaviour can precipitate a variety of emotional and energetic outcomes. In OCD a single emotion precedes the behaviour and the behaviour serves a single function. It is also relevant that a subset of TTM patients describe hair-pulling as pleasurable. The behaviour is not solely to counteract negative emotion or regulate arousal levels; it can be enjoyable (Stanley et al., 1991). OCD patients do not report similar feelings about their rituals. Both the pleasure and the dissociative sensation associated with hair-pulling provide a link between TTM and impulse disorders such as pathological gambling, self-mutilation and neurotic skin excoriation. “Automatic” hair pulling, therefore, is more consonant with *impulsivity/aggression* dimension than the *anxiety/inhibition* dimension. It is possible that “automatic” hair pulling is a subtype of TTM that is distinct from OCD because it belongs to a different dimension of Siever and Davis’ (1991) dimensional model.

It is germane to note that OCD and TTM have a high comorbidity with depressive disorders indicating that the *affective instability* dimension is also implicated in these disorders. TTM patients with negative affect appear to be more closely related to OCD – in terms of obsessiveness, family history etc – than “pure” TTM patients (Christensen, Ristvedt, & Mackenzie, 1993). Similarly, OCD with negative affect is thought to have an earlier age at onset than “pure” OCD. These findings suggest that there is a complex interaction effect between three dimensions: (1) *affective instability* (2) *anxiety/inhibition* (3) *impulsivity/aggression*.

The automatic style of hair pulling appears to take place during dissociative episodes. This use of the defence of dissociation suggests a direct link between “automatic” hair pulling and

the *impulsivity/aggression* dimension in Siever and Davis' dimensional model (1991). Siever and Davis (1991) argue that individuals on the *impulsivity/aggression* dimension experience less anxiety than other clinical patients because their use of the defences of splitting, dissociation and enactment reduce the levels of anxiety in conscious awareness.

But there is a significant phenomenological difference between the impulsivity displayed in TTM (pulling out a strand of hair) and the impulsivity displayed in borderline disorder (suicidality and aggression), antisocial personality disorder, pyromania and so on. Therefore it is possible that TTM is the manifestation of the *impulsivity/aggression* dimension combined with the *anxiety/inhibition* dimension. (This equates with the compulsivity-impulsivity spectrum). There is the impulse to act, but a simultaneous fear of harm to self or others ensures that the act cannot be aggressive or immediately self-destructive. This line of thinking bears a similarity to the psychodynamic formulation: hair pulling becomes a "compromise" between the urge to take radical action and the inhibition stemming from anxiety about harm to self or others. By contrast in OCD the neutralising behaviour is not driven by an irresistible urge to take action, the action is merely taken as a response to anxiety about unwanted thoughts or images. In OCD anxiety is primary and action is secondary. Furthermore OCD neutralising behaviours are not linked to dissociation or gratification. Once again, therefore, the dimensional model and the compulsivity-impulsivity spectrum, though inter-related, compete in ability to accurately describe the phenomenology of OCD and TTM respectively.

Sensory stimuli

Research shows that up to 50% of TTM patients report that pulling occurs after a sensory stimulus such as burning or itching or another form of increased sensitivity of the scalp (Stanley et al., 1999). Mansueto writes: "Additionally, in the majority of cases, some form of

stroking or touching the hair precedes the pulling behaviour itself. Some patients also report that sensory experiences after pulling (i.e., touching the hair, rolling it in the fingers, rubbing it along the mouth, eating the hair, or biting off the root) are important motivators of the behaviour” (Mansueto cited in Stanley et al., 1999, p.234). No comparable sensation occurs as a precipitant in OCD. Insofar as sensory stimuli is salient in TTM it is evidence that the OCD and TTM are distinct clinical entities.

Cognition

Broadly, this thesis seeks to contribute to the literature on the similarities and differences of cognition in OCD and TTM. This issue speaks to the larger debate about the putative OCD spectrum and the classification of TTM. OCD is characterised by the presence of unwanted thoughts that repetitively intrude into consciousness. Salkovskis notes: “Intrusive cognitions are ideas, thoughts, doubts, images or impulses which intrude in the sense that they interrupt the person’s current stream of consciousness and the person also finds them upsetting, unacceptable, or otherwise unpleasant” (Salkovskis, 1999, p.31). TTM is quite different. On the whole TTM patients do not experience intrusive thoughts. TTM patients generally deny sustained awareness of pulling while engaged in the behaviour. It might be argued that obsessive ideation is fundamental to OCD, and that the lack of such ideation in TTM is sufficient grounds to distinguish the two disorders.

On closer inspection, however, it turns out that not all OCD patients have obsessions. In the DSM-IV system, obsessive ideation is not necessary to make the diagnosis (APA, 1994). When OCD compulsions occur without obsessions the phenomenology of the disorder is of a piece with TTM. Conversely certain TTM patients experience obsessive ideation, shaping the phenomenology of TTM into a likeness of OCD. Stanley and Cohen (1999, p.231) report:

a minority of trichotillomania patients do report specific precipitating cognitions associated with hair pulling. For example, some patients report

he need to pull particular kinds of hairs – that is, those that are short, kinky, wiry, or coarse. Others indicate that before pulling they attempt to locate hairs with unusually large or round follicles. Still other patients report that pulling is motivated by a need to maintain symmetry in hair growth or appearance (Christenson et al. 1991a; Mansueto 1991). This ideation is similar to ordering, arranging, and symmetry obsessions found in OCD. Notably such ordering and symmetry obsessions are also found in other hypothesised obsessive-compulsive spectrum disorders, such as tic disorders (Leckman et al. 1993; Pitman et al. 1987) and body dysmorphic disorder (Hollander et al. 1993c).

When hair-pulling occurs as a result of obsessive ideation about hair, TTM is virtually indistinguishable from OCD. Stanley and Cohen (1999) posit that a subtype of TTM exists in which obsessive ideation is present. Furthermore they draw attention to the arranging and symmetry subtype of OCD which is associated with simple motor compulsions and comorbidity with neurobehavioural disorders like autism and tic disorders.

Thus there are subtypes of both OCD and TTM in which the cognitive processes appear to overlap completely. The present study will compare and contrast the current profile of schemas in OCD and TTM. In order to make sense of this investigation, it is necessary to outline the application of cognitive psychology to OCD and TTM and the essentials of schema theory.

COGNITIVE-BEHAVIOURAL THEORY

Cognitive psychology proposes that mood and anxiety disorders are maintained by errors in information processing (Beck, 1995). Such errors can be in the form of automatic thoughts, or in the form of deep cognitive structures such as schemas. Automatic thoughts are clinically observable: they are continuous, rapid-fire appraisals of specific situations that may involve cognitive errors (Beck, 1995). By contrast schemas are hypothesised to be perennial and deeply-embedded cognitive structures that control the selection, processing, encoding and

retrieval of information (Morrison, 2000; Petrocelli, Glaser, Calhoun, & Campbell, 2001; Young, 1994).

Beck's (1970) thesis was that negative thinking in depression transcends being a mere symptom. Beck believed that negative thinking *constitutes* depression and maintains it. Negative automatic thoughts are informed by underlying assumptions. Hawton, Salkovskis, Kirk and Clark (1989, p.11) give an example of one such assumption: "To be worthwhile I must be successful". This assumption, they note, may motivate considerable energy for work but it leaves the individual in a vulnerable position. Failing an exam, for example, will generate negative automatic thoughts, such as, "I am a failure as a person; I am worthless". While early cognitive-behavioural theory focused on depression it was later widened and adapted to incorporate every disorder in the Diagnostic and Statistical Manual of Mental Disorders, DSM-IV (APA, 1994).

The cognitive behavioural conceptualisation of OCD is premised on the idea that the intrusive thoughts provoke anxiety, and that neutralising behaviours serve to reduce this ensuing anxiety. Recently, cognitive theorists have been researching the interpretations that link intrusive thoughts with anxiety (Salkovskis, 1999). For example, Freeston, Rheaume and Ladouceur (1996) hypothesise that there are five dimensions that mediate an individual's anxious response to intrusive thoughts: (1) overestimating the importance of the thoughts; (2) over-responsibility for events beyond the individual's control; (3) the need to seek a perfect state such as absolute certainty or completeness (4) overestimation of the probability and severity of consequences; (5) belief that anxiety due to thoughts is itself dangerous and unacceptable. In particular responsibility beliefs and perfectionism have attracted a lion's

share of research attention (Bouchard, Rheaume, & Ladouceur, 1999; Salkovskis, Wroe, Gledhill, Morrison, Forrester, Richards, Reynolds, & Thorpe, 2000).

Schema theory

There is a wealth of cognitive behavioural research into obsessional disorders. Most of these studies, however, concentrate on automatic thoughts and underlying assumptions. Very little work exists on the role of *schemas* in OCD and TTM. In his earliest writing, Beck referred to the concept of a cognitive schema (1967, cited in Young, 1994). He observed: “A schema is a structure for screening, coding, and evaluating the stimuli that impinge on the organism” (1967, cited in Young, 1994, p.8). Beck noted that schemas may be dormant, but can be “energized or de-energized rapidly as a result of changes in the type of input from the environment” (1967, cited in Young, 1994, p.8). Finally, Beck argued that the information bias imposed by a schema is consistent with irrational logic of the schema. The bias is “reflected in the typical misconceptions, distorted attitudes, invalid premises, and unrealistic goals and expectations” (1967, cited in Young, 1994, p.8). Segal has written a definition of schemas drawn from a consensus of researchers: “Organized elements of past reactions and experience that form a relatively cohesive and persistent body of knowledge capable of guiding subsequent perception and appraisals” (1988, p.147). A discussion of the minor variations between the schematic models proposed by Beck, Segal and Young is beyond the scope of this thesis. Young maintains that his model of schemas is governed by the principle of parsimony: he includes the minimum amount of theory needed to ensure that schema therapy can be practiced by trained clinicians.

Though schemas are beginning to attract interest in cognitive behavioural psychology, there are to date few validated protocols for schema identification and assessment (Schmidt, Joiner, Young, & Telch, 1995). Thus Young’s (1994) theory of Early Maladaptive Schemas (EMS),

and the corresponding questionnaire he developed, have proved a valuable means of investigating schemas in diverse population groups. There are two major aspects to Young's (1994) EMS theory: (1) the formation and maintenance of schemas, (2) definitive characteristics of EMSs.

The formation and maintenance of schemas

Schemas develop on the basis of past experience, especially early experience with significant caretakers. Young observes: "Schemas seem to be the result of dysfunctional experiences with parents, siblings, and peers during the first few years of an individual's life. Rather than resulting from isolated traumatic events, most schemas are probably caused by ongoing patterns of everyday noxious experiences with family members and peers which cumulatively strengthen the schema" (1994, p.11). After an EMS has developed, it filters the fullness and subtlety of experience for information that corroborates the EMS. In early childhood the schema may be functional for it allows a child to understand and manage the environment. But when the EMS is elaborated and extended in later years, it retains control of the individual's experience, and, by definition, causes distress and maladaptive lifestyle patterns. Millon avers: "Significant experiences of early life may never recur again, but their effects remain and leave their mark ... they are registered as memories, a permanent trace and an embedded internal stimulus ... Once registered, the effects of the past are indelible, incessant and inescapable" (1981, cited in Young, 1994, p.12).

Young argued that biology and temperament have an important role in pathogenesis of schemas. He observes: "a child who is especially anxious by nature may have more difficulty moving from dependence to autonomy. Similarly, a child who is shy by disposition may be more prone to developing the social isolation schema" (Young, 1994, p.53). Theoretically,

then, the seed of a maladaptive schema lies in the meeting point between the child's innate temperament, parenting styles and other social influences.

Siever and Davis (1991) assert that by the age of 3 children show variation along a continuum of reflectiveness versus impulsivity/aggression in their approach to problem solving and their ability to monitor their own behaviours, particularly prohibited behaviours. They add:

Increased motor activity and aggression in response to frustration in the child may engender anxiety and disapproval in parents, contributing to a negative self-perception. A relative insensitivity to the prospect of punishment and an associated failure to inhibit aggressive behaviours that result in punishment might also be expected to interfere with the normal internalisation of prohibitions against such behaviours (1991, p.1655).

This description of the aetiology of the *impulsivity/aggression* dimension does not easily fit with the phenomenology of TTM. To the best of our knowledge there is no research that demonstrates that TTM patients show a "relative insensitivity to the prospect of punishment" (1991, p.1655). Because the definition of the *impulsivity/aggression* dimension emphasises the hostile, transgressive aspect of the impulsive behaviour – and therefore its relationship with punishment and superego formation etc. – it appears to overlook the peaceful, soothing quality of TTM. However, the dissociation of "automatic" hair pulling experienced by three quarters of TTM patients does suggest a link with the "aggressive" impulsive behaviours such as pyromania, kleptomania, and aggression in borderline personality disorder and antisocial personality disorder. The nature of the dissociation during the impulsive behaviour across many impulsive disorders needs further investigation.

On the dimension *anxiety/inhibition* individual differences also emerge at an extremely young age. Siever and Davis observe:

Psychobiological correlates of this dimension include the greater sympathetic nervous system activity and adrenocortical responsiveness

associated with anxiety disorders. These differences may be detected even in infancy in regulation of heart rate and arousal....

Mastery of anxiety is required for the child to venture out beyond familiar and comfortable surroundings and explore the environment. How would children with a very low threshold for anxiety meet this challenge? Such children would tend to be shy, inhibited, and fearful and would experience difficulty in forming new relationships or mastering new situations. As a result they may be more dependent on familiar caretakers and avoid novel situations (1991, p.1655).

Of relevance here is the assertion that a low threshold for anxiety can lead directly to increased dependence on primary caretakers and decreased exploration. Thus anxiety disorder patients have difficulty achieving psychological separation from their family of origin, living independently and taking on adult responsibilities. Difficulties in this area may in fact characterise OCD patients.

Despite this acknowledgement of the role of biology and temperament, Young admits that his work places a strong emphasis on the part played by parents, siblings and peers in the development of EMSs. (Notably, object-relations theory argues that it is not the real-life behaviour of primary caretakers that is formative, the determining factor is the child's *perception* and *subjective experience* of caretakers). Young contends that there are four universal stages on the maturational path from birth to healthy adult life. These four tasks are: (1) autonomy (2) connectedness (3) worthiness (4) reasonable expectations and limits (Young, 1994). Young believed that the source of each EM schema is traceable to difficulty with one of these life tasks, usually because of interference by significant other(s). What follows will be a short exposition of each of the four developmental tasks described by Young.

Autonomy is the belief that one can function independently and without continued support from others. Individuals that have achieved autonomy are able to express their needs, desires,

interests, feelings and preferences. Autonomous individuals feel that they are in control of their bodies and minds. Importantly they also feel that their environment is relatively safe and they do not display hypervigilance to threat. Usually autonomy can only be achieved in a family environment in which autonomous behaviour is encouraged. Children need to be allowed to express autonomous needs and to act on these needs without undue punishment and withdrawal of support, on the one hand, or excessive help, on the other. Young writes:

When parents fail to provide an environment that encourages autonomy, one of the four schemas related to autonomy could develop. These include vulnerability to harm and illness, fear of losing self-control, subjugation and lack of individuation, and pervasive feelings of dependency. These often arise when parents overprotect their children; for example, by continually warning them of exaggerated dangers and risks. ... The opposite extreme can also lead to problems with dependency: when children are rarely helped to do anything and receive little guidance or direction (Young, 1994, p.54).

Further problems arise when parents punish their children for expressing their feelings, particularly anger, and also when parents fail to model the natural expression of emotion.

Connectedness is the knowledge that one is emotionally connected to other people in a stable, enduring and trusting manner (Young, 1994). One aspect of connectedness is intimacy: close emotional ties to others. The capacity for intimacy is increased when individuals see themselves as lovable and when they trust the motives of others. Another aspect of connectedness is social integration: the feeling that one belongs to a group of friends, family and community. Social integration is facilitated when individuals feel socially desirable and skilled and when they feel similar to other people. The stability, dependability and empathy of care by primary caretakers create a capacity for emotional connectedness. Young asserts: When children do not have this kind of secure environment, with love, empathy, attention, respect, and positive social experiences, they are prone to the schemas related to disconnectedness: social isolation / alienation, emotional deprivation, abandonment/loss, and

mistrust (Young, 1994, p.55). These schemas usually develop when parents die or leave home permanently or leave a child alone during very early years. Sometimes these schemas occur when a child is unable to join a peer group because they are deemed “not good enough” in terms of appearance or mastery of tasks, or because a child’s interests are not gender appropriate.

Worthiness is the feeling that one is lovable, competent, acceptable and desirable to others. Worthiness grows when children feel genuinely loved by parents and siblings and by their peer group. Young writes: “When children do not receive enough respect, love, and acceptance, and when they receive excessive criticism or punishment, they are prone to the schemas related to unworthiness: defectiveness/unlovability, social undesirability, incompetence/failure, guilt/punishment, and shame/embarrassment” (Young, 1994, p.55).

Reasonable expectations and realistic limits refers to the capacity to set realistic achievable goals for oneself and others, especially in the area of performance and achievement (Young, 1994). It includes the capacity to have discipline, to control one’s impulses and to take the needs of others into account. Children benefit from having realistic limits laid down for them, that are not too restrictive or overly permissive. They also need to feel that they do not need to be perfect to be loved and accepted. In addition children need to be taught a realistic sense of obligation towards others – and to strike a balance between being too selfish and too self-sacrificing. Young observes:

The unrelenting standards schema develops when children are asked to do more than they can reasonably complete and are taught that whatever they accomplish is not enough. These parents place a higher priority on achievement than on happiness. Children often feel that the only way they can earn the love of such parents is by achieving at an extremely high level.

The entitlement/insufficient limits schema arises when children are overindulged by parents; praised inordinately for accomplishments; allowed to do whatever they want, without regard for the needs of others; not taught that relationships involve sharing and reciprocity; and not taught how to deal with defeat or frustration. These children may be told that they are special and few limits are set (Young, 1994p. 56).

The defining characteristics of schemas

Early Maladaptive Schemas (schemas) are “cast in stone”; they are unalterable beliefs about oneself in relation to the environment. An S is not experienced as an opinion but as an absolute certainty. Guidano and Liotti write: “The deep structure’s irrefutability is therefore a real ... necessity. For us as individuals, our own tacit self-knowledge is a constitutive part of ourselves; with no real alternatives” (1983, cited in Young, 1994).

schemas are self-perpetuating and resistant to change. Because the schema reaches into the core of the individuals self-concept a good deal of energy is expended on preserving the “truth” of the schema in the face of evidence to the contrary. This is the basis of the cognitive distortion described above in the definition of schemas. Guidano and Liotti remark:

The selection of data from outside reality that are coherent with self-image obviously confirms – in an automatic and circular way – the perceived personal identity....

Let us consider a young woman who has developed a self-image as “intrinsically unlovable”.... Since every time she is abandoned she processes the data derived from the experience on the basis of her self-image (so that it is reconfirmed and made more stable each time), little by little her own “unlovable ness” becomes something certain and “proved” (Young, 1994, pp.88-89).

By definition EM schemas are significantly dysfunctional. Young posits that schemas can lead directly to Axis I conditions such as depression and panic, as well as loneliness, underachievement, substance abuse and destructive relationships (Young, 1994). Young

terms his schemas *maladaptive* suggesting that *adaptive* schemas may also exist. It is possible that schemas of joy, power, lovability etc. are widespread and contribute to the maintenance of health. This question raises a philosophical conundrum: if psychological 'health' is maintained by positive schemas then one makes the assumption that 'health' is based on a screening of reality. Since by definition a schema modifies the perception and appraisal of social information, is psychological health merely the presence of a positive filter of information rather than a negative filter? Or does true psychological health require the sweeping away of all schemas both positive and negative facilitating a dispassionate and clear view of reality? Such questions have only a limited bearing on the focus of this thesis. Yet a full understanding of the therapeutic journey from psychological illness to health would need to engage with this topic.

EM schemas are precipitated by environmental events pertaining to the schema. They are loaded from a latent state into consciousness. For example, the prospect of a work evaluation would trigger the schema of incompetence (if it exists), and a great deal of negative affect. Young argues that in a majority of cases in which cognitive therapy fails to help patients with Axis I disorders the reason for the therapeutic impasse lies in the field of personality disorders and EM schemas (Young, 1994). He explains the treatment-resistant quality of patients with personality disorders using three concepts: (1) rigidity, (2) avoidance and (3) interpersonal difficulties. The following is a brief note about each of these concepts.

Rigidity. Short-term cognitive therapy with Axis I disorders assumes a minimal degree of flexibility on the part of patients in order for the patient to recognise the inaccuracy or maladaptiveness of their thinking. This assumption is not upheld by patients with personality disorders. By definition, personality disorder traits – that relate to EM schemas, though

research on this relationship is in its infancy – are characterized by enduring and pervasive inflexible patterns. Millon comments:

Manoeuvres such as protective constriction, cognitive distortion, and behaviour generalization are processes by which individuals restrict their opportunities for new learning, misconstrue essentially benign events, and provoke reactions from others that reactivate earlier problems (Millon, 1981, cited in Young, 1994, pp.5-6)

Young contends that short-term cognitive-behavioural therapy is exponentially more effective when *rigidity*, born of Axis II pathology, is not present (1994).

Avoidance. Young asserts that short-term cognitive therapy makes the assumption that patients can access their thoughts and feelings with relative ease (Young, 1994). But patients with personality disorders often avoid their inner world. The overwhelming negative affect associated with reflecting on thoughts and feelings mean that such individuals go to great lengths to avoid engaging with their maladaptive cognitions and behaviour patterns.

It is evident that the difference between cognitive avoidance and the psychoanalytic concept of psychic defences is largely semantic. Kaplan and Sadock express the psychoanalytic view of this

The defences of patients with personality disorders have been part of the warp and woof of their life histories and of their personal identities. However maladaptive their defences may be, they represent homeostatic solutions to their inner problems ... Breaching their defences evokes enormous anxiety and depression (Kaplan & Sadock, 1985, p.965)

Interpersonal difficulties. Profound interpersonal difficulties characterise people with EM schemas and personality disorder traits. It is the long-standing and pervasive nature of these difficulties that reduces the effectiveness of ordinary short-term cognitive therapy with such patients.

Allied to the three causes of therapeutic failure described above are Young's conception of the three major schema processes, namely schema maintenance, schema avoidance and schema compensation.

Schema maintenance. In the field of cognition, schema maintenance is achieved through exaggerating information that confirms the schema, and minimizing or denying information that contradicts the schema. Behaviourally schemas are maintained by means of self-defeating patterns of action. (Such behaviour patterns may have been adaptive during early life in a maladaptive family environment). Young notes: "Maladaptive partner selection is one of the most common mechanisms through which schemas are maintained" (Young, 1994).

Schema avoidance. The unbearable anger, anxiety, sadness or guilt associated with schemas results in the individual developing volitional and automatic processes for avoiding such affect (Young, 1994). Forgetting or feigned forgetting, blanking out and repeatedly refusing to attend to a recognised pattern are all examples of cognitive schema avoidance. To borrow from psychoanalytic theory, suppression, splitting, denial and even depersonalisation are a range of psychic responses to the presence of an EMS. Compulsive behaviour, too, can function as a distraction from the distress caused by an EMS. Affective avoidance occurs in borderline patients by means of self-mutilation – a means of numbing the unbearable pain emanating from the activation of an EMS. Also, separating cognition and affect is sometimes achieved: thus the individual can talk about a very upsetting event without any experience of the corresponding emotion. Young comments: "The result of this affective avoidance process seems to be that avoidant patients experience more chronic, diffuse, generalized emotions and psychosomatic symptoms, in comparison with nonavoidant patients who experience more

intense, acute emotions that pass quickly, followed by periods of normal mood” (Young, 1994, p.17). Behavioural avoidance of EMSs is most poignantly demonstrated by social isolation, agoraphobia or the inability to attempt career or family responsibilities. The price of schema avoidance, of course, is that the individual never gains an opportunity to outgrow the schema.

Schema compensation. Some patients adopt cognitive or behavioural styles that are the opposite of what would be expected based on knowledge of their EMSs (Young, 1994). (This is related to the psychoanalytic concept of reaction formation). For example, certain individuals who experienced profound emotional deprivation as children behave narcissistically as adults. Young observes: “Their apparent sense of entitlement obscures the underlying deprivation” (1994, p.18). To a limited extent, compensatory behaviour may be valuable because it represents an attempt to prove the schema is untrue. But the compensatory behaviour is often extreme and does not achieve its objectives. For example, the narcissistic individual may alienate spouse, colleagues and friends and ultimately live out a very emotionally deprived existence. In addition, there is always the threat of overwhelming negative affect if the compensatory behaviour fails and the schema erupts.

Schemas occupy a place in the cognitive hierarchy described in cognitive-behavioural psychology. There is considerable overlap between the concept of schemas and that of core beliefs and the two concepts are sometimes used synonymously. Beck, however, draws the distinction by arguing that schemas are cognitive structures within the mind, while core beliefs are the personal content that fill those structures and are unique to each individual (1964, cited in Beck, 1995). EMSs can be contrasted more easily with underlying assumptions: EMSs are experienced as constitutive and final (“I am incompetent”) while

underlying assumptions offer redemption (“If I always come first in the class then I will be valued”) albeit on extreme terms.

Schemas in Axis I and Axis II disorders

Schemas, as conceived and defined by Young, are closely related to personality traits. A study that compared the 15 schemas of the YSQ with cluster analysis of the personality disorder scales of the Millon Clinical Multiaxial Inventory-II found that personality disorders are associated with unique patterns of cognitive schemata (Petrocelli et al., 2001). Schemas are enduring cognitive structures that mediate the encoding and processing of social information. Personality traits are hypothesised to be stable and their effects on information processing are continuous and long-term. In contradistinction schemas can change from a latent, or hypovalent state, to a state of activation. This property – activation and deactivation – is key to the concept of schemas. Beck observed: “[schemas] may be latent but can be activated by specific circumstances which are analogous to experiences initially responsible for embedding the negative attitude” (1979, cited in Segal, 1988, p.148).

Segal discusses what is unique about schemas, with reference to major depression (1988). Characteristic of depressed individuals is a negative view of self, world and future (Segal, 1988). This negativity manifests in the form of negative automatic thoughts - depressed people misinterpret or misperceive reality in such a way that their unhappy conclusions are based on faulty thought patterns. Segal gives details of two models to explain these negative thought patterns (Segal, 1988). The first is termed the *construct accessibility/availability* model that refers to the greater ease with which negative constructs or categories come to mind in depressed individuals and are used in information processing. It has been discovered that one of the important determinants of this greater accessibility is affect: information with

an emotional tone that matches an individual's mood state is rendered more accessible and is more likely to be recalled (Segal, 1988). Thus mood becomes a prime: negative constructs are uppermost in the minds of people with depressed mood and joyful constructs are more accessible to people in a joyful mood.

A difference exists between the *construct accessibility/availability* model and the schema model. The difference lies in the relationship *between* self-constructs. The *construct accessibility/availability* model does not posit any connection between constructs and the activation of one construct will not have any effect on the other constructs. But the schema model – a cognitive structural model – states that individual self-elements or constructs are organized with a high degree of interrelation. Segal writes:

Because of the persistence of the interconnection among the individual elements, the schema could be activated in the absence of depressed mood. In this fashion, an individual's negative self-schema could persist beyond the depressive episode into the period of recovery (Segal, 1988, p.150).

Theoretically, because schemas are defined as enduring mnemonic structures they can be assessed whether or not the individual is in an episode of an Axis I condition. Put differently, the inter-connection of the mnemonic elements of a schema persists regardless of whether the schema is currently active in filtering social information.

It is important to distinguish between the mnemonic effects of mood per se and the mnemonic effects of cognitive structures associated with mood (Blaney, 1986, cited in Segal, 1988). Strictly speaking a valid assessment of enduring cognitive schemas in a clinical population is possible only in a longitudinal study. For example, patients with panic disorder could be assessed with a schema questionnaire on two occasions: first, during an episode, and second, after remission. If particular schemas are elevated at the first and second assessment, the existence of the schema would be incontrovertible (assuming adequate construct validity

of the questionnaire). If, however, an elevated schema score during the episode of panic disorder reduced to normal levels after remission, it would have to be concluded that the initial elevation was an artefact of mood or anxiety.

Studies assessing schemas only once in an Axis I group cannot purport to be researching early maladaptive schemas. What is being assessed is a current profile of fundamental maladaptive beliefs that are characteristic of the Axis I disorder. Many of the beliefs or factors may represent enduring schemas, or cognitive structures. Some of the elevated factors, however, may arise from the mood or anxiety effects of the clinical disorder – the accessibility/availability model. By convention the fundamental beliefs, or factors, which are assessed in clinical populations are still termed schemas. This use of terminology is confusing: it must be remembered that ‘current’ schemas in an Axis I population are distinct from ‘enduring’ or ‘early maladaptive’ schemas. This thesis will assess and compare the current profile of schemas in OCD and TTM. Hence this thesis will not reveal the enduring cognitive structures that exist in OCD and TTM, but rather will assess the maladaptive beliefs that characterise the two disorders. Naturally there may be a high degree of overlap between the early maladaptive schemas and the current profile of schemas.

This study seeks to assess and compare the current profile of schemas in two clinical disorders, OCD and TTM, as well as a control group. The Siever and Davis dimensional model argues that Axis I and Axis II conditions occur on the same dimensions: for example, both social phobia and avoidant personality disorder rest on the anxiety/inhibition dimension (1991). Two of the personality disorders associated with OCD – obsessive compulsive personality disorder and avoidant personality disorder – can also be broadly placed on the anxiety/inhibition dimension. Similarly, it can be argued that schemas relate to both Axis I

and Axis II disorders. For example the higher-order schema factor, impaired autonomy, relates to dependent personality disorder on Axis II and separation anxiety disorder on Axis I.

A schema profile can be used to reflect on the pattern of schemas that emerge as significant in the OCD and TTM respectively. The value of such an endeavour is twofold. First, the comparison between OCD and TTM makes a unique contribution to the growing literature that seeks to delineate the relationship between the two disorders. It will provide valuable information on the degree of cognitive similarity between OCD and TTM. This relates to the larger topic of the psychiatric classification of TTM. Second, such information provides a starting point for tailoring Young's model of schema therapy to OCD and TTM respectively. The precedent for this is cognitive behavioural therapy that began as a new conceptualisation of depression, and was methodically applied to each different psychiatric disorder.

Using the YSQ in research studies

Research into field of EMSs, schemas in Axis I disorders, and the YSQ, is in its infancy. Nevertheless there are several studies that have already used the YSQ to good effect, and some of the findings will be described. In a study of 203 psychiatric patients admitted to day treatment at a psychiatric hospital in Ottawa, Canada, the relationship between the YSQ (short form) and psychiatric symptomatology was examined (Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002). The aim was to test the hypothesis that the vulnerability to harm schema would be correlated with symptoms of anxiety and that the defectiveness, emotional deprivation and abandonment schemas would be correlated with symptoms of depression. The results showed that most of the scales on the YSQ correlated significantly with each measure of symptomatology. For example, 12 out of the 15 YSQ subscales were significantly correlated with depression, and 13 out of the 15 YSQ subscales were significantly correlated

with anxiety. Obsessive compulsiveness was also measured and again 10 of the 15 YSQ subscales were significantly correlated. The high frequency of these correlations occurred despite a very conservative alpha level ($p < 0.001$). These results make it difficult to assess the unique schematic qualities of each disorder. However, further regression analysis uncovered that 5 schema subscales are predictive of anxiety, and two specific subscales are predictive of depression (Welburn et al., 2002).

Studies using the YSQ to compare different clinical disorders have been better able to specify the schemas associated with particular disorders (Waller, Shah, Ohanian, & Elliot, 2001). A YSQ study compared major depression, bulimia with severe depression, bulimia with minimal depression, bulimia without depression, and a control group (Waller et al., 2001). It was hypothesised that (1) clinical groups would show significantly elevated scores compared to controls (2) schematic differences would be apparent between the major depression and bulimia with severe depression and (3) the greatest schematic difference would be evident between bulimics with mild depression and participants with either major depression or bulimia with moderate to severe depression (Waller et al., 2001). The first and third hypotheses were borne out in the results. However, there was no consistent pattern of difference between the depressed bulimics and the major depression group. But the results also demonstrated that the YSQ could discriminate between the different clinical groups. This was achieved on the basis of 3 YSQ scales: social isolation, defectiveness / shame and fear of failure. Thus while the major depressives and the depressed bulimics had broadly similar schema levels, these two groups could be differentiated using multivariate analyses. The discriminant analyses also showed that the bulimics and the depressives shared maladaptive beliefs around social relationships and personal value (social isolation and defectiveness /

shame schemas). But the bulimics were distinct from the depressives in seeing themselves as having failed to achieve in their lives.

A similar comparison will be performed between OCD and TTM patients in the current thesis. The purpose of the analysis will be to determine whether there is a schematic difference between OCD and TTM, and which schemas characterise the OCD and TTM respectively.

AIMS AND HYPOTHESES

This thesis will examine the epidemiological factors (such as age at onset, gender, comorbidity, etc) of the OCD and TTM participants and compare these with previous studies. Importantly, this thesis aims to compare the current profile of schemas of OCD and TTM. It also aims to investigate the effect of depression on schema scores. As the OCD and TTM share membership on the putative OCD-related disorders spectrum, their cognitive relatedness is important.

Hypothesis 1: The Siever and Davis (1991) model places OCD and TTM on separate dimensions, namely *anxiety/inhibition* and *impulsivity/aggression* respectively. Therefore it is hypothesised that in a schematic comparison of OCD and TTM, the two disorders will show elevations on different schemas of the YSQ. It is hypothesised that the OCD group will have elevations on schemas predictive of anxiety, including: (1) vulnerability to harm, (2) abandonment, (3) failure to achieve, (4) self-sacrifice and (5) emotional inhibition (Welburn et al., 2002). It is hypothesised that the schematic elevations in TTM will significantly differ from those of the OCD group.

Hypothesis 2: Segal (1988) states that current depression results in significantly higher maladaptive schema scores on self-report schema questionnaires. This occurs because depressed mood acts as a prime and raises the *accessibility* or *availability* of negative constructs. Therefore it is hypothesised that an analysis of OCD patients *without current depression* versus TTM patients *without current depression* versus controls will reduce the number of significantly elevated schemas of OCD and TTM groups compared to controls.

However, excluding currently depressed patients should not alter the schematic distinctiveness of the two disorders (as described in Hypothesis 1).

Hypothesis 3: The Siever and Davis dimensional model (1991) posits that depression lies on the *affective instability* dimension which is separate from the *anxiety/inhibition* dimension encompassing OCD. Schemas associated with depressive disorders are different from schemas associated with anxiety disorders (Young, 1994). Therefore OCD without any history of depression – current or past – compared to controls will show fewer schema elevations than those with a history of depression (assessed in Hypothesis 1) and fewer elevations than those with current depression (assessed in Hypothesis 2). This will occur because both the effects of current mood and the effects of enduring cognitive structures associated with depression will be excluded. The result – a “pure” OCD group – will be elevated on a small number of schemas.

Conversely when only OCD patients with past or current depression are compared to controls there will be more schema elevations than the all-inclusive OCD group. This will occur because OCD patients with past or current depression have schemas related to OCD as well as schemas produced by current depression and/or schemas related to cognitive structures associated with past depression. Though these patients are part of the all-inclusive OCD group, it is hypothesised that when selected out they will have a higher number of subscale elevations compared to controls than the all-inclusive OCD group because there will be a higher concentration of patients with schemas related to depression.

DESIGN

This study used 3 independent groups. Among these were two clinical groups: the OCD group, and the TTM group. There was also a control group of community volunteers.

Matching between the three groups was not performed. Each participant completed the YSQ-S1, and a between subjects design was used.

PARTICIPANTS

OCD and TTM participants were recruited through the Anxiety and Stress Disorders Unit at Tygerberg Hospital in Cape Town, South Africa. Inclusion into the study was contingent on each participant giving informed written consent. Each patient was interviewed by an experienced psychiatrist or clinical psychologist. Detailed demographic and phenomenological data was collected from each participant. OCD Patients were evaluated using the criteria for OCD on the Structured Clinical Interview of Axis I Disorders (SCID-1) of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (APA, 1994). Similarly the evaluation of TTM patients used the Structured Clinical Interview for the Diagnosis of OCD Spectrum Disorders (SCID-OCSD) (Du Toit, Van Kradenburg, Niehaus, & Stein, 2001). In addition the DSM-IV diagnostic criteria were used to make any additional diagnoses that were evident on Axis I. DSM-IV criteria were used to assess for borderline, schizotypal, avoidant, and obsessive-compulsive personality disorders, as these were deemed relevant to OCD (Christensen, Chernoff-Clementz, & Clementz, 1992; Diaferia, Bianchi, Bianchi, & Cavedini, 1996; Rosen & Tallis, 1995; Tallis, Rosen, & Shafran, 1996). Patients were enrolled in the study over a three-year period from approximately January 1998 till December 2002. Exclusion criteria for the probands were the following: (1) unwillingness to participate; (2) inability to read or understand the English language; (3) diagnosis of a psychotic disorder. Furthermore in the case of OCD, if the patients' obsessions and

compulsions were confined to body dysmorphic disorder or hypochondriasis the patients were excluded. The control group consists of community volunteers from a large financial company who were not screened psychiatrically. It is possible – though unlikely – that several of the control group participants exhibited subclinical (or, conceivably, even clinical) symptoms of OCD or TTM. Clinical patients with comorbid TTM and OCD were not included in the present analysis.

114 OCD patients were furnished with the Young Schema Questionnaire (YSQ) as part of their interview pack. Some of the questionnaires were found to have missing data, and these were excluded from the statistical analyses. Thus 95 OCD participants were included in the analyses (29 were male and 66 were female). Of these 83 were white (89.2%), 3 were coloured (3.2%) and 4 were black (4.3%). 36 of the TTM patients were given YSQ questionnaires and 34 of the TTM questionnaires were complete and were included in the analysis (4 male and 30 female). There were 27 white TTM participants (81.8%), and 2 black TTM participants (6.1%). 108 controls filled in the YSQ questionnaire. 94 of the control group YSQ questionnaires were complete and were included (19 male, 75 female). Of these 85 participants were white (91.4%), 5 were coloured (5.4%) and none were black. The mean ages for the 3 groups were as follows: OCD = 36.0 years (range = 12 to 71 years, SD 15.0); TTM = 31.9 years (range = 13 to 71 years, SD = 13.2) and Controls = 35.4 years (range = 19 to 59 years, SD = 9.32).

THE YOUNG SCHEMA QUESTIONNAIRE (YSQ)

The original Young Schema Questionnaire YSQ (YSQ; Young, 1994) is a 205-item self-report inventory developed to measure 16 of the 18 early maladaptive schemas proposed by Young (1994). For each item of the schema questionnaire the answer is required to be placed

on a 6-point Likert-type scale (1= “completely untrue of me”, 2 = “mostly untrue of me”, 3 = “slightly more true than untrue”, 4 = “moderately true of me”, 5 = “mostly true of me”, 6 = “describes me perfectly”).

The 205-item version, published in 1990, was found in practice to be inordinately time consuming and to cause distress amongst some participants. This informed the development of a 75-item “short form” of the YSQ, which includes 15 schemas (one schema – social undesirability - was not carried over from the long version for validity reasons described below).

The development and empirical testing of the YSQ schemas

On a priori grounds, Young hypothesised the existence of 16 schemas. He conceived of each of these schemas from his experience in working with chronic or treatment-resistant psychotherapy patients (Schmidt et al., 1995). Again on a priori grounds Young grouped these 16 schemas within 6 higher-order areas of functioning: (1) instability/disconnection (2) impaired autonomy (3) undesirability (4) restricted self-expression (5) restricted gratification and (6) impaired limits. A diagram of these schemas is given below in Figure 1.

It is important to note that a genuine cross-cultural examination of schemas – and what constitutes schematic health – has not been undertaken. Although schemas have been studied in Canada, Britain and Australia these countries are all developed, western societies, and, it may be argued, share many cultural beliefs. The conceptualisations of selfhood in pre-literate or indigenous societies often differ in fundamental ways from that of western culture (Swartz, 1998). For the Nguni people of southern Africa, for example, a collective sense of self constitutes health and normality (Swartz, 1998). Without a careful examination of cultural factors, this view of the self would fit into Young’s higher-order factor impaired autonomy.

Naturally relationships between Nguni people are not characterised by enmeshment and dependence; Nguni culture merely holds that human beings are inter-dependent, and that the wellbeing of the self is socially rather than individually determined. Thus cross-cultural research on schemas is much needed.

A sophisticated factor analytic procedure has been undertaken by Schmidt, Joiner, Young and Telch to determine whether empirical support exists for the YSQ schemas and the higher-order categories (Schmidt et al., 1995). The first such procedure assessed 575 nonclinical undergraduate students (201 males and 374 females) from a large university in south-western America on the YSQ. This produced 17 factors including 15 of the 16 factors hypothesised by Young. One of Young's hypothesised factors, social undesirability, was not validated (Schmidt et al., 1995). The second sample consisted of 554 participants (222 males; 332 females) at the same university. Of the 17 factors established in the first analysis, only 13 factors were replicated in this second analysis (one of which was not part of Young's rationally-developed list of schemas).

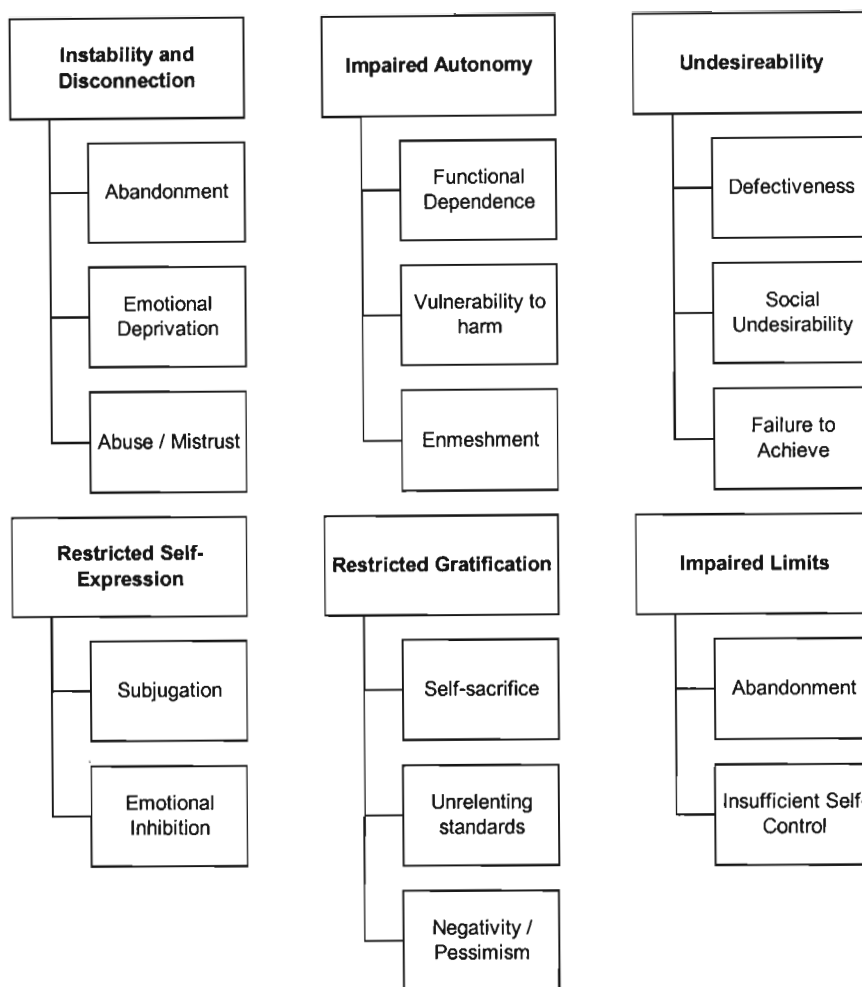


Figure 1. Young's hierarchical model of early maladaptive schemas (Cited in Schmidt et al., 1995, p.297).

Thus the combined analysis from these 2 studies validated 12 of the Young's 16 rationally-developed factors. The four factors hypothesised by Young that did not emerge from the analyses were merged into other factors with conceptual similarities. Schmidt, Joiner, Young and Telch explain:

... the four other hypothesized EMSs merged onto factors in conceptually meaningful ways. Specifically, Social Undesirability items loaded on Defectiveness, perhaps tapping feelings of social defectiveness. Social Isolation / Alienation items loaded on Emotional Deprivation, suggesting a too fine-grained distinction between feeling emotionally isolated or alienated and emotionally deprived. Subjugation items loaded on Dependency, suggesting that subjugation is an extreme form of dependency. Finally, Entitlement/Self-Centeredness items loaded on Insufficient Self-Control, suggesting that excessive self-centeredness represents one aspect of poor self-control (Schmidt et al., 1995, p.316).

The replicated factor that was not hypothesised by Young was *fear of losing control*.

The factor analysis with a nonclinical sample was followed, in the same study, by factor analysis with a sample of 187 outpatients receiving treatment at a clinic in a large north-eastern city in America. 10% of the sample had been hospitalised for psychiatric reasons, 72% had received previous psychological care; 61% received an Axis I diagnosis and 55% received an Axis II personality disorder diagnosis (Schmidt et al., 1995). 15 of Young's hypothesised 16 factors emerged from this analysis. Social undesirability was the only factor that did not emerge – it did not emerge in any of the analyses suggesting that it is not a conceptually distinct scale. In the clinical population three schemas that had merged with other factors in the student sample, became independent factors in the patient sample. One explanation is that the 3 schemas - social isolation, subjugation, and entitlement - may represent more extreme schemas and as such are rare in nonclinical populations. Conversely the fear of losing control factor which emerged in the student sample did not emerge in the patient sample.

In order to find an empirical basis for the higher-order categories the two nonclinical samples were combined into a sample of 1129 student participants. The analysis produced 3 distinct higher-order factors. The first was Disconnection which is similar to Young's category, instability and disconnection. Young writes: "This factor subsumes themes of abuse, neglect, and shame, and is reminiscent of abusive or neglectful family-of-origin environments" (Young, 1990, cited in Schmidt et al., 1995). The second higher-order factor was Overconnection which is similar to Young's impaired autonomy factor. Overconnection is the higher-order factor containing psychopathology that is derived from prolonged experience of enmeshment. Such individuals feel incompetent, vulnerable and excessively dependent. The third higher-order factor was Exaggerated Standards which resembles Young's restricted

gratification factor. This pertains to an excessive focus on achievement or on self-sacrifice. Insufficient self-control loaded equally on each of the 3 higher-order factors. A diagram of these higher order factors is presented below in Figure 2.

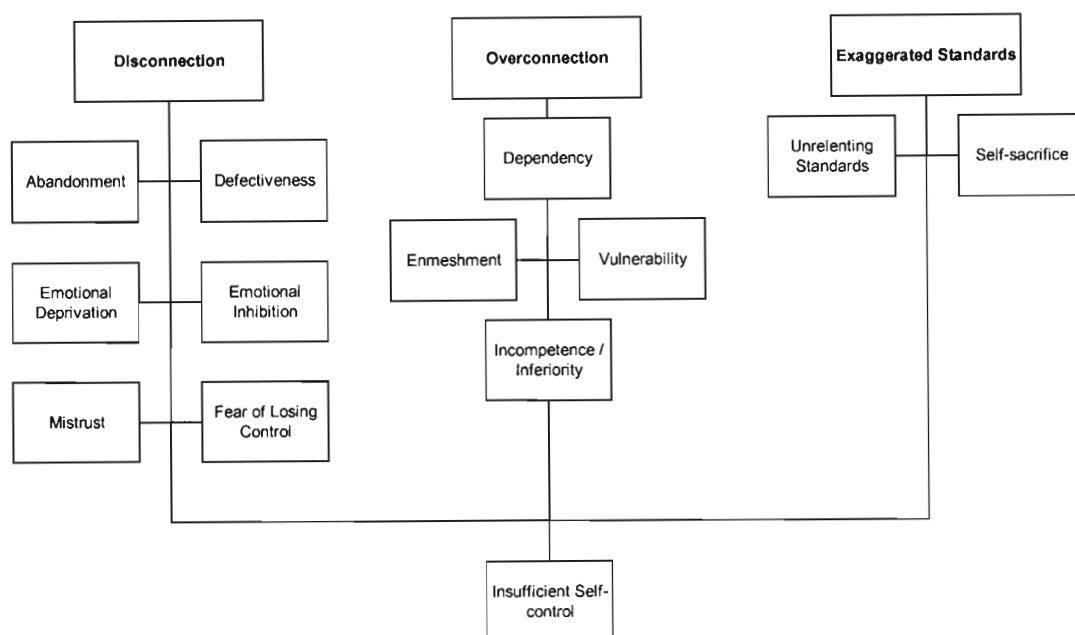


Figure 2. Hierarchical relationship between primary and higher-order EMSs (Schmidt et al., 1995, p.307).

A replication study by Lee, Taylor and Dunn sought to verify these findings by using a considerably larger clinical population in Australia (1999). Included were 278 private practice patients and 78 psychiatric inpatients. The results provided overwhelming support for the findings of Schmidt et al. (1995). 14 of the 16 originally proposed EMSs again emerged as independent factors. The only two scales not to emerge as separate factors were social undesirability and emotional inhibition. This thesis will make use of the higher-order factors empirically discovered in the Lee, Taylor and Dunn study (1999). To date it is by far the largest study on a clinical population and it was felt that empirically derived higher-order categories are preferable to hypothesised ones that have not been empirically tested. There is, at any rate, a cross-pollination between the rationally-derived higher-order categories and ones produced by empirical analyses. Young revised his hierarchical model in accordance with the findings of Schmidt et al. (Young, 1994). The Lee, Taylor and Dunn paper was

published some 5 years later, however, and at the time of revising his classification system, Young did not have the benefit of these results. Figure 3 below illustrates the higher-order categories presented by Dunn, Taylor and Lee:

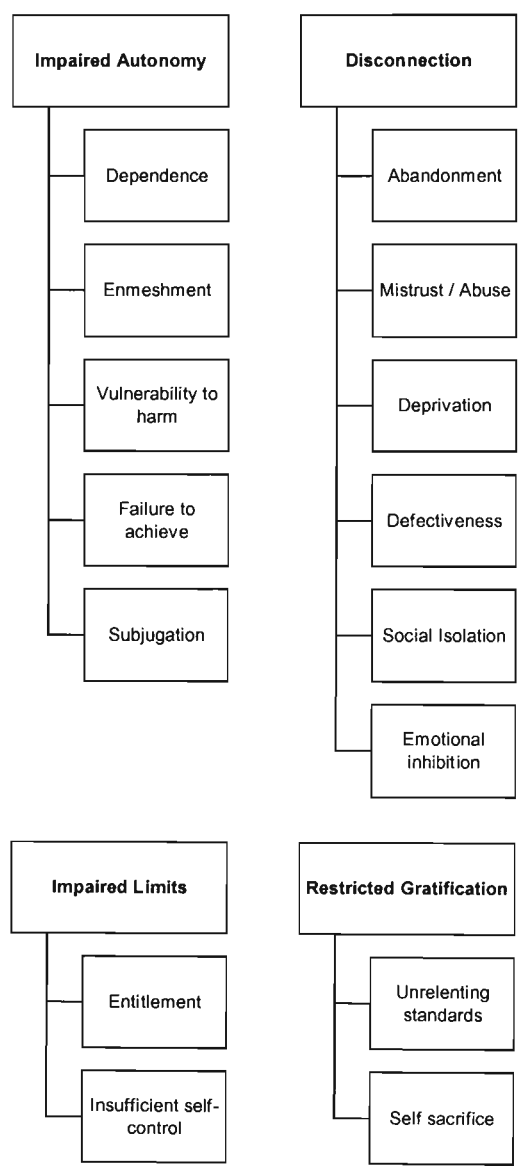


Figure 3. The YSQ factor model of Lee, Taylor and Dunn, 1999.

The higher-order factor of Impaired Autonomy denotes perceived difficulties in being able to function competently and independently. It incorporates a view of the self as a failure, necessarily dependent and vulnerable. The second higher-order factor was Disconnection. It involves a sense of being unlovable. Such individuals “know” implicitly that their emotional

needs will not be met because there is something wrong with them, and hence they try to hide their true selves from others, or deeply mistrust others. The third higher-order factor is called Impaired Limits. This includes people with an inability to set internal limits and who experience problems in long-term goal-orientation. Such people have struggle with respecting others, commitment, setting and meeting personal goals, and tolerating unpleasant emotional experiences. The fourth and last higher-order factor is Overcontrol. This includes people with a strong emphasis on controlling one's feelings and choices, and a harsh focus on performance, duty, perfectionism, and rules.

The Dunn, Taylor and Lee study was conducted using the long (205-question) version of the YSQ (1999). Therefore another replication study, this time with 203 day patients at a psychiatric hospital was conducted using the 75-item short form of the YSQ (Welburn et al., 2002). The factor analytic results provide strong empirical support for the 15 factors that have been included in the questionnaire and confirm the findings of the previous studies (Lee, Taylor, & Dunn, 1999). 70 of the 75 items loaded precisely with the theoretical structure of the instrument, and only 4 had significant cross-loadings with other subscales and 1 item failed to meet criteria for significance in loading on a factor (Welburn et al., 2002). In an analysis of gender differences, females were found to have significantly higher scores on self-sacrifice, failure to achieve, abandonment and defectiveness schemas compared to males (Welburn et al., 2002). In addition females were lowest on *entitlement* while males had the lowest scores on *enmeshment*. These results suggest that cultural norms around gender roles have an impact on maladaptive schemas. Further research is needed to determine whether these findings are repeated in nonclinical populations.

The definition of the 15 schemas included the YSQ (short form)

The higher-order factor, *impaired autonomy*, refers to the belief that one cannot separate and function independently from others. “Typical family of origin is enmeshed, undermining of child’s confidence, overprotective, or failing to reinforce child for performing competently outside the family” (Young, 1994, p. 58). It includes 5 primary EMSs. *Dependence / Incompetence* is the conviction that one can never competently manage everyday responsibilities. *Vulnerability to harm / illness* is the acute fear that disaster (especially health, safety or financial calamities) will befall the self or others at any moment. *Enmeshment* is the excessive emotional involvement with others at the expense of full individuation or normal social development. There is a sense that one or both of the enmeshed individuals would not survive without the other. It is often experienced as a feeling of emptiness or floundering. *Failure to achieve* is the conviction that one is unequivocally inferior to others and, therefore, destined to fail in life’s activities (especially sport, learning, and work). *Subjugation* is the surrender of control of one’s behaviour, emotions, and decisions because of felt coercion. Usually there is an explicit or implicit threat of retaliation or abandonment from the other. The schema frequently presents as excessive compliance, combined with hypersensitivity to feeling trapped. Characteristically there is a chronic suppression of anger towards those perceived to be in control.

The higher-order factor *Disconnection* refers to the belief that intimacy does not offer care, security and nurturance. Young writes: “Typical family of origin is detached, explosive, unpredictable, rejecting, punitive, unforgiving, withholding, inhibited or abusive” (Young, 1994, p. 57). This category includes 6 primary EMSs. (1) *Abandonment / Instability*, is the perception that significant others cannot be relied upon to support and protect because they are emotionally unstable, will die imminently, or because they will abandon the patient in

favour of someone better. (2) *Abuse / Mistrust* is the conviction that others will seek to intimidate, manipulate or humiliate the self. (3) *Emotional deprivation* is the belief that others will always be withholding of nurturance (attention), empathy (understanding) and protection (shielding from harm and guidance towards health). (4) *Defectiveness / Shame* is the feeling that one is fundamentally inferior and unwanted. This may involve hypersensitivity to criticism, rejection and blame, and emotional insecurity. (5) *Social isolation* is the sense that one is isolated from the world, different from others and not part of any group or community. (6) *Emotional inhibition* is the restricting of feelings, action and communication to avoid fantasised negative outcomes such as mistakes, disapproval, catastrophe and chaos and losing control of one's impulses. Characteristically there is curbing of anger, compulsive planning, eschewing of positive experiences (joy, sex, creativity), excessive adherence to routine, and difficulty expressing vulnerability.

The higher-order factor, *Impaired Limits*, refers to a deficiency of internal limits, responsibility to others or long-term goal orientation. This leads to disrespect of the rights of others, and an inability to make commitments or set and meet personal goals. "Typical family of origin is characterized by permissiveness, indulgence, or lack of direction, rather than appropriate confrontation, discipline, and limits in relation to taking responsibility and setting goals" (Young, 1994, p. 59). This dimension has 2 EMSs. *Entitlement* is the sense that one should be able to impose one's wishes and desires without regard for others. *Insufficient self-control* is the pervasive difficulty in tolerating discomfort or exercise restraint in order to achieve personal goals. There is also a lack of restraint on expression of one's emotions and impulses.

The higher-order factor, *Restricted Gratification*, is the factor that describes excessive control of one's spontaneity. This includes a fear of making mistakes, internal rigidity, and

unrealistic performance expectations, all at the expense of joy, creativity, health and relaxation. “Typical family of origin is grim [and sometimes punitive]: performance, duty, perfectionism, following rules, and avoiding costly mistakes predominate over pleasure, joy and relaxation. There is an emotional substrate of pessimism and worry – that things could fall apart if one fails to be vigilant and careful at all times. *Restricted Gratification* includes 2 EMSs. *Unrelenting standards* is the conviction that one must strive to attain near-perfect performance in order to avoid criticism. Typically results in stress and pressure, and a hypercritical attitude towards oneself. It necessarily involves significant impairment of pleasure, relaxation, health and self-esteem. *Self-sacrifice* refers to the *voluntary* devotion to the needs of others in everyday life, in order to protect others from pain, to avoid guilt from feeling selfish, or to maintain the connection with others perceived as needy. This behaviour often flows from an acute sensitivity to the pain of others.

Internal Consistency

Schmidt, Joiner, Young and Telch (1995) asserted that the test-retest reliability of the YSQ scales was adequate, ranging from 0.50 to 0.82 (average $r = 0.76$) (1995). They also found that the internal consistency coefficients (Cronbach’s Alpha) were within accepted norms (Schmidt et al., 1995). Nunnally (1978) set the cut-off criterion at 0.7 for alpha scores and the Schmidt et al. study produced alpha results ranging from 0.83 to 0.96 (average alpha = 0.90) (Schmidt et al., 1995). This finding was corroborated by Waller, Meyer and Ohanian whose alpha averages are based on a sample of bulimic women: 0.986 and 0.964 for the long version and the short version of the YSQ respectively (2001). A recent study, however, detected a problem with the internal consistency of one of the schemas: vulnerability to harm (VH) (Stopa, Thorne, Waters, & Reeve, 2001). Their study used a heterogenous group of psychiatric outpatients. The alpha result for VH was 0.479 on the long form and 0.071 on the short form. VH was removed from further analyses (Stopa et al., 2001). However, in a recent

study the internal consistency of the short form of the YSQ in particular was found to be adequate (for all schemas, including VH) with results ranging from 0.76 to 0.93 (Welburn et al., 2002).

The internal consistency coefficients (Chronbach's Alpha) were calculated for each of the 15 YSQ subscales. The alpha scores were as follows: *emotional deprivation* (0.9035); *Abandonment* (0.9240); *mistrust/abuse* (0.8834); *social isolation* (0.9343); *shame* (0.9069); *failure to achieve* (0.9388); *dependence* (0.8021); *vulnerability to harm* (0.8677); *enmeshment* (0.8301); *subjugation* (0.8890); *self sacrifice* (0.8593); *emotional inhibition* (0.8751); *unrelenting standards* (0.8479); *entitlement* (0.7721); *insufficient self-control* (0.8409). The alpha value for each subscale was above the 0.7 cut-off, indicating that each scale attained adequate internal consistency.

Results

TABLE 1. Demographic and historical data: comparison between OCD and TTM

| | OCD | | TTM | | Chi-Square |
|--------|-----|------|-----|------|------------|
| | n | % | n | % | |
| Male | 29 | 87.9 | 4 | 12.1 | 4.63* |
| Female | 66 | 68.8 | 30 | 31.3 | 4.63* |

| | OCD | | TTM | | T-test | |
|---------------------------|------|--------|------|--------|--------|-------|
| | Mean | SD | Mean | SD | df | t |
| Age at assessment | 36.0 | (15.0) | 31.9 | (13.2) | 127 | 1.402 |
| Age at onset | 18.5 | (12.2) | 16.8 | (10.6) | 101 | 0.608 |
| Beck Depression Inventory | 18.7 | (12.2) | 14.2 | (8.1) | 82 | 1.274 |

* p <.05.
** p <.01.
*** p < .001

The gender distribution between the OCD cohort and TTM cohort was significantly different (p<0.05): the OCD group included 66 females out of 96 (69.5%) whereas the TTM group included 30 females out of 34 (88.2%) (see Table 1A). There were no significant differences in age at assessment or age at onset though the OCD showed a trend towards being older in both categories. The OCD group scored higher on the Beck Depression Inventory than the TTM group though the Student’s t-test did not determine the difference to be significant.

Table 1B divides the OCD cohort into two groups. The first is OCD with a history of depression, current or past, regardless of whether the onset of OCD or depression came first, or whether they coincided. Depression can be in the form of a diagnosis of major depression, dysthymia or bipolar disorder. The second group comprises OCD patients without any history of depression. The Student’s t-test indicated that the difference is not significant.

TABLE 1B. OCD age at onset with depression versus without depression

| | OCD | | t |
|--------------------------------|------|------|------|
| | Mean | SD | |
| OCD onset (with depression) | 17.1 | 12.8 | 1.48 |
| OCD onset (without depression) | 21.4 | 10.8 | |

* p <.05.
** p <.01.
*** p < .001.

| TABLE 2. Comparison of personality disorders in | | | | | |
|---|------|--------|------|--------|------------|
| | OC | | TTM | | |
| | Mean | SD | Mean | SD | Chi-Square |
| Borderline personality | 16. | 25.8%) | 1.0 | 10.0%) | 1.1 |
| Avoidant personality | 9.0 | 13.8%) | 0.0 | 0.0%) | 1.5 |
| O C personality | 43. | 46.7%) | 3.0 | 10.3%) | 12.39** |
| Schizotypal personality | 3.0 | 4.8%) | 0.0 | 0.0%) | 0.5 |
| * p < .05. | | | | | |
| ** p < .01. | | | | | |
| *** p < .001. | | | | | |

Table 2 presents the comparative personality disorder comorbidity between OCD and TTM.

The 4 personality disorders assessed were the following: (1) borderline (2) Avoidant (3) Obsessive-compulsive (4) Schizotypal. Again, although the OCD group demonstrated a trend towards higher comorbidity on all four personality disorders, the chi-square analysis demonstrated that OCD and TTM were significantly different only in terms of Obsessive-compulsive personality disorder (p<0.001). However, it is notable that 16 OCD patients were diagnosed as having borderline personality disorder, compared to 1 TTM patient.

Table 3 below presents the Axis I comorbidity for OCD and TTM, separated into past and present psychiatric disorders. Unfortunately the total number (N) of each Axis I disorder varies slightly because not every patient was assessed for each diagnosis listed. Therefore the percentages for the same number of patients vary slightly across diagnoses. On almost every comparison, the OCD group exhibited higher rates of comorbidity, and yet on only 2 scales - past dysthymia (p<0.05) and current dysthymia (p<0.05) - did the Chi-Square analysis indicate that the difference reached significance. 4 composite scales were created: (1) past anxiety disorders (2) current anxiety disorders (3) past depressive disorders (4) current depressive disorders. The past and current anxiety disorders scales consist of the number of patients who have one or more of the following disorders: generalized anxiety disorder, social phobia, simple phobia, agoraphobia, panic disorder and panic disorder without agoraphobia. Similarly the past and current depressive disorder scale consists of the number of patients

who have one or more of the following disorders: major depression, dysthymia, bipolar depressive disorder. Only current depressive disorders attained significance ($p<0.01$) with 31.5% of the OCD group suffering current depression versus 6.9% of the TTM group.

| TABLE 3. Frequency and percentage of additional Axis I diagnoses in TTM and OCD patients | | | | | |
|--|-----|---------|-----|---------|------------|
| | OCD | | TTM | | Chi-Square |
| | n | | n | | |
| Major depression (past) | 48 | (52.2%) | 12 | (40.0%) | 1.34 |
| Major depression (current) | 14 | (15.2%) | 2 | (6.9%) | 1.33 |
| Dysthymia (past) | 13 | (14.1%) | 0 | (0.0%) | 4.59* |
| Dysthymia (current) | 14 | (15.2%) | 0 | (0.0%) | 4.99* |
| Generalized anxiety disorder (past) | 12 | (13.0%) | 5 | (17.9%) | 0.41 |
| Generalized anxiety disorder (current) | 12 | (13.0%) | 5 | (17.2%) | 0.32 |
| Social phobia (past) | 11 | (12.0%) | 0 | (0.0%) | 3.69 |
| Social phobia (current) | 11 | (12.0%) | 0 | (0.0%) | 3.81 |
| Simple phobia (past) | 15 | (16.3%) | 5 | (17.9%) | 0.04 |
| Simple phobia (current) | 15 | (16.3%) | 5 | (17.2%) | 0.01 |
| Panic disorder (past) | 16 | (17.4%) | 1 | (3.6%) | 3.37 |
| Panic disorder (current) | 12 | (13.0%) | 1 | (3.4%) | 2.12 |
| Agoraphobia (past) | 2 | (2.2%) | 1 | (3.6%) | 0.17 |
| Agoraphobia (current) | 2 | (2.2%) | 1 | (3.4%) | 0.15 |
| Bulimia (past) | 8 | (8.7%) | 1 | (3.6%) | 0.81 |
| Bulimia (current) | 6 | (6.5%) | 0 | (0.0%) | 1.99 |
| Alcohol dependence (past) | 9 | (9.8%) | 0 | (0.0%) | 3.07 |
| Alcohol dependence (current) | 3 | (3.3%) | 1 | (3.4%) | 0.00 |
| Hypochondriasis (past) | 5 | (5.4%) | 0 | (0.0%) | 1.59 |
| Hypochondriasis (current) | 5 | (5.4%) | 0 | (0.0%) | 1.64 |
| Anxiety disorders (past) | 42 | (45.7%) | 12 | (42.9%) | 0.07 |
| Anxiety disorders (current) | 38 | (41.3%) | 12 | (41.2%) | 0.01 |
| Depressive disorders (past) | 48 | (52.2%) | 12 | (40.0%) | 1.34 |
| Depressive disorders (current) | 29 | (31.5%) | 2 | (6.9%) | 7.02** |

* $p < .05$.
 ** $p < .01$.
 *** $p < .001$.

In testing the 15 schemas the Kruskal-Wallis test was used because it is 95% as efficient as ANOVA and Kolmogorov-Smirnov tests proved that the schema scores did not conform to a normal distribution. In terms of follow-up tests, it was decided to use Mann-Whitney U tests since Tukey’s and Dunnet’s C post-hoc tests are only available in parametric statistics, and an *a priori* test of comparison between groups was appropriate.

HYPOTHESIS ONE: The hypothesis is that OCD patients and TTM patients will show significant elevations compared to controls on different schema subscales of the YSQ. In the comparison of the current profile of schemas in the OCD, TTM and Control group, the

Kruskal-Wallis test reveals that 10 of the 15 schemas are significantly different (Table 4). These include: (1) *abandonment* ($p<0.05$) (2) *mistrust / abuse* ($p<0.05$) (3) *social isolation* ($p<0.001$) (4) *defectiveness / shame* ($p<0.05$) (5) *dependence* ($p<0.05$) (6) *vulnerability to harm* ($p<0.05$) (7) *enmeshment* ($p<0.001$) (8) *subjugation* ($p<0.01$) (9) *emotional inhibition* ($p<0.01$) (10) *insufficient self-control* ($p<0.001$). Pair-wise comparison tests (Mann-Whitney U) revealed that the OCD group differed from the TTM group on 5 schemas including: (1) *mistrust / abuse* ($p<0.05$) (2) *social isolation* ($p<0.001$) (3) *defectiveness / shame* ($p<0.01$) (4) *subjugation* ($p<0.01$) (5) *emotional inhibition* ($p<0.01$). On each of these 5 schemas the OCD group had significantly *higher* schema levels than the TTM group. The OCD versus controls comparison revealed that 8 schemas were significantly elevated, including: (1) *abandonment* ($p<0.05$) (2) *social isolation* ($p<0.01$) (3) *defectiveness / shame* ($p<0.05$) (4) *dependence* ($p<0.01$) (5) *vulnerability to harm* ($p<0.01$) (6) *enmeshment* ($p<0.01$) (7) *subjugation* ($p<0.05$) (8) *insufficient self-control* ($p<0.001$). The TTM group differed from the control group on only 2 schemas, namely (1) *abandonment* ($p<0.05$) and (2) *emotional inhibition* ($p<0.05$).

HYPOTHESIS TWO: The hypothesis is that OCD patients without current depression and TTM patients without current depression will have fewer significant elevations compared to controls than the all-inclusive OCD and TTM groups respectively. In addition it was hypothesised that OCD patients without current depression and TTM patients without current depression would continue to have distinct schemas (as described in hypothesis 1). The Kruskal-Wallis analysis did not reach significance on any of the schemas. However, the comparison (Mann-Whitney U) of OCD without current depression and TTM (without current depression) revealed that two schemas were significantly different: (1) *social isolation* ($p<0.01$) (2) *subjugation* ($p<0.01$) (see Table 5). In both schemas, OCD group was

significantly *higher* than the TTM group. When OCD without current depression was compared to controls three schemas proved significantly different: (1) *enmeshment* ($p<0.01$) (2) *self-sacrifice* ($p<0.01$) (3) *self-discipline* ($p<0.05$). The OCD group scored significantly *lower* than the control group on the *self-sacrifice* schema. On the other two schemas, OCD scored significantly higher than the control group. In the comparison of TTM without current depression and controls, 2 schemas were significantly different: (1) *enmeshment* ($p<0.05$) (2) *emotional inhibition* ($p<0.05$). On the *emotion inhibition* schema, the TTM group scored significantly *lower* than the control group.

HYPOTHESIS THREE: The hypothesis is that OCD patients without depression – current or past – will have fewer significantly elevated schemas compared to controls than the all inclusive OCD group (described in Hypothesis one) and the OCD group without current depression (described in Hypothesis two) (Table 6). The Kruskal-Wallis group comparison test found seven schemas that were significantly different: (1) *abandonment* ($p<0.01$) (2) *social isolation* ($p<0.001$) (3) *shame* ($p<0.01$) (4) *vulnerability to harm* ($p<0.01$) (5) *enmeshment* ($p<0.001$) (6) *subjugation* ($p<0.01$) (7) *self discipline* ($p<0.001$). The comparison between OCD with no history of depression (“pure” OCD) versus OCD with current or past depression (“depressed” OCD) revealed 4 schemas that were significantly different: (1) *abandonment* ($p<0.05$) (2) *social isolation* ($p<0.01$) (3) *shame* ($p<0.01$) (4) *subjugation* ($p<0.05$). In each case, the “depressed” OCD group scored higher on the schema than the “pure” OCD group. The comparison between “pure” OCD and controls revealed 2 schemas that differed significantly: (1) *enmeshment* ($p<0.05$) and (2) *self-sacrifice* ($p<0.05$). The “pure” OCD group scored significantly higher than the control group on the schema *enmeshment* and significantly lower than the control group on the schema *self-sacrifice*. The comparison between “depressed” OCD and controls showed 9 schemas that differed significantly: (1) *abandonment* ($p<0.01$) (2) *mistrust / abuse* ($p<0.05$) (3) *shame* ($p<0.01$) (4)

incompetence (p<0.01) (5) vulnerability to harm (p<0.01) (6) subjugation (p<0.01) (7) social isolation (p<0.001) (8) enmeshment (p<0.001) (9) self-discipline (p<0.001).

TABLE 4. OCD, TTM and control groups' scores on the Young Schema Questionnaire Sub-scales

| | Groups | | | | | | Post-hoc | | |
|-------------------|--------|--------|------|--------|---------|--------|----------------------------------|------------------------|------------------------|
| | OCD | | TTM | | CONTROL | | OCD v TTM | OCD v Controls | TTM v Controls |
| | N=95 | | N=34 | | N=94 | | | Z | Z |
| | Mean | Std | Mean | Std | Mean | Std | Kruskal-Wallis X ² | Mann-Whitney U Z | Mann-Whitney U Z |
| Emotional | 2.80 | (1.43) | 2.47 | (1.28) | 2.83 | (1.43) | 1.614 | -1.101 | -0.189 |
| Abandonmen | 2.98 | (1.49) | 2.91 | (1.54) | 2.49 | (1.55) | 7.792* | -0.202 | -2.563* |
| Mistrust / | 3.01 | (1.30) | 2.37 | (1.17) | 2.72 | (1.35) | 6.987* | -2.563* | -1.106 |
| Social | 3.18 | (1.45) | 2.12 | (1.12) | 2.61 | (1.48) | 17.688*** | -3.866*** | -3.031** |
| Defectiveness / | 2.44 | (1.19) | 1.87 | (1.09) | 2.16 | (1.31) | 9.138* | -2.825** | -2.201* |
| Failure to | 2.50 | (1.34) | 2.09 | (0.95) | 2.20 | (1.24) | 3.236 | -1.110 | -1.703 |
| Dependence / | 2.34 | (1.04) | 2.02 | (0.90) | 1.97 | (0.98) | 8.023* | -1.592 | -2.749** |
| Vulnerability to | 2.53 | (1.23) | 2.16 | (1.00) | 2.16 | (1.31) | 8.166* | -1.444 | -2.746** |
| Enmeshmen | 2.33 | (1.31) | 1.96 | (1.01) | 1.69 | (0.94) | 16.876*** | -1.376 | -4.059** |
| Subjugatio | 2.69 | (1.25) | 2.12 | (1.08) | 2.30 | (1.22) | 9.412** | -2.703** | -2.428* |
| Self | 3.34 | (1.22) | 3.29 | (0.97) | 3.61 | (1.30) | 3.244 | -0.024 | -1.643 |
| Emotional | 2.76 | (1.14) | 1.92 | (0.95) | 2.66 | (1.42) | 13.350** | -3.847** | -1.121 |
| Unrelenting | 3.86 | (1.27) | 3.47 | (1.37) | 3.85 | (1.31) | 2.386 | -1.438 | -0.071 |
| Entitlementen | 2.84 | (1.09) | 2.95 | (1.06) | 3.01 | (1.13) | 1.682 | -0.687 | -1.256 |
| Insufficient self | 3.29 | (1.21) | 2.89 | (1.04) | 2.64 | (1.23) | 15.215*** | -1.645 | -3.818*** |
| *p<0.05 | | | | | | | | | |
| **p<0.01 | | | | | | | | | |
| ***p<0.001 | | | | | | | | | |

TABLE 5. Comparison of OCD (without current depression) versus TTM (without current depression) versus Control groups schema scores

| | Groups | | | | | | Post-hoc | | |
|-----------------------|--------|---------|------|---------|---------|---------|----------------------------------|------------------------|------------------------|
| | OCD | | TTM | | CONTROL | | OCD v TTM | OCD v Controls | TTM v Controls |
| | N=78 | | N=27 | | N=94 | | | | |
| | Mean | Std dev | Mean | Std dev | Mean | Std dev | Kruskal-Wallis X ² | Mann-Whitney U Z | Mann-Whitney U Z |
| Emotional deprivation | 2.50 | (1.37) | 2.44 | (1.38) | 2.83 | (1.43) | 3.163 | -0.186 | 1.529 |
| Abandonment | 2.62 | (1.40) | 2.76 | (1.48) | 2.49 | (1.55) | 2.496 | -0.516 | 0.995 |
| Mistrust / Abuse | 2.74 | (1.27) | 2.33 | (1.16) | 2.72 | (1.35) | 1.998 | -1.422 | 0.272 |
| Social Isolation | 2.82 | (1.42) | 2.07 | (1.22) | 2.61 | (1.48) | 6.738* | -2.661** | 1.327 |
| Shame | 2.13 | (1.06) | 1.81 | (1.05) | 2.16 | (1.31) | 2.399 | -1.706 | 0.565 |
| Fail to Achieve | 2.20 | (1.23) | 2.06 | (1.01) | 2.20 | (1.24) | 0.017 | -0.129 | 0.048 |
| Incompetence | 2.09 | (0.96) | 2.03 | (0.95) | 1.97 | (0.98) | 1.000 | -0.289 | 0.994 |
| Vulnerability to harm | 2.37 | (1.21) | 2.12 | (1.07) | 2.16 | (1.31) | 3.860 | -1.058 | 1.866 |
| Enmeshment | 2.07 | (1.11) | 2.04 | (1.04) | 1.69 | (0.94) | 8.846* | -0.039 | 2.675** |
| Subjugation | 2.32 | (0.97) | 2.09 | (1.10) | 2.30 | (1.22) | 2.158 | -1.682 | 0.777 |
| Self sacrifice | 3.12 | (1.19) | 3.22 | (0.98) | 3.61 | (1.30) | 7.783* | -0.727 | 2.643** |
| Emotional inhibition | 2.52 | (1.07) | 1.91 | (0.93) | 2.66 | (1.42) | 7.458* | -2.727** | 0.028 |
| Unrelenting standards | 3.84 | (1.31) | 3.45 | (1.35) | 3.85 | (1.31) | 2.016 | -1.228 | 0.182 |
| Entitlement | 2.76 | (1.14) | 3.06 | (1.09) | 3.01 | (1.13) | 3.658 | -1.500 | 1.722 |
| Self discipline | 3.06 | (1.26) | 2.67 | (0.86) | 2.64 | (1.23) | 5.102 | -1.083 | 2.211* |
| *p<0.05 | | | | | | | | | |
| **p<0.01 | | | | | | | | | |
| ***p<0.001 | | | | | | | | | |

TABLE 6. Comparison of "pure" OCD versus OCD with current or past depression versus Control groups schema

| | Groups | | | | | | | Post-hoc | | |
|------------------|------------|--------|------------------|--------|---------|--------|----------------|----------------------------|-----------------------|----------------------------|
| | "pure" OCD | | OCD w depression | | Control | | | "pure" OCD v depressed OCD | "pure" OCD v controls | "depressed" OCD v controls |
| | | | | | | | | | | |
| | N=38 | | N=54 | | N=94 | | | Z | Z | |
| | | | | | | | Kruskal-Wallis | Mann-Whitney | Mann-Whitney | Mann-Whitney |
| | | | | | | | | U | U | U |
| | Mean | Std | Mean | Std | Mean | Std | χ^2 | Z | Z | Z |
| Emotional | 2.55 | (1.38) | 2.95 | (1.45) | 2.83 | (1.43) | 1.975 | -1.393 | -1.091 | -0.457 |
| Abandonme | 2.61 | (1.45) | 3.22 | (1.47) | 2.49 | (1.55) | 10.390** | -1.998* | -0.530 | -3.208** |
| Mistrust / | 2.73 | (1.29) | 3.21 | (1.31) | 2.72 | (1.35) | 5.865 | -1.843 | -0.199 | -2.284* |
| Social | 2.65 | (1.44) | 3.54 | (1.34) | 2.61 | (1.48) | 17.089*** | -3.121** | -0.519 | -3.898*** |
| Sham | 2.03 | (0.98) | 2.67 | (1.20) | 2.16 | (1.31) | 9.889** | -2.623** | -0.168 | -2.854** |
| Fail to | 2.31 | (1.30) | 2.56 | (1.31) | 2.20 | (1.24) | 3.274 | -1.082 | -0.422 | -1.794 |
| Incompetenc | 2.18 | (0.96) | 2.41 | (1.05) | 1.97 | (0.98) | 7.835 | -0.994 | -1.310 | -2.773** |
| Vulnerability to | 2.33 | (1.21) | 2.67 | (1.24) | 2.16 | (1.31) | 9.542** | -1.442 | -1.274 | -3.042** |
| Enmeshme | 2.03 | (1.16) | 2.50 | (1.37) | 1.69 | (0.94) | 18.004*** | -1.827 | -1.964* | -4.145*** |
| Subjugatio | 2.31 | (1.05) | 2.93 | (1.29) | 2.30 | (1.22) | 9.850** | -2.110* | -0.459 | -3.065** |
| Self | 3.14 | (1.21) | 3.46 | (1.23) | 3.61 | (1.30) | 5.088 | -1.436 | -2.266* | -0.722 |
| Emotional | 2.51 | (1.03) | 2.90 | (1.21) | 2.66 | (1.42) | 2.889 | -1.585 | -0.008 | -1.453 |
| Unrelenting | 3.58 | (1.28) | 4.08 | (1.24) | 3.85 | (1.31) | 3.341 | -1.835 | -1.183 | -0.920 |
| Entitleme | 2.67 | (1.16) | 2.90 | (1.03) | 3.01 | (1.13) | 3.392 | -1.105 | -1.808 | -0.762 |
| Self | 3.03 | (1.28) | 3.46 | (1.15) | 2.64 | (1.23) | 17.030*** | -1.890 | -1.694 | -4.073*** |
| *p<0.0 | | | | | | | | | | |
| **p<0.0 | | | | | | | | | | |
| ***p<0.00 | | | | | | | | | | |

Discussion

EPIDEMIOLOGICAL DATA

Age at onset

The results showed that the difference in age at onset between OCD and TTM was not significant. This finding contradicts other studies directly comparing age at onset in OCD and TTM which have consistently reported a significant difference (Himle et al., 1995; Tükel et al., 2001). It is important to note, however, that in other studies (and in this thesis) the age at onset statistic relies on each patient's memory of the onset of their condition. A range of psychodynamic and cognitive factors may impinge on the accuracy of patient's recall of onset. Hence there is a need to use new methodologies (such as collecting collateral reports) to verify the patients' self-reports. In addition the question of subclinical symptoms of OCD and TTM versus the clinical manifestation of the two disorders requires investigation. The distinction between *onset of symptoms* and *onset of impairment* must be examined especially, as well as the effect of gender. Germane to this investigation is the finding in this thesis that OCD patients with a past or present history of depression have an earlier mean age at onset than the "pure" OCD group though the difference did not reach significance. Perhaps the OCD patients with depression have an association with childhood trauma. Because of the complexity of these issues, the age at onset results contribute little to the question of the association of OCD and TTM.

Gender

The significant difference in gender distribution between OCD and TTM found in this thesis accords with the majority of studies on the epidemiology of OCD and TTM (see Table 1A, page 80). This significance was recorded despite the fact that almost 70% of the OCD group was female, far above the norm. Most studies report an equal male-female prevalence in

OCD (Stanley et al., 1999). Of course the number of male TTM sufferers who hide their condition (through shaving or male-pattern baldness) is not known and the overall gender distribution of OCD and TTM in the population could not be adequately addressed in this thesis. Nevertheless the gender results confirm previous findings about an asymmetrical gender distribution between OCD and TTM.

Comorbidity

The results showed that obsessive-compulsive personality disorder occurs significantly more often in the OCD group than in the TTM group. It would be instructive to know which of the criteria of the Obsessive-compulsive personality disorder were commonly fulfilled as earlier studies suggest that inability to express warmth and devotion to work are rare in OCD populations (Attiullah et al., 2000). These results lend weight to the argument that there is a relationship between OCD and obsessive-compulsive personality disorder. It demonstrates an asymmetry in the distribution of OCPD in OCD and TTM respectively. The study by Tükel, Keser, Karali, Olgun and Calikusu found that obsessive-compulsive and avoidant personality disorder occurred significantly more frequently in the OCD group than the TTM group (Tükel et al., 2001). In this thesis, as in Tükel et al.'s study, borderline, schizotypal and avoidant personality disorders were not significantly different between the OCD and TTM groups, and it is difficult to make inferences about the relationship of OCD and TTM based on the personality disorder results.

The trend towards a higher comorbidity of OCD and borderline personality disorder than TTM and borderline personality disorder deserves mention as it pertains to the hypothesised compulsivity-impulsivity spectrum. If TTM is conceptualised as lying between OCD and TTM on the spectrum, then one would expect borderline personality disorder to coexist more often with TTM than OCD. Thus the fact that 25.8% of the OCD group was borderline,

compared to 10% of the TTM group is contrary to the expectations of the spectrum. If the compulsivity-impulsivity is not validated the possibilities of association between OCD and TTM are reduced to two: (1) that TTM is a variant of OCD, (2) and that TTM and OCD only share underlying negative affect.

The comparison of Axis I disorders in this thesis provides convincing evidence that the OCD group as a whole suffer from depression more frequently than the TTM group. A significant difference did not occur with any of the other DSM-IV disorders. This finding concurs with the findings of previous studies comparing comorbidity in OCD and TTM (Himle et al., 1995; Tükel et al., 2001), though these studies also found a significantly higher anxiety *symptoms* in OCD patients if not discrete anxiety disorders. In fact Himle et al. determined that OCD scored significantly higher on measures of depression, anxiety and psychoticism (Himle et al., 1995). Overall it is evident that OCD is characterised by significantly greater levels of negative affect than TTM. In both Axis I and Axis II disorders there is a clear trend for OCD to be associated with a higher comorbidity profile. These findings indicate that the closest link between OCD and TTM would be shared membership on a spectrum, and that TTM is unlikely to be a variant of OCD.

COGNITION

YSQ schemas in OCD and TTM

Hypothesis one

The first hypothesis – that OCD and TTM will be schematically distinct – was borne out by the results. The OCD group was found to be significantly more maladaptive on four of the six schemas in the higher-order factor of *Disconnection* compared to the TTM group. In the main, therefore, the OCD group experienced more problems in being able to engage in

supportive relationships than the TTM group. One schema in which OCD and TTM differed fell in the higher-order factor of *Impaired Autonomy*. This elevation, on the schema *subjugation*, suggests that OCD patients are more apt to forsake their own need for emotional expression and independence and become passive in relationships than TTM patients.

The OCD group was significantly different from controls on eight schemas. However, only two of these coincided with the five schemas predictive of anxiety (Welburn et al., 2002), indicating that the schemas active during OCD disorder differ somewhat from schemas that characterise other anxiety conditions. The OCD group differed from the control group on four of the five schemas in the higher-order factor, *Impaired Autonomy*, three of the six schemas in the higher-order factor, *Disconnection*, and one schema in the higher-order factor, *Impaired Limits*. This suggests that over a broad range of schemas OCD is significantly more maladaptive than controls.

The TTM group scored significantly higher than the control group on only one schema: *abandonment*. Thus TTM patients are more likely than the control group to feel that others will leave them, will die imminently or will be unreliable. Surprisingly the TTM group scored significantly *lower* than the control group on the schema *emotional inhibition*. Specifically, TTM patients report that they are less emotionally constricted than the control group. The TTM group was more maladaptive than controls in one schema compared to the OCD group which was more maladaptive than controls on eight schemas. This indicates that, without controlling for the effects of concurrent diagnoses, the OCD group is significantly more maladaptive than the TTM group, and the schematic elevations of OCD and TTM occur on different schemas.

Hypothesis two

Vogel, Stiles and Nordahl state that, “More than for any other anxiety disorder, depression is a major comorbidity factor for OCD” (2000, p.249). Significantly higher ratings for depression in the OCD group have been found in direct comparison studies between OCD and TTM, though this does always translate into significantly higher DSM-IV diagnoses of depression (Himle et al., 1995; Tükel et al., 2001). (The inconsistent relationship between higher self-reports of depression and higher DSM-IV diagnoses of depression and dysthymia requires further investigation). Depression is associated with higher scores on a broad range of schemas because of the priming effect of current depressed mood and/or the cognitive structures associated with depression (Segal, 1988).

Hypothesis two states that a comparison of OCD patients *without current depression*, TTM patients *without current depression* and controls will reveal that the clinical groups have fewer significant elevations compared to controls than was found in the all-inclusive clinical groups discussed above. This hypothesis was confirmed by the results: the OCD group *without current depression* was significantly more maladaptive than the control group on only two schemas, namely *enmeshment* and *self-discipline*. This compares to the eight schemas that differed significantly when the all-inclusive OCD group was used. *Enmeshment*, part of the higher-order factor *Impaired Autonomy*, refers to the belief that an individual cannot survive without the constant support of the other. It includes feelings of being smothered by, or fused with, others and is sometimes experienced as emptiness or floundering. *Self-discipline*, in the higher-order factor *Impaired Limits*, is the perception that one is unable to restrain one’s emotions and urges. It includes the feeling of being unable to tolerate frustration and fulfil life goals. Both *enmeshment* and *self-discipline* may be a consequence rather than a cause of living with OCD. Maladaptive schemas resulting from the

longstanding presence of a disorder represent the “scar” theory of cognition (Vogel, Stiles, & Nordahl, 2000). For example, being afflicted with OCD may progressively impair one’s independence and this impairment may be reported as the schema *enmeshment*. Similarly, the feeling that one is unable to control one’s emotions and urges may be a *consequence* of living with (and feeling powerless against) OCD. However, an earlier study tested the “scar” theory by analysing the strength of *disapproval* and *separation-attachment* concerns of patients relative to the duration of OCD symptomatology (Vogel et al., 2000). No significant correlation was found. It is possible that anxiety originating in the perception that one would not survive without merging with the other (*enmeshment*) may play a role in the aetiology of OCD. Similarly, a perceived inability to cope with emotion and compulsive urges (*self-discipline*) may also facilitate the expression of a neurobiological vulnerability to OCD.

The OCD group was significantly *less* maladaptive in the schema *self-sacrifice* than the control group. *Self-sacrifice* occurs on the higher-order factor *Restricted Gratification*. *Self-sacrifice* is the perception that one must forsake one’s own needs for gratification in order to fulfil the needs of others, or to prevent causing pain to others. That OCD patients score significantly lower on this scale than controls suggests that, without a history of depression, OCD patients experience their needs as important. Perhaps they perceive themselves to be “needy”. Perhaps in their enmeshed relationships (described above) OCD patients feel that their needs are never quite be fulfilled. Further research on this topic is needed.

The TTM group *without current depression* was significantly elevated compared to controls on one schema: *enmeshment*. In contrast the all-inclusive TTM group was significantly elevated compared to controls also on one schema, but a different schema – *abandonment*

(discussed above). Thus when currently depressed TTM patients are excluded from the analysis the elevated schema in TTM changes from *abandonment* to *enmeshment*.

The findings reveal some lack of support for the second part of Hypothesis 2 – that the distinctiveness of OCD and TTM would persist despite the exclusion of currently depressed patients. Evidently, levels of depression account for differences in schema profiles between OCD and TTM more than the characteristics of OCD per se. With the exclusion of currently depressed patients OCD and TTM share one schema elevation (*enmeshment*) and OCD is elevated on one further schema (*self discipline*) that TTM is not. These findings show considerably more similarity between the two disorders than the all-inclusive comparison when eight OCD schemas were elevated versus two TTM schemas.

However, a direct schematic comparison between OCD without current depression and TTM without current depression reveals that the two groups differ significantly on 2 schemas: *social isolation* and *subjugation*. The TTM group report significantly *less social isolation* than the OCD group. That is, they feel less alienated from family, friends and community than do the OCD group. In terms of *subjugation*, the TTM group feel significantly less coerced to surrender control of their behaviour, emotional expressions and decisions than the OCD group.

Although OCD and TTM without current depression share an elevation compared to controls in the schema *enmeshment*, the 2 disorders remain significantly different in the schemas *social isolation* and *subjugation*. In addition, in OCD alone the schema *insufficient self-discipline* is elevated relative to controls. Thus schematic differences between OCD and TTM decrease once current depression is removed from the analysis, but the two groups cannot be

said to overlap schematically. The schematic profile of OCD and TTM neither overlaps, nor is distinct. OCD and TTM share some schematic characteristics and are different in others.

Hypothesis three

Hypothesis 3 states that OCD patients without any history of depression – current or past – will have fewer schema elevations than the all-inclusive OCD group (assessed in Hypothesis 1) and fewer schema elevations than OCD patients without current depression (assessed in Hypothesis 2). This was hypothesised to occur because the analysis will not be influenced by the priming effect of depressed mood or enduring cognitive structures (schemas) associated with depressed mood (Segal, 1988). The results show that there was indeed a reduction: whereas two schemas were elevated in OCD *without current depression* comparison, only one schema is elevated in the OCD *without current or past* depression comparison. The elevated schema is *enmeshment* (described above). Again *self-sacrifice* in the OCD group was significantly *less* maladaptive than the control group.

This finding provides support for the notion that schemas can exist in a latent, or hypovalent, state. That a schematic difference was found between OCD patients without current depression versus OCD patients without current *or past* depression suggests that latent schemas associated with past depression caused the change. The schema, *self-discipline*, was elevated in OCD patients without current depression, but returned to the normal range when OCD patients without current *or past* depression were analysed. Thus *self-discipline*, the perception that one is unable to tolerate frustration and cope with emotions and urges, appears to be associated with OCD patients with a past history of depression whereas it is not associated with OCD patients without any history of depression.

The results gave support to the second part of the hypothesis – that the OCD group with current and/or past depression would have more schematic elevations versus controls than the all-inclusive OCD group versus controls. OCD patients with current and/or past depression were found to have nine subscale elevations versus controls compared to eight subscale elevations compared to controls in the all-inclusive OCD group. This provides further confirmation that depression has an effect on the schemata of OCD patients. Excluding current depression, however, had a large effect on schema elevations (eight elevations in the all-inclusive OCD versus controls dropped to two elevations in the OCD without current depression group versus controls). By contrast, excluding patients with no history of depression, only had only a small effect on the elevations (eight elevations in the all-inclusive group versus controls rose to nine elevations in the OCD with current or past depression group). This suggests that the schematic effects of depression constitute the majority of elevations in the schematic profile of the all-inclusive OCD group.

Conclusions on the current profile of schemas in OCD and TTM

The all-inclusive comparison between the current profile of schemas in OCD and TTM reveals major differences between the two disorders. In particular the OCD group has eight schemas that are significantly higher in the control group whereas the TTM group has one schema that is significantly elevated compared to controls. However, when patients with current depression are excluded, the current profile of schemas in OCD and TTM exhibits definite similarities. In particular the schema *enmeshment* emerges as significantly elevated in both disorders. This suggests that both OCD and TTM are characterised by the perception that life without the other (usually a parent) would be unsurvivable because the self is unable to attain a normal level of independence.

There may be a link between enmeshed relationships and the hyper-responsibility beliefs characteristic of OCD. The merging or fused identity that occurs in enmeshed relationships may facilitate the belief that a mere thought has the power to cause harm to self or others unless it is defused through the performance of rituals. A study of personality styles in OCD found that, once confounding variables including depression were controlled for, OCD is associated with concerns about separation and attachment (Vogel et al., 2000). The authors continue: “The unique and highly painful concerns OCD patients often have about social disapproval or harm coming to their loved ones may stem from a personality disposition to overreact to their OCD intrusive thoughts as signs of the *threatened loss of their dearest relationships*” (emphasis added) (Vogel et al., 2000, p.255). If the schema *enmeshment* is confirmed to be key to the cognitive structure of OCD, this would also concur with Siever and Davis’ assertion that patients with a low anxiety threshold “may be more dependent on familiar caretakers and avoid novel situations” (1991, p.1655). In the case of TTM, perhaps the dissociation of the “automatic style” of hair pulling, corresponds to the “emptiness” or “floundering” that occurs in *enmeshed* individuals. This possibility, too, deserves further investigation.

It is equally possible that the schema, *enmeshment*, manifests as a consequence rather than a cause of living with OCD and TTM. Feeling afflicted with a clinical disorder such as OCD or TTM may exaggerate the feeling of dependency and impaired autonomy, and, perhaps, the felt need for support from another increases to such a degree that it becomes reported as the schema *enmeshment*.

GENERAL CONCLUSIONS

Overall the findings of the demographic and epidemiological analyses and the schematic comparisons do not support the possibility that TTM is a variant of OCD. This thesis found differences between OCD and TTM in Axis I diagnoses, personality disorders, and schema scores. In their discussion of the epidemiological comparison of OCD and TTM, Himle, Bordnick and Thyer remark that, “OCD patients are significantly more impaired than patients with TTM” (1995, p.258). The findings of this thesis support such a conclusion. In terms of Stanley and Cohen’s (1999) proposal of three possible types of relationship between OCD and TTM, only 2 possibilities remain: (1) that OCD and TTM share membership of the compulsivity-impulsivity spectrum (2) that OCD and TTM are distinct and occur on separate dimensions of Siever and Davis’ dimensional model (1991).

OCD was found to have significantly higher levels of depression than TTM. This asymmetrical distribution of depression in OCD and TTM impacted on the schematic analyses: the OCD group revealed many more significantly elevated schemas than the TTM and control groups. When current depression was excluded, OCD and TTM displayed partial schematic similarities. It is therefore possible that OCD and TTM exist on a compulsivity-impulsivity spectrum that spans the *anxiety/inhibition* and *impulsivity/aggression* dimensions of Siever and Davis’ dimensional model (1991). Important questions around the definition of the compulsivity and impulsivity poles of the spectrum remain to be answered. An important question is whether the “focused” style of hair pulling is a subtype of TTM that is related to OCD on a compulsivity-impulsivity spectrum whereas the “automatic” style represents another subtype of the disorder that is distinct from OCD.

It is possible that OCD and TTM occur on different dimensions, namely the *anxiety/inhibition* and *impulsivity/aggression* dimensions respectively. There is evidence that OCD and TTM are distinct in terms of symptom progression, intrusive thoughts, age at onset, emotional precipitants of the behaviour, gender distribution and level of depression. However partial similarities between the two disorders occur in terms of family history, personality disorders, neurobiology, neuropsychology and cognition. This thesis has found that in both OCD and TTM the schema *enmeshment* is salient, though the two disorders are distinct on a further three schemas.

Based on the available evidence, a conservative approach would be to classify OCD and TTM on separate dimensions at least until there are studies that demonstrate conclusively that OCD and TTM are linked on a compulsivity-impulsivity spectrum, and the conceptual questions around the spectrum itself are answered.

LIMITATIONS OF THE STUDY

Pencil-and-paper tests are an imperfect method for detecting schemas, as they rely solely on the individual's self-reflections. Cognitive behavioural theory suggests that a cognitive structure as deeply-embedded as an EMS is not readily available to consciousness (Beck, 1995). It is argued that, "One of the difficulties in assessing schemas is that they are thought to be underlying or unconscious structures whereas self-report measures are based on the respondent's conscious awareness and self perception" (Muran, 1991, cited in Welburn et al., 2002, p.520). The development of the short form of the YSQ was partly in response to reports of distress experienced by clinical patients when completing the original version. By definition EMSs are intertwined with intense, sometimes overwhelming, affect. Many clinical patients lack emotional insight into themselves and their condition. It is impossible to ensure,

therefore, that a pencil-and-paper test such as the YSQ (short form) is free of distortion. However, many people have an awareness of the maladaptive patterns in their lives even though they lack the resources to change them. For example, an individual who suffers from harsh internal pressure to succeed (*unrelenting standards*) may experience life as pointless and bleak, and be aware that his or her life is harmed by the need to excel. Similarly an individual with a dramatic fear of abandonment may be conscious of the source of his or her fear. Furthermore non-self-report methodologies such as projective tests and physiological indicators are inordinately time consuming, expensive and of little use to the ordinary clinician. Thus there are many attractions to the questionnaire format if its validity and applicability can be established.

Another limitation of the study was the fact that the controls were not screened for hitherto undetected Axis I and Axis II pathology. The YSQ subscale means for the control group were unusually high compared to other studies (Leung, Waller, & Thomas, 1999). Though the controls were all employees at a large financial institution, and can be assumed to be moderately high functioning, it is entirely possible that a percentage of them have an undiagnosed depressive or anxiety disorder, or even features of OCD or TTM. Also, as a group the controls exhibited high scores on the schemas *unrelenting standards* and *self-sacrifice* which may reveal the preoccupations of one specific sector in society – finance workers – and therefore they may not be a representative sample.

SUGGESTIONS FOR FUTURE RESEARCH

Many further lines of research are possible in the field of schemas in OCD and TTM. In particular research that quantifies the effect of anxiety, personality disorders, gender and symptom severity on schema levels is needed. This thesis has only begun the process of

understanding the role of schemas in the OCD-related disorders spectrum. The schematic characteristics of early versus late onset OCD and TTM should be examined. Also the scales that directly assess traumatic relationships in childhood (such as the Child Trauma Questionnaire) should be correlated with the YSQ. It would be helpful to learn whether patients' reports of their own maladaptive schemas match their reports of distress they experienced in their families of origin.

In addition future research into the role of enmeshment in the aetiology and maintenance of schemas in OCD and TTM is warranted. The schema *enmeshment* emerged as significant in both OCD and TTM cohorts. In particular the relationship between enmeshment and over-responsibility (in OCD patients), and relationship between enmeshment and dissociation (in TTM patients) needs exploration.

Furthermore, though it is very difficult to get big enough sample sizes it will be important to compare the schema profiles of TTM patients who predominantly pull hair in the "automatic style" versus patients who predominantly use the "focused" style. Such a comparison should include an OCD sample to determine whether the "focused" hair pullers are more similar than the "automatic" hair pullers to the OCD group.

Reference List

- American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders. (4th ed.) Washington: Author.
- Attiullah, N., Eisen, J. L., & Rasmussen, S. A. (2000). Clinical features of obsessive-compulsive disorder. The Psychiatric Clinics of North America, 23, 469-491.
- Beck, A. T. (1970). Cognitive-behavioural treatment of obsessive-compulsive disorder. Journal of Psychological Practice, 1, 184-200.
- Beck, J. S. (1995). Cognitive therapy: basics and beyond. New York: The Guilford Press.
- Bouchard, C., Rheaume, J., & Ladouceur, R. (1999). Responsibility and perfectionism in OCD: an experimental study. Behaviour Research and Therapy, 37, 239-248.
- Christensen, G. A., Chernoff-Clementz, E., & Clementz, B. A. (1992). Personality and clinical characteristics in patients with Trichotillomania. Journal of Clinical Psychiatry, 53, 407-413.
- Christensen, G. A., Ristvedt, S. L., & Mackenzie, T. B. (1993). Identification of trichotillomania cue profiles. Behaviour Research and Therapy, 31, 315-320.
- Christenson, M. D. & Mansueto, C. S. (1999). Trichotillomania: Descriptive characteristics and phenomenology. In D.Stein, G. A. Christensen, & E. Hollander (Eds.), Trichotillomania (pp. 1-41). Washington: American Psychiatric Press.

Diaferia, G., Bianchi, I., Bianchi, M. L., & Cavedini, P. (1996). Relationship between obsessive-compulsive personality disorder and obsessive compulsive disorder.

Comprehensive Psychiatry, 38, 38-42.

Du Toit, P. L., Van Kradenburg, J., Niehaus, D., & Stein, D. (2001). Comparison of obsessive-compulsive disorder patients with and without comorbid putative obsessive-compulsive spectrum disorders using a structured clinical interview. Comprehensive Psychiatry, 42, 291-300.

Eichstedt, J. A. & Arnold, S. L. (2001). Childhood-onset obsessive-compulsive disorder: a tic-related subtype of ocd? Clinical Psychology Review, 21, 137-158.

Freeston, M. H., Rheaume, J., & Ladouceur, R. (1996). Correcting faulty appraisals of obsessional thoughts. Behaviour Research and Therapy, 34, 433-446.

Freud, S. (1997). The defense neuro-psychoses. In D.Stein & M. H. Stone (Eds.), Essential Papers On Obsessive Compulsive Disorder (pp. 33-44). New York: New York University Press.

Geller, D., Biederman, J., Jones, J., Park, K., Schwartz, S., Shapiro, S., & Coffey, B. (1998). Is juvenile obsessive-compulsive disorder a developmental subtype of the disorder? A review of the paediatric literature. Journal of the American Academy of Child and Adolescent Psychiatry, 37, 420-427.

Hanna, G. L. (1997). Trichotillomania and related disorders in children and adolescents. Child Psychiatry and Human Development, 27, 255-268.

Hawton, K., Salkovskis, P. M., Kirk, J., & Clark, D. (1989). Cognitive behaviour therapy for psychiatric problems. Oxford: Oxford University Press.

Himle, J. A., Bordnick, P. S., & Thyer, B. A. (1995). A comparison of trichotillomania and obsessive-compulsive disorder. Journal of Psychopathology and Behavioural Assessment, 17, 251-260.

Kaplan, H. I. & Sadock, B. J. (1985). Synopsis of Psychiatry. (4th ed.) Baltimore: Williams & Wilkins.

Kavoussi, R. J. & Coccaro, E. F. (1993). Impulsive personality disorders and disorders of impulse control. In E. Hollander (Ed.), Obsessive-compulsive-related disorders (pp. 179-202). Washington: American Psychiatric Press.

Koblenzer, C. S. (1999). Psychoanalytic perspectives on trichotillomania. In D. Stein, G. A. Christensen, & E. Hollander (Eds.), Trichotillomania (pp. -261). Washington: American Psychiatric Press.

Lee, C., Taylor, G., & Dunn, J. (1999). Factor structure of the schema questionnaire in a large clinical sample. Cognitive Therapy and Research, 23, 441-451.

Leung, C., Waller, G., & Thomas, G. (1999). Core beliefs in anorexic and bulimic women. Journal of Nervous and Mental Disease, 187, 736-741.

Lochner, C., Du Toit, P. L., Zungu-Dirwayi, N., Marais, N., Van Kradenburg, J., Niehaus, D. J. H., & Stein, D. (2002). Childhood trauma in obsessive compulsive disorder, trichotillomania and controls. Depression and Anxiety, 15, 66-68.

Morrison, N. (2000). Schema-focused cognitive therapy for complex long-standing problems: a single case study. Behavioural and Cognitive Psychotherapy, 28, 269-283.

Nunnally, J. C. (1978). Psychometric theory. New York: McGraw-Hill.

Petrocelli, J. V., Glaser, B., Calhoun, G. B., & Campbell, L. F. (2001). Early maladaptive schemas of personality disorder subtypes. Journal of Personality Disorders, 15, 546-559.

Ravizza, L., Maina, G., & Bogetto, F. (1997). Episodic and chronic obsessive-compulsive disorder. Depression and Anxiety, 6, 154-158.

Reeve, E. (1999). Hair pulling in children and adolescents. In D. Stein, G. A. Christensen, & E. Hollander (Eds.), Trichotillomania (pp. 225-261). Washington: American Psychiatric Press.

Rettew, D. C., Swedo, S. E., Leonard, H. L., Lenane, M. C., & Rapoport, J. L. (1992). Obsessions and compulsions across time in 79 children and adolescents with obsessive-compulsive disorder. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 1050-1056.

Rosen, K. V. & Tallis, F. (1995). Investigation into the relationship between personality traits and OCD. Behaviour Research and Therapy, 33, -445.

Salkovskis, P. M. (1999). Understanding and treating obsessive-compulsive disorder. Behaviour Research and Therapy, 37, 52.

Salkovskis, P. M., Wroe, A. L., Gledhill, A., Morrison, N., Forrester, E., Richards, C., Reynolds, M., & Thorpe, S. (2000). Responsibility attitudes and interpretations are characteristic of obsessive-compulsive disorder. Behaviour Research and Therapy, 38, 347-372.

Schmidt, N., Joiner, T. E., Young, J. E., & Telch, M. J. (1995). The schema questionnaire: investigation of psychometric properties and the hierarchical structure of a measure of maladaptive schemas. Cognitive Therapy and Research, 19, 295-321.

Segal, Z. V. (1988). Appraisal of the self-schema: construct in cognitive models of depression. Psychological Bulletin, 103, 147-162.

Siever, L. J. & Davis, K. L. (1991). A psychobiological perspective on personality disorders. American Journal of Psychiatry, 148, 1647-1658.

Sobin, C., Blundell, M. L., Weiller, F., Gavigan, C., Haiman, C., & Karayiorgou, M. (1999). Phenotypic characteristics of obsessive-compulsive disorder ascertained in adulthood. Journal of Psychiatric Research, 33, 265-273.

Stanley, M. A., Borden, J. W., & Mouton, S. G. (1995). Nonclinical hair-pulling: affective correlates and comparison with clinical samples. Behaviour Research and Therapy, 33, 179-186.

Stanley, M. A. & Cohen, L. J. (1999). Trichotillomania and obsessive-compulsive disorder. In D. Stein, G. A. Christensen, & E. Hollander (Eds.), Trichotillomania (pp. 225-261). Washington: American Psychiatric Press.

Stanley, M. A., Hannay, H. J., & Breckenridge, J. K. (1997). The neuropsychology of trichotillomania. Journal of Anxiety Disorders, 11, 473-488.

Stanley, M. A., Swann, C. C., Bowers, T. C., Davis, M. L., & Taylor, D. J. (1991). A comparison of clinical features in trichotillomania and obsessive-compulsive disorder. Behaviour Research and Therapy, 30, 39-44.

Stein, D. & Hollander, E. (1993). The spectrum of obsessive-compulsive-related disorders. In E.Hollander (Ed.), Obsessive-compulsive-related disorders (pp. 241-271). Washington: American Psychiatric Press.

Stein, D., Simeon, D., Cohen, L. J., & Hollander, E. (1995). Trichotillomania and obsessive-compulsive disorder. Journal of Clinical Psychiatry, 56, 28-35.

Stein, D. J., Mullen, L., Islam, M. N., Cohen, L., DeCaria, C. M., & Hollander, E. (1995). Compulsive and impulsive symptomatology in trichotillomania. Psychopathology, 28, 208-213.

Stone, M. H. (1997). Introduction: the history of obsessive-compulsive disorder from the early period to the turn of the twentieth century. In D.Stein & M. H. Stone (Eds.), Essential Papers On Obsessive Compulsive Disorder (pp. 19-29). New York: New York University Press.

Stopa, L., Thorne, P., Waters, A., & Reeve, E. (2001). Are the short and long forms of the Young Schema Questionnaire comparable and how well does each version predict psychopathology scores? Journal of Cognitive Psychotherapy, 15, 253-272.

Swartz, L. (1998). Culture and Mental Health: A Southern African View. Oxford University Press.

Swedo, S. E. (1993). Trichotillomania. In E.Hollander (Ed.), Obsessive-Compulsive-Related Disorders (pp. 93-111). Washington: American Psychiatric Press.

Swedo, S. E., Leonard, H. L., & Rapoport, J. L. (1997). Childhood-onset obsessive compulsive disorder. In D.Stein & M. H. Stone (Eds.), Essential Papers on Obsessive-Compulsive Disorder (pp. 361-372). New York: New York University Press.

Tallis, F., Rosen, K. V., & Shafran, R. (1996). Investigation into the relationship between personality traits and OCD: a replication employing a clinical population. Behaviour Research and Therapy, 34, 649-653.

Tukel, R., Keser, V., Karali, N. T., Olgun, T. O., & Calikusu, C. (2001). Comparison of clinical characteristics in trichotillomania and obsessive-compulsive disorder. Journal of Anxiety Disorders, 15, 433-441.

Vogel, P. A., Stiles, T. C., & Nordahl, H. M. (2000). Cognitive personality styles in OCD outpatients compared to depressed outpatients and healthy controls. Behavioural and Cognitive Psychotherapy, 28, 247-258.

Waller, G., Shah, R., Ohanian, V., & Elliot, P. (2001). Core beliefs in bulimia nervosa and depression: the discriminant validity of Young's Schema Questionnaire. Behaviour Research and Therapy, 32, 139-153.

Waller, G., Meyer, C., & Ohanian, V. (2001). Psychometric properties of the long and short versions of the Young Schema Questionnaire: core beliefs among bulimic and comparison women. Cognitive Therapy and Research, 25, 137-147.

Welburn, K., Coristine, M., Dagg, P., Pontefract, A., & Jordan, S. (2002). The schema questionnaire - short form: factor analysis and relationship between schemas and symptoms. Cognitive Therapy and Research, 26, 519-530.

Young, J. E. (1994). Cognitive Therapy for Personality Disorders. Florida: Professional Resource Press.