

ADVERTIMENT. L'accés als continguts d'aquesta tesi doctoral i la seva utilització ha de respectar els drets de la persona autora. Pot ser utilitzada per a consulta o estudi personal, així com en activitats o materials d'investigació i docència en els termes establerts a l'art. 32 del Text Refós de la Llei de Propietat Intel·lectual (RDL 1/1996). Per altres utilitzacions es requereix l'autorització prèvia i expressa de la persona autora. En qualsevol cas, en la utilització dels seus continguts caldrà indicar de forma clara el nom i cognoms de la persona autora i el títol de la tesi doctoral. No s'autoritza la seva reproducció o altres formes d'explotació efectuades amb finalitats de lucre ni la seva comunicació pública des d'un lloc aliè al servei TDX. Tampoc s'autoritza la presentació del seu contingut en una finestra o marc aliè a TDX (framing). Aquesta reserva de drets afecta tant als continguts de la tesi com als seus resums i índexs.

ADVERTENCIA. El acceso a los contenidos de esta tesis doctoral y su utilización debe respetar los derechos de la persona autora. Puede ser utilizada para consulta o estudio personal, así como en actividades o materiales de investigación y docencia en los términos establecidos en el art. 32 del Texto Refundido de la Ley de Propiedad Intelectual (RDL 1/1996). Para otros usos se requiere la autorización previa y expresa de la persona autora. En cualquier caso, en la utilización de sus contenidos se deberá indicar de forma clara el nombre y apellidos de la persona autora y el título de la tesis doctoral. No se autoriza su reproducción u otras formas de explotación efectuadas con fines lucrativos ni su comunicación pública desde un sitio ajeno al servicio TDR. Tampoco se autoriza la presentación de su contenido en una ventana o marco ajeno a TDR (framing). Esta reserva de derechos afecta tanto al contenido de la tesis como a sus resúmenes e índices.

WARNING. The access to the contents of this doctoral thesis and its use must respect the rights of the author. It can be used for reference or private study, as well as research and learning activities or materials in the terms established by the 32nd article of the Spanish Consolidated Copyright Act (RDL 1/1996). Express and previous authorization of the author is required for any other uses. In any case, when using its content, full name of the author and title of the thesis must be clearly indicated. Reproduction or other forms of for profit use or public communication from outside TDX service is not allowed. Presentation of its content in a window or frame external to TDX (framing) is not authorized either. These rights affect both the content of the thesis and its abstracts and indexes.



**Universitat Autònoma
de Barcelona**

Doctoral Thesis with an International Mention

**Personality trait differences amongst eating
disorder and dual diagnosis patients and trait
differences in treatment response**

Magda Rosińska
PhD Candidate

Thesis Directors
Dr. María Soledad Mora Giral
Dr. Marcela L. González González

Department of Clinical Psychology and Health

Autonomous University of Barcelona

Barcelona, September 2023

« Fais de ta vie un rêve et d'un rêve une réalité. »

« On ne voit clairement qu'avec le cœur. L'essentiel est invisible aux yeux. »

- Le Petit Prince, Antoine de Saint-Exupéry

For the financial support of this thesis, I would like to thank the following entity:

Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR)



For the pre-doctoral research grant FI-SDUR 2020 (2020 FISDU 00579) from 2020-2023.

Further Acknowledgements

I've always preferred sprints to marathons, mostly because I hate running, but doing a PhD is a marathon I could truly believe in. It taught me a lot about myself and the drive I have inside. But this marathon would not have been possible without the continuous help from my supervisors, Marisol and Marcela. ¡Muchísimas gracias! For really helping me when I was struggling and reassuring me, and to not worry and be happy, but most importantly, for truly believing in me.

This work would not have been possible without the collaboration and help from ITA, Specialists in Mental Health. Thank you to the clinical director Antoni Grau Touriño and the various individuals who helped me to collect the data. Moreover, it would not have been in existence without the patients! Without their collaboration none of this would occur, thank you for giving your time and energy in being able to create this body of work.

Then there were the countless people I met along the way in my journey that helped and believed in me and gave me that energy boost to continue, forever grateful to you all. I'm pretty sure I'll forget to name some names, blame it on the thesis haze. Thank you to Claudia, for forever understanding this journey and letting me know it'll all be okay. Olga for your wonderful companionship and listening ear. Sonia, I truly thank you for helping me through the statistics and teaching me more about Stata! Dr. Helena Lewis-Smith, for giving me the opportunity to be able to work alongside you at the Centre for Appearance Research, and all that you taught me during the virtual fellowship and beyond, I greatly appreciate it! Imane, for listening to everything even

though sometimes it was *confusion*. Prune, for always being there and reminding me of all that I've done and am able to do. Enja and Lindy for your eternal reassurance and support, thank you. Weronika, tak czuje, że byłaś tu ze mną od początku, i dziękuję bardzo za to, że zawsze wierzyłaś i wspierałaś mnie w tym i wszystkim! To my sister za to, że zawsze się cieszyłaś wszystkim i słuchałaś moich teorii i pytań i byłaś moim rozsądkiem, dziękuję. Ciocia, że byłaś przy mnie przez wszystko i wierzyłaś, że mi się uda. And to my parents, skończyłam !!!

Table of Contents

1. Introduction.....	12
1.2. Personality Traits in Eating Disorders	15
1.2.1 Personality Traits in Individuals with Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder & Other Specified Feeding and Eating Disorders.....	16
1.3. Personality Traits in Individuals with a Dual Diagnosis.....	18
1.4. Personality Traits in Individuals who Dropout of or Continue with Treatment.....	18
1.5. Body dissatisfaction and personality traits.....	19
1.6. Comorbidities in Eating Disorders.....	20
1.6.1. Genetic and Biological risk factors for eating disorders.....	20
1.6.2. Environmental risk factors for eating disorders.....	21
1.7. Comorbidities for substance use disorder.....	22
1.7.1. Risk factors for substance use disorder.....	22
1.7.2. Genetic and biological risk factors for substance use disorder.....	23
1.7.3. Environmental factors for substance use disorder.....	23
2. Main Objectives and Hypotheses.....	26
2.1. Main Objectives.....	27
2.2 Main Hypotheses.....	27
3. Specific Objectives and Results.....	28
3.1. Study 1.....	28
3.2. Study 2.....	29
3.3. Study 3.....	40
4. Overall Discussion.....	54
4.1. Study 1.....	55
4.2. Study 2.....	57
4.3. Study 3.....	59
4.4. Strengths and limitations.....	61
4.5. Directions for future research.....	62

4.6. Clinical implications	63
5. Conclusions.....	65
6. References.....	68

List of Acronyms

ED: eating disorder

AN: anorexia nervosa

BN: bulimia nervosa

BED: binge eating disorder

OSFED: other specified feeding and eating disorders

BD: body dissatisfaction

SUD: substance use disorder

DD: dual diagnosis

TCI-R: temperament and character inventory – revised

PTSD: post-traumatic stress disorder

AUD: alcohol use disorder

ITA: instituto de trastornos alimentarios

BDI-II: beck depression inventory-II

BIS-11: barratt impulsivity scale-11

STAI: state and trait anxiety inventory

RP: restrictive profile

BP: bingeing profile

DSM-5: diagnostic and statistical manual – 5

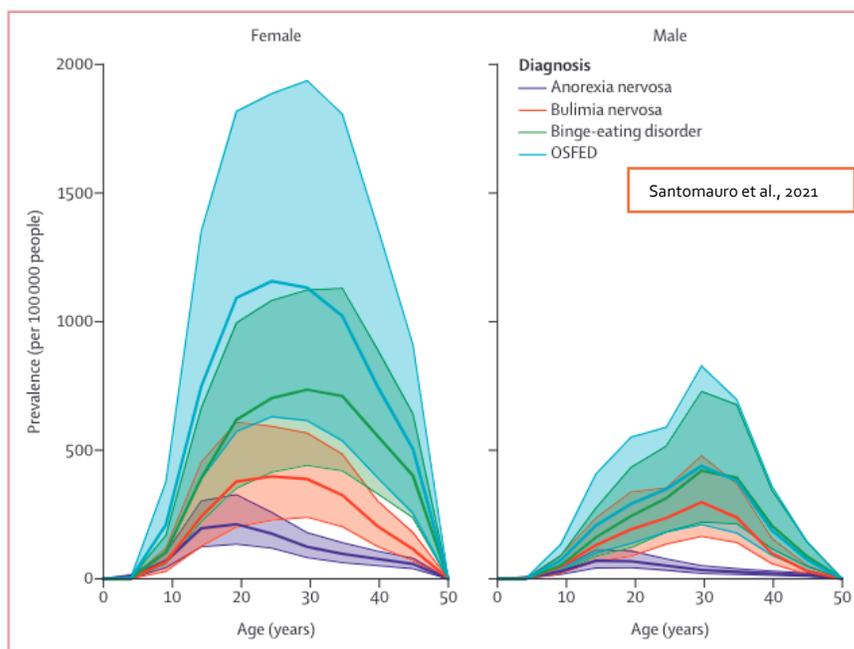
NSSI: non suicidal self-injury

INTRODUCTION

1. Introduction

Eating disorders (EDs) are deadly, debilitating and prevalent mental illnesses, with many of them beginning in early to mid-adolescence and spanning throughout a lifetime (Treasure et al., 2020). There are various types of eating disorders, with the most studied being anorexia nervosa (AN) and bulimia nervosa (BN). Although other EDs exist, such as binge eating disorder (BED) and other specified feeding and eating disorders (OSFED), including unspecified and specified eating disorders. These latter ones are the most prevalent EDs (Santomauro et al., 2021). The prevalence rates for the EDs mentioned above can be seen below in **Figure 1**, these data are per 100,000 people for both females and males (Santomauro et al., 2021).

Figure 1. Global prevalence by eating disorder diagnosis, sex, and age in 2019



OSFED: Other Specified Feeding & Eating Disorders. Shaded areas denote 95% uncertainty intervals (Santomauro et al., 2021)

Additionally, there are many types of risk factors for the development of EDs, these will be discussed more in depth later on. Although, one of the most prominent risk factors is negative body image (McLean & Paxton, 2019). A study by Bornioli and colleagues (2019) showed that a higher body dissatisfaction (BD) could not only lead to EDs but also a higher likelihood of drug and

alcohol use. When looking at EDs it has been found that 20-50% of individuals also have a concurrent substance use disorder (SUD), to either alcohol or drugs. This type of concurrence could be known as a dual diagnosis (DD; a simultaneous SUD and axis I mental disorder, as classified by the Diagnostic and Statistical Manual – V, DSM-5). It has been stated that the co-morbidity of SUD in EDs has been reported as a major risk factor for suicide (Franko et al., 2005). Along with this risk factor, there is also another factor which is highly prevalent in the ED population which is non-suicidal self-injury (NSSI). The percentage of individuals with AN who reported a lifetime history of NSSI is 21.8% in individuals with AN and 32.7% in individuals with BN (Cucchi et al., 2016). Therefore, the importance of studying this group is vital to better understanding which factors may lead to this co-occurrence.

One way to observe the differences in ED and DD groups is by looking at an individual's personality traits. It has been shown that certain personality traits have been associated with either restrictive or purging ED profiles (Klump et al., 2004; Krug et al., 2011; Lilenfeld et al., 2006; Wagner et al., 2006). Also, purging ED profiles are more likely to have a concurrent SUD when looking at their personality traits (Jiménez-Murcia et al., 2013; Rotella et al., 2018). Studying personality trait differences in these ED and DD groups could help influence treatment outcome (e.g., Miranda-Olivos et al., 2023; Simpson et al., 2022). Unfortunately, personality traits have mainly been studied in the general and single diagnosis ED populations (Simpson et al., 2022), via various personality questionnaires, with a lack of research for this specific DD group.

Therefore, this thesis is comprised of research looking into personality trait differences between these two groups. Moreover, it looks into the differences in personality traits in individuals who either complete or dropout of medical care and treatment from a clinical setting and lastly, how body image influences personality differences between these groups. The findings

from this research will hopefully incite new ways of not only treatment but also intervention and prevention programs for eating disorders and body image; while simultaneously adding to the current body of knowledge for EDs, DD and personality.

1.2. Personality Traits in Eating Disorders

When looking at personality traits in EDs, they are seen as important risk factors (L. R. R. Lilienfeld et al., 2006) as well as predictors of outcome (Klump et al., 2004; Wagner et al., 2006). There are various inventories which can be applied when looking at EDs, one of the most common (Jacobs et al., 2009; Klump et al., 2004) being Cloninger's Temperament and Character Inventory – Revised (TCI-R; Cloninger, 1999). This personality theory has a biological basis and tries to examine the evolution and adaptation of the individual throughout various situations and hereditary attributes (Cloninger, 2009). This inventory consists of 7 scales, each with 3-5 subscales. Four of these scales relate to temperament: Novelty Seeking (e.g., intense excitement in relation to novel stimuli; higher scores indicate greater impulsivity and temperament), Harm Avoidance (e.g., anticipatory worry; higher scores indicate greater anxiety, insecurity, worry), Reward Dependence (e.g., sentimentality; higher scores indicate greater friendliness, sentimentality, dependence), and Persistence (e.g., eagerness of effort; higher scores indicate greater levels of hard-work, ambition, self-exigence). The temperament scales are here to show the components which are biologically based, moderately heritable, apparent early in life and moderately stable across settings (Rothbart et al., 2000; Wagner & Vitousek, 2019). The other set of traits is related to character, included to reflect the development of the individual through experiences (Wagner & Vitousek, 2019). The three scales related to character are: Cooperativeness (e.g., social acceptance; higher scores indicate greater friendliness, empathy, altruism), Self-Directedness (e.g., responsibility; higher scores indicate greater maturity, self-sufficiency, self-

esteem, in alignment with deeper goals and values), and Self-Transcendence (e.g., self-forgetfulness; higher scores indicate greater spirituality, idealism, mysticism). Mainly, this inventory has been used in clinical samples to look at personality differences in individuals with AN, BN, BED and & Other Specified Feeding and Eating Disorders (OSFED).

1.2.1. Personality Traits in Individuals with Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder & Other Specified Feeding and Eating Disorders

Among individuals who are severely ill with an ED, personality pathology has been noted to be highly prevalent (von Ranson, 2018), with 77% of patients at intake having at least one diagnosis of a personality disorder (Rø et al., 2005). This may demonstrate that personality is important when supporting individuals with ED and may also help to determine why some people develop AN versus BN or why some individuals begin with one ED and then continue with another. To support this, the transdiagnostic view of EDs by Fairburn and colleagues (2003) shows that a majority of patients go from one ED diagnosis to another, demonstrating a potential system of interrelated mechanisms (e.g., perfectionism, low self-esteem, mood intolerance, etc.) that maintain the illnesses and account for the persistence of AN, BN and atypical eating disorders. It could be interesting to discover additional information about the etiology of the illnesses, to be able to possibly find more specific vulnerabilities and more personalized and specific treatments for each individual. Nevertheless, evidence is still lacking as how to best to use this knowledge to improve recovery.

Studies have found that even though there are various ED diagnoses, they primarily share the same core psychopathology, by over-valuing eating, shape, weight and control (Ekeroth et al., 2013). Previous research has observed different aspects of personality from personality disorders that are related to EDs as well as looking at personality as a risk factor for ED diagnosis

(Wonderlich et al., 2018). For instance, over the past 15 years, research has regularly found that those with EDs score lower than controls on the TCI-R scale of self-directedness (i.e., lower ability to adapt one's own behavior to achieve goals; Álvarez-Moya et al., 2007; Klump et al., 2004; Villarejo et al., 2014). Additionally, compared to healthy controls, individuals with an ED also tend to have higher harm avoidance and lower persistence (Tsigkaropoulou et al., 2021). In previous studies, harm avoidance also appears to play a role in the development of ED (Díaz-Marsá et al., 2000; Fassino, Amianto, et al., 2009; Klump et al., 2000).

However, when looking at a more restrictive profile, the personality traits tend to change slightly. Individuals with AN are more likely to be anxious, dependent on others, perfectionistic and preoccupied with rules. In the AN-Restrictive type, there appears to be a lack of cognitive flexibility associated with rigid behaviors and habits, contributing to increased severity of ED symptomatology, such as intake restriction (Abbate-Daga et al., 2010; Roberts et al., 2010). For example, individuals with restrictive eating behaviors tend to have higher levels of harm avoidance, persistence (i.e., eagerness of effort), and reward dependence (i.e., sentimentality; Jiménez-Murcia et al., 2013; Lavender & Mitchell, 2015; Rotella et al., 2018).

Whereas individuals with a more bingeing profile (e.g., AN-Binge/Purge, BN or BED) tend to be more prone to intense unstable emotions, problems with their sense of self-worth and judging themselves harshly. Those with purging behaviors tend to have higher impulsivity and novelty seeking (i.e., exploratory excitability; Jiménez-Murcia et al., 2013; Lavender & Mitchell, 2015; Rotella et al., 2018). Furthermore, related to these personality traits, in a 2009 study (Boisseau et al.) they found that individuals with BN had higher levels (than AN patients) of acting out behaviors, such as promiscuity, substance abuse, thrill-seeking behavior, and possibly criminal activity. These behaviors may lead to an individual with an ED also having a dual diagnosis.

1.3. Personality Traits in Individuals with a Dual Diagnosis

The term dual diagnosis (DD) is defined as having both an addictive as well as parallel mental illness, specifying a causal relationship (Morisano et al., 2014; Szerman et al., 2019). In this body of work, it refers to an individual with both a substance use disorder (SUD) and an eating disorder. Over the years, many studies have observed a high prevalence of SUD in patients with EDs, ranging from 22% to 50% (Calero-Elvira et al., 2009; Krug et al., 2008; Pino-Gutiérrez et al., 2017; Root et al., 2010; Trace et al., 2013). These studies found that DD groups are more prone to being impulsive, taking risks, and being careless (Evren et al., 2007a; Ibáñez et al., 2001; Janiri et al., 2007; Jiménez-Murcia et al., 2015; Pino-Gutiérrez et al., 2017). These studies show that novelty seeking is a distinct personality trait in these individuals. Moreover, a recent study (Rosińska et al., 2020) identified significantly higher levels of novelty seeking in a DD group compared with an ED group.

1.4. Personality Traits in Individuals who Dropout of or Continue with Treatment

Therefore, when looking at personality traits in relation to dropping out of ED treatment, it was found that higher novelty seeking was present in women and men who dropped out of treatment (Agüera et al., 2017; del Barrio et al., 2019). Additionally, in a literature review by Fassino and colleagues (2009), they found evidence that low self-directedness and low cooperativeness are also related to dropout. Moreover, when looking at impulsivity in EDs (e.g., BN and BED) and concurrent maladaptive behaviors (e.g., substance use and non-suicidal self-injury) it has been noted that that could lead to an increased risk of relapse or termination of treatment (Lavender & Mitchell, 2015).

Whereas, when looking at illness perception, a recent study by Agüera and colleagues (2021) found that individuals with higher self-directedness had a greater subjective perception that their

eating disorder could be overcome. Also, Riesco and colleagues (2018) found that in various eating disorder groups, the likelihood of partial or full remission was related to high harm avoidance, persistence and self-directedness (i.e., in purging disorder), as well as high self-transcendence (i.e., in subclinical BN).

1.5. Body Dissatisfaction and Personality Traits

The definition of body dissatisfaction (BD) comes from the multidimensional construct of body image, which lies on a spectrum from positive to negative, in this instance it is the negative conceptualization of body image (McLean & Paxton, 2019). Body dissatisfaction comes from the incongruity between the ideal body the individual desires and the negative perception the individual (e.g., thoughts and feelings) has of their body or specific body parts (Grogan, 2021). Various aspects can be related to causing this discrepancy, such as socio-cultural aspects (Azevedo & Azevedo, 2023). When looking at body image in relation to personality, if an individual has an anxious temperament, then they may have a higher body dissatisfaction (Dionne & Davis, 2012). It has been seen to be highly prevalent in clinical ED settings where it is considered a risk factor for BN and AN in regard to a focus on weight and shape concerns (Rodgers et al., 2014).

In regard to personality traits, in the general population as well as the single diagnosis ED group, BD has been related to negative affect and higher levels of novelty seeking (Bornioli et al., 2021; Field et al., 2014; Heeringen et al., 2000). However, in individuals with an ED, a study has found that a decrease in BD predicted a later decrease in levels of harm avoidance (Segura-García et al., 2013), which is seen as a prevalent trait in EDs (e.g., AN). As harm avoidance can also be described as a measure of anxiety proneness (Wong & Cloninger, 2010), previous studies have suggested that anxiety could be an important motivator of the cognitive/emotional aspects specific to AN (Frank et al., 2018). In a study by Jones and colleagues (2022) they found that individuals

with BN who had high harm avoidance, this trait was mediated by depression and low self-esteem, which was associated with higher body dissatisfaction.

1.6.Comorbidities in Eating Disorders

Research shows that the two most common comorbidities seen with EDs are anxiety and depression. Anxiety affects over half of the patients who have a diagnosed ED and depression affects up to 75% (American Psychiatric Association, 2006) leading to suicidal ideation and attempts (Bulik et al., 2008; Crow et al., 2009; Forcano et al., 2009; Franko et al., 2004). In previous sections, these two comorbidities have been associated with NSSI, which can possibly additionally lead to the development of a SUD, as well as BD, in the ED population. Therefore, the consequences of anxiety and depression are vast in this population and the vulnerability of an individual in developing these two disorders could be linked to various environmental and genetic factors. Accordingly, the association of these comorbidities with ED shows the difficulty in combating the illnesses, which presents the need to develop further prevention, intervention, and treatment plans to curb the growth of these disorders.

1.6.1. Genetic & Biological Risk Factors for Eating Disorders

Genetic components of EDs have recently begun to be studied, in the last 10-15 years, and will hopefully soon be applied to intervention, prevention, and treatment plans. There have been studies highlighting which genetic components are relevant for AN (Baker et al., 2017), and new studies are beginning to examine those which correlate with BN and BED (Bulik et al., 2022). A previous study regarding twin-based heritability revealed that for AN heritability ranges from 48-74%, for BN from 55-62%, and for BED the range is from 39-45% (Hübel et al., 2019; Yilmaz et al., 2015). Therefore, the familial heredity of EDs can be high. In another study by Kothari and colleagues (2014) looking at 18-month-old children of women with lifetime AN, they found that the children

showed difficulties in social understanding, visual-motor function, planning and abstract reasoning. These same areas have been seen as difficulties in individuals with AN in clinical settings. This may indicate that difficulties in these areas may be present prior to onset, potentially affecting the risk status for the development of EDs. If these genetic risks are triggered by environmental factors, then the likelihood of an individual developing an ED is higher compared to when no environmental risks are present (Bulik, 2005).

1.6.2. Environmental Risk Factors for Eating Disorders

The environmental risk factors can vary for each individual, although some common factors include dieting and some stressful life events (SLE) such as childhood trauma (e.g., sexual abuse), bullying, and teasing (Molendijk et al., 2017; Schaumberg et al., 2017). In the realm of dieting, the cultural pressure of the thin ideal has been recognized as a specific risk factor for EDs. Interventions in the clinical setting have shown that when the internalization of the thin ideal is reduced, ED symptoms have also been shown to decrease (Culbert et al., 2015). Also, it has been noted that in industrialized countries, the prevalence of dieting, a drive for thinness, and increased portion sizes could indicate a higher risk for the development of EDs (Jacobi et al., 2004; Steenhuis & Vermeer, 2009; Striegel-Moore & Bulik, 2007).

In relation to bullying and teasing, recurrent peer victimization experienced by a child adds to their persistent social anxiety and loneliness (Devine et al., 2008; Levine, 2012). When a child is habitually teased by their family and peers, Libbey and colleagues (2008) found that it is correlated with an increase in disordered eating thoughts and behaviors, depression, anxiety, anger, and decreased self-esteem. Moreover, the lifetime prevalence of social anxiety disorder in the general population is 7% (American Psychiatric Association, 2013), while for women with an ED the lifetime prevalence ranges from 55-59% (Godart et al., 2000). Furthermore, a study by Swinbourne

and colleagues (2012) indicated that up to 69% of individuals who have an ED indicated that their anxiety symptoms precluded their ED. And longitudinal research has shown that with a non-clinical female population social anxiety can prospectively predict eating pathology (Egan et al., 2011).

Also, when looking at previous research, another risk factor for ED development has been shown to be a history of sexual abuse or assault for various types of EDs (Mitchell et al., 2012) and can lead to treatment attrition (Carter et al., 2006; Fassino et al., 2009). When looking at adult ED patients Tasca and colleagues (2013) found that current ED psychopathology was directly associated with previous childhood trauma wherein this relationship was mediated by adult attachment anxiety and attachment avoidance.

Therefore, as seen throughout these sections, when the genetic, biological, and environmental risk factors are provoked, the probability of developing an eating disorder highly increases.

1.7.Comorbidities for Substance Use Disorder

When looking at SUD, it can be seen those who have early onset SUD, prior to age 25, also tend to more frequently have Post Traumatic Stress Disorder (PTSD) as well as anxiety and depression (Bakken et al., 2004; Kessler et al., 1997; Kessler et al., 1997). This comorbidity of illnesses has been found to increase the global health burden and poor treatment outcomes (Kessler, 2004; Lai et al., 2015; Merikangas & Gelernter, 1990; Whiteford et al., 2013; Wittchen et al., 2011). Anxiety and depression may also stem from the environmental and genetic factors that the individual experiences.

1.7.1. Risk Factors for Substance Use Disorders

SUDs are highly prevalent in first-degree family members (Avenevoli et al., 2005; Heath et al., 1997; McGue, 1994), therefore genetic and biological risk factors are key when looking at said

disorders. Additionally, regarding environmental risk factors, if there are no substances present in the individual's location then the likelihood drastically decreases.

1.7.2. Genetic & Biological Risk Factors

When looking at families who have a history of substance use, the relatives of probands who have an alcohol use disorder (AUD), are at a threefold increased risk for developing AUD and at a twofold increased for developing SUD when compared to the general population (Avenevoli et al., 2005; Merikangas et al., 1998).

Additionally, SUD has been associated with a number of genetic variations (Kreek et al., 2005). It has been noted that there is most likely a genetic vulnerability during adolescence for SUD (Malone et al., 2004). As well as several genetic factors affecting the dopaminergic, serotonergic, GABAergic and other alleles, however, a single allele variation has not been classified to explain individual variation in the risk of substance dependence.

As seen, the genetic and biological risk factors play a heavy role in the development of SUD, however environmental risk factors also contribute to the heightened risk of young adult substance use.

1.7.3. Environmental Risk Factors

Several environmental factors can play a role in the development of SUD, especially during childhood and adolescence, and may vary for each individual, however some most notable factors are stressful life events, social/peer contexts, and family interactions.

Stressful life events include the death of a parent, abuse/neglect, and the ending of relationships (Stone et al., 2012). In a study by Tarter and colleagues (2004) they found that sons were at a higher risk of developing SUD in early adulthood due to paternal neglect. Also, in a study by Mamun and colleagues (2007) they found that an increased risk of nicotine dependence in young

adulthood was linked with sexual abuse occurring prior to the age of sixteen. In regard to alcohol intake, for males who experienced SLE they were at a 6.6 times higher risk of engaging in extremely heavy drinking. While women who experienced SLE were at a 1.8 times higher risk of also engaging in extremely heavy drinking (Windle et al., 2005). The potential development of these dependencies or disorder could be linked to the vulnerability of the individual and how they adapted to their environment as young children (Goemans et al., 2023). Therefore, these SLE could have created specific reactions in these individuals, therefore when triggered the individual could respond in a defensive way which may cause isolation from family or peers subsequently leading to the potential dependency on alcohol or the development of SUD.

Social and peer contexts where substances are readily available and when others are engaging in their use, increases the likelihood that the individual will also use said substances. For instance, it was suggested that adolescents, in the United States of America, aged 17-18 who had tobacco-using peers were 1.5 times more likely to regularly smoke by age 23 than adolescents who did not have such peers (Tucker et al., 2003). Additionally, on university campuses, White and colleagues (2008) found that individuals who have close friends who drink heavily also increased their drinking within a year. As studies have shown that peer relations can be influential on an individual as to whether or not they engage in any form of substance use, another area which can also influence an individual is family interactions.

When a family has an increased amount of conflict either between the guardians and/or guardians and offspring these are associated with an increase in substance dependence (Zhou et al., 2006). Whereas supportive relationships amongst family members and high levels of attachment suggest a decrease in substance use during young adulthood (King & Chassin, 2004).

These conflicts and attachment styles are important in partially understanding the development of SUD.

These various environmental risk factors show how severe an impact an individual's surroundings can have on their development of SUD or AUD. And the previous sections have shown the impact of genetic and biological factors on this development, when both are combined then the risk of SUD drastically increases.

OBJECTIVES, METHODS & DESCRIPTION: THREE STUDIES

2. Main Objectives and Hypotheses

2.1 Main Objectives

- 1) To better understand personality trait differences, using Cloninger's Temperament & Character Inventory – Revised (TCI-R), between individuals who have an eating disorder (ED) and a dual diagnosis (DD). (Study 1)
- 2) To examine personality trait differences in patients who dropout of treatment versus those who continue treatment. (Study 2)
- 3) To examine the influence of body dissatisfaction (BD) on personality traits among individuals with an ED and a DD. (Study 3)

2.2 Main Hypotheses

- 1) The ED group will have higher self-directedness (TCI-R) and lower depressive and impulsive co-morbidities compared to the DD group. (Study 1)
- 2) Patients who adhere to treatment will have higher harm avoidance, persistence, self-directedness, cooperativeness, and self-transcendence compared to those who dropout. (Study 2)
- 3) Patients who dropout of treatment will have higher novelty seeking and lower reward dependence compared to those who adhere to treatment. (Study 2)
- 4) Patients who experience SLE will have higher novelty seeking and higher dropout rates. (Study 2)
- 5) Patients who engage in CB will have higher self-directedness and persistence and lower dropout rates. (Study 2)
- 6) The DD group will have higher BD than the ED group. (Study 3)

- 7) The ED group will have higher reward dependence and harm avoidance (correlating with higher BD) whereas the DD group will have higher impulsivity and novelty seeking (correlating with higher BD). (Study 3)
- 8) The influence of negative affect on BD will be greater for the DD group compared to the ED group. (Study 3)

3. Specific Objectives & Results

3.1 Specific Objectives & Results of Study 1: Comparing the Personality Traits of Patients with an ED versus a DD

The first study was published in the Journal of Dual Diagnosis:

Rosińska, M., González, M. G., Touriño, A. G., & Mora Giral, M. S. (2020). Comparing the personality traits of patients with an eating disorder versus a dual diagnosis. *Journal of Dual Diagnosis*, 16(3), 336-346. <https://doi.org/10.1080/15504263.2020.1782552>

3.2. Specific Objectives & Results of Study 2: Personality Trait Differences Amongst Female Clinical Patients with an Eating Disorder who Dropout or Continue with Treatment: A Cross-Sectional Study

Background

In some cases the dropout rate can be staggering in ED treatment, when looking at inpatient treatment up to 51% of individuals stop treatment and in outpatient treatment that number increases up to 73% (Fassino et al., 2009). Studies have found that when a patient leaves treatment early, there can be negative impacts on the individual, for example, an increased risk of relapse and ED symptoms in addition to more chronic and severe illness duration (Baran et al., 1995; Strober et al., 1997; Wallier et al., 2009). Moreover, it has been estimated that only 20% of individuals with an ED seek treatment, and this may only occur after many months or years of debilitating symptomatology (Treasure et al., 2020). Also, when looking at treatment interventions (e.g., cognitive behavioral therapy, mindfulness therapy, family-based therapy) and ED types (e.g., anorexia nervosa, bulimia nervosa, binge eating disorder) a rate of 25% of dropout was found (Linardon et al., 2018). Hence looking at what possibly impacts either this cessation or continuation of treatment is vital in ED care.

Moreover, with anorexia nervosa (AN) patients, the mortality risk post inpatient treatment has been demonstrated to be more than 5 times higher than age and gender-matched individuals in the general population (van Hoeken & Hoek, 2020). Additionally, in a clinical sample of almost 200 individuals, Eating Disorders Not Otherwise Specified (EDNOS) was the group show most likely to dropout (with a rate of 50.5%) of treatment in a study by Gómez del Barrio and colleagues (2019). This reveals that there are potential difficulties present for treatment adherence for individuals with any type of ED. Studies have demonstrated that various factors may contribute to

this premature termination, one of them being the individual's personality traits (DeJong et al., 2012; Fassino et al., 2009; Vall & Wade, 2015).

When considering this facet in terms of dropout or adherence to treatment, studies found that higher novelty seeking was present in women and men who dropped out of treatment (Agüera et al., 2017; del Barrio et al., 2019). Also, evidence was found that low self-directedness and low cooperativeness are also related to dropout in a literature review by Fassino and colleagues (2009). Moreover, in this review many previous studies demonstrated that there may be a pathogenic role of harm avoidance, novelty seeking and self-directedness in EDs. For instance, high harm avoidance appears to be an endophenotype related to the vulnerability to develop an ED (Fassino et al., 2009). As well as these possibly related personality traits, another important factor often seen in dropout from ED treatment is previous stressful life events (SLE, i.e., sexual abuse and bullying).

It has been noted in previous studies that individuals with an ED more regularly report childhood trauma experiences when comparing to matched healthy controls (Molendijk et al., 2017). There are data which suggest that individuals with ED and SLE history have a poorer response to treatment and are therefore possibly more prone to terminate treatment prematurely compared to patients without a history of trauma (Anaya et al., 2020). Also, Castellini and colleagues (2018) conducted a longitudinal study, where they found that ED patients with a history of childhood abuse had higher dropout rates during treatment compared to other ED patients. Rodriguez and colleagues (2005) found that in patients with EDs who reported previous traumatic events dropout and relapse rates were dramatically higher when compared with those patients without a history of trauma. This could potentially be because of an expression of victimization or hopelessness that interferes with treatment fulfillment (Kong & Bernstein, 2009). Previous data

have shown that sexual abuse is a strong precursor to many types of EDs and may lead to treatment attrition (Carter et al., 2006; Fassino et al., 2009).

Furthermore, some studies have suggested a link between weight-related bullying and unhealthy eating behaviors (e.g., dietary restraint, fasting, and bulimic behaviors) (Goldfield et al., 2010; Libbey et al., 2008), in relation to the development of eating disorders. However, these studies have not found this factor to be involved in stopping ED treatment.

In addition, another factor which has been seen to potentially curtail the completion of treatment has been the partaking in various compensatory behaviors (CB, i.e., excessive exercise, purging and laxative use). Such behaviors are observed in various EDs, especially AN and BN, while with BED, compensatory behaviors are not seen as often (American Psychiatric Association, 2013). A study by Bandini and colleagues (2006) looked at a clinical sample with a Cognitive Behavioral Therapy (CBT) approach, where they found that purging (58.8%) and restriction (82.4%) were more frequent in patients who dropped out than in those who stayed in treatment. Moreover, in a study of inpatient individuals with AN, they were found to have higher dropout rates with the binge eating/purging subtype than in those without purging (Woodside et al., 2004). While we may glean that there could be an important connection with these factors in relation to dropout, further research needs to be conducted in order to have a more well-rounded understanding of which ones saliently impact dropout from ED treatment.

In summary, as dropout has been acknowledged as a significant problem in ED treatment, multiple studies have tried to identify various reasons for its persistent incidence (Bandini et al., 2006; Fassino et al., 2003; McKisack & Waller, 1996). There are key factors which have been seen to be linked with dropout rates, which are compensatory behaviors (e.g., purging), sexual abuse and personality traits (e.g., novelty seeking; Agüera et al., 2017; Castellini et al., 2018; del

Barrio et al., 2019), however, there is not as much information looking at other SLE (e.g., bullying) in relation to dropout (Goldfield et al., 2010; Libbey et al., 2008). For this reason, this study adds to the literature by including bullying as a SLE, with sexual abuse, when looking at either adherence or cessation of treatment.

Objectives

- 1) To examine the personality trait differences in patients who dropout versus those who adhere to treatment
- 2) To compare the personality traits in patients who have experienced SLE versus those who did not (leading to treatment attrition)
- 3) To compare personality traits in patients who have engaged in CB versus those who did not (leading to treatment attrition)

Methods

Sample

A cross-sectional study, including 80 female patients, aged 18-52 years, consisting of two groups (n = 60 treatment adherence group; n = 20 dropout group) from a private clinic specializing in ED treatment (ITA Mental Health) in Barcelona, Spain, and the surrounding areas. All participants were either hospitalized as inpatients or day patients at the clinic and met the DSM-5 criteria for an ED diagnosis (American Psychiatric Association, 2013) and spoke Spanish. Both inpatients and day patients received a multidisciplinary 3 phase treatment. Phase 1 focuses on recently admitted individuals wherein the team centers around the issue and a possibility to live differently. Phase 2 involves psychotherapeutic work which looks at the core issues of the individual. In this phase, inpatients have a period of approved leave to apply the changes in their daily environments and day patients lessen their visits to the hospital in a fixed manner. And in

phase 3 the work is on reducing relapse and reintegrating individuals into society via work, study and social relationships.

The patient's age, sex, whether they engaged in self-harm and compensatory behaviors and had previous stressful life events were recorded. These data were taken from the clinical patient history where the last three categories were specified that the individual engaged in harming themselves (e.g., cutting themselves), engaged in compensatory behaviors (i.e., laxative use, excessive exercise or purging) or had been a victim of sexual abuse, bullying or neither (i.e., stressful life events).

Procedure

Participation in this study was completely voluntary, prior to partaking an in-depth discussion was had with the patients concerning the questionnaires that would be used, reasoning as to why the study is being conducted and potential beneficial outcomes of the study for them regarding treatment. Written informed consent was obtained from each participant after this discussion, the participants could withdraw at any time. Also, they were assured that their personal information would be kept completely anonymous and only the results from the data will be used in analysis and publication. Moreover, this study was approved by the Ethics Committee on Animal and Human Experimentation (CEEAH) from the Autonomous University of Barcelona.

Instruments

The instruments used in this study related to personality traits, depression and anxiety. The following self-report questionnaires were administered in Spanish: Cloninger's Temperament and Character Inventory-Revised (TCI-R; Gutiérrez-Zotes et al., 2004), the State-Trait Anxiety Inventory (STAI; TEA Madrid; Spielberger et al., 1982), the Beck Depression Inventory-II (BDI-II; Vázquez & Sanz, 1997), and the Barratt Impulsiveness Scale-11 (BIS-11; Oquendo et al., 2001).

Also, other sociodemographic data was collected, including age, sex, and body mass index (BMI). Then the data were entered into a database and analyzed. The data were analyzed using STATA 13.0.

Results

In Table 1 the descriptive data for the demographic and clinical variables is displayed. There were significant differences between the groups in self harm ($p=0.019$, $V=0.26$), the BIS-11 total score ($p=0.023$, $d=0.61$), BIS-11 attentional factor score ($p=0.049$, $d=0.57$) and BIS-11 motor factor subscale ($p=0.010$, $d=0.75$), by which the overall impulsivity was higher in the dropout group.

Table 1

Demographic & clinical variables: comparison between groups

	Treatment Adherence Group (n=65)		Dropout Group (n=20)		d/V	p	α
	Mean (SD)/ n (%)	Median (P25 – P75)	Mean (SD)/ n (%)	Median (P25 – P75)			
Self-Harm (Yes)	26 (40.00)		14 (70.00)		0.26	0.019	
Compensatory Behaviors (Yes) ¶	54 (83.08)		15 (75.00)		-0.09	0.514	
Stressful Life Events (Yes) ¶	7 (10.77)		3 (15.00)		0.06	0.694	
Age (Years) §	26.69 (8.19)	24.00 (21.00-31.00)	24.05 (6.87)	21.00 (19.50-26.50)	-0.33	0.164	
ED Symptom Duration	11.02 (7.70)	9.00 (6.00-16.00)	11.10 (5.93)	10.00 (7.00-13.00)	0.01	0.493	
STAI – State Score §	33.72 (11.86)	35.00 (27.00-42.00)	34.00 (16.15)	34.50 (22.50-45.50)	0.02	0.832	0.93
STAI – Trait Score §	38.34 (9.75)	38.00 (32.00-45.00)	35.55 (14.28)	33.50 (24.00-51.00)	-0.25	0.425	0.89
BDI-II Total Score §	21.45 (12.31)	19.00 (12.00-29.00)	21.70 (14.80)	16.00 (8.50-36.50)	0.02	0.848	0.90
BIS-11 Total Score §	48.94 (16.68)	45.00 (38.00-60.00)	59.15 (17.13)	57.50 (46.50-73.00)	0.61	0.023	0.84
Attentional Factor Score §	15.80 (4.93)	15.00 (12.00-19.00)	18.80 (6.23)	19.50 (14.00-23.00)	0.57	0.049	0.53
Motor Factor Score §	16.98 (7.27)	16.00 (13.00-22.00)	22.75 (9.04)	22.50 (15.50-30.50)	0.75	0.010	0.63
Nonplanning Factor Score §	16.15 (8.92)	14.00 (9.00-21.00)	17.60 (7.34)	17.50 (12.50-23.00)	0.17	0.265	0.77

Note: ED: Eating Disorder; STAI: State – Trait Anxiety Inventory; BDI-II: Beck Depression Inventory – II; BIS-11: Barratt Impulsiveness Scale – 11; SD: Standard Deviation; n: sample; P25: Percentile 25; P75: Percentile 75; V: Cramer's V measure of association for categorical variables; d: Cohen's d, effect size; α = Internal consistency by Cronbach's α coefficient; p = p-value
 ¶ Fisher Test
 §Mann-Whitney U Test

Table 2 contains the descriptive data for the temperament scales of the TCI-R. There were significantly higher scores in the dropout group regarding harm avoidance total score ($p=0.001$, $d=0.98$), harm avoidance subscales of anticipatory worry ($p<0.001$, $d=1.03$) and fear of uncertainty ($p=0.014$, $d=0.69$), the reward dependence total score ($p=0.018$, $d=0.58$) and its dependent subscale ($p=0.007$, $d=0.66$).

Table 3 consists of the descriptive data for the character scales of the TCI-R. There were significantly higher scores in the dropout group regarding self-transcendence total score ($p=0.018$, $d=0.86$) and all three of its subscales self-forgetfulness ($p=0.005$, $d=0.67$), transpersonal identification ($p=0.028$, $d=0.78$) and spiritual acceptance ($p=0.003$, $d=0.72$).

Table 2

Temperament scales of the TCI-R: comparison between groups

	Treatment Adherence Group (n=65)		Dropout Group (n=20)		<i>d</i>	<i>p</i>	α
	Mean (SD)	Median (P25- P75)	Mean (SD)	Median (P25 – P75)			
Novelty Seeking Total	108.72 (11.40)	110.00 (101.00-115.00)	110.35 (12.48)	108.00 (103.00-119.50)	0.14	0.675	0.82
Exploratory Excitability	30.49 (4.12)	31.00 (28.00-33.00)	32.30 (5.02)	30.50 (28.00-36.50)	0.42	0.306	0.56
Impulsiveness	31.03 (4.76)	31.00 (28.00-34.00)	31.60 (4.95)	31.00 (29.00-34.00)	0.12	0.799	0.68
Extravagance	25.06 (3.74)	25.00 (23.00-28.00)	25.35 (5.26)	24.50 (22.50-28.00)	0.07	0.959	0.80
Disorderliness	22.14 (3.97)	22.00 (20.00-24.00)	21.20 (3.05)	21.50 (20.00-23.00)	-0.25	0.432	0.65
Harm Avoidance Total	87.97 (10.85)	88.00 (81.00-94.00)	98.65 (10.86)	97.50 (89.00-105.50)	0.98	0.001	0.87
Anticipatory Worry	28.15 (4.51)	28.00 (25.00-31.00)	32.75 (4.40)	33.50 (29.50-35.50)	1.03	0.0003	0.73
Fear of Uncertainty	21.45 (4.87)	20.00 (18.00-25.00)	24.90 (5.33)	25.00 (21.00-28.50)	0.69	0.014	0.73
Shyness with Strangers	16.80 (3.23)	17.00 (15.00-19.00)	17.90 (2.29)	18.00 (16.50-19.50)	0.36	0.167	0.85
Fatigability	21.57 (4.01)	22.00 (19.00-24.00)	23.10 (3.70)	23.00 (21.00-24.50)	0.39	0.181	0.66
Reward Dependence Total	91.03 (8.35)	91.00 (86.00-97.00)	95.75 (7.52)	96.00 (91.00-102.00)	0.58	0.018	0.85
Sentimentality	26.74 (4.60)	27.00 (24.00-30.00)	28.05 (4.11)	28.00 (25.50-31.00)	0.29	0.280	0.63
Open to Warm Communication	32.17 (4.33)	33.00 (29.00-35.00)	33.65 (4.78)	33.50 (30.50-37.50)	0.33	0.205	0.82
Attachment	17.34 (2.94)	18.00 (15.00-19.00)	16.65 (2.96)	17.00 (14.50-18.50)	-0.23	0.431	0.80
Dependent	14.78 (4.13)	15.00 (12.00-17.00)	17.40 (3.50)	18.00 (15.00-19.00)	0.66	0.007	0.61
Persistence Total	111.08 (19.56)	111.00 (100.00-126.00)	112.45 (18.01)	112.00 (98.50-124.50)	0.07	0.979	0.94
Eagerness of Effort	28.38 (5.11)	28.00 (25.00-32.00)	28.95 (5.58)	27.00 (24.00-33.50)	0.11	0.975	0.77
Work Hardened	25.48 (5.57)	26.00 (22.00-29.00)	26.35 (6.18)	25.00 (23.00-30.50)	0.15	0.716	0.81
Ambitious	31.20 (7.06)	31.00 (26.00-37.00)	31.75 (7.21)	33.50 (26.00-37.00)	0.08	0.880	0.87
Perfectionist	26.02 (4.86)	26.00 (23.00-30.00)	25.40 (3.94)	25.00 (22.00-28.50)	-0.13	0.464	0.84

Note: TCI-R: Temperament & Character Inventory – Revised; SD: Standard Deviation; P25: Percentile 25; P75: Percentile 75; *d*: Cohen's *d*, effect size; α = Internal consistency by Cronbach's α coefficient; *p* = *p*-value

Table 3*Character scales of the TCI-R: comparison between groups*

	Treatment Adherence Group (n=65)		Dropout Group (n=20)		<i>d</i>	<i>p</i>	α
	Mean (SD)	Median (P25- P75)	Mean (SD)	Median (P25- P75)			
Self-Directedness Total	126.74 (13.27)	126.00 (117.00-137.00)	128.10 (16.02)	132.00 (115.00-138.50)	0.10	0.593	0.91
Responsibility	22.57 (3.92)	23.00 (20.00-25.00)	23.00 (4.41)	23.00 (20.50-26.00)	0.11	0.571	0.81
Purposefulness	18.98 (2.93)	19.00 (17.00-21.00)	19.80 (2.86)	20.00 (17.50-21.50)	0.28	0.338	0.63
Resourcefulness	16.42 (2.83)	16.00 (14.00-18.00)	15.90 (3.80)	16.00 (13.00-18.50)	-0.17	0.835	0.68
Self-Acceptance	32.86 (5.87)	32.00 (27.00-36.00)	31.80 (5.61)	32.50 (29.50-36.00)	-0.18	0.930	0.90
Congruent Second Nature	36.71 (5.15)	37.00 (33.00-40.00)	37.60 (5.30)	38.00 (35.00-41.00)	0.17	0.424	0.58
Cooperativeness Total	107.12 (10.43)	105.00 (101.00-114.00)	110.20 (9.21)	108.50 (106.50-111.50)	0.31	0.089	0.87
Social Acceptance	24.83 (2.88)	25.00 (23.00-27.00)	25.50 (2.56)	25.00 (24.00-27.00)	0.24	0.241	0.68
Empathy	16.75 (2.55)	16.00 (15.00-19.00)	16.95 (2.98)	17.50 (16.00-18.50)	0.08	0.558	0.67
Helpfulness	26.65 (3.2)	26.00 (25.00-29.00)	26.20 (2.78)	26.50 (24.50-28.00)	-0.14	0.688	0.68
Compassion	16.03 (4.66)	15.00 (13.00-18.00)	17.70 (4.89)	17.00 (14.50-22.00)	0.35	0.119	0.80
Principled	22.00 (3.61)	23.00 (21.00-25.00)	23.85 (3.60)	23.50 (22.00-25.50)	0.51	0.288	0.74
Self-Transcendence Total	63.75 (14.61)	62.00 (52.00-76.00)	76.80 (16.72)	78.00 (64.50-89.50)	0.86	0.018	0.89
Self-Forgetfulness	27.63 (7.26)	28.00 (22.00-35.00)	32.80 (8.99)	34.00 (26.00-39.50)	0.67	0.005	0.79
Transpersonal Identification	17.62 (5.96)	17.00 (13.00-22.00)	22.30 (6.12)	22.50 (18.50-27.00)	0.78	0.028	0.76
Spiritual Acceptance	18.51 (4.18)	19.00 (16.00-21.00)	21.70 (5.15)	20.50 (18.00-25.00)	0.72	0.003	0.80

Note: TCI-R: Temperament & Character Inventory – Revised; SD: Standard Deviation; P25: Percentile 25; P75: Percentile 75; *d*: Cohen's *d*, effect size; α = Internal consistency by Cronbach's α coefficient; *p* = *p*-value

Table 4 has the spearman correlation analyses between the variables in both groups. In both groups, there were significant positive correlations with age and ED symptom duration ($r_s=0.64$, $p<0.005$). Also with dropout and harm avoidance ($r_s=0.38$, $p<0.005$), reward dependence ($r_s=0.26$, $p<0.05$) and self-transcendence ($r_s=0.32$, $p<0.005$).

Table 4*Correlations between variables for both the dropout and treatment adherence groups*

	1	2	3	4	5	6	7	8	9	10
1 Age	1.00									
2 ED Symptom Duration	0.64**	1.00								
3 TCI-R Novelty Seeking	0.01	0.06	1.00							
4 TCI-R Harm Avoidance	0.003	0.04	0.44**	1.00						
5 TCI-R Reward Dependence	-0.08	-0.02	0.47**	0.52**	1.00					
6 TCI-R Persistence	-0.16	-0.07	0.45**	0.29*	0.31**	1.00				
7 TCI-R Self-Directedness	0.04	0.13	0.51**	0.43	0.54**	0.29*	1.00			
8 TCI-R Cooperativeness	-0.09	-0.06	0.49**	0.41**	0.59**	0.34*	0.60**	1.00		
9 TCI-R Self-Transcendence	-0.08	0.02	0.34**	0.39**	0.48**	0.45**	0.38**	0.34**	1.00	
10 Dropout	-0.15	0.07	0.05	0.38**	0.26*	-0.003	0.06	0.19	0.32**	1.00

Note: Spearman Correlations; VIF <10; ED: Eating Disorder; TCI-R: Temperament & Character Inventory – Revised; * $p<0.05$, ** $p<0.005$

Table 5 shows the adjusted final logistic regression model. This model assessed the relationship between the outcome of dropout and the predictors of ED symptom duration, age and TCI-R (subscales).

In this adjusted final model, age (B= -0.26, $p=0.026$) was negatively related to dropout. While ED symptom duration (B=0.25, $p=0.034$), harm avoidance (B=0.15, $p=0.001$) and self-transcendence (B=0.09, $p=0.004$) were positively related to dropout. Meaning that in the adjusted model, a younger age with higher harm avoidance and self-transcendence and longer symptom duration may lead to dropout. Additionally, self-directedness was retained in the final model as it is a confounding variable since it modifies the coefficients of the principal predictor variable (ED symptom duration) more than 20%. Goodness-of-fit statistics were Log Likelihood= -30.07, $p\text{-value}<0.001$, Hosmer-Lemeshow $p\text{-value}=0.61$, Pseudo R= 0.38 and $R^2=0.86$.

Table 5

Stepwise Logistic Regression Model

Criterion		Predictors	B	CI 95%	OR	CI 95%	p	R ²	Adj. R ²	AIC
Dropout	Adjusted Final Model							0.86	0.35	71.21
		ED Symptom Duration	0.25	0.02; 0.47	1.28	1.02; 1.60	0.034			
		Age	-0.26	-0.49; -0.03	0.77	0.61; 0.97	0.026			
		TCI-R Self-Transcendence	0.09	0.03; 0.14	1.09	1.03; 1.15	0.004			
		TCI-R Harm Avoidance	0.15	0.06; 0.25	1.16	1.06; 1.28	0.001			
		TCI-R Self-Directedness	-0.04	-0.09; 0.01	0.96	0.91; 1.01	0.100			
		TCI-R Persistence	-0.07	-0.12; -0.02	0.94	0.89; 0.98	0.007			

Note: Adjusted Final Model: Log Likelihood= -30.07, $p\text{-value}<0.001$, Hosmer-Lemeshow $p\text{-value}=0.609$; B: Coefficient; CI 95%: Confidence Interval 95%; p: p-value; OR: Odds Ratio; R²: Count R squared; Adj. R²: Adjusted Count R squared; AIC: Akaike information criterion; TCI-R: Temperament and Character Inventory – Revised

Discussion

This study had a dual purpose, first to examine the personality traits of individuals who either continue or dropout of treatment. Secondly, to determine whether stressful life events and engaging in compensatory behaviors impact attrition or adherence.

The first hypothesis, regarding patients who stay in treatment having higher harm avoidance, persistence, self-directedness, cooperativeness, and self-transcendence compared to those who dropout, was partially supported. There were two personality traits which were linked with a higher likelihood to continue with treatment, which were persistence and self-directedness.

However, harm avoidance and self-transcendence were *lower* in this group. This could be due to higher harm avoidance being linked to insecurity and increased worrying about the future (Cloninger et al., 1994). Having this type of worry causes the individual to decide to stop treatment and possibly return to their previous familiar ED behaviors. Perhaps these individuals may have a higher tendency to cling to the desire to lose weight as a way to have a perceived sense of control and regulate their affect. Moreover, a factor which may be associated with this increased harm avoidance in individuals who dropout, could be impulsivity. As the individual has more insecurity and worry about the future subsequently their actions might become more impulsive in order to not lose the parts of life that they may deem to be important (e.g., idea of thinness, self-esteem and acceptance by others related to their perceived body shape, etc.). In this study, motor (i.e., acting without thinking) and attentional (i.e., inability to focus or concentrate on a task) impulsivity was significantly higher in the dropout group than the treatment adherence group. Similarly, self-transcendence, in the early phases of treatment, has been linked to magical thinking; and in adults, with little development of self-directedness and cooperativeness, is linked to immaturity (Cloninger & Syrakic, 1999; Fassino et al., 2004). Therefore, individuals can cease treatment either because of their way of thinking, or processing treatment in a more childlike manner, without considering the possible consequences of their actions. Or potentially, the possibility that by either a form of magical or spiritual thinking there could be a resolution to their eating disorder, without any form of intervention or external help. Previous studies have observed some of these personality traits in relation to attrition. In a study by Jordan and colleagues (2014) they found that lower self-transcendence (i.e., self-forgetfulness) was associated to dropping out of treatment. Also, Fassino and colleagues (2009) found that lower cooperativeness was related to dropout. However, when looking at treatment retention, in a study by Agüera and colleagues (2021) they found that

individuals with higher self-directedness had a greater subjective perception that their eating disorder could be overcome. Also, in a study by Riesco and colleagues (2018) they found that in several eating disorder groups, the probability of partial or full remission was associated with high harm avoidance, persistence and self-directedness (i.e., in purging disorder), as well as high self-transcendence (i.e., in subclinical BN).

Thus, these results indicate that exploring these traits in treatment may be an important aspect in whether or not the individual continues treatment or their potential remission, especially when looking at persistence and self-directedness.

The second hypothesis that patients who dropout of treatment will have higher novelty seeking and lower reward dependence compared to those who continue with treatment was partially supported. In table 2, there was significantly lower reward dependence overall and in the dependent subscale of reward dependence in the treatment adherence group. This is in line with the findings of previous studies (del Barrio et al., 2019). However, in contrast with previous research where higher novelty seeking was associated with stopping treatment, there was no significant difference in this trait in this study.

The third hypothesis pertaining to patients who experience stressful life events having higher novelty seeking and higher dropout rates was not supported. As stated previously, there were no significant results in this study related to novelty seeking. And stressful life events were not included in the logistic regression analysis. When looking between the groups there were no significant differences in this regard. This may be due to the fact that a low number of individuals with these events were present in both groups. As aforementioned studies (e.g., Tasca et al., 2013; Mitchell et al., 2012) have noted that previous SLE are related to ED psychopathology with anxiety mediating the relationship, whereas in this study the STAI levels were fairly similar, it could be

that a greater cohort sample with more individuals with SLE could possibly result in differences between these two groups in regard to novelty seeking and dropout rate.

Lastly, the hypothesis regarding patients who engaged in compensatory behaviors having higher self-directedness and persistence and lower dropout rates was partially supported. In the logistic regression model lower persistence correlated with higher dropout. And lower self-directedness was a confounding variable in this regression. Previous studies have shown that high self-directedness predicted a favorable outcome in treatment (i.e., CBT; Bulik et al., 1999). However, as with stressful life events, compensatory behaviors were not included in the logistic regression analysis.

3.3. Specific Objectives & Results of Study 3: The Influence of Body Image on Personality Traits in Female Patients with an ED versus a DD

Background

Body dissatisfaction is known to potentially predate the onset of an eating disorder which by predicting engagement in risky behavior (e.g., disordered eating; Bornioli et al., 2021; Field et al., 2014). Therefore, looking at how body dissatisfaction can impact personality traits in eating disorders it is important to better understand how to treat them. Also, this research focuses on general population or eating disorder (ED) groups, with little consideration of dual diagnosis (DD) populations. Therefore, this study will amplify the information available for this group as well and provide further avenues for intervention and prevention.

Individuals with eating disorders (EDs), mostly those with purging behaviors (Bahji et al., 2019; Dennis & Pryor, 2017; Fouladi et al., 2015) are more likely to also have substance use disorders (SUDs); with up to 50% abusing drugs or alcohol (Gregorowski et al., 2013). If an individual has an Axis I psychiatric illness (as per the Diagnostic & Statistical Manual-5, DSM-5;

American Psychiatric Association, 2013) and a SUD they are diagnosed with a dual diagnosis (DD; Rassool, 2008). Such individuals experience worse ED symptomatology than those with a single ED diagnosis (Munn-Chernoff et al., 2020), and they can also suffer from poorer health and social outcomes. These may include an increase in general medical complications (e.g., drug/ethanol-induced rhabdomyolysis), increased psychopathology (e.g., higher levels of depression, social phobia and mania), longer recovery times, poorer functional outcomes (e.g., unemployment and legal issues) and higher relapse rates (García-Gómez et al., 2009; Glasner-Edwards et al., 2011; Gregorowski et al., 2013; Harrop & Marlatt, 2010). Additionally, when looking at the mortality rate of people with EDs, it is already 18 times higher than the general population (Mandelli et al., 2019), and when including a comorbidity of a SUD the risk of suicide substantially elevates (Franko et al., 2005). Jointly, these vulnerabilities underline the significance of identifying associated DD risk factors, and also to better inform prevention programs.

First, when looking at prospective findings from the general population, they suggest that body dissatisfaction (BD) predicts later engagement in risky health behaviors (Bornioli et al., 2021; Field et al., 2014), with disordered eating (DE) partially mediating effects on smoking and drug use (Bornioli et al., 2021). Also, the most frequently diagnosed psychiatric condition among people with alcohol use disorder is major depressive disorder (MDD) (Brière et al., 2014; Grant et al., 2004). While this research suggests that BD and negative affect deserve examination among individuals with a DD, an additional component which has not undergone widespread investigation in etiological models (e.g., the Dual Pathway Model of Eating Disorders; Stice, 2001), although it has been associated with BD and EDs, is that of personality traits. When looking at the general population, individuals who tend to have higher levels of neuroticism (i.e., emotional instability) are also more susceptible to having increased BD, due to greater self-consciousness, appearance

investment, appearance comparisons, and sensitivity to rejection (Allen & Walter, 2016; Benford & Swami, 2014; Costa & McCrae, 1992). Whereas single ED diagnosis individuals who have higher neuroticism also may have higher harm avoidance (i.e., anticipatory worry; Heeringen et al., 2000; von Ranson, 2018). Overall, it may be gleaned that in the general population, individuals with increased BD are more likely to have higher harm avoidance.

When looking at longitudinal research among individuals with an ED, this interaction has been shown, by which a decrease in BD predicted a subsequent decrease in harm avoidance (Segura-García et al., 2013). Largely, studies suggest that higher levels of personality traits (such as harm avoidance) can aggravate ED severity (Marzola et al., 2020; Paganini et al., 2021), and that specific traits tend to be associated with either restrictive or purging ED profiles (Krug et al., 2011; Lilenfeld et al., 2006; Rosińska et al., 2020; Wagner et al., 2006). For instance, individuals with restrictive eating behaviors are more likely to have higher harm avoidance, persistence (i.e., eagerness of effort), and reward dependence (i.e., sentimentality). However, those with purging behaviors have higher impulsivity and novelty seeking (i.e., exploratory excitability; Jiménez-Murcia et al., 2013; Lavender & Mitchell, 2015; Rotella et al., 2018). Some research also suggests that impulsivity in EDs (e.g., BN and BED) and parallel maladaptive behaviors (e.g., substance use and non-suicidal self-injury) may lead to a higher risk of relapse or stopping treatment (Lavender & Mitchell, 2015). Also, research shows a higher likelihood of comorbid and familial SUDs amid women with Bulimia Nervosa (BN; Bulik et al., 1997; Kaye et al., 1996; L. R. Lilenfeld & Kaye, 1996). Prolonging these findings, a recent study (Rosińska et al., 2020) identified higher levels of novelty seeking in a DD group (ED and SUD) compared with an ED group. Generally, while this body of research insinuates a potential association between BD and certain personality traits amid individuals with a DD, further examination is needed. Therefore,

the present study aimed to address this research gap to increase knowledge concerning risk factors for a DD.

In conclusion, BD is a well-known risk factor for EDs (American Psychiatric Association, 2013; Andrés & Saldaña, 2014; Dakanalis et al., 2015; Karazsia et al., 2017) and substance use (Bornioli et al., 2021; Field et al., 2014). Moreso, BD has been linked to negative affect and higher novelty seeking in both the general population and single diagnosis ED groups (Bornioli et al., 2021; Field et al., 2014; Heeringen et al., 2000). Although BD has not been examined with a DD group, research signals the prevalence of negative affect and higher novelty seeking in this group.

Objectives

- 1) To compare body dissatisfaction (BD) among individuals with an ED and a DD
- 2) To examine the influence of personality traits on BD in both groups
- 3) To examine the influence of depression and anxiety on BD in both groups

Methods

Sample

This cross-sectional study included 65 female patients (ED $n = 39$; DD $n = 26$), aged 18-52 years from a private clinic (ITA Mental Health) specializing in ED treatment in Barcelona, Spain. All participants spoke Spanish, were hospitalized as inpatients or day patients, and met the DSM-5 criteria for an ED (American Psychiatric Association, 2013). Both inpatients and day patients received treatment consisting of three phases as well as being multidisciplinary. Phase 1 is for recently admitted individuals in which the team centers around the issue and the potential to have a different way of living. Phase 2 delves into psychotherapeutic work looking at the core issues of the individual. In this phase, inpatients are provided a period of approved leave to apply the changes in their daily environments and day patients lessen their visits to the hospital in a fixed

manner. And in phase 3 the attention is on reducing relapse and reintegrating individuals into society via work, study and social relationships.

Participants were included if they had received a clinical diagnosis of ED (via an exhaustive semi-structured interview evaluating the diagnostic criteria, as well as psychopathological and sociological variables) from a specialized ED clinic, were at least 18 years of age, had completed the set of measures, and had indicated voluntary participation via a signed consent form. If participants fell into the DD group, they needed to have received a SUD diagnosis (via an exhaustive semi-structured interview including the DSM-5 criteria).

Procedure

Before participating in this study, individuals were fully informed about it, its measures, and the potential risks and benefits of taking part. They were also informed that participation was completely voluntary, that they could withdraw at any time, and that their personal information would be kept completely anonymous. The participants had the opportunity to ask any questions, and then they proceeded to sign the consent form. The data were collected from January 2018 to September 2020. A battery of self-report measures (TCI-R, BDI-II, STAI and BIS-11) was administered to each patient, and any questions were answered throughout the process. The EDI-3:BD data were extracted from the patient information that was recorded upon admission to the clinic. Once the measures were completed by the participants, the associated responses were entered into an excel database, and transferred to STATA 13.0, ready for analysis.

Additionally, this study was conducted according to the principles expressed in the Declaration of Helsinki of 1975, revised in 1983, and considering the Organic Law 15/1999 of December 13 on the Protection of Personal Data. It was approved by the Ethics Committee on Animal and Human Experimentation (CEEAH) from the Autonomous University of Barcelona.

Instruments

The instruments used in this study related to personality traits, depression and anxiety and body dissatisfaction (BD). The following self-report questionnaires were administered in Spanish: Cloninger's Temperament and Character Inventory-Revised (TCI-R; Gutiérrez-Zotes et al., 2004), the State-Trait Anxiety Inventory (STAI; TEA Madrid; Spielberger et al., 1982), the Beck Depression Inventory-II (BDI-II; Vázquez & Sanz, 1997)), and the Barratt Impulsiveness Scale-11 (BIS-11; Oquendo et al., 2001)The 10-item BD subscale of the Eating Disorder Inventory-3 (EDI-3:BD; Garner, Olmstead & Polivy, 1983) assessed BD. Also, other sociodemographic data was collected, including age and body mass index (BMI). Then the data were entered into a database and analyzed. The data were analyzed using STATA 13.0.

Results

Comparison of BD and predictors between ED and DD groups

While BD was higher in the DD group (Mean=21.6, SD=4.4) than the ED group (Mean=20.2, SD=4.4), it was not significant. Although, BMI ($p=0.036$, $d=0.57$) was significantly higher in the DD group (Mean: 23.0, SD=8.4) than the ED group (Mean: 19.4, SD=4.4). Also, BIS-11 attentional factor ($p=0.034$, $d=-0.03$) was significantly higher in the ED group (Mean: 16.2, SD=4.5) than the DD group (Mean: 14.5, SD=3.9). (**Table 1**).

Table 1. Demographic and clinical variables. Comparison between groups.

	Eating Disorder Group (n=39)	Dual Diagnosis Group (n=26)			
	Mean (SD)	Mean (SD)	d [95% CI]	p	α
Age (years)	27.0 (9.2)	28.9 (8.4)	0.21 [-0.29; 0.71]	0.251	
BMI	19.4 (4.4)	23.0 (8.4)	0.57 [0.06; 1.07]	0.036	
STAI – State Score	26.2 (4.8)	26.7 (5.5)	0.11 [-0.38; 0.61]	0.788	0.94
STAI – Trait Score	33.0 (5.6)	31.3 (5.7)	-0.30 [-0.80; 0.20]	0.432	0.91
BDI-II Total Score	21.0 (13.8)	22.9 (13.9)	0.14 [-0.36; 0.63]	0.542	0.92
BIS-11 Total Score	56.6 (9.1)	56.2 (14.0)	0.05 [-0.45; 0.54]	0.862	0.85
Attentional Factor Score (BIS)	16.2 (4.5)	14.5 (3.9)	-0.03 [-0.53; 0.46]	0.034	0.61
Motor Factor Score (BIS)	19.1 (4.4)	21.4 (7.1)	-0.03 [-0.53; 0.46]	0.180	0.60
Nonplanning Factor Score (BIS)	20.3 (4.5)	20.2 (6.0)	0.18 [-0.32; 0.67]	0.793	0.79
Body Dissatisfaction Scale (EDI-3)	20.2 (4.4)	21.6 (4.4)	0.31 [-0.19; 0.81]	0.197	0.91

BMI: Body Mass Image; STAI: State – Trait Anxiety Inventory; BDI-II: Beck Depression Inventory – II; BIS-11: Barratt Impulsiveness Scale – 11; SD: Standard Deviation; n: sample; d: Cohen’s d, effect size; 95% CI: Confidence Interval; α=Internal consistency by Cronbach’s α coefficient; p=p-value

When looking at the relationship between BD and personality traits between the groups, there were significant positive correlations between BD and novelty seeking ($r_s=0.28, p<0.05$) and reward dependence ($r_s=0.31, p<0.05$) for both groups (**Table 2**).

Table 2. Correlations between variables for both groups.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Age	1.00													
2 BMI	0.17	1.00												
3 TCI NS	-0.03	-0.19	1.00											
4 TCI HA	-0.03	0.004	0.48**	1.00										
5 TCI RD	-0.03	0.30*	0.46**	0.53**	1.00									
6 TCI PS	-0.24	-0.21	0.39**	0.26*	0.22	1.00								
7 TCI SD	0.03	0.04	0.55**	0.46**	0.52**	0.32*	1.00							
8 TCI C	-0.06	0.13	0.48**	0.46**	0.57**	0.33*	0.61**	1.00						
9 TCI ST	-0.23	0.06	0.34*	0.41**	0.39**	0.35**	0.42**	0.24	1.00					
10 STAI State	-0.08	0.12	0.14	0.23	0.13	0.33*	0.09	0.10	0.26*	1.00				
11 STAI Trait	-0.02	0.03	0.38**	0.08	0.15	0.16	0.32*	0.12	0.20	0.29**	1.00			
12 BDI-II	-0.14	0.02	0.14	-0.30	0.22	0.01	0.31*	0.06	-0.08	-0.07	0.22	1.00		
13 BIS-11	-0.35**	-0.04	0.39**	0.26*	0.34*	0.46**	0.18	0.22	0.31*	0.27*	0.12	0.08	1.00	
14 BD	-0.23	0.13	0.28*	0.24	0.31*	0.13	0.19	0.15	0.03	0.16	-0.05	0.16	0.43	1.00

Note: Spearman Correlations; VIF <10; BMI: Body Mass Index; TCI-R: Temperament & Character Inventory – Revised; NS: Novelty Seeking; HA: Harm Avoidance; RD: Reward Dependence; PS: Persistence; SD: Self-Directedness; C: Cooperativeness; ST: Self-Transcendence; STAI: State – Trait Anxiety Inventory; BDI-II: Beck Depression Inventory – II; BIS-11: Barratt Impulsiveness Scale – 11; BD: Body Dissatisfaction (scale from Eating Disorder Inventory-3); * p<0.05, **p<0.005

The final model (**Table 3**) showed that younger age (B=-0.16, $p=0.034$), lower self-transcendence (B=-0.09, $p=0.038$), and higher BMI (B=0.35, $p=0.027$) and impulsivity (BIS-11; B=0.21, $p=0.005$) were related to a higher BD in the ED group. For the DD group, higher novelty seeking (B=0.23, $p=0.015$) projected greater BD, with lower self-directedness confounding the relationship.

Table 3. Linear Regression Models.

Criterion		Predictors	B	CI 95%	<i>p</i>	<i>F</i> (<i>p</i>)	<i>R</i> ²	<i>Rc</i> ²
BD – ED Group	Adjusted Final Model					0.004	0.36	0.29
		Age	-0.16	-0.31; -0.01	0.034			
		BMI	0.35	0.04; 0.65	0.027			
		TCI ST	-0.10	-0.18; -0.01	0.005			
		BIS-11	0.21	0.07; 0.35	0.032			
BD – DD Group	Adjusted Final Model					0.12	0.28	0.14
		Age	-0.09	-0.34; 0.16	0.473			
		BMI	0.11	-0.15; 0.36	0.397			
		TCI NS	0.23	0.05; 0.42	0.015			
		TCI SD	-0.05	-0.19; 0.80	0.405			

BD: Body Dissatisfaction (scale from Eating Disorder Inventory-3); ED: Eating Disorder; DD: Dual Diagnosis; BMI: Body Mass Index; TCI-R: Temperament & Character Inventory – Revised; NS: Novelty Seeking; SD: Self-Directedness; ST: Self-Transcendence; BIS-11: Barratt Impulsiveness Scale – 11; *B* Coefficient; CI 95%: Confidence Interval 95%; *p*: *p*-value; *F*(*p*): probability of statistic *F*; *R*²: *R* squared; *Rc*²: Adjusted *R* squared

Examination of personality traits between the ED and DD groups

When looking at the temperament traits (**Table 4**), the DD group had significantly higher levels of the following traits: exploratory excitability ($p=0.027$, $d=0.61$; a novelty seeking subscale), harm avoidance total score ($p=0.002$, $d=0.89$), harm avoidance subscales of anticipatory worry ($p=0.002$, $d=0.80$), fear of uncertainty ($p=0.022$, $d=0.68$) and shyness with strangers ($p=0.034$, $d=0.48$), the reward dependence total score ($p=0.032$, $d=0.53$), and reward dependence dependent subscale ($p<0.001$, $d=1.08$). The ED group had significantly higher eagerness of effort ($p=0.041$, $d=-0.50$; persistence subscale).

When looking at the character scales of the TCI-R between groups, the DD group had a significantly higher self-directedness subscale of congruent second nature ($p=0.006$, $d=0.77$).

Table 4. Temperament scales of the TCI-R. Comparison between groups.

	Eating Disorder Group (n=39)	Dual Diagnosis Group (n=26)			
	Mean (SD)	Mean (SD)	d [95% CI]	p	α
Novelty Seeking Total (NS)	108.4 (12.1)	112.7 (10.6)	0.37 [-0.13; 0.87]	0.170	0.82
Exploratory Excitability (NS1)	30.3 (4.0)	32.7 (4.1)	0.61 [0.10; 1.11]	0.027	0.61
Impulsiveness (NS2)	30.7 (4.2)	32.2 (5.8)	0.31 [-0.19; 0.81]	0.382	0.71
Extravagance (NS3)	25.3 (4.5)	25.0 (4.5)	-0.07 [-0.57; 0.43]	0.605	0.79
Disorderliness (NS4)	22.2 (3.7)	22.8 (4.2)	5.31 [4.25; 6.35]	0.536	0.63
Harm Avoidance Total (HA)	86.8 (8.6)	95.4 (11.1)	0.89 [0.37; 1.41]	0.002	0.88
Anticipatory Worry (HA1)	27.9 (4.4)	31.9 (5.6)	0.80 [0.28; 1.31]	0.002	0.74
Fear of Uncertainty (HA2)	20.5 (3.8)	23.4 (5.0)	0.68 [0.17; 1.19]	0.022	0.75
Shyness with Strangers (HA3)	16.5 (2.9)	17.8 (2.6)	0.48 [-0.03; 0.98]	0.034	0.86
Fatigability (HA4)	21.9 (2.8)	22.4 (4.4)	0.14 [-0.36; 0.64]	0.657	0.72
Reward Dependence Total (RD)	90.8 (7.3)	95.0 (8.9)	0.53 [0.02; 1.03]	0.032	0.83
Sentimentality (RD1)	27.4 (3.9)	26.7 (5.0)	-0.15 [-0.65; 0.35]	0.468	0.62
Open to Warm Communication (RD2)	32.2 (4.1)	33.0 (5.2)	0.18 [-0.32; 0.67]	0.420	0.79
Attachment (RD3)	17.2 (2.6)	17.5 (2.9)	0.08 [-0.41; 0.58]	0.930	0.77
Dependent (RD4)	14.1 (3.4)	17.9 (3.7)	1.08 [0.54; 1.60]	0.0001	0.58
Persistence Total (PS)	113.5 (18.6)	109.8 (20.0)	-0.19 [-0.69; 0.30]	0.437	0.94
Eagerness of Effort (PS1)	29.5 (4.7)	27.0 (5.5)	-0.50 [-1.00; 0.01]	0.041	0.76
Work Hardened (PS2)	26.03 (5.4)	25.5 (6.0)	-0.09 [-0.59; 0.40]	0.648	0.80
Ambitious (PS3)	31.7 (6.8)	32.2 (7.5)	0.07 [-0.43; 0.57]	0.697	0.88
Perfectionist (PS4)	26.4 (4.8)	25.2 (5.2)	-0.24 [-0.74; 0.26]	0.444	0.84

TCI-R: Temperament & Character Inventory – Revised; SD: Standard Deviation; IQR: Interquartile Range; d: Cohen’s d, effect size; 95% CI: Confidence Interval; α =Internal consistency by Cronbach’s α coefficient; p =p-value

Table 5. Character scales of the TCI-R. Comparison between groups.

	Eating Disorder Group (n=39)	Dual Diagnosis Group (n=26)			
	Mean (SD)	Mean (SD)	d [95% CI]	p	α
Self-Directedness Total (SD)	126.0 (12.7)	131.1 (14.6)	0.38 [-0.12; 0.88]	0.106	0.88
Responsibility (SD1)	22.7 (3.6)	22.4 (5.0)	-0.06 [-0.56; 0.44]	0.752	0.71
Purposefulness (SD2)	19.2 (2.7)	20.0 (3.1)	0.31 [-0.19; 0.81]	0.239	0.67
Resourcefulness (SD3)	16.5 (2.7)	16.0 (3.6)	-0.15 [-0.65; 0.35]	0.459	0.69
Self-Acceptance (SD4)	31.5 (5.7)	33.3 (6.5)	0.30 [-0.20; 0.80]	0.207	0.81
Congruent Second Nature (SD5)	36.2 (4.0)	39.3 (4.2)	0.77 [0.25; 1.28]	0.006	0.74
Cooperativeness Total (C)	107.2 (9.9)	110.5 (11.0)	0.32 [-0.18; 0.82]	0.132	0.90
Social Acceptance (C1)	24.9 (2.7)	26.0 (3.1)	0.41 [-0.09; 0.91]	0.186	0.78
Empathy (C2)	16.4 (2.6)	17.2 (2.7)	0.26 [-0.23; 0.76]	0.453	0.65
Helpfulness (C3)	26.5 (3.5)	26.6 (3.2)	0.05 [-0.45; 0.54]	0.824	0.56
Compassion (C4)	16.1 (4.6)	17.4 (5.4)	0.29 [-0.21; 0.79]	0.308	0.89
Principled (C5)	23.3 (3.2)	23.2 (4.2)	-0.04 [-0.54; 0.46]	0.946	0.57
Self-Transcendence Total (ST)	66.2 (15.2)	69.6 (15.6)	0.23 [-0.27; 0.72]	0.338	0.89
Self-Forgetfulness (ST1)	28.5 (7.3)	30.2 (8.1)	0.21 [-0.28; 0.71]	0.441	0.79
Transpersonal Identification (ST2)	18.2 (6.0)	19.6 (6.5)	0.23 [-0.27; 0.73]	0.331	0.77
Spiritual Acceptance (ST3)	19.5 (4.2)	19.9 (5.4)	0.08 [-0.41; 0.58]	0.952	0.80

TCI-R: Temperament & Character Inventory – Revised; SD: Standard Deviation; IQR: Interquartile Range; d: Cohen’s d, effect size; 95% CI: Confidence Interval; α =Internal consistency by Cronbach’s α coefficient; p =p-value

Examination of negative affect between ED and DD groups

There were no significant differences in depression and anxiety between the two groups. Nevertheless, there were significant differences between the groups in BMI ($p=0.036$; $d=0.57$) and the BIS-11 attentional factor subscale ($p=0.034$, $d=-0.03$; **Table 1**).

Discussion

The goal of this study was to examine and compare body dissatisfaction between eating disorder and dual diagnosis patients. As well as, to explore how this outcome is influenced by negative affect and personality in both groups.

Body dissatisfaction influences in eating disorder and dual diagnosis groups

The first hypothesis that body dissatisfaction would be significantly higher in the dual diagnosis group than the eating disorder group was not supported. However, previous findings from the general population did find that greater body dissatisfaction predicted later substance use (Bornioli et al., 2019). The results of the present study may be because of distinct reasons. First, it may be the case that body dissatisfaction is widespread among individuals with an eating disorder, regardless of having a DD, since both disorders manipulate the state and function of the individual's body, either by malnutrition or substances (Harrop & Marlatt, 2010), therefore possibly cultivating body dissatisfaction. Moreover, body dissatisfaction has been seen to be extensive among individuals with eating disorders and has been seen to continue even after treatment completion (Keel et al., 2005). This might suggest that individuals with eating disorders are not prone to have significantly higher body dissatisfaction if also diagnosed with a substance use disorder. Another reason could be due to the underpowered sample size. The small effect size indicates that a larger sample size might support the perceived inclination and generate significant differences.

Personality traits amid eating disorder and dual diagnosis groups

The fact that younger age influenced body dissatisfaction in this study is not novel, as it has been associated with higher body dissatisfaction in both the general population (Neumark-Sztainer et al., 2011; Ricciardelli & McCabe, 2001; Rodgers et al., 2014; Westerberg-Jacobson et al., 2012) and with clinical eating disorder groups (Benninghoven et al., 2006; Junne et al., 2016). Additionally, one of the strongest predictors of body dissatisfaction in the general population is higher BMI (Cash & Pruzinsky, 2002; Neighbors & Sobal, 2007). The emphasis of being at a suitable weight in society may emphasize the awareness of the thin ideal, especially in women (Brownell et al., 2005). As this ideal is established within an individual it may become a potential moderator of the relationship between BMI and body image (Low et al., 2003; Warren et al., 2005). When looking at the personality factors, the first part of the second hypothesis was not supported. Expressly, as reward dependence positively correlated with body dissatisfaction in the eating disorder group, neither this nor harm avoidance was a significant predictor in the final linear regression model predicting body dissatisfaction.

When looking at self-transcendence, this trait has not demonstrated a prior relationship with body dissatisfaction in either clinical or general populations. However, the present finding that individuals with eating disorders who are more self-conscious (i.e., lower self-transcendence) are more likely to experience body dissatisfaction, along with a lack of behavioral control (i.e., higher impulsivity), is not startling. This furthers existing findings that body surveillance (i.e., self-consciousness in relation to appearance), body image psychological inflexibility (i.e., avoidant coping through negative reinforcement), and objectified body consciousness (i.e., internalizing their body image from an outsider's perspective), relate to body dissatisfaction and eating disorders/disordered eating among the general population; consequently leading to an eating

disorder or body dysmorphic disorder (Callaghan et al., 2015; Fredrickson et al., 1997; Knauss et al., 2008; McKinley & Hyde, 1996). It may underscore how these broader traits (i.e., not appearance-specific) are pertinent to body dissatisfaction among individuals with an eating disorder, including those who are younger. These adverse traits and higher body dissatisfaction could lead individuals to try to change their bodies, and ultimately, engage in disordered eating.

The second part of this hypothesis was only partially supported (i.e., only novelty seeking was a key association). The finding that higher impulsivity was neither correlated nor included in the final model predicting body dissatisfaction was unexpected, seeing as previous research has recognized a larger amount of impulsive behaviors in patients with bulimia nervosa and alcohol dependence, compared to a single diagnosis of bulimia nervosa (Bulik et al., 1997). Furthermore, attentional factor impulsivity (i.e., inability to focus or concentrate on a task) was significantly higher in the eating disorder group compared to the dual diagnosis group. Prior research comparing eating disorder groups and healthy individuals proposes that higher attentional impulsivity could be because of negative mood states (in individuals with AN; Phillipou et al., 2016) or concerns about others seeing one eat (in individuals with BN; Chen et al., 2022). Additionally, other results show that attentional impulsivity could be connected to more serious eating disorder symptom severity (Langer et al., 2015). Consequently, higher attentional impulsivity may bring about higher body dissatisfaction in individuals with an eating disorder. This could be due to the fact that their focus could be directed towards their outward appearance, in relation to how others see them, leading the individual to behave in a more judgmental manner towards themselves causing them to be incapable to on other parts of themselves or life.

The present finding that lower self-directedness confounded the relationship between higher novelty-seeking and greater body dissatisfaction among the dual diagnosis group calls for

consideration. Both the relationship between these traits *and* their associated confounding effects with body dissatisfaction are novel in eating disorder, dual diagnosis, and general population groups. They add to previous findings that lower self-directedness (i.e., lower ability to adapt one's own behavior to achieve goals) is linked to increased alcohol and drug use in the general population (Steingrimsson et al., 2020), and that higher novelty seeking (i.e., intense excitement in relation to novel stimuli) is linked to lower self-directedness within dual diagnosis groups (Mateu-Codina et al., 2016). These studies emphasize in what way specific personality traits can influence individuals to develop a substance use disorder, and by chance, heighten body dissatisfaction. These adverse traits and higher levels of body dissatisfaction could cause individuals to participate in risky behavior, and eventually, a substance use disorder.

Negative affect amid eating disorder and dual diagnosis groups

The final hypothesis was not supported, as negative affect was not found to influence body dissatisfaction, notwithstanding predictions of its significantly stronger effect among the dual diagnosis group. This was interesting, as there is a body of research indicating a positive relationship between negative affect and body dissatisfaction among both the general population and eating disorder groups (e.g., Bornioli, Lewis-Smith, et al., 2019; Haddad et al., 2019; Jones et al., 2022; Keel et al., 2001; Rzeszutek & Schier, 2008). Nevertheless, the present results could be caused by several reasons. First, there could have been floor effects, due to low scores for both the State-Trait Anxiety Inventory and Beck Depression Inventory across both groups. This could then signal little variability in the data and thus minor predictive ability in the model. Subsequently, previous research identified mediating effects of negative affect between muscular dissatisfaction and eating pathology, although it did not identify such effects between weight/shape

dissatisfaction, which was the emphasis of the present Body Dissatisfaction subscale (Heywood & McCabe, 2006).

OVERALL DISCUSSION

4. Overall Discussion

The present thesis aimed to examine personality traits in the clinical eating disorder population, while also considering individuals who have a dual diagnosis. Furthermore, it investigated if there is a potential relationship between personality traits and dropout or continuation of treatment in this population. With an additional objective of examining a topic which is prominent in both eating disorder and dual diagnosis populations, that of body dissatisfaction, to determine whether it has an influence on personality traits, an aspect which has not been examined in the dual diagnosis population.

4.1. Study 1: Comparing the Personality Traits of Patients with an eating disorder versus a dual diagnosis

The results of this first study mainly focused on the differences between individuals with an eating disorder and those with a dual diagnosis. However, this study also looked at the differences between eating disorder profiles by separating them into restrictive and bingeing profiles. The former saw differences amongst various personality scales of the TCI-R.

In the eating disorder group, there was higher harm avoidance, reward dependence and cooperativeness. Higher harm avoidance is characterized by greater anxiety, excessive worrying, insecurity and pessimism (Cloninger, 2000). Previous studies have found this trait to be common among individuals who have an eating disorder (Cassin & Ranson, 2005; Heeringen et al., 2000; Marzola et al., 2020; Paganini et al., 2021). This trait has also been seen as a precursor to ED development when mediated by environmental factors during adolescence (Cloninger et al., 1993). Higher reward dependence is seen as seeking out social approval and support also with a tendency to respond to reward signals from others (Buelens et al., 2020). In eating disorder populations this trait, when lower, may cause a higher risk of suicidal ideations or actions in bulimic spectrum

eating disorders (Valenciano-Mendoza et al., 2022) or dropout from treatment (Agüera et al., 2017). A higher level of cooperativeness has been linked to social acceptance, especially in the subscales of compassion (e.g., acceptance of those who hurt them, give apologies to others, even when harmed by them) and pure heartedness consciousness (e.g., having morals and having a belief in honesty rather than the ends justifying the means). Which could mean that the ED group is more inclined to be straightforward in their words and actions, believing that by doing so they will be more accepted by those around them. Rather than the honesty coming from a place of genuine desire to not hide their true ideas and thoughts from others, it could more so come from a place of fear that those around them will not accept them. Moreover, the clinical setting may influence the patient's behaviors in this regard.

However, in the dual diagnosis group the trait which was higher was novelty seeking, meaning that this group is more prone to be impulsive, take risks, and be careless, which is in agreement with previous research (Evren et al., 2007a; Ibáñez et al., 2001; Janiri et al., 2007; Jiménez-Murcia et al., 2015; Pino-Gutiérrez et al., 2017). This desire to seek out new forms of stimulation and release from life could lead to this group having a substance use disorder alongside an eating disorder. And while in treatment this trait could manifest as either the patient trying all the therapeutic and healing techniques available, or they may feel a need to go against any proposed treatment strategies which do not have immediate effects. Additionally, after treatment completion, the individual may transform this need to take risks and strive for new sensations into a form of continually taking on new activities or projects. This could cause future issues which may need to be addressed while in treatment to curtail this desire and potentially find more adaptive outlets for this need.

Additionally, when looking at the eating disorder profiles, in the restrictive profile it was found that they are more likely to have higher sentimentality and dependence (e.g., need for approval from others; two subscales of reward dependence) as well as being more helpful (i.e., a subscale of cooperativeness). This could be in relation to the high amount of cluster C diagnoses in this group (i.e., anxious and fearful conduct; American Psychiatric Association, 2013). The expression of their emotions appears to be much more apparent therefore they may be conscious of how others view them and want to be seen in the best light, to show that they are there for others, even though they themselves are internally struggling.

Whereas in the bingeing profile, the majority have a cluster B diagnosis (i.e., intense emotions, instability, compensatory, emotional and self-orientated behaviors; American Psychiatric Association, 2013). This has also been seen in previous research where they found the principal personality disorders in a dual diagnosis stemming from cluster B (Marquez-Arrico & Adan, 2013; Skinstad & Swain, 2001). In this group there was more of a tendency to seek out novel tasks and be extravagant. Which can lead them to be the center of attention and unafraid of trying new activities. In terms of treatment, they may have strong opinions about it and whether or not they want to continue as they may strive to stand out in treatment by either adhering to or going against treatment.

4.2. Study 2: Personality Trait Differences Amongst Female Clinical Patients with an Eating Disorder who Dropout or Continue with Treatment: A Cross-Sectional Study

Dropout from eating disorder treatment is known to be a problem across treatment types and eating disorders, having a negative impact on the individual. Therefore, this study aimed to get a better understanding of some of the potential aspects which may contribute to this, whether it be personality traits or other aspects. It looked at the personality traits of female patients who

either dropout or continue with treatment as well as if stressful life events or compensatory behaviors (i.e., purging, laxative use, excessive exercise) have an influence on stopping treatment. It was found that dropout was related to lower age, self-directedness and persistence in addition to higher levels of harm avoidance, self-transcendence and eating disorder symptom duration.

Self-directedness is related to having a strong desire to reach a specific set of goals or values in life and to adjust behavior to be able to accomplish them (Buelens et al., 2020; Evans & Rothbart, 2007). It is also linked to the person's responsibility, resourcefulness and purposefulness when faced with challenges in life (Wong & Cloninger, 2010). Therefore, a lower level of this trait may imply that an individual does not have a strong or any desire to attain goals and does not want to change their behavior in any way. It may also mean that possibly the individual may feel less of a sense of responsibility and maturity within themselves to continue with treatment. This could also be linked to lower persistence by being undetermined to continue with any plan. Consequently, the mix of lower levels of these two traits along with the individual being younger, could show that they do not have the awareness or motivation to change and so the preference to dropout of treatment is higher since they may feel that it is not impacting them in a meaningful way (whichever way they may view that). Therefore, it may be beneficial for clinicians along with patients, to create short-term goals during treatment, who have this type of profile, to potentially have a more tailored treatment experience and potentially higher adherence.

Moreover, self-transcendence, in higher levels, can be seen as being more spiritual and connected with nature and the universe, however, in the early phases of treatment, it has been associated to magical thinking. Moreover, in adults with less development of self-directedness and cooperativeness, could be linked to immaturity (Cloninger & Syrakic, 1999; Fassino et al., 2004). Therefore, if someone is younger with less drive, sense of responsibility and motivation to reach

goals and with increased anxiety, immaturity and longer duration of eating disorder symptoms, then, they will be more likely to drop out of treatment. Consequently, it could be interesting if clinicians could focus on working on the patient's sense of goal orientation, anxious feelings and sense of maturity.

In this study we also looked at stressful life events and compensatory behaviors between the two groups, we were unable to determine whether they impacted dropout rate. Regarding stressful life events, we combined sexual abuse and bullying into one category, potentially separating the two in these evaluations would be beneficial in future studies. It could be that when looking at the personality profiles of these individuals, they may differ, and it is not feasible to evaluate them in one category together. Also, regarding compensatory behaviors (i.e., purging, laxative use and excessive exercise) future studies may focus on possible interactions between the number or type of compensatory behaviors and dropout or adherence to treatment.

4.3. Study 3: The Influence of Body Image on Personality Traits in Patients with an Eating Disorder versus a Dual Diagnosis: A Cross-Sectional Study

Body dissatisfaction has been observed within the general and eating disorder populations. However, it has not been looked at in this dual diagnosis population. Therefore, the objective of this study was to examine and compare body dissatisfaction between female patients who have an eating disorder and those with a dual diagnosis. As well as explore how it is influenced by negative affect and personality among both groups. It was found that, in the eating disorder group, higher body dissatisfaction was linked to younger individuals with lower self-transcendence and higher impulsivity. Whereas, in the dual diagnosis group higher body dissatisfaction was associated with higher novelty seeking, mediated by lower self-directedness. However, there were no significant

difference between groups in body dissatisfaction nor did negative affect have a significant influence in either group.

In the eating disorder group, self-transcendence has not been previously linked to body dissatisfaction. Nevertheless, it is not unexpected that individuals who experience higher body dissatisfaction are those who are younger, more self-conscious (i.e., lower self-transcendence) and have a lower level of behavioral control (i.e., higher impulsivity). It has been found that the influence of peers plays a role in the development of disordered eating or self-consciousness of the body's appearance (Egan et al., 2011; Libbey et al., 2008; Swinbourne et al., 2012). Therefore, it is important to note the importance of prevention studies regarding body image disturbances to be able for adolescents to learn how to express themselves and their discomfort and to be accepted within their peer group. Additionally, it would be beneficial for clinicians to focus on the factors of self-consciousness and impulsivity. Moreover, to create a space where patients can learn about their bodies and work on being tolerant of the way their body looks and feels. This could be implemented through various techniques, possibly dialectical or cognitive behavioral therapies, which could help to increase a sense of safety in their environment (Hempel et al., 2018). And with this, possibly lead to them accepting their bodies the way they are and not acting upon the impulse to change them abruptly or drastically in any way. This could be linked to the construct of embodiment, wherein it suggests attunement to inner states, rather than outer appearance, and addressing the reciprocal relationships between body and culture (Gattario et al., 2020; Piran, 2016). And potentially lead to a point where they become more concerned with others more so than themselves (e.g., higher self-transcendence) and are able to focus on other aspects of life.

When looking at the dual diagnosis group, novelty seeking has been previously associated with this group and now as well, with higher body dissatisfaction. Moreover, it was found that

lower self-directedness (i.e., capability to adapt one's own behavior to reach goals) mediated the relationship. Likewise, previous research has found this trait to be related to increased alcohol and drug use in the general population (Steingrimsdottir et al., 2020). Moreover, higher novelty seeking (i.e., intense excitement in relation to novel stimuli) has been shown to be related to lower self-directedness among dual diagnosis groups (Mateu-Codina et al., 2016).

4.4. Strengths & Limitations

This thesis provides new insights into eating disorder and dual diagnosis research as well as better understanding dropout, however it also has its limitations. First, the cross-sectional nature of the three studies, limiting the analyses and the type of data that could be collected. Secondly, the homogeneity of the groups (being mostly or all women) from a mainly European background and the number of individuals in the groups. Lastly, the uneven sample sizes in the studies did not allow for a solid comparison between the groups. Therefore, future research could include a greater sample size with a more diverse gender sample with men and non-binary individuals to as well as more ethnic diversity to better understand the differences and similarities among them in personality traits, related to adherence or cessation of treatment, and body image. Additionally, since the studies included mainly women, no gender personality differences were considered in these studies.

Nevertheless, this thesis has many strengths, such as, being conducted in a multidisciplinary treatment setting implementing diverse therapeutic techniques. Which differs from other studies, especially relating to dropout, which have been conducted in spaces where there is a set number of a specific type of therapeutic session. Additionally, it provided novel information regarding body dissatisfaction where it was the first to examine and compare it between a dual diagnosis and eating disorder groups. Moreover, it used validated self-report

measures, in Spanish, which previous studies have found to yield stronger connections to observed behavior when compared to cognitive measures (Eisenberg et al., 2019).

4.5. Directions for future research

When looking at personality traits in ED and DD groups there are many layers to be researched along with the factors that may influence them. Future studies could focus on various aspects, such as a potential direct relationship between personality traits and stressful life events, in terms of dropout from treatment, especially in regard to trauma. As previous studies have noted that patients with an ED and childhood abuse present more complex psychopathological features and a worse long-term outcome, thus requiring specific treatment strategies (Castellini et al., 2018). This type of research may help in the patient's long-term recovery. Additionally, further research needs to examine the two most salient co-morbidities in ED groups, which are major depressive and anxiety disorders (Ulfvebrand et al., 2015), seeing as they may intensify the severity and chronicity of the eating disorder as well as a resistance to treatment (Blinder et al., 2006).

Moreover, when looking at increased body dissatisfaction, especially in the dual diagnosis group, a closer examination of how personality traits and negative affect are associated with it could be beneficial. For instance, individuals who self-harm and have an eating disorder, this type of research could be quite beneficial (Claes et al., 2012; Islam et al., 2015), as body dissatisfaction has been seen as a salient factor in this group (Muehlenkamp & Brausch, 2012).

Furthermore, body dissatisfaction has been seen in the general population and has been termed a public health issue (Neumark-Sztainer et al., 2006b; Bucchianeri & Neumark-Sztainer, 2014; Rodin, Silberstein, & Striegel-Moore, 1984; Warren et al., 2005), and more recently a study by Cameron and colleagues (2019) found body image disturbance to be a persistent, lifelong issue

for women. Therefore, it would be beneficial for researchers to consider exploring the influence of personality traits on it in the general population, as these could be potential aims for preventative interventions.

4.6. Clinical implications

As can be seen that over the past two decades research has advanced in the field of eating disorders and personality, which shows that personality traits explain significant differences in various areas of evolution and treatment (Farstad et al., 2016). This thesis has added to the literature by providing further information regarding eating disorders and personality traits while also adding the factor of substance use disorders presenting as a dual diagnosis. This has been a co-morbidity which has been overlooked in some studies but may provide novel advancements in how to treat eating disorders with severe co-morbidities and which personality traits could be associated with them. For instance, when treating an individual with this type of dual diagnosis who has elevated novelty seeking, it may be beneficial to utilize therapeutic techniques which help the individual regulate emotions associated with this trait (e.g., rash decision making) and potentially be able to navigate distressing situations. One such therapeutic technique may be integrative cognitive-affective therapy (ICAT), which has been found to reduce these tendencies (Accurso et al., 2016; Farstad et al., 2016). Additionally, another therapeutic technique, which has seen to aid emotion dysregulation is dialectical behavior therapy (DBT), especially Radically Open Dialectical Behavior Therapy (RO-DBT), which works on the basis of increasing social connectedness. During this therapy brain regions are activated which increase social safety responses and can very quickly improve open-minded and flexible social-signaling (Ben-Porath et al., 2020; Hempel et al., 2018). However, even though therapeutic techniques exist which may help individuals with these complex diagnoses, new forms of adapting the negative implications

of these traits into a more neutral or positive context may better help individuals in understanding and finding new ways to portray them.

CONCLUSIONS

Study 1

- In the ED group, these individuals have higher harm avoidance and reward dependence.
- In the DD group, these individuals have higher novelty seeking and self-transcendence.
- There were significant differences between the groups (i.e., ED and DD) in the novelty seeking subscale of extravagance.
- There are various significant personality trait differences amongst the two ED groups (i.e., restrictive and bingeing profiles). These occurred in the dependence subscale of reward dependence, the perfectionism subscale of persistence and in the responsibility subscale of self-directedness.

Study 2

- Dropout is associated with lower persistence and higher harm avoidance and self-transcendence with lower self-directedness as a confounding variable. Also, someone who is younger with a longer ED symptom duration is more prone to dropout.
- The dropout group was significantly more impulsive in the overall BIS-11 score as well as the attentional and motor scores.
- The dropout group also had significantly higher self-transcendence in both the total score and all the subscales.
- There were significant positive correlations with dropout and harm avoidance, reward dependence and self-transcendence.

Study 3

- In the eating disorder group, higher body dissatisfaction was associated with being younger, lower self-transcendence with higher impulsivity and BMI.

- Whereas in the dual diagnosis group, higher body dissatisfaction was associated with higher novelty seeking, confounded by lower self-directedness.
- There were significant positive correlations with body dissatisfaction and novelty seeking and reward dependence.

References

- Abbate-Daga, G., Gramaglia, C., Amianto, F., Marzola, E., & Fassino, S. (2010). Attachment insecurity, personality, and body dissatisfaction in eating disorders. *Journal of Nervous and Mental Disease, 198*(7). <https://doi.org/10.1097/NMD.0b013e3181e4c6f7>
- Accurso, E. C., Wonderlich, S. A., Crosby, R. D., Smith, T. L., Klein, M. H., Mitchell, J. E., Crow, S. J., Berg, K. C., & Peterson, C. B. (2016). Predictors and moderators of treatment outcome in a randomized clinical trial for adults with symptoms of bulimia nervosa. *Journal of Consulting and Clinical Psychology, 84*(2). <https://doi.org/10.1037/ccp0000073>
- Agüera, Z., Riesco, N., Valenciano-Mendoza, E., Granero, R., Sánchez, I., Andreu, A., Jiménez-Murcia, S., & Fernández-Aranda, F. (2021). Illness perception in patients with eating disorders: clinical, personality, and food addiction correlates. *Eating and Weight Disorders, 26*(7). <https://doi.org/10.1007/s40519-020-01083-3>
- Agüera, Z., Sánchez, I., Granero, R., Riesco, N., Steward, T., Martín-Romera, V., Jiménez-Murcia, S., Romero, X., Caroleo, M., Segura-García, C., Menchon, J. M., & Fernández-Aranda, F. (2017). Short-Term Treatment Outcomes and Dropout Risk in Men and Women with Eating Disorders. *European Eating Disorders Review, 25*(4). <https://doi.org/10.1002/erv.2519>
- Allen, M. S., & Walter, E. E. (2016). Personality and body image: A systematic review. *Body Image, 19*, 79–88. <https://doi.org/10.1016/j.bodyim.2016.08.012>
- Álvarez-Moya, E. M., Jiménez-Murcia, S., Granero, R., Vallejo, J., Krug, I., Bulik, C. M., & Fernández-Aranda, F. (2007). Comparison of personality risk factors in bulimia nervosa and pathological gambling. *Comprehensive Psychiatry, 48*(5). <https://doi.org/10.1016/j.comppsy.2007.03.008>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders:*

DSM–5. American Psychiatric Association.

Anaya, C., Anam, S., Zickgraf, H. F., O'Connor, S. M., & Wildes, J. E. (2020). Childhood Trauma in Eating Disorders. In *Childhood Trauma in Mental Disorders*. https://doi.org/10.1007/978-3-030-49414-8_15

Andrés, A., & Saldaña, C. (2014). Body dissatisfaction and dietary restraint influence binge eating behavior. *Nutrition Research*, 34(11), 944–950. <https://doi.org/10.1016/j.nutres.2014.09.003>

Avenevoli, S., Conway, K. P., & Merikangas, K. R. (2005). Familial Risk Factors for Substance Use Disorders. In *Psychopathology and the Family*. <https://doi.org/10.1016/B978-008044449-9/50010-1>

Azevedo, A., & Azevedo, Â. S. (2023). Implications of Socio-Cultural Pressure for a Thin Body Image on Avoidance of Social Interaction and on Corrective, Compensatory or Compulsive Shopping Behaviour. *International Journal of Environmental Research and Public Health*, 20(4). <https://doi.org/10.3390/ijerph20043567>

Bahji, A., Mazhar, M. N., Hudson, C. C., Nadkarni, P., MacNeil, B. A., & Hawken, E. (2019). Prevalence of substance use disorder comorbidity among individuals with eating disorders: A systematic review and meta-analysis. *Psychiatry Research*, 273(January), 58–66. <https://doi.org/10.1016/j.psychres.2019.01.007>

Baker, J. H., Schaumberg, K., & Munn-Chernoff, M. A. (2017). Genetics of Anorexia Nervosa. In *Current Psychiatry Reports* (Vol. 19, Issue 11). <https://doi.org/10.1007/s11920-017-0842-2>

Bakken, K., Landheim, A. S., & Vaglum, P. (2004). Early and late onset groups of substance misusers: Differences in primary and secondary psychiatric disorders. *Journal of Substance Use*, 9(5). <https://doi.org/10.1080/14659890410001711706>

Bandini, S., Antonelli, G., Moretti, P., Pampanelli, S., Quartesan, R., & Perriello, G. (2006).

- Factors affecting dropout in outpatient eating disorder treatment. *Eating and Weight Disorders*, 11(4). <https://doi.org/10.1007/BF03327569>
- Baran, S. A., Weltzin, T. E., & Kaye, W. H. (1995). Low discharge weight and outcome in anorexia nervosa. *American Journal of Psychiatry*, 152(7). <https://doi.org/10.1176/ajp.152.7.1070>
- Ben-Porath, D., Duthu, F., Luo, T., Gonidakis, F., Compte, E. J., & Wisniewski, L. (2020). Dialectical behavioral therapy: an update and review of the existing treatment models adapted for adults with eating disorders. *Eating Disorders*, 28(2). <https://doi.org/10.1080/10640266.2020.1723371>
- Benford, K., & Swami, V. (2014). Body image and personality among British men: Associations between the Big Five personality domains, drive for muscularity, and body appreciation. *Body Image*, 11(4). <https://doi.org/10.1016/j.bodyim.2014.07.004>
- Benninghoven, D., Jürgens, E., Mohr, A., Heberlein, I., Kunzendorf, S., & Jantschek, G. (2006). Different changes of body-images in patients with anorexia or bulimia nervosa during inpatient psychosomatic treatment. *European Eating Disorders Review*, 14(2). <https://doi.org/10.1002/erv.670>
- Blinder, B. J., Cumella, E. J., & Sanathara, V. A. (2006). Psychiatric comorbidities of female inpatients with eating disorders. *Psychosomatic Medicine*, 68(3). <https://doi.org/10.1097/01.psy.0000221254.77675.f5>
- Boisseau, C. L., Thompson-Brenner, H., Eddy, K. T., & Satir, D. A. (2009). Impulsivity and personality variables in adolescents with eating disorders. *Journal of Nervous and Mental Disease*, 197(4). <https://doi.org/10.1097/NMD.0b013e31819d96c0>
- Bornioli, A., Lewis-Smith, H., Slater, A., & Bray, I. (2021). Body dissatisfaction predicts the onset of depression among adolescent females and males: A prospective study. *Journal of*

Epidemiology and Community Health, 75(4). <https://doi.org/10.1136/jech-2019-213033>

- Bornioli, A., Lewis-smith, H., Smith, A., Slater, A., & Bray, I. (2019). Adolescent body dissatisfaction and disordered eating: Predictors of later risky health behaviours. *Social Science & Medicine*, 238(December 2018), 112458. <https://doi.org/10.1016/j.socscimed.2019.112458>
- Bornioli, A., Lewis-Smith, H., Smith, A., Slater, A., & Bray, I. (2019). Adolescent body dissatisfaction and disordered eating: Predictors of later risky health behaviours. *Social Science and Medicine*, 238(July), 112458. <https://doi.org/10.1016/j.socscimed.2019.112458>
- Brière, F. N., Rohde, P., Seeley, J. R., Klein, D., & Lewinsohn, P. M. (2014). Comorbidity between major depression and alcohol use disorder from adolescence to adulthood. *Comprehensive Psychiatry*, 55(3). <https://doi.org/10.1016/j.comppsy.2013.10.007>
- Brownell, K. D., Puhl, R. M., Schwartz, M. B., & Rudd, L. (2005). *Weight bias: Nature, consequences, and remedies*. Guilford Publications.
- Buelens, T., Luyckx, K., Verschueren, M., Schoevaerts, K., Dierckx, E., Depestele, L., & Claes, L. (2020). Temperament and character traits of female eating disorder patients with(Out) non-suicidal self-injury. *Journal of Clinical Medicine*, 9(4). <https://doi.org/10.3390/jcm9041207>
- Bulik, C. M. (2005). Exploring the gene-environment nexus in eating disorders. *Journal of Psychiatry and Neuroscience*, 30(5).
- Bulik, C. M., Coleman, J. R. I., Hardaway, J. A., Breithaupt, L., Watson, H. J., Bryant, C. D., & Breen, G. (2022). Genetics and neurobiology of eating disorders. In *Nature Neuroscience* (Vol. 25, Issue 5). <https://doi.org/10.1038/s41593-022-01071-z>
- Bulik, C. M., Sullivan, P. F., Carter, F. A., & Joyce, P. R. (1997). Lifetime comorbidity of alcohol dependence in women with bulimia nervosa. *Addictive Behaviors*, 22(4).

[https://doi.org/10.1016/S0306-4603\(96\)00053-6](https://doi.org/10.1016/S0306-4603(96)00053-6)

Bulik, C. M., Sullivan, P. F., Carter, F. A., McIntosh, V. V., & Joyce, P. R. (1999). Predictors of rapid and sustained response to cognitive-behavioral therapy for bulimia nervosa. *International Journal of Eating Disorders*, 26(2). [https://doi.org/10.1002/\(SICI\)1098-108X\(199909\)26:2<137::AID-EAT2>3.0.CO;2-N](https://doi.org/10.1002/(SICI)1098-108X(199909)26:2<137::AID-EAT2>3.0.CO;2-N)

Bulik, C. M., Thornton, L., Pinheiro, A. P., Plotnicov, K., Klump, K. L., Brandt, H., Crawford, S., Fichter, M. M., Halmi, K. A., Johnson, C., Kaplan, A. S., Mitchell, J., Nutzinger, D., Strober, M., Treasure, J., Woodside, D. B., Berrettini, W. H., & Kaye, W. H. (2008). Suicide attempts in anorexia nervosa. *Psychosomatic Medicine*, 70(3). <https://doi.org/10.1097/PSY.0b013e3181646765>

Calero-Elvira, A., Krug, I., Davis, K., López, C., Fernández-Aranda, F., & Treasure, J. (2009). Meta-analysis on drugs in people with eating disorders. *European Eating Disorders Review*, 17(4). <https://doi.org/10.1002/erv.936>

Callaghan, G. M., Sandoz, E. K., Darrow, S. M., & Feeney, T. K. (2015). The Body Image Psychological Inflexibility Scale: Development and psychometric properties. *Psychiatry Research*, 226(1). <https://doi.org/10.1016/j.psychres.2014.11.039>

Cameron, E., Ward, P., Mandville-Anstey, S. A., & Coombs, A. (2019). The female aging body: A systematic review of female perspectives on aging, health, and body image. *Journal of Women and Aging*, 31(1). <https://doi.org/10.1080/08952841.2018.1449586>

Carter, J. C., Bewell, C., Blackmore, E., & Woodside, D. B. (2006). The impact of childhood sexual abuse in anorexia nervosa. *Child Abuse & Neglect*, 30(3), 257–269. <https://doi.org/10.1016/j.chiabu.2005.09.004>

Cash, T. F., & Pruzinsky, T. (2002). *Body image: A handbook of theory, research, and clinical*

- practice* (T. F. Cash & T. Pruzinsky (eds.)). The Guilford Press.
- Cassin, S. E., & Ranson, K. M. Von. (2005). Personality and eating disorders: A decade in review. *Clinical Psychology Review, 25*(7). <https://doi.org/10.1016/j.cpr.2005.04.012>
- Castellini, G., Lelli, L., Cassioli, E., Ciampi, E., Zamponi, F., Campone, B., Monteleone, A. M., & Ricca, V. (2018). Different outcomes, psychopathological features, and comorbidities in patients with eating disorders reporting childhood abuse: A 3-year follow-up study. *European Eating Disorders Review, 26*(3). <https://doi.org/10.1002/erv.2586>
- Chen, Y., Guo, L., Wu, M., Zhang, L., He, Q., Zheng, Y., Wu, L., Zheng, H., & Chen, J. (2022). Network Analysis of Eating Disorders Symptoms Co-occurring With Impulsive Personality Traits and Negative Mood States in Patients With Bulimia Nervosa. *Frontiers in Psychiatry, 13*. <https://doi.org/10.3389/fpsy.2022.899757>
- Claes, L., Jiménez-Murcia, S., Agüera, Z., Castro, R., Sánchez, I., Menchón, J. M., & Fernández-Aranda, F. (2012). Male eating disorder patients with and without non-suicidal self-injury: A comparison of psychopathological and personality features. In *European Eating Disorders Review* (Vol. 20, Issue 4). <https://doi.org/10.1002/erv.1161>
- Cloninger, C. R. (1999). The temperament and character inventory-revised. *Center for Psychobiology of Personality, Washington University*.
- Cloninger, C Robert. (2000). A practical way to diagnosis personality disorder: A proposal. *Journal of Personality Disorders, 14*(2). <https://doi.org/10.1521/pedi.2000.14.2.99>
- Cloninger, C Robert, Svrakic, D. M., & Przybeck, T. R. (1993). A Psychobiological Model of Temperament and Character. *Archives of General Psychiatry, 50*(12). <https://doi.org/10.1001/archpsyc.1993.01820240059008>
- Cloninger, R., Svrakic, D., & Przybeck, T. (1994). The temperament and character inventory

- (TCI): A guide to its development and use. *Archives of General Psychiatry*, 50(January 1994).
- Cloninger, R., & Syrakic, P. (1999). Personality Disorders. In S. B. & S. V. (Eds.), *Kaplan and Sadock's Comprehensive Textbook of Psychiatry* (7th editio, pp. 1723–1764). Lippincott Williams & Wilkins.
- Cloninger, S. C. (2009). Conceptual issues in personality psychology. In P. J. Corr & G. Matthews (Eds.), *The Cambridge handbook of personality psychology* (pp. 3–26). Cambridge University Press.
- Costa, P. T., & McCrae, R. R. (1992). NEO PI-R: Revised NEO Personality Inventory and NEO Five-Factor Inventory (NEO-FFI). *Odessa, FL: PAR, 101*.
- Crow, S. J., Peterson, C. B., Swanson, S. A., Raymond, N. C., Specker, S., Eckert, E. D., & Mitchell, J. E. (2009). Increased mortality in bulimia nervosa and other eating disorders. *American Journal of Psychiatry*, 166(12). <https://doi.org/10.1176/appi.ajp.2009.09020247>
- Cucchi, A., Ryan, D., Konstantakopoulos, G., Stroumpa, S., Kaçar, A. S., Renshaw, S., Landau, S., & Kravariti, E. (2016). Lifetime prevalence of non-suicidal self-injury in patients with eating disorders: A systematic review and meta-analysis. In *Psychological Medicine* (Vol. 46, Issue 7). <https://doi.org/10.1017/S0033291716000027>
- Culbert, K. M., Racine, S. E., & Klump, K. L. (2015). Research Review: What we have learned about the causes of eating disorders - A synthesis of sociocultural, psychological, and biological research. In *Journal of Child Psychology and Psychiatry and Allied Disciplines* (Vol. 56, Issue 11). <https://doi.org/10.1111/jcpp.12441>
- Dakanalis, A., Favagrossa, L., Clerici, M., Prunas, A., Colmegna, F., Zanetti, M. A., & Riva, G. (2015). Body dissatisfaction and eating disorder symptomatology: A latent structural equation modeling analysis of moderating variables in 18-to-28-year-old males. *Journal of*

Psychology: Interdisciplinary and Applied, 149(1), 85–112.
<https://doi.org/10.1080/00223980.2013.842141>

DeJong, H., Broadbent, H., & Schmidt, U. (2012). A systematic review of dropout from treatment in outpatients with anorexia nervosa. *International Journal of Eating Disorders*, 45(5).
<https://doi.org/10.1002/eat.20956>

del Barrio, A. G., Gonzalez, M. Y. V., Gómez, J. G., Marín, J. I. L., Carral-Fernández, L., Hernandez, S. O., Río-Hortega, I. M., & Malfaz, L. M. (2019). Characteristics of patients in an eating disorder sample who dropped out: 2-year follow-up. *Eating and Weight Disorders*, 24(4). <https://doi.org/10.1007/s40519-017-0416-7>

Dennis, A. B., & Pryor, T. . (2017). The complex relationship between eating disorders and substance use disorders. In L. Anderson, S. Murray, & W. Kaye (Eds.), *Clinical Handbook of Complex and Atypical Eating Disorders* (pp. 60–78).

Devine, K. A., Storch, E. A., Geffken, G. R., Freddo, M., Humphrey, J. L., & Silverstein, J. H. (2008). Prospective study of peer victimization and social-psychological adjustment in children with endocrine disorders. *Journal of Child Health Care*, 12(1).
<https://doi.org/10.1177/1367493507085620>

Díaz-Marsá, M., Carrasco, J. L., & Sáiz, J. (2000). A study of temperament and personality in anorexia and bulimia nervosa. *Journal of Personality Disorders*, 14(4).
<https://doi.org/10.1521/pedi.2000.14.4.352>

Dionne, M. M., & Davis, C. (2012). Body image and personality. In T. F. Cash (Ed.), *Encyclopedia of body image and human appearance* (pp. 135–140). Elsevier Academic Press.

Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. In *Clinical Psychology Review* (Vol. 31, Issue 2).

<https://doi.org/10.1016/j.cpr.2010.04.009>

Eisenberg, I. W., Bissett, P. G., Enkavi, A. Z., Li, J., MacKinnon, D. P., Marsch, L. A., & Poldrack, R. A. (2019). Uncovering the structure of self-regulation through data-driven ontology discovery. *Nature Communications*, *10*(1), 2319. <https://doi.org/10.1038/s41467-019-10301-1>

Ekeröth, K., Clinton, D., Norring, C., & Birgegård, A. (2013). Clinical characteristics and distinctiveness of DSM-5 eating disorder diagnoses: Findings from a large naturalistic clinical database. *Journal of Eating Disorders*, *1*(1). <https://doi.org/10.1186/2050-2974-1-31>

Evans, D. E., & Rothbart, M. K. (2007). Developing a model for adult temperament. *Journal of Research in Personality*, *41*(4). <https://doi.org/10.1016/j.jrp.2006.11.002>

Evren, C., Evren, B., Yancar, C., & Erkiran, M. (2007a). Temperament and Character Model of Personality Profile of Alcohol- and Drug-Dependent Inpatients. *Comprehensive Psychiatry*, *48*(3), 283–288. <https://doi.org/10.1016/j.comppsy.2006.11.003>

Evren, C., Evren, B., Yancar, C., & Erkiran, M. (2007b). Temperament and Character Model of Personality Profile of Alcohol- and Drug-Dependent Inpatients. *Comprehensive Psychiatry*, *48*(3). <https://doi.org/10.1016/j.comppsy.2006.11.003>

Fairburn, C. G., & Harrison, P. J. (2003). Eating disorders. *The Lancet*, *361*(9355), 407–416. [https://doi.org/10.1016/S0140-6736\(03\)12378-1](https://doi.org/10.1016/S0140-6736(03)12378-1)

Farstad, S. M., McGeown, L. M., & von Ranson, K. M. (2016). Eating disorders and personality, 2004-2016: A systematic review and meta-analysis. *Clinical Psychology Review*, *46*, 91–105. <https://doi.org/10.1016/j.cpr.2016.04.005>

Fassino, S., Amianto, F., Gramaglia, C., Facchini, F., & Daga, G. A. (2004). Temperament and character in eating disorders: Ten years of studies. In *Eating and Weight Disorders* (Vol. 9,

Issue 2). <https://doi.org/10.1007/BF03325050>

Fassino, Secondo, & Abbate-Daga, G. (2013). Resistance to treatment in eating disorders: A critical challenge. In *BMC Psychiatry* (Vol. 13). <https://doi.org/10.1186/1471-244X-13-282>

Fassino, Secondo, Abbate-Daga, G., Pierò, A., Leombruni, P., & Rovera, G. G. (2003). Dropout from brief psychotherapy within a combination treatment in bulimia nervosa: Role of personality and anger. *Psychotherapy and Psychosomatics*, 72(4). <https://doi.org/10.1159/000070784>

Fassino, Secondo, Amianto, F., & Abbate-Daga, G. (2009). The dynamic relationship of parental personality traits with the personality and psychopathology traits of anorectic and bulimic daughters. *Comprehensive Psychiatry*, 50(3). <https://doi.org/10.1016/j.comppsy.2008.07.010>

Fassino, Secondo, Pierò, A., Tomba, E., & Abbate-Daga, G. (2009). Factors associated with dropout from treatment for eating disorders: A comprehensive literature review. *BMC Psychiatry*, 9. <https://doi.org/10.1186/1471-244X-9-67>

Field, A. E., Sonnevile, K. R., Crosby, R. D., Swanson, S. A., Eddy, K. T., Camargo, C. A., Horton, N. J., & Micali, N. (2014). Prospective associations of concerns about physique and the development of obesity, binge drinking, and drug use among adolescent boys and young adult men. *JAMA Pediatrics*, 168(1). <https://doi.org/10.1001/jamapediatrics.2013.2915>

Forcano, L., Fernández-Aranda, F., Álvarez-Moya, E., Bulik, C., Granero, R., Gratacòs, M., Jiménez-Murcia, S., Krug, I., Mercader, J. M., Riesco, N., Saus, E., Santamaría, J. J., & Estivill, X. (2009). Suicide attempts in bulimia nervosa: Personality and psychopathological correlates. *European Psychiatry*, 24(2). <https://doi.org/10.1016/j.eurpsy.2008.10.002>

Fouladi, F., Mitchell, J. E., Crosby, R. D., Engel, S. G., Crow, S., Hill, L., Le Grange, D., Powers,

- P., & Steffen, K. J. (2015). Prevalence of alcohol and other substance use in patients with eating disorders. *European Eating Disorders Review*, 23(6), 531–536. <https://doi.org/10.1002/erv.2410>
- Frank, G. K. W., Deguzman, M. C., Shott, M. E., Laudenslager, M. L., Rossi, B., & Pryor, T. (2018). Association of Brain Reward Learning Response with Harm Avoidance, Weight Gain, and Hypothalamic Effective Connectivity in Adolescent Anorexia Nervosa. *JAMA Psychiatry*, 75(10). <https://doi.org/10.1001/jamapsychiatry.2018.2151>
- Franko, D. L., Dorer, D. J., Keel, P. K., Jackson, S., Manzo, M. P., & Herzog, D. B. (2005). How do eating disorders and alcohol use disorder influence each other? *International Journal of Eating Disorders*, 38(3), 200–207. <https://doi.org/10.1002/eat.20178>
- Franko, D. L., Keel, P. K., Dorer, D. J., Blais, M. A., Delinsky, S. S., Eddy, K. T., Charat, V., Renn, R., & Herzog, D. B. (2004). What predicts suicide attempts in women with eating disorders? *Psychological Medicine*, 34(5). <https://doi.org/10.1017/S0033291703001545>
- Fredrickson, B. L., Roberts, T.-A., Stewart, A., Costanzo, P., Fischer, K., & Hendler, L. (1997). Objectification Theory : Toward Understanding Woman’s Lived Experiences and Mental Health Risks. In *Psychology of Women Quarterly* (Vol. 21).
- García-Gómez, M. D. C., González, J. O., Barrio, A. G. Del, & García, N. A. (2009). Rhabdomyolysis and drug abuse in a patient with bulimia nervosa. *International Journal of Eating Disorders*, 42(1). <https://doi.org/10.1002/eat.20583>
- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2(2), 15–34. [https://doi.org/10.1002/1098-108X\(198321\)2:2<15::AID-EAT2260020203>3.0.CO;2-6](https://doi.org/10.1002/1098-108X(198321)2:2<15::AID-EAT2260020203>3.0.CO;2-6)

- Gattario, K. H., Frisé, A., Teall, T. L., & Piran, N. (2020). Embodiment: Cultural and gender differences and associations with life satisfaction. *Body Image, 35*, 1–10. <https://doi.org/10.1016/j.bodyim.2020.07.005>
- Glasner-Edwards, S., Mooney, L. J., Marinelli-Casey, P., Hillhouse, M., Ang, A., & Rawson, R. (2011). Bulimia nervosa among methamphetamine dependent adults: Association with outcomes three years after treatment. *Eating Disorders, 19*(3). <https://doi.org/10.1080/10640266.2011.566149>
- Godart, N. T., Flament, M. F., Lecrubier, Y., & Jeammet, P. (2000). Anxiety disorders in anorexia nervosa and bulimia nervosa: Co-morbidity and chronology of appearance. *European Psychiatry, 15*(1). [https://doi.org/10.1016/S0924-9338\(00\)00212-1](https://doi.org/10.1016/S0924-9338(00)00212-1)
- Goemans, A., Viding, E., & McCrory, E. (2023). Child Maltreatment, Peer Victimization, and Mental Health: Neurocognitive Perspectives on the Cycle of Victimization. In *Trauma, Violence, and Abuse* (Vol. 24, Issue 2). <https://doi.org/10.1177/15248380211036393>
- Goldfield, G. S., Moore, C., Henderson, K., Buchholz, A., Obeid, N., & Flament, M. F. (2010). Body Dissatisfaction, Dietary Restraint, Depression, and Weight Status in Adolescents. *Journal of School Health, 80*(4), 186–192. <https://doi.org/10.1111/j.1746-1561.2009.00485.x>
- Grant, B. F., Stinson, F. S., Dawson, D. A., Chou, S. P., Dufour, M. C., Compton, W., Pickering, R. P., & Kaplan, K. (2004). Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: Results from the national epidemiologic survey on alcohol and related conditions. In *Archives of General Psychiatry* (Vol. 61, Issue 8). <https://doi.org/10.1001/archpsyc.61.8.807>
- Gregorowski, C., Seedat, S., & Jordaan, G. P. (2013). A clinical approach to the assessment and management of co-morbid eating disorders and substance use disorders. *BMC Psychiatry, 13*.

<https://doi.org/10.1186/1471-244X-13-289>

- Gutiérrez-Zotes, J. A., Bayón, C., Montserrat, C., Valero, J., Labad, A., Cloninger, C. R., & Fernández-Aranda, F. (2004). Inventario del Temperamento y el Carácter-revisado (TCI-R). Baremación y datos normativos en una muestra de población general. *Actas Españolas de Psiquiatría*.
- Haddad, C., Zakhour, M., Akel, M., Honein, K., Akiki, M., Hallit, S., & Obeid, S. (2019). Factors associated with body dissatisfaction among the Lebanese population. *Eating and Weight Disorders*, 24(3), 507–519. <https://doi.org/10.1007/s40519-018-00634-z>
- Harrop, E. N., & Marlatt, G. A. (2010). The comorbidity of substance use disorders and eating disorders in women: Prevalence, etiology, and treatment. *Addictive Behaviors*, 35(5), 392–398. <https://doi.org/10.1016/j.addbeh.2009.12.016>
- Heath, A. C., Bucholz, K. K., Madden, P. A. F., Dinwiddie, S. H., Slutske, W. S., Bierut, L. J., Statham, D. J., Dunne, M. P., Whitfield, J. B., & Martin, N. G. (1997). Genetic and environmental contributions to alcohol dependence risk in a national twin sample: Consistency of findings in women and men. *Psychological Medicine*, 27(6). <https://doi.org/10.1017/S0033291797005643>
- Heeringen, C. Van, Fruyt, F. De, & Wiele, L. Van De. (2000). Cloninger's psychobiological model of temperament and character and the five factor model of personality. *Personality and Individual Differences*, 29(3).
- Hempel, R., Vanderbleek, E., & Lynch, T. R. (2018). Radically open DBT: Targeting emotional loneliness in Anorexia Nervosa. *Eating Disorders*, 26(1). <https://doi.org/10.1080/10640266.2018.1418268>
- Heywood, S., & McCabe, M. P. (2006). Negative affect as a mediator between body dissatisfaction

- and extreme weight loss and muscle gain behaviors. *Journal of Health Psychology*, 11(6).
<https://doi.org/10.1177/1359105306069077>
- Hübel, C., Marzi, S. J., Breen, G., & Bulik, C. M. (2019). Epigenetics in eating disorders: a systematic review. In *Molecular Psychiatry* (Vol. 24, Issue 6).
<https://doi.org/10.1038/s41380-018-0254-7>
- Ibáñez, A., Blanco, C., Donahue, E., Lesieur, H. R., de Castro, I. P., Fernández-Piqueras, J., & Sáiz-Ruiz, J. (2001). Psychiatric comorbidity in pathological gamblers seeking treatment. *American Journal of Psychiatry*, 158(10). <https://doi.org/10.1176/ajp.158.10.1733>
- Islam, M. A., Steiger, H., Jimenez-Murcia, S., Israel, M., Granero, R., Agüera, Z., Castro, R., Sánchez, I., Riesco, N., Menchón, J. M., & Fernández-Aranda, F. (2015). Non-suicidal self-injury in different eating disorder types: Relevance of personality traits and gender. *European Eating Disorders Review*, 23(6). <https://doi.org/10.1002/erv.2374>
- Jacobi, C., Hayward, C., Zwaan, M. De, Kraemer, H. C., & Agras, W. S. (2004). Coming to Terms With Risk Factors for Eating Disorders: Application of Risk Terminology and Suggestions for a General Taxonomy. In *Psychological Bulletin* (Vol. 130, Issue 1).
<https://doi.org/10.1037/0033-2909.130.1.19>
- Jacobs, M. J., Roesch, S., Wonderlich, S. A., Crosby, R., Thornton, L., Wilfley, D. E., Berrettini, W. H., Brandt, H., Crawford, S., Fichter, M. M., Halmi, K. A., Johnson, C., Kaplan, A. S., LaVia, M., Mitchell, J. E., Rotondo, A., Strober, M., Woodside, D. B., Kaye, W. H., & Bulik, C. M. (2009). Anorexia nervosa trios: Behavioral profiles of individuals with anorexia nervosa and their parents. *Psychological Medicine*, 39(3).
<https://doi.org/10.1017/S0033291708003826>
- Janiri, L., Martinotti, G., Dario, T., Schifano, F., & Bria, P. (2007). The gamblers' Temperament

and Character Inventory (TCI) personality profile. *Substance Use and Misuse*, 42(6).
<https://doi.org/10.1080/10826080701202445>

Jiménez-Murcia, S., Granero, R., Moragas, L., Steiger, H., Israel, M., Aymamí, N., Gómez-Peña, M., Sauchelli, S., Agüera, Z., Sánchez, I., Riesco, N., Penelo, E., Menchón, J. M., & Fernández-Aranda, F. (2015). Differences and similarities between bulimia nervosa, compulsive buying and gambling disorder. *European Eating Disorders Review*, 23(2).
<https://doi.org/10.1002/erv.2340>

Jiménez-Murcia, S., Steiger, H., Israel, M., Granero, R., Prat, R., Santamaría, J. J., Moragas, L., Sánchez, I., Custal, N., Orekhova, L., Fagundo, A. B., Menchón, J., & Fernández-Aranda, F. (2013). Pathological gambling in eating disorders: Prevalence and clinical implications. *Comprehensive Psychiatry*, 54(7), 1053–1060.
<https://doi.org/10.1016/j.comppsy.2013.04.014>

Jones, H., McIntosh, V. V. W., Britt, E., Carter, J. D., Jordan, J., & Bulik, C. M. (2022). The effect of temperament and character on body dissatisfaction in women with bulimia nervosa: The role of low self-esteem and depression. *European Eating Disorders Review*, 30(4).
<https://doi.org/10.1002/erv.2899>

Jordan, J., McIntosh, V. V. W., Carter, F. A., Joyce, P. R., Frampton, C. M. A., Luty, S. E., McKenzie, J. M., & Bulik, C. M. (2014). Clinical characteristics associated with premature termination from outpatient psychotherapy for anorexia nervosa. *European Eating Disorders Review*, 22(4). <https://doi.org/10.1002/erv.2296>

Junne, F., Zipfel, S., Martus, P., Giel, K., Resmark, G., Teufel, M., Dinkel, A., Burgmer, M., Rothermund, E., Ziser, K., Wild, B., Friederich, H. C., de Zwaan, M., Herpertz, S., Tagay, S., Zeeck, A., Herzog, W., & Löwe, B. (2016). The Relationship of Body Image With

- Symptoms of Depression and Anxiety in Patients With Anorexia Nervosa During Outpatient Psychotherapy: Results of the ANTOP Study. *Psychotherapy*, 53(2).
<https://doi.org/10.1037/pst0000064>
- Karazsia, B. T., Murnen, S. K., & Tylka, T. L. (2017). Is body dissatisfaction changing across time a cross-temporal meta-analysis. *Psychological Bulletin*, 143(3), 293–320.
<https://doi.org/10.1037/bul0000081>
- Kaye, W. H., Lilenfeld, L. R., Plotnicov, K., Merikangas, K. R., Nagy, L., Strober, M., Bulik, C. M., Moss, H., & Greeno, C. G. (1996). Bulimia nervosa and substance dependence: Association and family transmission. *Alcoholism: Clinical and Experimental Research*, 20(5). <https://doi.org/10.1111/j.1530-0277.1996.tb05266.x>
- Keel, P. K., Mitchell, J. E., Davis, T. L., & Crow, S. J. (2001). Relationship between depression and body dissatisfaction in women diagnosed with bulimia nervosa. *International Journal of Eating Disorders*, 30(1). <https://doi.org/10.1002/eat.1053>
- Kessler, R C, Anthony, J. C., Blazer, D. G., Bromet, E., Eaton, W. W., Kendler, K., Swartz, M., Wittchen, H. U., & Zhao, S. (1997). The US National Comorbidity Survey: overview and future directions. In *Epidemiologia e psichiatria sociale* (Vol. 6, Issue 1).
<https://doi.org/10.1017/S1121189X00008575>
- Kessler, Ronald C. (2004). The epidemiology of dual diagnosis. In *Biological Psychiatry* (Vol. 56, Issue 10). <https://doi.org/10.1016/j.biopsych.2004.06.034>
- Kessler, Ronald C, Crum, R. M., Warner, L. A., Nelson, C. B., Schulenberg, J., & Anthony, J. C. (1997). Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the national comorbidity survey. *Archives of General Psychiatry*, 54(4). <https://doi.org/10.1001/archpsyc.1997.01830160031005>

- King, K. M., & Chassin, L. (2004). Mediating and moderated effects of adolescent behavioral undercontrol and parenting in the prediction of drug use disorders in emerging adulthood. *Psychology of Addictive Behaviors, 18*(3). <https://doi.org/10.1037/0893-164X.18.3.239>
- Klump, K. L., Strober, M., Bulik, C. M., Thornton, L., Johnson, C., Devlin, B., Fichter, M. M., Halmi, K. A., Kaplan, A. S., Woodside, D. B., Crow, S., Mitchell, J., Rotondo, A., Keel, P. K., Berrettini, W. H., Plotnicov, K., Pollice, C., Lilenfeld, L. R., & Kaye, W. H. (2004). Personality characteristics of women before and after recovery from an eating disorder. *Psychological Medicine, 34*(8), 1407–1418. <https://doi.org/https://doi.org/10.1017/S0033291704002442>
- Klump, Kelly L, Bulik, C. M., Pollice, C., Halmi, K. A., Fichter, M. M., Berrettini, W. H., Devlin, B., Strober, M., Kaplan, A., Woodside, D. B., Treasure, J., Shabbout, M., Lilenfeld, L. R. R., Plotnicov, K. H., & Kaye, W. H. (2000). Temperament and character in women with anorexia nervosa. *Journal of Nervous and Mental Disease, 188*(9). <https://doi.org/10.1097/00005053-200009000-00001>
- Knauss, C., Paxton, S. J., & Alsaker, F. D. (2008). Body dissatisfaction in adolescent boys and girls: Objectified body consciousness, internalization of the media body ideal and perceived pressure from media. *Sex Roles, 59*(9–10). <https://doi.org/10.1007/s11199-008-9474-7>
- Kong, S., & Bernstein, K. (2009). Childhood trauma as a predictor of eating psychopathology and its mediating variables in patients with eating disorders. *Journal of Clinical Nursing, 18*(13). <https://doi.org/10.1111/j.1365-2702.2008.02740.x>
- Kothari, R., Rosinska, M., Treasure, J., & Micali, N. (2014). The early cognitive development of children at high risk of developing an eating disorder. *European Eating Disorders Review, 22*(2), 152–156. <https://doi.org/10.1002/erv.2274>

- Kreek, M. J., Nielsen, D. A., Butelman, E. R., & LaForge, K. S. (2005). Genetic influences on impulsivity, risk taking, stress responsivity and vulnerability to drug abuse and addiction. In *Nature Neuroscience* (Vol. 8, Issue 11). <https://doi.org/10.1038/nn1583>
- Krug, I., Root, T., Bulik, C., Granero, R., Penelo, E., Jiménez-Murcia, S., & Fernández-Aranda, F. (2011). Redefining phenotypes in eating disorders based on personality: A latent profile analysis. *Psychiatry Research*, *188*(3), 439–445. <https://doi.org/10.1016/j.psychres.2011.05.026>
- Krug, I., Treasure, J., Anderluh, M., Bellodi, L., Cellini, E., di Bernardo, M., Granero, R., Karwautz, A., Nacmias, B., Penelo, E., Ricca, V., Sorbi, S., Tchanturia, K., Wagner, G., Collier, D., & Fernández-Aranda, F. (2008). Present and lifetime comorbidity of tobacco, alcohol and drug use in eating disorders: A European multicenter study. *Drug and Alcohol Dependence*, *97*(1–2), 169–179. <https://doi.org/10.1016/j.drugalcdep.2008.04.015>
- Lai, H. M. X., Cleary, M., Sitharthan, T., & Hunt, G. E. (2015). Prevalence of comorbid substance use, anxiety and mood disorders in epidemiological surveys, 1990-2014: A systematic review and meta-analysis. In *Drug and Alcohol Dependence* (Vol. 154). <https://doi.org/10.1016/j.drugalcdep.2015.05.031>
- Langer, M., Bord, A., & Golan, M. (2015). Differences in Impulsivity between Females Diagnosed with Eating Disorders and Healthy Subjects. *Journal of Psychology & Clinical Psychiatry*, *3*(3). <https://doi.org/10.15406/jpcpy.2015.03.00137>
- Lavender, J. M., & Mitchell, J. E. (2015). Eating Disorders and Their Relationship to Impulsivity. In *Current Treatment Options in Psychiatry* (Vol. 2, Issue 4). <https://doi.org/10.1007/s40501-015-0061-6>
- Levine, M. P. (2012). Loneliness and eating disorders. *Journal of Psychology: Interdisciplinary*

- and Applied*, 146(1–2). <https://doi.org/10.1080/00223980.2011.606435>
- Libbey, H. P., Story, M. T., Neumark-Sztainer, D. R., & Boutelle, K. N. (2008). Teasing, Disordered Eating Behaviors, and Psychological Morbidities Among Overweight Adolescents. *Obesity*, 16(S2), S24–S29. <https://doi.org/10.1038/oby.2008.455>
- Lilenfeld, L. R., & Kaye, W. H. (1996). The link between alcoholism and eating disorders. *Alcohol Research and Health*, 20(2).
- Lilenfeld, L. R. R., Wonderlich, S., Riso, L. P., Crosby, R., & Mitchell, J. (2006). Eating disorders and personality: A methodological and empirical review. *Clinical Psychology Review*, 26(3), 299–320. <https://doi.org/10.1016/j.cpr.2005.10.003>
- Linardon, J., Hindle, A., & Brennan, L. (2018). Dropout from cognitive-behavioral therapy for eating disorders: A meta-analysis of randomized, controlled trials. In *International Journal of Eating Disorders* (Vol. 51, Issue 5). <https://doi.org/10.1002/eat.22850>
- Low, K. G., Charanasomboon, S., Brown, C., Hiltunen, G., Long, K., Reinhalter, K., & Jones, H. (2003). Internalization of the thin ideal, weight and body image concerns. *Social Behavior and Personality*, 31(1). <https://doi.org/10.2224/sbp.2003.31.1.81>
- Malone, S. M., Taylor, J., Marmorstein, N. R., McGue, M., & Iacono, W. G. (2004). Genetic and environmental influences on antisocial behavior and alcohol dependence from adolescence to early adulthood. *Development and Psychopathology*, 16(4). <https://doi.org/10.1017/S0954579404040088>
- Mamun, A. Al, Alati, R., O’Callaghan, M., Hayatbakhsh, M. R., O’Callaghan, F. V, Najman, J. M., Williams, G. M., & Bor, W. (2007). Does childhood sexual abuse have an effect on young adults’ nicotine disorder (dependence or withdrawal)? Evidence from a birth cohort study. *Addiction*, 102(4). <https://doi.org/10.1111/j.1360-0443.2006.01732.x>

- Mandelli, L., Arminio, A., Atti, A. R., & Ronchi, D. De. (2019). Suicide attempts in eating disorder subtypes: A meta-analysis of the literature employing DSM-IV, DSM-5, or ICD-10 diagnostic criteria. *Psychological Medicine*, 49(8). <https://doi.org/10.1017/S0033291718003549>
- Marquez-Arrico, J. E., & Adan, A. (2013). Dual diagnosis and personality traits: Current situation and future research directions. *Adicciones*, 25(3), 195–202. <https://doi.org/10.20882/adicciones.46>
- Marzola, E., Porliod, A., Panero, M., De-Bacco, C., & Abbate-Daga, G. (2020). Affective temperaments and eating psychopathology in anorexia nervosa: Which role for anxious and depressive traits? *Journal of Affective Disorders*, 266. <https://doi.org/10.1016/j.jad.2020.01.142>
- McGue, M. (1994). Genes, environment, and the etiology of alcoholism. In R. Zucker, G. Boyd, & J. Howard (Eds.), *The development of alcohol problems: Exploring the biopsychosocial matrix of risk* (pp. 1–40).
- McKinley, N. M., & Hyde, J. S. (1996). The objectified body consciousness scale development and validation. *Psychology of Women Quarterly*, 20(2). <https://doi.org/10.1111/j.1471-6402.1996.tb00467.x>
- McKisack, C., & Waller, G. (1996). Why is attendance variable at groups for women with bulimia nervosa? The role of eating psychopathology and other characteristics. *International Journal of Eating Disorders*, 20(2). [https://doi.org/10.1002/\(SICI\)1098-108X\(199609\)20:2<205::AID-EAT12>3.0.CO;2-1](https://doi.org/10.1002/(SICI)1098-108X(199609)20:2<205::AID-EAT12>3.0.CO;2-1)
- McLean, S. A., & Paxton, S. J. (2019). Body Image in the Context of Eating Disorders. *Psychiatric Clinics of North America*, 42(1), 145–156. <https://doi.org/10.1016/j.psc.2018.10.006>

- Merikangas, K. R., & Gelernter, C. S. (1990). Comorbidity for alcoholism and depression. In *Psychiatric Clinics of North America* (Vol. 13, Issue 4). [https://doi.org/10.1016/s0193-953x\(18\)30339-3](https://doi.org/10.1016/s0193-953x(18)30339-3)
- Merikangas, K. R., Stevens, D. E., Fenton, B., Stolar, M., O'Malley, S., Woods, S. W., & Risch, N. (1998). Co-morbidity and familial aggregation of alcoholism and anxiety disorders. *Psychological Medicine*, 28(4). <https://doi.org/10.1017/S0033291798006941>
- Miettunen, J., & Raevuori, A. (2012). A meta-analysis of temperament in axis I psychiatric disorders. *Comprehensive Psychiatry*, 53(2). <https://doi.org/10.1016/j.comppsy.2011.03.008>
- Miranda-Olivos, R., Agüera, Z., Granero, R., Jiménez-Murcia, S., Puig-Llobet, M., Lluçh-Canut, M. T., Gearhardt, A. N., & Fernández-Aranda, F. (2023). The Role of Food Addiction and Lifetime Substance Use on Eating Disorder Treatment Outcomes. *Nutrients*, 15(13), 2919. <https://doi.org/10.3390/nu15132919>
- Mitchell, K. S., Mazzeo, S. E., Schlesinger, M. R., Brewerton, T. D., & Smith, B. N. (2012). Comorbidity of partial and subthreshold PTSD among men and women with eating disorders in the national comorbidity survey-replication study. In *International Journal of Eating Disorders* (Vol. 45, Issue 3). <https://doi.org/10.1002/eat.20965>
- Molendijk, M. L., Hoek, H. W., Brewerton, T. D., & Elzinga, B. M. (2017). Childhood maltreatment and eating disorder pathology: A systematic review and dose-response meta-analysis. *Psychological Medicine*, 47(8). <https://doi.org/10.1017/S0033291716003561>
- Morisano, D., Babor, T. F., & Robaina, K. A. (2014). Co-occurrence of substance use disorders with other psychiatric disorders: Implications for treatment services. In *NAD Publication* (Vol. 31, Issue 1). <https://doi.org/10.2478/nsad-2014-0002>

- Muehlenkamp, J. J., & Brausch, A. M. (2012). Body image as a mediator of non-suicidal self-injury in adolescents. *Journal of Adolescence*, 35(1).
<https://doi.org/10.1016/j.adolescence.2011.06.010>
- Munn-Chernoff, M. A., Few, L. R., Matherne, C. E., Baker, J. H., Men, V. Y., McCutcheon, V. V., Agrawal, A., Bucholz, K. K., Madden, P. A. F., Heath, A. C., & Duncan, A. E. (2020). Eating disorders in a community-based sample of women with alcohol use disorder and nicotine dependence. *Drug and Alcohol Dependence*, 212.
<https://doi.org/10.1016/j.drugalcdep.2020.107981>
- Neighbors, L. A., & Sobal, J. (2007). Prevalence and magnitude of body weight and shape dissatisfaction among university students. *Eating Behaviors*, 8(4).
<https://doi.org/10.1016/j.eatbeh.2007.03.003>
- Neumark-Sztainer, D., Wall, M., Larson, N. I., Eisenberg, M. E., & Loth, K. (2011). Dieting and disordered eating behaviors from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Journal of the American Dietetic Association*, 111(7).
<https://doi.org/10.1016/j.jada.2011.04.012>
- Oquendo, M. A., Baca-Garcia, E., Graver, R., Morales, M., & Montalvan, V. (2001). Spanish adaptation of the Barratt impulsiveness scale (BIS-11). *The European Journal of Psychiatry*, 15(3), 147–155.
- Paganini, C., Peterson, G., & Andrews, K. (2021). The Mediating Role of Temperamental Traits on the Relationship between Age of Puberty and Eating Disorders: A Mediating Analysis through Structural Equation Modelling of Australian Eating Disorder Outpatients. *Journal of Genetic Psychology*, 182(6). <https://doi.org/10.1080/00221325.2021.1940822>
- Phillipou, A., Abel, L. A., Castle, D. J., Gurvich, C., Hughes, M. E., & Rossell, S. L. (2016). Self-

- reported and behavioural impulsivity in anorexia nervosa. *World Journal of Psychiatry*, 6(3).
<https://doi.org/10.5498/wjp.v6.i3.345>
- Pino-Gutiérrez, A. Del, Jiménez-Murcia, S., Fernández-Aranda, F., Agüera, Z., Granero, R., Hakansson, A., Fagundo, A. B., Bolao, F., Valdepérez, A., Mestre-Bach, G., Steward, T., Penelo, E., Moragas, L., Aymamí, N., Gómez-Peña, M., Rigol-Cuadras, A., Martín-Romera, V., & Menchón, J. M. (2017). The relevance of personality traits in impulsivity-related disorders: From substance use disorders and gambling disorder to bulimia nervosa. *Journal of Behavioral Addictions*, 6(3). <https://doi.org/10.1556/2006.6.2017.051>
- Piran, N. (2016). Embodied possibilities and disruptions: The emergence of the Experience of Embodiment construct from qualitative studies with girls and women. *Body Image*, 18, 43–60. <https://doi.org/10.1016/j.bodyim.2016.04.007>
- Rassool, G. H. (2008). Understanding Dual Diagnosis: An Overview. In *Dual Diagnosis Nursing*.
<https://doi.org/10.1002/9780470774953.ch1>
- Ricciardelli, L. A., & McCabe, M. P. (2001). Children's body image concerns and eating disturbance: A review of the literature. *Clinical Psychology Review*, 21(3).
[https://doi.org/10.1016/S0272-7358\(99\)00051-3](https://doi.org/10.1016/S0272-7358(99)00051-3)
- Riesco, N., Agüera, Z., Granero, R., Jiménez-Murcia, S., Menchón, J. M., & Fernández-Aranda, F. (2018). Other Specified Feeding or Eating Disorders (OSFED): Clinical heterogeneity and cognitive-behavioral therapy outcome. *European Psychiatry*, 54.
<https://doi.org/10.1016/j.eurpsy.2018.08.001>
- Rø, Ø., Martinsen, E. W., Hoffart, A., & Rosenvinge, J. (2005). Two-year prospective study of personality disorders in adults with longstanding eating disorders. In *International Journal of Eating Disorders* (Vol. 37, Issue 2). <https://doi.org/10.1002/eat.20083>

- Roberts, M. E., Tchanturia, K., & Treasure, J. L. (2010). Exploring the neurocognitive signature of poor set-shifting in anorexia and bulimia nervosa. *Journal of Psychiatric Research, 44*(14). <https://doi.org/10.1016/j.jpsychires.2010.03.001>
- Rodgers, R. F., Paxton, S. J., & McLean, S. A. (2014). A Biopsychosocial Model of Body Image Concerns and Disordered Eating in Early Adolescent Girls. *Journal of Youth and Adolescence, 43*(5). <https://doi.org/10.1007/s10964-013-0013-7>
- Rodríguez, M., Pérez, V., & García, Y. (2005). Impact of traumatic experiences and violent acts upon response to treatment of a sample of Colombian women with eating disorders. *International Journal of Eating Disorders, 37*(4), 299–306. <https://doi.org/10.1002/eat.20091>
- Root, T. L., Pisetsky, E. M., Thornton, L., Lichtenstein, P., Pedersen, N. L., & Bulik, C. M. (2010). Patterns of co-morbidity of eating disorders and substance use in Swedish females. *Psychological Medicine, 40*(1). <https://doi.org/10.1017/S0033291709005662>
- Rosińska, M., González, M. G., Touriño, A. G., & Mora Giral, M. S. (2020). Comparing the Personality Traits of Patients with an Eating Disorder versus a Dual Diagnosis. *Journal of Dual Diagnosis, 16*(3), 336–346. <https://doi.org/10.1080/15504263.2020.1782552>
- Rotella, F., Mannucci, E., Gemignani, S., Lazzeretti, L., Fioravanti, G., & Ricca, V. (2018). Emotional eating and temperamental traits in Eating Disorders: A dimensional approach. *Psychiatry Research, 264*(July 2017), 1–8. <https://doi.org/10.1016/j.psychres.2018.03.066>
- Rothbart, M. K., Ahadi, S. A., & Evans, D. E. (2000). Temperament and personality: Origins and outcomes. *Journal of Personality and Social Psychology, 78*(1). <https://doi.org/10.1037//0022-3514.78.1.122>
- Rzeszutek, M., & Schier, K. (2008). Tak bolesne, że aż obce? — związek pomiędzy depresją a obrazem ciała u młodych dorosłych. *Psychoterapia, 4*(147), 5–16.

- Santomauro, D. F., Melen, S., Mitchison, D., Vos, T., Whiteford, H., & Ferrari, A. J. (2021). The hidden burden of eating disorders: an extension of estimates from the Global Burden of Disease Study 2019. *The Lancet Psychiatry*, 8(4). [https://doi.org/10.1016/S2215-0366\(21\)00040-7](https://doi.org/10.1016/S2215-0366(21)00040-7)
- Schaumberg, K., Welch, E., Breithaupt, L., Hübel, C., Baker, J. H., Munn-Chernoff, M. A., Yilmaz, Z., Ehrlich, S., Mustelin, L., Ghaderi, A., Hardaway, A. J., Bulik-Sullivan, E. C., Hedman, A. M., Jangmo, A., Nilsson, I. A. K., Wiklund, C., Yao, S., Seidel, M., & Bulik, C. M. (2017). The Science Behind the Academy for Eating Disorders' Nine Truths About Eating Disorders. In *European Eating Disorders Review* (Vol. 25, Issue 6). <https://doi.org/10.1002/erv.2553>
- Segura-García, C., Chiodo, D., Sinopoli, F., & De Fazio, P. (2013). Temperamental factors predict long-term modifications of eating disorders after treatment. *BMC Psychiatry*, 13. <https://doi.org/10.1186/1471-244X-13-288>
- Simpson, S., Azam, F., Brown, S. M., Hronis, A., & Brockman, R. (2022). The impact of personality disorders and personality traits on psychotherapy treatment outcome of eating disorders: A systematic review. *Personality and Mental Health*, 16(3). <https://doi.org/10.1002/pmh.1533>
- Skinstad, A. H., & Swain, A. (2001). Comorbidity in a clinical sample of substance abusers. *American Journal of Drug and Alcohol Abuse*, 27(1). <https://doi.org/10.1081/ADA-100103118>
- Spence, S., & Courbasson, C. (2012). The role of emotional dysregulation in concurrent eating disorders and substance use disorders. *Eating Behaviors*, 13(4), 382–385. <https://doi.org/10.1016/j.eatbeh.2012.05.006>

- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1982). Cuestionario de ansiedad estado-rasgo. *TEA, I*(Madrid).
- Steenhuis, I. H. M., & Vermeer, W. M. (2009). Portion size: Review and framework for interventions. In *International Journal of Behavioral Nutrition and Physical Activity* (Vol. 6). <https://doi.org/10.1186/1479-5868-6-58>
- Steingrimsson, S., Carlsen, H. K., Lundström, E., Lundström, S., & Nilsson, T. (2020). Problematic Alcohol and Drug Use Is Associated with Low Self-Directedness and Cooperativeness. *European Addiction Research, 26*(6). <https://doi.org/10.1159/000506473>
- Stice, E. (2001). A prospective test of the dual-pathway model of bulimic pathology: Mediating effects of dieting and negative affect. *Journal of Abnormal Psychology, 110*(1). <https://doi.org/10.1037/0021-843X.110.1.124>
- Stone, A. L., Becker, L. G., Huber, A. M., & Catalano, R. F. (2012). Review of risk and protective factors of substance use and problem use in emerging adulthood. In *Addictive Behaviors* (Vol. 37, Issue 7). <https://doi.org/10.1016/j.addbeh.2012.02.014>
- Striegel-Moore, R. H., & Bulik, C. M. (2007). Risk Factors for Eating Disorders. *American Psychologist, 62*(3). <https://doi.org/10.1037/0003-066X.62.3.181>
- Strober, M., Freeman, R., & Morrell, W. (1997). The long-term course of severe anorexia nervosa in adolescents: Survival analysis of recovery, relapse, and outcome predictors over 10-15 years in a prospective study. *International Journal of Eating Disorders, 22*(4). [https://doi.org/10.1002/\(SICI\)1098-108X\(199712\)22:4<339::AID-EAT1>3.0.CO;2-N](https://doi.org/10.1002/(SICI)1098-108X(199712)22:4<339::AID-EAT1>3.0.CO;2-N)
- Swinbourne, J., Hunt, C., Abbott, M., Russell, J., Clare, T. S., & Touyz, S. (2012). The comorbidity between eating disorders and anxiety disorders: Prevalence in an eating disorder sample and anxiety disorder sample. *Australian and New Zealand Journal of Psychiatry, 46*(2).

<https://doi.org/10.1177/0004867411432071>

- Szerman, N., Parro-Torres, C., Didia-Attas, J., & El- Guebaly, N. (2019). Dual disorders: Addiction and other mental disorders. Integrating mental health. In *Advances in psychiatry* (pp. 109–127). Springer International Publishing. https://doi.org/https://doi.org/10.1007/978-3-319-70554-5_7
- Tarter, R. E., Kirisci, L., Habeych, M., Reynolds, M., & Vanyukov, M. (2004). Neurobehavior disinhibition in childhood predisposes boys to substance use disorder by young adulthood: Direct and mediated etiologic pathways. *Drug and Alcohol Dependence*, 73(2). <https://doi.org/10.1016/j.drugalcdep.2003.07.004>
- Tasca, G. A., Ritchie, K., Zachariades, F., Proulx, G., Trinneer, A., Balfour, L., Demidenko, N., Hayden, G., Wong, A., & Bissada, H. (2013). Attachment insecurity mediates the relationship between childhood trauma and eating disorder psychopathology in a clinical sample: A structural equation model. *Child Abuse and Neglect*, 37(11). <https://doi.org/10.1016/j.chiabu.2013.03.004>
- Trace, S. E., Thornton, L. M., Baker, J. H., Root, T. L., Janson, L. E., Lichtenstein, P., Pedersen, N. L., & Bulik, C. M. (2013). A behavioral-genetic investigation of bulimia nervosa and its relationship with alcohol use disorder. *Psychiatry Research*, 208(3). <https://doi.org/10.1016/j.psychres.2013.04.030>
- Treasure, J., Duarte, T. A., & Schmidt, U. (2020). Eating disorders. *Lancet*, 395(10227), 899–911. [https://doi.org/10.1016/S0140-6736\(20\)30059-3](https://doi.org/10.1016/S0140-6736(20)30059-3)
- Tsigkaropoulou, E., Ferentinos, P., Karavia, A., Gournellis, R., Gonidakis, F., Liappas, I., Douzenis, A., & Michopoulos, I. (2021). Personality dimensions could explain resilience in patients with eating disorders. *Eating and Weight Disorders*, 26(4).

<https://doi.org/10.1007/s40519-020-01012-4>

- Tucker, J. S., Ellickson, P. L., & Klein, D. J. (2003). Predictors of the transition to regular smoking during adolescence and young adulthood. *Journal of Adolescent Health, 32*(4). [https://doi.org/10.1016/S1054-139X\(02\)00709-7](https://doi.org/10.1016/S1054-139X(02)00709-7)
- Ulfvebrand, S., Birgegård, A., Norring, C., Högdahl, L., & von Hauswolff-Juhlin, Y. (2015). Psychiatric comorbidity in women and men with eating disorders results from a large clinical database. *Psychiatry Research, 230*(2). <https://doi.org/10.1016/j.psychres.2015.09.008>
- Valenciano-Mendoza, E., Fernández-Aranda, F., Granero, R., Vintró-Alcaraz, C., Mora-Maltas, B., Valero-Solís, S., Sánchez, I., Toro, J. J. De, Gómez-Peña, M., Moragas, L., & Jiménez-Murcia, S. (2022). Common and differential risk factors behind suicidal behavior in patients with impulsivity-related disorders: The case of bulimic spectrum eating disorders and gambling disorder. *Journal of Behavioral Addictions, 11*(4). <https://doi.org/10.1556/2006.2022.00072>
- Vall, E., & Wade, T. D. (2015). Predictors of treatment outcome in individuals with eating disorders: A systematic review and meta-analysis. In *International Journal of Eating Disorders* (Vol. 48, Issue 7). <https://doi.org/10.1002/eat.22411>
- van Hoeken, D., & Hoek, H. W. (2020). Review of the burden of eating disorders: mortality, disability, costs, quality of life, and family burden. *Current Opinion in Psychiatry, 33*(6), 521–527. <https://doi.org/10.1097/YCO.0000000000000641>
- Vázquez, C., & Sanz, J. (1997). Fiabilidad y valores normativos de la versión española del inventario para la depresión de Beck de 1978. *Clínica y Salud, 8*(3), 403–422.
- Villarejo, C., Jiménez-Murcia, S., Álvarez-Moya, E., Granero, R., Penelo, E., Treasure, J., Vilarrasa, N., Bernabé, M. G.-M. De, Casanueva, F. F., Tinahones, F. J., Fernández-Real, J.

- M., Frühbeck, G., Torre, R. D. La, Botella, C., Agüera, Z., Menchón, J. M., & Fernández-Aranda, F. (2014). Loss of control over eating: A description of the eating disorder/obesity spectrum in women. *European Eating Disorders Review*, 22(1). <https://doi.org/10.1002/erv.2267>
- von Ranson, K. M. (2018). Personality and eating disorders. In *Annual review of eating disorders* (pp. 92–104).
- Wagner, A., Barbarich-Marsteller, N. C., Frank, G. K., Bailer, U. F., Wonderlich, S. A., Crosby, R. D., Henry, S. E., Vogel, V., Plotnicov, K., McConaha, C., & Kaye, W. H. (2006). Personality Traits after Recovery from Eating Disorders: Do Subtypes Differ? *International Journal of Eating Disorders*, 39, 276–284. <https://doi.org/DOI 10.1002/eat>
- Wagner, A. F., & Vitousek, K. M. (2019). Personality variables and eating pathology. *Psychiatric Clinics*, 42(1), 105–119. <https://doi.org/https://doi.org/10.1016/j.psc.2018.10.012>
- Wallier, J., Vibert, S., Berthoz, S., Huas, C., Hubert, T., & Godart, N. (2009). Dropout from inpatient treatment for anorexia nervosa: Critical review of the literature. In *International Journal of Eating Disorders* (Vol. 42, Issue 7). <https://doi.org/10.1002/eat.20609>
- Warren, C. S., Gleaves, D. H., Cepeda-Benito, A., Fernandez, M. D. C., & Rodriguez-Ruiz, S. (2005). Ethnicity as a protective factor against internalization of a thin ideal and body dissatisfaction. *International Journal of Eating Disorders*, 37(3). <https://doi.org/10.1002/eat.20102>
- Westerberg-Jacobson, J., Ghaderi, A., & Edlund, B. (2012). A longitudinal study of motives for wishing to be thinner and weight-control practices in 7- to 18-year-old Swedish girls. In *European Eating Disorders Review* (Vol. 20, Issue 4). <https://doi.org/10.1002/erv.1145>
- White, H. R., Fleming, C. B., Kim, M. J., Catalano, R. F., & McMorris, B. J. (2008). Identifying

- Two Potential Mechanisms for Changes in Alcohol Use Among College-Attending and Non-College-Attending Emerging Adults. *Developmental Psychology*, 44(6).
<https://doi.org/10.1037/a0013855>
- Whiteford, H. A., Degenhardt, L., Rehm, J., Baxter, A. J., Ferrari, A. J., Erskine, H. E., Charlson, F. J., Norman, R. E., Flaxman, A. D., Johns, N., Burstein, R., Murray, C. J. L., & Vos, T. (2013). Global burden of disease attributable to mental and substance use disorders: Findings from the Global Burden of Disease Study 2010. *The Lancet*, 382(9904).
[https://doi.org/10.1016/S0140-6736\(13\)61611-6](https://doi.org/10.1016/S0140-6736(13)61611-6)
- Windle, M., Mun, E. Y., & Windle, R. C. (2005). Adolescent-to-young adulthood heavy drinking trajectories and their prospective predictors. *Journal of Studies on Alcohol*, 66(3).
<https://doi.org/10.15288/jsa.2005.66.313>
- Wittchen, H. U., Jacobi, F. F., Rehm, J., Gustavsson, A., Svensson, M., Jonsson, B., Olesen, J., Allgulander, C., Alonso, J., Faravelli, C., Fratiglioni, L., Jennum, P., Lieb, R., Maercker, A., van Os, J., Preisig, M., Salvador-Carulla, L., & Simon, R. R. (2011). The size and burden of mental disorders and other disorders of the brain in Europe 2010. In *European Neuropsychopharmacology* (Vol. 21, Issue 9).
- Wonderlich, S. A., Mitchell, J. E., & de Zwaan, M. (2018). Sociocultural influences on eating disorders. In *Annual review of eating disorders* (pp. 51–65). CRC Press.
- Wong, K. M., & Cloninger, C. R. (2010). A Person-Centered Approach to Clinical Practice SYNTHESIS A PERSON IS MORE THAN HIS OR HER. *Focus*, VIII(2), 199–215.
- Woodside, D. B., Carter, J. C., & Blackmore, E. (2004). Predictors of premature termination of inpatient treatment for anorexia nervosa. *American Journal of Psychiatry*, 161(12).
<https://doi.org/10.1176/appi.ajp.161.12.2277>

Yilmaz, Z., Hardaway, A., & Bulik, C. (2015). Genetics and epigenetics of eating disorders. *Advances in Genomics and Genetics*. <https://doi.org/10.2147/agg.s55776>

Zhou, Q., King, K. M., & Chassin, L. (2006). The roles of familial alcoholism and adolescent family harmony in young adults' substance dependence disorders: Mediated and moderated relations. *Journal of Abnormal Psychology*, *115*(2). <https://doi.org/10.1037/0021-843X.115.2.320>