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Associations between Myers-Briggs personality dimensions, eating disorder diagnoses, and eating disorder duration

Tiffany Mei Haug

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ABSTRACT

ASSOCIATIONS BETWEEN MYERS-BRIGGS PERSONALITY DIMENSIONS, EATING DISORDER DIAGNOSES, AND EATING DISORDER DURATION

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A vast amount of research exists on the associations between personality disorders in individuals with eating disorders, despite controversy surrounding the validity of such diagnoses. Though pathological personalities in those with eating disorders have been examined in depth, little research exists on the associations between non-pathological personality type and eating disorders. Therefore, this study sought to examine associations between Myers-Briggs Personality Type dimensions and eating disorder type and duration. A cumulative 51 participants (49 women, 2 men), ages 18-62, with a current or past history of a diagnosed or suspected eating disorder were recruited for participation in the study. Each participant completed the Myers-Briggs Personality Type assessment (Form M) in addition to an Eating Disorder History and Demographic Survey. The associations between each of the four Myers-Briggs Personality Type dimensions and eating disorder types and duration were examined using binary logistical regression tests, revealing no significant associations between the extroverted vs. introverted, intuitive vs. sensing, and thinking vs. feeling dimensions and eating disorder type. However, a significant association was found between the judging vs. perceiving dimension and anorexia nervosa ($p=0.028$). Further, no significant association was found between Myers-Briggs

Personality Type dimensions and eating disorder duration. These findings suggest that the judging vs. perceiving dimension of Myers-Briggs Personality Type may be a unique aspect of personality to explore in individuals with anorexia nervosa. The findings also imply that non-pathological personality type may be a useful tool for eating disorder practitioners to explore when providing care to patients, given that it may provide insight into treatment modalities that may be more likely to work for certain patients, given aspects of their specific non-pathological personality type.

NORTHERN ILLINOIS UNIVERSITY
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ASSOCIATIONS BETWEEN MYERS-BRIGGS PERSONALITY DIMENSIONS,
EATING DISORDER DIAGNOSES, AND EATING DISORDER DURATION

BY

TIFFANY MEI HAUG
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Thesis Director:
Dr. Amy Ozier

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CHAPTER 1

INTRODUCTION

The validity of the true extent to which personality disorders (PDs) are diagnosed in those with eating disorders (EDs) remains a controversial topic among researchers and within the ED treatment community.¹⁻³ Past studies have shown that as ED treatment and recovery progresses, patients previously diagnosed with PDs show significant declines in their PD symptomatology, to the extent that they may no longer meet diagnostic criteria for PD diagnoses.^{2,3} Such findings are counterintuitive to the diagnostic definition of PDs, which are considered to be lifelong pathologies that cannot be outgrown.⁴ These findings also raise the concern of potential false-positive results when assessing and diagnosing PDs in individuals who are in the active stage of their EDs.⁵ The diagnostic definitions of PDs further stipulate that they cannot occur as the consequence of another mental disorder nor otherwise be accounted for by another mental disorder.⁴ Because of this, the question is raised whether the guidance given to those diagnosed with ED and PD comorbidities during the course of ED treatment will still apply if PD symptoms eventually dissipate following weight restoration, neurochemical stability, and/or recovery.²

Given this, it may be beneficial to incorporate non-pathological, innate personality type (PT) assessments as part of ED-related psychological assessments, given that outcomes from such PT assessments may potentially be useful to consider when developing individualized treatment and recovery plans. This is in contrast to formulating treatment plans for patients based upon PD comorbidities that have been diagnosed in the acute stage of an individual's ED. Given that such PD diagnoses are often made at a time of neurochemical imbalances caused by malnutrition, these diagnoses may or may not be reflective of the presence of personality

psychopathology in the long term. Incorporating non-pathological PT assessments, such as the Myers-Briggs Type Indicator (MBTI), may be beneficial in evaluating innate, non-pathological PTs in those with EDs. The results from such instruments that assess non-pathological PT may additionally provide the patient and treatment team with valuable insights as to how the ED diagnosis and other ED-related factors may have possibly stemmed from the patient's innate PT.

Statement of the Problem

Given this, it may be beneficial to incorporate non-pathological, innate PT assessments as part of ED-related psychological assessments, given that PT may be a predictor of PD or may be a predictor of the misattribution of a malnutrition-related state-specific personality pathology that is mistakenly diagnosed as a PD. Incorporating such non-pathological PT assessments has the potential to also be beneficial in investigating commonalities in the innate PTs among those with EDs.

Though an individual with a given PT may present differently to the outside world depending upon whether or not they are actively engaged in their ED, research shows that some temperament and personality traits exist consistently, regardless of whether or not the individual is engaged in their ED.⁶ Some scholars hypothesize that these lingering temperament and personality traits result from permanent neurophysiological imbalances caused by the ED. However, traits such as perfectionism and a desire for thinness are also described as traits present in individuals who go on to later develop an ED. Thus, this suggests that these temperament and personality traits are innately ingrained within the individual's personality and that they may exist prior to the development of the ED.⁶ Therefore, there is a possibility that the indicators for

PDs observed and diagnosed in individuals with EDs do not result from a true PD, but instead result from state-specific adaptations that one's personality undergoes while under the physiological, biological, and neurochemical disturbances caused by engaging in the ED.

Eating Disorder Demographics

From a demographic perspective, though EDs are diagnosed more commonly among females, approximately 30% of those with anorexia nervosa (AN) and bulimia nervosa (BN) are male, and over 50% of those with binge eating disorder (BED) are male.⁷ Further, despite the fact that EDs tend to be perceived as diseases exclusively afflicting young, Caucasian females, research shows otherwise; EDs affect both men and women of various ages, ethnicities, and socio-demographic backgrounds.^{8,9} Specifically, BN and BED are most commonly found among Hispanic populations while AN occurs most often in non-Hispanic Whites.⁹ Research also shows a rise in the incidence of EDs among girls between the ages of 15-19 over the past few decades; further, this age and gender group is considered to be at highest risk for developing EDs.⁹

ED Types and Morbidity

Currently, four types of EDs are recognized by the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), including AN, BN, BED, and other specified feeding or eating disorder (OSFED).

Individuals with AN experience extreme body image disturbances and intrusive thoughts, causing the individual to have an intense fear of weight gain. This causes one to starve oneself

through restricting caloric intake below what is necessary to maintain a body mass index (BMI) of 85% or above. BN is characteristic of behaviors such as bingeing on large quantities of food followed by compensatory purging behavior (vomiting, laxative use and/or engaging in excessive exercise). Like those with BN, individuals suffering from BED also binge on large quantities of food, but do not follow such binges with compensatory purging behavior. OSFED, which was previously named “eating disorder not otherwise specified” (EDNOS) under DSM-4, possesses the second highest mortality rate of all the EDs. OSFED serves as an ED diagnosis given when one or more of the above symptoms of AN, BN, or BED are present and disrupt the individual’s life but does not quite meet the DSM-5 criteria to qualify for a diagnosis of AN, BN, or BED.¹⁰ Genetic studies conducted in those with EDs have shown that 50-80% of the risk for individuals developing AN or BN can be attributed to genetics.¹¹ EDs have the single highest mortality rate of all psychiatric illnesses; BED has a mortality rate of 5.2%, OSFED (formerly EDNOS) of 5.0%, AN of 4.0%, and BN of 3.2%.^{8,12-14} Further, 9-42% of those who enter into recovery for an ED are expected to relapse.^{15,16}

Of all the psychiatric illnesses, EDs are perhaps the most notoriously complex group of diseases to treat, given their multifactorial etiology and complex disease course, in addition to the predominant resistance that sufferers exhibit towards receiving treatment and committing to recovery. Because of the psychological, physiological, and behavioral nature of this disease, patients with EDs require interdisciplinary treatment.

Eating Disorders and Personality Disorder Comorbidity

PD comorbidity is very common among individuals with EDs, and roughly 30% of those with EDs possess a diagnosable PD.¹⁷ In contrast to an approximate 8% of the general population who suffer from obsessive compulsive personality disorder (OCPD), an approximate 22% of individuals with AN-restricting type suffer from OCPD.¹⁸ Further, while 6% of the general population suffer from borderline personality disorder (BPD), 25% of individuals with AN-binge-eating/purging type and 28% of individuals with BN suffer from BPD.¹⁸

Studies have also shown that perfectionism scores, as determined by the Eating Disorder Inventory 3 (EDI-3, a self-assessment tool used to determine extent of ED risk and severity) are elevated in individuals with AN and BN who are active in their ED as well as those in remission from their ED.¹⁹ A specific form of perfectionism - self-critical perfectionism - has also been shown to be correlated with elevated psychopathology in EDs.^{20,21} Those who experience self-critical perfectionism have difficulty experiencing satisfaction and self-fulfillment unless they excel at a given task. This leads to a competitive and egocentric social demeanor that may push people away, making it difficult for these individuals to maintain fulfilling interpersonal relationships.²² In specific regards to those with AN, possessing an undercontrolled personality trait has been shown to increase the risk for poor treatment outcome and increase risk for ED remittance.²³ Further, possessing a personality trait of negative urgency - the likelihood of one acting rashly when under duress – has additionally been reported as a notable personality trait risk factor for BN.²⁴ These findings show that there is a relationship between personality pathology and ED etiology.

Personality Disorder, Eating Disorders, and Body Mass Index

It is common knowledge that EDs most often present in individuals who possess extreme high and low body mass index (BMI) values and that PD diagnosis in those with EDs may in part be correlated with BMI. One study sought to examine the psychological disturbances most common among high and low BMI values. Out of a sample of 653 adult women and men recruited from the practice of a primary care physician, who all sought care for reasons unrelated to weight status or mental health, it was found that anxiety and mood disorders were most associated with extreme BMI categories (both low and high). Cluster C PDs were diagnosed in 18% of the participants in the underweight BMI category as a result of this study. It was found that the lower the BMI value was, the higher the likelihood was for meeting criteria for a Cluster C PD diagnosis.²⁵ This raises the question of whether those with EDs who are diagnosed with a Cluster C PD while they are engaged in their ED and as a result present with a clinically low BMI may otherwise not have presented with the psychometric signs and symptoms of a PD prior to weight loss and/or following the attainment of a normative BMI.

Ansel Key's famous Minnesota Starvation Experiment established decades ago that malnourishment and weight loss – which would directly be associated with a corresponding decrease in BMI – causes temporary maladaptive personality changes in individuals.²⁶ There is a possibility that an otherwise normal personality may present as pathological when an individual is engaged in an ED and as a result is malnourished.⁵ BMI suppression through ED-related weight control measures are additionally an independent, positive predictor of ED severity as assessed by the EDI-3 Bulimia and Drive for Thinness scores.²⁷ Individuals with high BMIs were also found to have higher EDI-3 Body Dissatisfaction scores.²⁷ The outcomes from the

above studies allude to the possibility that biochemical and psychological changes take place at BMI extremes, which impact both ED severity (as measured by the EDI-3) and the likelihood of presenting with signs and symptoms diagnostic of a PD.^{25,27}

Justification of the Study

Given this, it may be beneficial to incorporate non-pathological, innate PT assessments as part of ED-related psychological assessments performed within the context of ED treatment. Outcomes from such PT assessments would potentially be useful to consider when developing individualized treatment, recovery plans, and coping tools for those with EDs, rather than basing these, in part, upon the assumption that the PD comorbidities that have been diagnosed in the acute stage of a patient's ED will remain, even following recovery; such PD diagnosis may or may not be relevant nor reflective of the patient's personality in the context of long-term abstinence from active engagement in the ED. Incorporating such non-pathological PT assessments may be beneficial in evaluating innate, baseline PTs in those with EDs.

The results from such personality assessments may additionally provide the patient and treatment team with valuable insights as to how the ED diagnosis, duration of illness, and type of PD diagnosis may have stemmed from the patient's innate PT. Further, past research has shown that PT during adolescence may be predictive of health behavior risk in adulthood.²⁸ It has also been found that certain facets of MBTI PT are significantly correlated with specific types of mental illness.²⁹ If there are, in fact, PTs associated with EDs, knowledge of these PTs may be beneficial in allowing individuals with such PTs to receive support prior to the onset or worsened acuity of an ED.²⁸

The purpose of this present study is to assess the non-pathological PTs (as determined by the MBTI (Form M) in individuals between the ages of 18 and 65 who currently have a diagnosed or undiagnosed but suspected ED or those who are in recovery or are recovered from a diagnosed or undiagnosed but suspected ED. Additionally, this study aims to examine whether the PTs of participants are associated with the type of ED diagnosis they currently have, or have had in the past. Last, this study investigates whether associations exist between MBTI PTs and ED duration.

Hypotheses

H₁: MBTI PT will be related to the type of ED diagnosis an individual currently has or has had in the past.

H₂: MBTI PT will be related to the duration of time one has spent (or spent in the past) in the active stage of an ED.

Operational Definitions

- PD diagnosis refers to a diagnosis that has been made by a qualified mental health provider (i.e., psychologist or psychiatrist).
- An individual who is “recovered” from an ED refers to someone who has had an ED at some point in the past but no longer experiences disordered cognitions or the disordered behaviors associated with EDs.

- MBTI PT refers to the participants four-letter PT as determined by the MBTI; MBTI PT dimensions refer to one or more of the four dimensions (each expressed by one letter) that comprise an individual's PT as determined by the MBTI.
- “Active stage of ED” refers to an individual who currently meets the diagnostic criteria for an ED, according to the diagnostic definitions of EDs set forth by DSM-5.
- An individual “in recovery” from an ED refers to someone who once met diagnostic criteria for an ED at some point in the past but is actively pursuing recovery and no longer meets diagnostic criteria for an ED.
- “Type of ED diagnosis” refers to the type of ED an individual has had in the past or currently possesses.

CHAPTER 2

LITERATURE REVIEW

Despite the vast amount of existing studies that have examined the significance of PD comorbidities in those with EDs, few studies have sought to investigate the role of non-pathological PTs in those with EDs.³⁰ To a certain extent this discrepancy is understandable, given the expansive number of studies supporting the detrimental impact that PD comorbidities have on ED prognoses.¹⁻³ Though both pathological PDs and non-pathological/innate PTs describe individuals traits, characteristics, and coping mechanisms that they use to interact with and interpret their surrounding world, the difference between non-pathological PTs and PDs is that those with PDs show extreme rigidity and pathology in their behaviors, mindset, and how they view and interpret their surrounding environment, and as a result, those with PDs often struggle with forming healthy relationships, as their PDs negatively impact their social and relational skills and the ways in which they interact with those around them.³¹

Personality Disorders and Eating Disorders

Research has shown that 20-30% of individuals in treatment for EDs have been diagnosed with a comorbid PD.^{3,17} In one study comprised of 132 female patients at a residential ED treatment center, it was found that 21% of participants possessed a current PD diagnosis while 37 % of those without a PD diagnosis possessed symptoms indicative of a potential PD.³

In another study of 545 patients with EDs, as many as 29.5% of participants met criteria for one or more PDs.¹⁷ According to the *Diagnostic and Statistical Manual for Mental Disorders, 5th ed.* (DSM-5), PDs are grouped together by common personality function and trait impairments and are categorized as falling under six categories: schizotypal, borderline, antisocial, narcissistic, and obsessive compulsive PD.³¹ Given that PDs were previously categorized by three clusters (A, B, and C) and previous PD research has been conducted using this terminology, this present study accordingly uses the previously utilized terminology of Clusters A, B, and C PDs when referencing previous studies which have used these terms within their research. Cluster A PDs include paranoid, schizoid, and schizotypal PDs; Cluster B PDs include antisocial, borderline, histrionic, and narcissistic PDs; while the Cluster C PDs include obsessive compulsive, avoidant, and dependent PDs.³²

Of these three clusters and their respective PDs, those with ED and PD comorbidities tend to be diagnosed with PDs that are grouped under Cluster B or Cluster C categories.³² PDs that fall under the Cluster B category share a theme of disinhibited and spontaneous behavior, while Cluster C PDs share commonalities of rigid, obsessive, anxious, and fear-mediated behaviors.³³ Specifically, under the Cluster B category, research shows that BPD is most common in individuals with BN, while OCPD (under Cluster C PDs) is most often diagnosed in individuals with AN.³⁴

Part of the ambiguity surrounding the validity of PD diagnoses in individuals with EDs can be attributed to the fact that many of the factors considered to be signs and symptoms of PDs are also, in part, signs and symptoms of EDs without a comorbid PD.^{3,35} Though many individuals do in fact have legitimate PD and ED comorbidities, many of the above traits representative of BPD and OCPD have also been observed in healthy individuals following a

period of semi-starvation and thus may be state induced for an acute period of time in response to malnourishment.²⁶ Therefore, the question is raised whether many of the PD diagnoses in those with active EDs are truly valid, given that malnourishment has been shown to significantly (but reversibly) impair one's cognitions, behaviors, and outward expressions of personality to the extent that an individual without a PD may temporarily present as meeting the diagnostic criteria for a PD diagnosis, for the duration of time which they remain malnourished.^{3,26,35}

Potential Misappropriations of Personality Disorders in Eating Disorders

In the famous Minnesota Starvation Experiment conducted in 1944, it was found that 36 otherwise healthy men became depressed, reported feelings of inefficiency, preferred isolation, and experienced fleeting periods of ecstasy followed by emotional lows while participating in a five-month controlled semi-starvation study.²⁶

Further, during this period of semi-starvation, the men experienced hyper-irritability, nervousness, and a decline in their own perceived sense of self-control and self-discipline. Yet, following a period of nutritional rehabilitation and restoration of weight status after the study ended, these men progressively improved to the point of regaining their former normative cognitive and behavioral states that were observed prior to the initiation of the study.²⁶

Studies conducted on samples of individuals with PD and ED comorbidities have reported analogous outcomes regarding the effect of malnutrition on pathological cognitive and behavioral presentation to those of the Minnesota Starvation Experiment. In specific regards to AN, research has shown that during periods of starvation and weight loss, the brain chemistry of those with AN undergoes functional alterations, specifically in regards to neuropeptide and

monoamine functions.³⁶ These chemical alterations further contribute to the depressed, anxious, and agitated mood states experienced by individuals with AN.³⁶ Further, studies have also reported evidence that as ED treatment and recovery progresses, those previously diagnosed with PDs show significant declines in PD symptomatology to the extent that they no longer meet diagnostic criteria for PD diagnoses.^{2,3} Given the fact that PDs, by definition, are lifelong pathologies that cannot be outgrown, these outcomes are counterintuitive and suggest that the initial PD diagnoses in these individuals with ED diagnoses may have been faulty.³¹

Potential Benefit of Personality Type Assessments Within Eating Disorder Treatment

Therefore, the capacity to which PD assessments and diagnoses conducted during ED treatment can accurately reflect the presence or absence of a PD comorbidity remains in question. It should also be mentioned that PD assessments and diagnoses conducted at such a chaotic point in patients' lives gives way to the concern of false-positive outcomes, which could have harmful short-term and/or long-term impacts on how ED treatment and recovery are approached by patients themselves, as well as by their respective ED treatment providers.

Unlike certain pathological personality traits, PTs have been shown to remain relatively stable throughout the lifespan, and such stability of non-pathological personality traits has also been demonstrated in studies conducted on samples of those with EDs, regardless of whether an individual was actively engaged in their ED, in recovery, or fully recovered.³⁷

In light of this, it may be beneficial for non-pathological PT assessments to be conducted as part of routine psychological assessments performed during the course of ED treatment. PT assessments may allow ED treatment providers and ED patients to gain a more comprehensive

view of the interrelationship between personality factors and the initial development and purpose served by their EDs; such a perspective would be difficult to achieve from solely viewing personalities in terms of whether or not a patient possesses an ED and PD comorbidity.

Because of the relatively static nature of non-pathological personality traits, PT assessments in ED patients may also provide a more long-term and holistic picture as to the factors that impacted an individual's level of susceptibility towards developing an ED, in addition to possible aspects of the patient's personality that should be considered when formulating ED treatment and sustainable recovery strategies in light of the individual's unique PT. Despite such potential benefits of conducting PT assessments in individuals with EDs, little research has been conducted to date on non-pathological PTs in individuals with EDs.

Personality Assessment

In an effort to better determine the different types and facets of personalities, a variety of personality assessments have been constructed over the decades. Of these, several instruments are utilized to assess the innate, non-pathological personalities of individuals. Of these assessment instruments, some focus on the evaluation of specific personality traits as individual entities, while other instruments approach personality from a type perspective, in which an individual is determined to possess a specific PT, comprised of several personality traits grouped together that are determined based upon responses to questions given on a PT assessment. In Robert Hogan's book, the *Handbook of Personality Psychology*, personality traits are described as stable cognitions, emotions, or behaviors that are unique to any given individual.³⁸

The main difference among these assessment instruments lies in whether they seek to assess PTs (wherein each PT is thought to be associated with a grouping of predetermined cognitive preferences) or if they consider personality traits to be distinctive entities that should be examined on an individual basis. Other assessments are constructed to determine one's temperament(s), which are defined as characteristics of individual personality that are innately endowed within the individual, and thus, they exist from the point of birth. Temperament is what later goes on to influence the individual's personality traits and type.³⁹

Temperament and Character Assessment

Unlike personality trait and PT assessments, the Temperament and Character Inventory (TCI) assessment is an instrument constructed to determine and understand the emotional and regulatory response of an individual that exists from the point of birth and thus exists to an extent separately from personality traits or PT. Temperament is thought to exist as a facet of personality that is unadulterated by environmental and social influences that occur within life. Thus, temperament is constitutional, yet is also a critical facet that determines—and to an extent, establishes—personality traits and PT, which solidify later on in life as a result of biological temperament, experience, environment, and the society in which one lives, among other factors.³⁹ In further testament to the biological nature of temperament, temperament has been found to be correlated with variations in neurocircuitry (e.g., the way in which an individual's neuropathways are wired), which influences one's propensity to act and react in a certain way in response to given motivations.⁴⁰ Thus, given the link between temperament and distinct neurocircuitry, temperament becomes a foundation from which personality traits and PT can be

inferred, given that neurocircuitry gives rise to the individual's propensity to think and behave in a distinct manner in response to various stimuli encountered throughout life.⁴⁰

Personality Trait Assessment

Perhaps one of the most well-known personality trait assessment instruments is the Big Five Model of Personality Traits, which is based on the premise that five independent personality traits exist in isolation from one another; in other words, the presence of one trait is in no way an indicator as to the presence or lack of existence thereof of another trait. These five traits include openness, conscientiousness, agreeableness, extraversion, and neuroticism.⁴¹ However, the trait concept has received criticism from some scholars as a result of the argument that individuals' consistent adherence to certain personality traits are substantially influenced by the contexts and settings in which individuals are usually immersed throughout their daily lives (and also the setting in which they usually exhibit personality traits); thus, some have questioned whether traits can even exist independently from environmental influences.¹⁷ One of the drawbacks to using the Big Five Model of Personality Traits lies in the fact that it neglects to consider the cognitive preferences of persons, or the way in which individuals are inclined to process and incorporate external stimuli into their internal reality and beliefs, despite studies which have shown personality traits to be influenced by environment and possessing an aspect of "nurture" rather than solely "nature."^{42,43}

As with the 2004 article by Klump et al., the few studies that have assessed non-pathological personality traits in those with EDs have mostly done so by utilizing the Big Five Model of Personality Traits as their personality assessment instrument.³⁷ One study published in

2004 compared personality trait variables across a sample of women with active AN, BN, those with both AN and BN, women who had recovered from AN, women who had recovered from BN, as well as a control group which consisted of women who had never suffered from an ED. The outcome of this study showed that women with active BN, as well as women recovered from BN, both showed higher levels of novelty seeking (NS) and lower self-directedness (SD) traits as compared to women in the control group. In contrast, women with active AN greatly differed in their personality traits compared to women recovered from AN and showed lower levels of novelty seeking (NS) traits than the control. Surprisingly, the women who had recovered from AN showed higher levels of NS traits than the control, which researchers inferred to be indicative of the possibility that those recovered from AN may have possessed naturally higher levels of NS compared to the general female population (prior to the development of their ED), which would either suggest that the high level of NS traits measured in these recovered women was a signal that their level of NS had returned to its natural homeostatic baseline following recovery from AN, or that these individuals possessed higher levels of NS consistently throughout suffering from AN as well as through and following recovery.³⁷ The differences observed between women with active AN, compared to the control group, were their lower levels of NS, as well as harm avoidance (HA) and control (C) levels. Additionally, the women who had active BN scored higher in NS characteristics than the control group.³⁷

Personality Type Assessment

Perhaps the most well known of all the PT assessments is the MBTI, which consists of a series of questions formulated to determine an individual's preferred cognitive processing style(s) and preferences.⁴⁴ The MBTI was created by the researcher Isabel Briggs Myers, based on the research of Carl G. Jung.⁴⁴ It was Jung who originally hypothesized that PTs develop as a result of individuals' innate preferences, regarding how they perceive their internal and external reality and by default use these perceptions to produce judgments regarding the world in which they live.⁴⁴ Those taking the MBTI (Form M) answer a series of 93 questions that are formulated to collectively determine their preferred/predominant response to certain social, behavioral, and cognitive processing scenarios. The test-taker's responses to these questions are then entered into an algorithmic system to compute their specific MBTI PT.

Each of the 16 MBTI PTs are represented in terms of a series of four letters, wherein each letter represents a dimension of the individual's cognitive framework within their personality, which helps to cumulatively form the basis for their unique four-letter PT. The personality dimensions and cognitive preferences measured by this assessment tool include extroversion vs. introversion, intuitiveness vs. sensing, thinking vs. feeling, and judging vs. perceiving.⁴⁴ According to the Myers-Briggs Foundation, the three most common PTs in the general population are ISFJ (13.8% of the population), ESFJ (12.3% of the population), and ISTJ (11.6% of the population).⁴⁵ The rarest PTs are INFJ (1.5% of the population), ENTJ (1.8% of the population), and INTJ (2.1% of the population).⁴⁵ Further, within the general population, the most commonly represented cognitive dimensions from each category are introversion, sensing, feeling, and judging.⁴⁵

More specifically, the first dimension (extroverted vs. introverted) assesses one's propensity to focus on stimuli stemming from the external environment (extroverted) or if they tend to focus more on internal thought processes and feelings (introverted).⁴⁴ The second dimension, intuitive vs. sensing, determines the way in which one prefers to process and learn information; those testing higher in intuition tend to analyze and infer meaning from gathered information rather than taking it at face value, while those with scores higher in the sensing dimension prefer to gather fundamental information without much additional questioning.⁴⁴ The third personality dimension, thinking vs. feeling, measures whether one is more apt to pragmatism and logic (thinking) or is more emotionally driven when making decisions (feeling).⁴⁴ The judging vs. perceiving dimension measures whether individuals prefer to make concrete decisions (judging) or are comfortable with ambiguity and possess an innate open-mindedness to other thoughts and ideas when making decisions (perceiving).⁴⁴

Reliability and Validity of the Myers-Briggs Type Index

Research has shown the MBTI to be reliable.^{46,47} In a meta-analysis of 14 studies reporting reliability statistics of the MBTI, it was found that the coefficient alpha for the mean reliability across all the cognitive preference dimensions assessed within the instrument was $\alpha > 0.815$; while test-retest reliability was $\alpha > 0.813$. A coefficient alpha greater than $\alpha > 0.8$ is considered acceptable for scales containing three or more items, such as is the case for the MBTI. For scales containing less than three items, a coefficient alpha of $\alpha > 0.7$ is considered acceptable. Given this standard, all cognitive dimensions assessed by the MBTI were considered

acceptable in regards to their reliability as determined by Cochran's alpha (E/I: $M = \alpha > .838$; N/S: $M = \alpha > .843$; T/F: $M = \alpha > .764$, J/P: $M = \alpha > .822$).^{46,47}

Further, it has been shown that MBTI has high perceived validity from the perspective of those who have taken the assessment.⁴⁸ In one study, 118 college students unfamiliar with PT assessments were administered the MBTI, and following completion of the assessment, they were not told their specific PT result but rather were each given a packet to take home, which included a page-long description of four different MBTI PTs, only one of which included the individual's actual MBTI PT results. The other three PTs included the opposite PT from the participant's actual PT result and two other PTs that varied from their actual PT in a single cognitive dimension (i.e., extroverted rather than introverted, judging rather than perceiving). The participants were then asked to rank these four PTs in the order of the ones they felt best described their own PT. The outcomes of this study showed that two thirds of the participants ranked their actual PT result as the PT that best described them.⁴⁸

Myers-Briggs Type Index Within the Therapeutic Setting

To the author's knowledge, there have been no peer-reviewed articles published to date that have sought to examine the potential MBTI PT distinctions in those with EDs. There have been past studies, however, which have examined MBTI PTs in relation to other psychiatric illnesses.⁴⁹⁻⁵¹ In the text *Key Concepts in Counselling and Psychotherapy: A Critical A-Z Guide to Theory*, the authors note that a benefit of considering a patient's cognitive preference (in accordance with their MBTI PT) is that it helps the therapist to better decode/better understand the "lived experience" of the client, which may provide greater opportunities for enhanced

therapist-client communication and rapport, as well as a greater likelihood that the client will feel understood and validated by the therapist, since the therapist will be able to better communicate with the patient in her or his preferred cognitive language.⁵²

In a 1999 study conducted on a sample of depressed participants with BPD and a sample of depressed individuals without BPD, the authors of the article reported significant correlations in MBTI PT dimensions observed among the group with BPD that were not found in those without BPD. Specifically, the group of participants with BPD were comprised of significantly more individuals with E versus I on the extroverted vs. introverted dimension and more individuals with P characteristics rather than J on the judging vs. perceiving dimension when compared to the control group without BPD ($p=0.004$, $p=0.007$).²⁹

Another 1999 study conducted by the same authors reported outcomes that individuals with alcohol dependence and/or substance abuse disorders with no mood disorder, as well as those with alcohol dependence and/or substance abuse disorders with a comorbid mood disorder, had significantly more prevalent introverted, sensing, feeling, and perceiving personality dimensions as compared to a control group comprised of participants who neither had an alcohol dependence/substance abuse disorder nor a comorbid mood disorder ($*P < 0.05$, $*P < 0.05$, $P < 0.001$, $P < 0.01$).⁴⁹ A more recently published study conducted on a sample of 520 individuals undergoing cognitive behavioral therapy (CBT) for depression and anxiety revealed that those who possessed the thinking dimension within their MBTI PT showed a significant improvement in Global Assessment of Functioning (GAF) scores following CBT, as compared to those who possessed the opposing feeling dimension within their MBTI PT, indicating that cognitive preferences may also impact individuals' likelihood to benefit from specific therapeutic modalities ($P<.05$).⁵¹

Past research has also revealed notable correlations and distinctions between specific MBTI PT dimensions and psychotherapeutic response and preferences. Miller, who utilized the Big Five Model of Personality Traits to assess psychotherapy preferences and outcomes of 119 outpatient psychotherapy patients and their respective families, found that patients with high extroversion scores (analogous to the extroverted dimension assessed within the MBTI PT assessment) anticipated better outcomes regarding their own participation within psychotherapy sessions and were also found to have significantly more positive outcomes than those with lower extraversion scores ($p=0.01$).⁴¹ However, Miller caveats this reported outcome by stating that those patients with higher extraversion scores may have the outward appearance of being in better health than those with lower extraversion scores, due to their increased likelihood to engage in sessions to a greater extent as well as to divulge more information than their counterparts with lower extraversion scores within psychotherapy sessions.

Though the latter study did not specifically address the implications of such outcomes for the ED population, such findings do further highlight the potential influence of a patient's personality on the degree of efficacy for therapeutic modalities utilized. It also highlights the risk of practitioners' perceptions of therapeutic modality efficacy to have a bias that is influenced by aspects of a patient's personality, such as extroversion. Thus, awareness of patient PT by ED treatment providers may potentially lead to improved treatment outcomes, as a result of a greater understanding of the interplay between personality and actual and/or observed treatment efficacy.⁴¹

Potential Value of Myers-Briggs Type Index Within Eating Disorder Research

Critics of the MBTI claim that the instrument has a tendency to overgeneralize the intricacies of individual personality traits, by grouping the entirety of the population into a mere 16 PTs.⁵³ Though research has shown that the MBTI is both a valid and reliable instrument, categorizing individuals into PTs – each comprised of a grouping of predetermined traits – has been questioned as predisposing those made aware of these assessment results to potential cognitive biases.⁵³

Yet, despite the critiques of using the MBTI in the general population, there is significant potential value for incorporating the MBTI as an instrument within ED research. Though all the traits associated with a particular MBTI PT may not all necessarily be present in every individual with that given PT, having a general framework of an ED patient's PT could provide ED treatment professionals with a valuable foundation to better understand and communicate with their patients. Further, given the complexity of ED treatment, in addition to the variety of neurochemical imbalances that affect the cognitive processing of ED sufferers—especially in cases where the individual is underweight—understanding the MBTI PT of their patients has the potential to help ED treatment professionals better understand and appeal to their patients' respective cognitive processing styles and preferences, in the midst of a therapeutic relationship that has the potential to encounter multiple and critical communication challenges.

Additionally, when considering the likelihood for the overdiagnosis of PDs among individuals with EDs, it would be beneficial to assess associations between PT and presence and type of PD diagnosis, demographic factors, and severity and type of ED diagnosis so as to examine factors related to PT, as well as PTs that may be associated with certain types of PD

diagnose, given that existing research on personality traits has revealed commonalities in traits among certain ED types.³⁷

Significance of the Study

The study may assist in identifying dimensions of MBTI PTs that are related to specific ED types as well as the durations of ED individuals had previously or have currently. By exploring PTs common in those who have received a given ED diagnosis, clinicians may also be able to use such information to carefully examine whether the psychological and behavioral signs and symptoms exhibited from the client stem from a true PD or rather from a state-specific physiological and neurobiological adaptation of the individuals' PT, as influenced by their specific ED diagnosis. Further, if clinicians regularly test ED clients' MBTI PTs, they may be able to gain a more holistic understanding of how ED etiology was influenced by certain PT-related cognitive preferences, as well as how these preferences can be utilized to the advantage of the client within the recovery process. Though a client with any given MBTI PT may not possess all the traits and cognitive preferences projected base upon their given PT result, client willingness and motivation to engage in treatment may increase as a result of clinicians using such PT results as a foundation for bridging the communication gap with clients. Knowing a patient's MBTI PT would provide an opportunity for the ED practitioner and the patient to share a mutual understanding of the patient's cognitive framework. This would be highly advantageous, considering that the cognitive frameworks of patients with EDs may often seem elusive and difficult to comprehend to ED practitioners.

CHAPTER 3

METHODS

Prior to the initiation of any recruitment or data collection for this study, approval to conduct this research with a sample comprised of individuals possessing a current or past history of an ED was requested and obtained from the Institutional Review Board for Human Subjects Research at Northern Illinois University (see Appendix A). There was no incentive provided to participants for their involvement in the study.

Study Design and Participant Recruitment

This study was designed as a cross-sectional study for which the data collection took place between July, 2016, and October, 2016. Participants were comprised of a non-probabilistic convenience, purposive, and voluntary sample. The sample was comprised of individuals age 18 and older who currently possessed a diagnosed ED or a suspected, but not diagnosed ED. Further, individuals who were diagnosed with or suspected that they had an ED in the past, but were currently in recovery or fully recovered, were also eligible for participation in this study. An extensive review of literature was completed prior to the initiation of participant recruiting or data collection for this study.

Methods used for recruiting participants consisted of separate measures for those who completed the online version of the two assessments and those who completed the assessments in-person. Online participant recruiting methods consisted of reaching out to ED practitioners (dietitians, therapists, psychologists, ED community support group facilitators, individuals working or volunteering within ED support organizations) to ask if they would be willing to assist with recruitment for the study. The researcher provided these practitioners with the links to access the two instruments so that qualifying individuals could access these if they were interested in participating. The study was also advertised on the researcher's personal social media websites, Facebook and LinkedIn. Further, the researcher contacted ED support organizations to ask if they would be willing to advertise for the study on their websites, along with a study description and links to the two assessments. Professors from Northern Illinois University, as well as the University of Southern Mississippi were additionally contacted by the researcher to ask if they would be willing to distribute the description of the study to their classes via email. All recruiting methods were approved by the Institutional Review Board for Human Subjects Research at Northern Illinois University.

Sample Selection

Inclusion criteria for participation in this study consisted of participants' informed consent to participate in the study (which was outlined within the informed consent form as being implied by the participants by their completion of the eating disorder history and demographics survey [EDHDS] and the MBTI PT assessment), being of the age of 18 years or older at the time of the study, and possessing a self-reported, suspected, and/or medically

diagnosed past or present ED of AN, BN, BED, or OSFED. Criteria for exclusion from participating in the study included those who did not give their informed consent to participate in the study, those below the age of 18 at the time of the study, and those who had never had a diagnosed or suspected ED at any point in their lives.

The sample recruited for the in-person administration of the instruments included four individuals in attendance at an ED support group in the Greater Chicagoland Area and two individuals who were personal contacts of the researcher whom the researcher asked if they would be interested in participating in the study if they felt they met the criteria for participation in the study. Of these six in-person participants, one individual did not respond that she or he had ever had a suspected or diagnosed ED and instead marked that she or he had never been diagnosed with an ED, thus indicating that she or he did not meet the participation criteria for this study; therefore, the data within the instruments completed by this individual were excluded from any of the study's data analyses. Those who took part in the study via the online completion of the EDHDS and MBTI did so via a link posted to Facebook and LinkedIn by the researcher. Additionally, contacts of the researcher who had a current or past ED were sent personal messages (via Facebook messaging, email, or verbal contact) by the researcher, asking if the individual would be interested in participating in the study (see Appendices B and C). This study was also advertised by two ED support organizations on their websites; one of these organizations also posted the advertisement for the study its Facebook page as well as within the organization's newsletter. Further, the researcher contacted ED treatment practitioners as well as those with clientele with EDs, predominantly in the Greater Chicagoland Area but also in Denver, who inquired of their clients whether they would be interested in participating in the study.

The cumulative final count of participants who participated in the study via the in-person and online methods within the data collection period were 62 individuals. Of these 62 individuals, the results from 11 participants were excluded given that the individuals either indicated within the EDHDS that they had never been diagnosed with an ED and/or did not suspect that they had ever had an ED, or they completed only one of the two assessments, thus rendering the data from the portion completed to be unusable for statistical analysis purposes. This resulted in a cumulative 51 participants who met inclusion criteria for the study and completed both of the necessary EDHDS and MBTI instruments.

Potential Risks to Participants and Informed Consent

Though there were no foreseeable risks to participants in the context of their involvement within this study, in the potential event that participants might have experienced unpleasant emotions or memories as a result of responding to the questions on the EDHDS or MBTI, each participant was provided with a list of ED support resources, which was included at the end of the informed consent form for the study (see Appendix E). When the researcher sought approval for the study from the Institutional Review Board for Human Subjects Research at Northern Illinois University, prior to the initiation of this study, she reported that the potential benefits anticipated from this study would justify the potential risks to participants, given that the risks anticipated were minimal and the potential benefits included the possibility for the expansion of research in regards to EDs and PTs and, as a result, an opportunity to improve the quality and

efficacy of treatment provided by ED professionals and the care received by individuals suffering from EDs.

Individuals who participated in this study via the online completion of the MBTI assessment were debriefed regarding the steps involved in participating in the study via the study's informed consent form included at the beginning of the EDHDS. Those who participated in the study via the in-person completion of the paper versions of the EDHDS and the MBTI assessment were debriefed via the content included within the informed consent form; a flyer for the study was also provided, which outlined the participation criteria and objective for the study as well as what participation in the study entailed (see Appendix F). The in-person participants were also debriefed in person by the researcher regarding what participation in the study entailed as well as of the purposes of the study.

Instruments

One of the two instruments utilized within this study was the MBTI (Form M). This instrument consisted of 93 questions carefully constructed to assess the cognitive preference of individuals, as represented by a four-letter PT. The questions asked within this assessment cannot be included within this document due to copyright restrictions. The MBTI was chosen as the PT assessment instrument for this study for the reasons described in Chapter 2 and also because of the instrument's unique ability to assess a collection of traits that comprise PT within a given individual. Thus, this PT assessment had the capability to provide a more holistic view of

one's cognitive framework, rather than regarding individual traits as sole entities that are not otherwise influenced by other coexisting traits.

A research proposal was submitted by the researcher to CPP, the publisher of the MBTI, for approval to purchase the MBTI (Form M) for use within this study at a discounted cost; permission was granted to the researcher on June 24, 2016 (see Appendix G).

In addition to the MBTI, an EDHDS was completed by participants. The online version of this survey consisted of 10 questions; the in-person version consisted of nine questions. The EDHDS was developed by the researcher and administered through the survey development and distribution website Qualtrics. The contents of this survey were originally pilot tested online by the researcher on Facebook, and the survey was taken by a small number of graduate students at Northern Illinois University, via the survey building and distribution website Survey Monkey, in order to provide a platform for the researcher to receive feedback on the readability of the survey as well as to alert the researcher as to any potential issues with wording or difficulties encountered regarding the logistics of viewing and taking the survey.

Feedback received from the pilot distribution of these surveys revealed the need to use a different survey distribution website, given that it was necessary for the questions shown to each respondent to be dependent upon the individual's responses to previous questions within the survey. Though Survey Monkey was equipped to build surveys that selectively showed questions to participants that depended upon their answers to previous questions within the survey, this function was only available with the purchase of a subscription to a premium feature. Subsequently, the researcher decided to use the survey building and distribution website Qualtrics instead, to which the researcher had access at no additional cost, given her status as a student at Northern Illinois University. Further, given that the MBTI administration website,

Skills One, did not have adequate space to include an informed consent form at the beginning of the instrument, it was necessary instead to include this informed consent form at the beginning of the EDHDS.

Though the in-person version of the EDHDS, as well as the MBTI, did not require participants to provide their names within the surveys, the online version of these instruments asked the first and last names of participants in order that the researcher could link participant data provided by the same individual for the purposes of accurate statistical analysis.

For the in-person version of these instruments, the researcher numbered each respective instrument taken by the same individual numerically, beginning at 1, immediately following each individual's completion of the instrument. The different numbers written on participants' completed EDHDS and MBTI forms were done so chronologically, in the order in which participants finished both instruments. This allowed the MBTI and EDHDS forms completed by each participant to be kept together for accurate data analysis purposes.

For the online version, participants were only shown a maximum of eight questions on the EDHDS, depending upon on their responses to the first few initial questions within the survey. The online version of the MBTI asked participants to provide their first and last names within the first question, given that this was used to link the data for each participant between the online MBTI and the EDHDS. Neither the in-person version of the EDHDS nor the MBTI asked participants for their names and thus contained no identifiable information, given that each of the instruments was numbered and kept together following their completion and collection by the researcher.

The questions included within the EDHDS consisted of demographic questions (name, gender, age, ethnicity) as well as questions pertaining to ED history (if a formal diagnosis and/or

treatment had been received for an ED, type of diagnosed or suspected ED, current ED status, duration of current ED, and/or duration of ED prior to entering into recovery).

The design of this study did not include an intervention for participants; however, those who participated in the study were provided with a list of resources that they could refer to if they experienced distress related to their ED. If such negative emotions or distress were evoked due to participation in the study, this list of resources was embedded within the informed consent form at the beginning of the EDHDS, which participants could reference at their personal discretion and need. Further, all participants were informed via the informed consent form that if they requested it (via contacting the researcher by phone, email, or verbally), they would be provided with an executive summary of the study's main findings following its completion.

Participant Involvement

Each individual who completed the in-person, paper versions of the instruments received an informed consent form attached to a packet including the two instruments utilized for data collection within this study (the EDHDS and MBTI [Form M]). For the in-person version of the survey and assessment, the researcher received approval from the Institutional Review Board for Human Subjects Research from Northern Illinois University to implement a waiver of informed consent, wherein the participants' completion of the survey served as their sign of informed consent for participation in the study, and therefore, individuals were not required, nor requested to provide their signatures on the informed consent form.

For individuals who completed the online versions of the EDHDS and the MBTI, the informed consent form for the study was embedded within the beginning of the EDHDS. In

contrast to the participants who completed the in-person versions of the EDHDS and MBTI, those who participated via the online completion of the EDHDS and the MBTI were requested to provide their first and last names within the first question of the EDHDS, as well as within a question preceding the first question of the MBTI. In order to gain approval to collect the names of participants, considered to be identifiable information, an amendment was submitted to the Institutional Review Board at Northern Illinois University, which was approved on August 29, 2016. The contents of both the in-person and online versions of the informed consent form communicated to participants that their consent for participation in the study was implied and completely voluntary by their completion of the online EDHDS and the online MBTI PT Assessment. Participants were additionally informed via the informed consent form that they possessed full liberty to withdraw from the study at any juncture, without any fear of risk or penalty.

Data Collection

The online version of the MBTI, as well as the online version of the EDHDS (see Appendix H), was made available to participants via the individual links to the instruments provided within the advertisement for this study, which was posted by the researcher on social media websites (Facebook and LinkedIn) and on two ED support organization's websites, one ED support organization's Facebook page, as well as one ED support organizations' newsletter. This study was also initially advertised on these social media websites without the direct link to the instruments included; however, those interested in participating in the study were provided an email for the study, which they could email in order to be sent the description of the study, which

included the direct links to each of the instruments as well as the login information and password required to complete the MBTI.

The online version of the MBTI included two questions built in, pre-assessment, which asked participants to list their first and last names. The online version of the EDHDS also asked participants to provide their first and last names at the beginning of the survey in order for the researcher to be able to link the data between the EDHDS and the MBTI for each participant, for the purposes of accurate statistical analysis for the study. The collection of identifiable information within the online EDHDS was noted within the online informed consent form provided to participants at the beginning of the EDHDS, which participants were instructed to take prior to taking the MBTI.

This instruction to take the EDHDS first was given to participants due to the fact that the informed consent form covering both the EDHDS and MBTI was included at the beginning of the EDHDS (see Appendix I). This was done because the informed consent form for the study could not be included at the beginning of the MBTI. Participants who completed the MBTI PT online were provided with a login ID "personalitystudy2016" and password "mbti2016" to log on to the Skills One website to complete the assessment. Participants did not need a login ID or password to access the EDHDS, given that this assessment was made available via a link that led participants directly to a page where they could take the survey.

To ensure that the informed consent form was read by online participants prior to beginning the MBTI and the EDHDS, the login page of the MBTI included a blurb instructing participants to complete the EDHDS (which included the informed consent form at the beginning) prior to taking the MBTI (see Appendix J). Within this blurb preceding the MBTI, a

direct link to the EDHDS was also provided, which, when clicked, sent the participant directly to the EDHDS page on Qualtrics.

Myers-Briggs Personality Type Inventory

The MBTI was created by the researcher Isabel Briggs Myers based on the research of Carl G. Jung.⁴⁴ It was Jung who originally hypothesized that PTs develop as a result of individuals' innate cognitive preferences, regarding how they perceive their internal and external reality and thus by default use these perceptions to produce judgments regarding the world in which they live.⁴⁴ Those taking the MBTI (Form M) assessment answer a series of 93 questions regarding their instinctual responses to social, behavioral, and preferential/predominant cognitive processing scenarios. The test taker's responses to these questions are then entered into an algorithmic system to compute a specific four-letter MBTI PT.⁴⁴ The validity and reliability of MBTI has been previously well documented in scientific literature.^{46,47} An online version of the MBTI (Form M) as well as the paper versions of the assessment were purchased by the researcher from the publisher CPP to be used to assess the MBTI PTs of participants. Both the online and paper versions of the instruments were chosen for use within this study because this provided the opportunity to expand the potential to recruit a more diverse sample for the study, rather than choosing to use only the in-person version of the assessment and being limited to recruiting individuals who lived within proximity of the researcher. Further, providing the online version of the assessment to participants allowed the survey to be accessed at any time and from any location, assuming that participants had access to a computer or laptop.

Eating Disorder History and Demographics Survey

Similarly to the MBTI, the EDHDS was completed by participants via an in-person or online format. The EDHDS was developed by the researcher and administered through the survey building and distribution website Qualtrics for the purposes of gathering demographic information from participants, as well type, status, and duration of a current or past ED diagnosis or suspected ED. The first four questions of the online survey pertained to demographic questions, including participant first and last name, gender, age, and race/ethnicity. The in-person version of the EDHDS included the same questions included within the online version of the survey, with the exception of a question included within the online version that asked participants to include their first and last names. Questions 2-4 were worded in accordance with demographic questions previously developed by the Pew Research Center.⁵⁵ Question 5 was adapted based upon an ED questionnaire created for the Veteran's Association in 2008; Questions 6 and 7 (which addressed the type of suspected or diagnosed ED) was adapted and worded based on DSM-5 diagnostic criteria for AN, BN, BED, and OSFED.⁵⁶ Specifically, Question 5 asked the individual if she or he had a current or past history of an ED diagnosis and, in the absence of a formal diagnosis, if she or he suspected that they had/currently have an ED. If, on the online version of this survey, one answered that she or he had not been diagnosed with an ED, that person was redirected to the end of the survey, given that this response served as the indication that the individual did not meet the participation criteria for this study. The data from those who responded on the in-person version of the survey that they had not been diagnosed with an ED were also excluded from the data analysis for the study.

If one had a current or past history of a suspected or formally diagnosed ED, it was then inquired in Questions 6 and 7 pertaining to the specific type of diagnosed or suspected ED the individual had. Question 8, which inquired as to the current ED status of participants, was adapted based on information provided by the National Eating Disorders Association website, regarding the stages of change throughout the ED recovery process.⁵⁷ Question 9 was only visible to those who indicated in their response to Question 8 that they currently still suffer from an ED; this question asked participants how long (in years) they had suffered from their ED.

Question 10 was only visible to individuals who responded to Question 8 that they were fully recovered from their ED or were in recovery from their ED; this question inquired as to how long the individual had an ED (in years) prior to entering into recovery.

Data Analysis

Data analysis for this study was conducted using the Statistical Package for the Social Sciences (SPSS) 23.0. Statistical analysis performed included descriptive tests (means, standard deviations, frequencies, percentiles), in addition to binary logistical regression tests to test the two research questions: “Are MBTI PTs related to the type of ED diagnosis?” and “Is there an association between MBTI PTs and the duration an individual has spent in the active stage of their ED?”

Scoring of Assessments

Upon participants completing the MBTI assessment, their responses to the 93 questions were automatically scored by Skills One (the website used to distribute and score MBTI PT assessments) to produce individual PT results, which were viewable only to the researcher upon accessing their Skills One account.

The PT results of participants who took the in-person versions of the MBTI (Form M) were carefully scored by the researcher using the scoring guide provided in the assessment packet provided by the publisher, CPP. No scoring was required for the results of the online or in-person versions of the EDHDS.

CHAPTER 4

RESULTS

A total of 51 participants were recruited who both met participation criteria for this study and completed both of the instruments. Statistical analysis, which included both descriptive and inferential statistics (binary logistical regression) for the data collected within this study, was completed using SPSS 23.0.

Description of Participants

The sample for this study was comprised of 51 individuals, which consisted of 49 women (96.1%) and 2 men (3.9%) (see Table 1). Of the cumulative 51 participants, 46 individuals participated via the online completion of the assessment and survey, while 5 individuals participated via the in-person completion of the paper versions of the assessment and survey. The in-person participants included those who were in attendance at a community ED support group in the Greater Chicagoland Area as well as volunteers at a local ED awareness and support organization who met participation criteria for the study.

The data collected from individuals who completed one or both of the surveys, but did not meet criteria for participation in the study, were excluded from all statistical analysis for the study. Further, data collected from those who met participation criteria for the study, but did not complete both the MBTI and the EDHDS, were also excluded from the data analysis for this

study. Of the 51 participants, 44 chose to provide their age within the EDHDS; the mean age and standard deviation of participants were analyzed based on the data from these 44 individuals who provided this information. The mean age of participants was 31 ± 9.54 years, and the age of participants ranged from 18 – 62 years (see Table 1). The ethnic distribution of participants was 49 White (96.1%), and two Asian/Asian-American (3.9%) (see Table 1). The sample consisted of 40 (78.4%) participants who reported having been diagnosed and treated for an ED, 2 (3.9%) who were diagnosed with an ED but never treated, and 9 (17.6%) who reported having a suspected ED in the absence of a formal diagnosis or treatment (see Table 1). Of the 51 respondents, 23 (45.1%) reported having a diagnosed or suspected ED type of AN, 6 (11.8%) reported having a diagnosis or suspected ED type of BED, 9 (17.6%) reported having a diagnosed or a suspected ED type of BN, and 12 (23.5%) reported having a diagnosed or suspected ED type of OSFED (see Table 1). One participant responded that she had a diagnosis of AN within the EDHDS but later stated in an email to the researcher that she had both AN and BN at different times. Given the unclear nature of this participant's ED diagnosis, and given that the study design did not account nor allow for more than one ED diagnosis to be associated with each participant, this participant's data was excluded from the descriptive analysis of the ED type frequencies within Table 1. There were 7 participants (13.7%) who responded that they had a current ED but desired recovery, 1 (2.0%) individual with a current ED but unsure about hers/his desire to recover, 2 (3.9%) who reported a current ED but no desire to recover, 20 (39.2%) who reported that they were currently in recovery, and 21 (41.2%) who reported that they were fully recovered from an ED (see Table 1).

Table 1: Participant Demographics and ED History Frequencies

		Frequency	Percent	
Gender				
	Male	2	3.9	
	Female	49	96.1	
	Total	51	100.0	
Ethnicity				
	Asian/ Asian-American	2	3.9	
	White	49	96.1	
	Total	51	100.0	
Diagnosis or Treated				
	Diagnosed and treated	40	78.4	
	Diagnosed, but not treated	2	3.9	
	Suspect ED, but not diagnosed or treated	9	17.6	
	Total	52	100.0	
ED Type				
	AN	23	45.1	
	BED	6	11.8	
	BN	9	17.6	
	OSFED	12	23.5	
	Total	50	98.0	
	.00	1	2.8	
ED Status				
	Current ED, but want to recover	7	13.7	
	Current ED, unsure about desire to recover	1	2.0	
	Current ED, but do not desire recovery	2	3.9	
	Currently in recovery	20	39.2	
	Fully recovered	21	41.2	
	Total	51	100.0	
Participant Ages	Minimum	Maximum	Mean (<i>M</i>)	Std. Deviation
	18.00	62.00	31.40227	9.53936

.00 represents a missing value

AN: anorexia nervosa, BN: bulimia nervosa, BED: binge eating disorder, OSFED: otherwise specified eating disorder, ED: eating disorder, std. deviation: standard deviation

Note: Descriptive statistics for participant age is based on the 44 participants who reported their age within the EDHDS.

MBTI PTs and Personality Dimensions of Participants

Of the 16 possible MBTI PTs, 14 of these PTs were represented among the 51 participants who comprised the sample for this study (see Table 2). The most commonly represented PTs among the sample were ISFJ (10 individuals, 19.2%), ISTJ (8 individuals, 15.4%), and ENFP (6 individuals, 11.5%). The two out of the 16 possible MBTI PTs which were not represented among this sample were ESTP and ENTP.

Table 2: MBTI PT Frequencies of Participants vs. General Population

		Frequency in ED Sample	% in ED Sample	% in General Population
MBTI PT				
	ISTJ	7	13.7	11.6
	ISTP	1	2.0	5.4
	ESTJ	1	2.0	8.7
	ISFJ	10	19.6	13.8
	ISFP	2	3.9	8.8
	ESFP	1	2.0	8.5
	ESFJ	5	9.8	12.3
	INFJ	5	9.8	1.5
	INFP	3	5.9	4.4
	ENFP	6	11.8	8.1
	ENFJ	5	9.8	2.5
	INTJ	2	3.9	2.1
	INTP	2	3.9	3.3
	ENTJ	1	2.0	1.8
	Total	51	100.0	100.0

E: extroverted, I: introverted, N: intuitive, S: sensing, T: thinking, F: feeling, J: judging, P: perceiving; ED: eating disorder, MBTI PT: Myers-Briggs Type Index personality type

The sample's personality dimension distributions were as follows: 19 extroverts (37.3%) and 32 introverts (62.7%), 24 intuitives (47.1%) and 27 sensing (52.9%), 14 thinking (27.5%) and 37 feeling (72.5%), 36 judging (70.6%) and 15 perceiving (29.4%) (see Table 3).

Table 3: Comparison of MBTI PT Dimension Frequencies in Sample vs. General Population

		Frequency in ED Sample	% in ED Sample	% in General Population
MBTI Dimensions	Extrovert	19	37.3	49.3
	Introvert	32	62.7	50.7
	Total	51	100.0	100.0
	Intuitive	24	47.1	26.7
	Sensing	27	52.9	73.3
	Total	51	100.0	100.0
	Thinking	14	27.5	40.2
	Feeling	37	72.5	59.8
	Total	51	100.0	100.0
	Judging	14	70.6	40.2
	Perceiving	37	29.4	59.8
	Total	51	100.0	100.0

MBTI PT: Myers-Briggs Type Index personality type; ED: eating disorder

PTs and Dimensions of the Sample vs. the General Population

The Myers-Briggs Foundation has published a table of estimated MBTI PT frequencies in the general population, that are based upon MBTI results collected between 1972 and 2002, which included data collected from MBTI results stored within data banks at the Center for Applications of Psychological Type, CPP, Inc., and Stanford Research Institute (SRI).⁴⁵

The most common PTs in the general population are ISFJ (13.8%), ESFJ (12.3%), and ISTJ (11.6%) (see Table 2). Though ISFJ and ISTJ PTs were two out of three of the most common PTs observed within the sample for this study, the order and percentage of their frequencies slightly differ from the frequencies seen within the general population at ISFJ (19.6%), ISTJ (13.7%), and ENFP (11.8 %). The three most rare MBTI PTs within the general population are reported to be INFJ (1.5%), ENTJ (1.8%), and INTJ (2.1%). The sample for this study, in contrast, revealed the three least common MBTI PTs to be ISTP, ESTJ, ESFP, and ENTJ (all four tied for 2.0%), ISFP, INTJ, and INTP (all three tied for 3.9%), and INFP (5.9%).

MBTI Personality Dimensions and ED Type

Binary logistical regression tests were used to assess associations between the MBTI PT dimensions and the type of diagnosed or suspected ED an individual currently had or had in the past. Associations between the extroverted and introverted personality dimension and ED type were not significant ($p=0.541$, see Table 4). Further, associations between the intuitive and sensing personality dimension within MBTI PT and ED type was also not found to be significant ($p=0.614$, see Table 4). There was a trend towards statistical significance observed between the thinking and feeling dimension and ED type and, more specifically, an association between this dimension and AN ($p=0.058$, $p=0.068$, see Tables 4 and 5). There was also a trend towards statistical significance found between the judging vs. perceiving dimension and ED type at $p=0.058$ and a significant association between the judging vs. perceiving dimension and AN at $p=0.028$ (see Tables 4 and 6).

Table 4: Associations Between MBTI PT Dimensions and ED Type

		Type III Wald Chi-Square	df	Sig.
Extrovert vs. Introvert				
	ED type	3.102	4	.541
Intuitive vs. Sensing				
	ED type	2.671	4	.614
Thinking vs. Feeling				
	ED type	9.125	4	.058
Judging vs. Perceiving				
	ED type	9.127	4	.058

MBTI PT: Myers-Briggs Type Index personality type; ED: eating disorder; df: degrees of freedom; sig: significance

Table 5: Associations Between MBTI PT Dimensions and ED Type

	Parameter	Hypothesis Test Wald Chi-Square	df	Sig.
Extrovert vs. Introvert				
	AN	1.069	1	.301
	BN	.641	1	.423
	BED	.111	1	.739
	OSFED	1.281	1	.258
Intuitive vs. Sensing				
	AN	1.069	1	.301
	BN	.641	1	.423
	BED	.961	1	.327
	OSFED	.000	1	1.000
Thinking vs. Feeling				
	AN	3.328	1	.068
	BN	.641	1	.423
	BED	2.441	1	.118
	OSFED	2.716	1	.099
Judging vs. Perceiving				
	AN	4.810	1	.028*
	BN	.641	1	.423
	BED	.961	1	.327
	OSFED	2.716	1	.099

AN: anorexia nervosa, BN: bulimia nervosa, BED: binge eating disorder, OSFED: eating disorder not otherwise specified. MBTI PT: Myers-Briggs Type Index personality type; ED: eating disorder; df: degrees of freedom; sig: significance.

*Significant at the .05 level

Table 6: Associations Between MBTI PT Dimensions and ED Duration

		Omnibus Test ^a	Sig.
Extrovert vs. Introvert	1.681	1	.195
Intuitive vs. Sensing	.895	1	.344
Thinking vs. Feeling	2.007	1	.157
Judging vs. Perceiving	1.469	1	.226

Dependent Variable: Extrovert vs. Introvert, Intuitive vs. Sensing, Thinking vs. Feeling, Judging vs. Perceiving

Model: (Intercept), Duration

^aCompares the fitted model against the intercept-only model.

MBTI PT: Myers-Briggs Type Index personality type; ED: eating disorder; sig: significance

MBTI PT Dimensions and Eating Disorder Duration

Associations between the extroverted vs. introverted dimension, the intuitive vs. sensing dimension, the thinking vs. feeling dimension, and the judging vs. perceiving dimension and ED durations were all found to be insignificant ($p=0.195$, $p=0.344$, $p=0.157$, $p=0.226$, see Table 6).

Tables 6 shows that there was no statistical significance observed between each of the MBTI PT dimensions and ED duration; as seen from Table 7, however, there were in fact notable differences found in the mean duration of EDs between each of the MBTI PT dimensions. Introverted individuals had a longer mean ED duration (in years) than extroverted individuals ($M=10.45$, $M=6.44$), sensing individuals had a longer mean ED duration than intuitive individuals ($M=10.58$, $M=7.17$), thinking individuals had almost twice the mean ED

duration as feeling individuals ($M=13.28$, $M=7.26$), and judging individuals had a longer mean ED duration than perceiving individuals ($M=10.15$, $M=6.22$).

Table 7: Mean ED Durations Among MBTI PT Dimensions

		Mean	N	Std. Deviation
ED duration	Extrovert	6.4444	18	4.01793
	Introvert	10.4516	31	11.26303
	Total	8.9796	49	9.42402
ED duration	Intuitive	7.1739	23	8.45121
	Sensing	10.5769	26	10.10019
	Total	8.9796	49	9.42402
ED duration	Thinking	13.2857	14	12.20611
	Feeling	7.2571	35	7.59777
	Total	8.9796	49	9.42402
ED duration	Judging	10.1471	34	10.31366
	Perceiving	6.3333	15	6.55381
	Total	8.9796	49	9.42402

MBTI PT: Myers-Briggs Type Index personality type; ED: eating disorder; df: degrees of freedom; sig: significance

The first hypothesis of this study was “MBTI will be related to the type of ED diagnosis an individual currently has or has had in the past.” This hypothesis was tested using binary logistical regression tests with an alpha set at 0.05. Due to the small sample size of this study, associations between MBTI PT and ED types could not be analyzed; instead, associations between each of the four MBTI PT dimensions and ED type were examined.⁵⁴ No significant association was found between the extroverted vs. introverted dimension and ED type nor the

intuitive vs. sensing dimension and ED type (see Table 4). A trend towards statistical significance was observed in the association between the thinking vs. feeling dimension and ED type, as well as specifically between the thinking vs. feeling dimension and AN (see Tables 4 and 5). A trend towards statistical significance was also observed between the judging vs. perceiving dimension and ED type ($p=0.058$, see Table 4). Therefore, the researcher failed to reject the null for the first hypothesis related to the extroverted vs. introverted dimension and ED type, the intuitive vs. sensing dimension and ED type, and the thinking vs. feeling dimension and ED type. However, there was an exception for the significant association seen between the judging vs. perceiving dimension and AN ($p=0.028$, see Table 5). Despite this, the researcher failed to reject the null hypothesis with all other ED types besides AN in regards to the judging vs. perceiving dimension and ED type.

The second hypothesis of this study was, “MBTI PT will be related to the duration of time one has spent (or spent in the past) in the active stage of an ED.” As with the first hypothesis, the association between MBTI PT and ED duration could not be tested given the small sample size for this study; instead, the association between MBTI PT dimensions and ED duration was examined using binary logistical regression tests with an alpha of 0.05.⁵⁴ There were no significant nor trending associations observed between any of the four MBTI PT dimensions and ED duration (see Table 6). Given these results, the researcher failed to reject the null hypothesis. There was not a significant association between MBTI PT dimensions and ED duration.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

Discussion

This study was conducted with the objective to determine whether MBTI PTs are related to ED type, as well as to explore whether MBTI PTs are associated with ED duration. These objectives were determined based on the lack of existing studies exploring non-pathological PTs among individuals with EDs, despite the plethora of studies which exist on the pathological aspects of personality and PDs among individuals with EDs.

The MBTI (Form M) was selected for assessing the non-pathological PTs within the sample for this study, given its proven validity and reliability in addition to its unique ability to provide a more holistic, multi-trait view of personality, rather than focusing on a singular, isolated personality trait.^{47,48,52} Participants' ED types and durations were self-reported within the EDHDS.

The anticipated benefits of this study were to potentially provide ED practitioners with critical information regarding whether aspects of the personality portrayed throughout the treatment duration are pathological or rather may be instead a state-specific adaptation of an individual's non-pathological, innate PT. Further, a knowledge of potential MBTI PTs and trends

among those with EDs would have the potential to provide both patients and ED professionals with insight as to the cognitive preferences and processing styles of patients; this information would be invaluable, given that it could help to shed light regarding the specific ED treatment plan which may be of most benefit to any given patient, given their unique cognitive framework. Further, if such assessments were to be used within the ED treatment setting, the hope is that such information regarding the associations between PT and ED type would benefit patients in gaining a further understanding as to why their ED may have developed in the first place; in doing so, patients may be better equipped to anticipate aspects of their PT that may render them more vulnerable to specific ED-related struggles and thus be able to ask for support and patience from loved ones and treatment providers regarding such challenges.

Further, examining associations between MBTI PT and ED duration was anticipated to provide ED treatment providers with a more complex understanding as to what aspects of PT may make recovery or sustaining recovery more difficult and thus be able to preemptively address, account for, and explore strategies to overcome such potential difficulties. Last, but perhaps most prominently, exploring the non-pathological PTs in individuals with EDs was anticipated to encourage ED providers to be wary of not hastening to a PD diagnosis with their patients in instances when personality-related pathological symptoms are exhibited or described. Rather, the hope was that such practitioners would first explore the possibility that the manifestation of pathological personality may in fact be a result of the individual's non-pathological, innate PT that has undergone a state-specific adaptation given the neurobiochemical changes influenced by the ED. Such a possibility would be important to recognize, given DSM-5 diagnosis criteria stating that the signs and symptoms representative of

a PD cannot otherwise be explained or accounted for by a different mental illness in order to meet PD diagnosis criteria.⁴

Among the sample for this study, 14 of the 16 possible MBTI PTs were represented. The PTs that were not represented were ESTP and ENTP (Table 2). The PT of ESTP is estimated to be present in 4.3% of the general population, while ENTP is thought to be present in 3.2% of the population.⁴⁵ Within the MBTI, those with the ESTP PT are described as practical, energetic problem solvers who are very social and live in the moment. ENTPs are individuals who tend to stray from routine regularly, possess an outspoken nature with their ideas and viewpoints, and are skilled at viewing the big picture of concepts or problems and carrying through with solving them.⁴⁴ The fact that those with EDs often struggle with cognitive set shifting, flexibility, adaptability, and assertiveness may explain the absence of these PTs being represented among the sample.^{58,59} However, the small sample size for the study may have also influenced the lack of representation of these PTs among participants.

The most common PTs found among the sample were ISFJ, which accounted for 10 individuals (19.2%) within the sample, followed by ISTJ among 8 individuals (15.4%) and ENFP among 6 individuals (11.5%) (see Table 6). Of the three most common PTs found among the general population - ISFJ (13.8%), ESFJ (12.3%), and ISTJ (11.6%) – two of these were also represented within the top three most common PTs within the sample as well.⁴⁴

Some of the characteristics representative of the ISFJ PT are also described in literature in those with EDs. ISFJs are described as being quiet, anal in their attention to detail, conscientious and considerate of others, and as individuals who strive to create harmony. Those with EDs are also often described as being extremely sensitive to negative feedback perceived from the facial expressions of those around them and who self-sacrificingly take it upon

themselves to sustain the harmony of a given environment in order to promote the perceived happiness of others, which often leads to the individual forgoing sufficiently meeting their own needs.^{44,60,61} Those with the ISTJ PT are described as individuals who are skilled at being able to work towards a set goal regardless of potential impedances or difficulties encountered.⁴⁴ Such characteristics are also described among those with EDs, in that, in order to sustain the ED, they accept the tangible and intangible consequences of the disorder in regards to its often detrimental impact on social relationships, as well as mental and physical challenges, such as fatigue, malaise, and depressive mental states.⁶² The third most common PTs among the sample was ENFP at 11.5%, which is represented in 8.1% of the general population and is the seventh most common PT in the general population, as opposed to the third most common PT as found among this sample.⁴⁵ The fact that the ENFP PT was represented at a higher frequency among the sample compared to the general population was surprising, given that ENFPs are described as flexible individuals who love spontaneity, are able to draw connections between information and the lived experiences of themselves and others, and are skilled at improvisation.^{44,45} Given that individuals with EDs often display characteristics in contrast to what is described in the ENFP PT, such as a lack of flexibility, rigidity, and anxiety in situations where routine is disrupted, further studies would need to be conducted to explore why this PT was so common among the ED sample.^{44,63,64}

The greatest difference between the PT distribution of the general population and the sample was the frequency of the INFJ PT, which is estimated to occur in 1.5% of the general population and was found in 9.8% of the sample for this study. In comparing the frequencies and distribution of the four dimensions of MBTI PT, the distribution of extroverts to introverts within the sample was 37.3% extroverted and 62.7% introverted, as compared to 49.3% extroverted and

50.7% introverted within the general population (see Table 3). The distribution of the intuitive to sensing personality dimension within the sample was 47.1% intuitive and 52.9% sensing, as compared to 26.7% intuitive and 73.3% sensing in the general population (see Table 3). Further, the sample was comprised of 27.5% individuals with the thinking dimension and 72.5% with the feeling dimension, while the general population was 40.2% thinking and 59.8% feeling (see Table 3). Last, 70.6% of the sample possessed the judging dimension while 29.4% possessed the perceiving dimension; in contrast, 40.2% of the general population possessed the judging dimension and 59.8% possessed the perceiving dimension (see Table 3).

This study found that MBTI PT dimensions as a whole were not significantly related to ED types, with the exception of the statistically trending association observed between the thinking vs. feeling dimension and the judging vs. perceiving dimension and ED type as well as specifically between the thinking vs. feeling dimension and AN. However, a significant association was found between the judging vs. perceiving dimension and a diagnosis of AN (see Table 5). The judging vs. perceiving dimension of the MBTI describes the preferential way in which individuals interact with their environment and the outside world and represents how an individual's personality appears to the outside world.⁴⁴ Individuals who possess the judging dimension prefer to anticipate, plan, and prepare for things prior to experiencing them, while those who possess the perceiving dimension are energized to work in the presence of an impending deadline, have a preference towards spontaneity and casualness, and prefer to let life happen and respond, rather than painstakingly preparing or planning for life events and experiences.⁴⁴ Given that this dimension is representative of how one behaves outwardly and thus how they are perceived by others, it does not necessarily account for the chance that what

characteristics are observed by the outer world may not also necessarily hold true for the individual's internal reality.

The trend towards statistical significance seen between a diagnosis of AN and the thinking vs. feeling dimension was not in contradiction to past research, given that the feeling aspect of the thinking vs. feeling dimension within MBTI PT has been shown to be correlated with neuroticism while AN shares a genetic correlation with neuroticism within the Neo PT inventory ($p < .001$; see Table 5).^{65,66}

However, it may not initially seem intuitive that the frequency of the representation of the feeling dimension was much higher in this sample as compared to the general population, given that studies have reported the link between AN and alexithymia.^{67,68} It is of importance to be reminded, therefore, that the thinking vs. feeling dimension within MBTI more so represents an individual's decision-making styles, rather than implicating that one individual thinks or feels while the other predominantly does not. Those with the thinking dimension prefer to make decisions based on objectivity and logic, whereas those with the feeling dimension are more prone to making decisions and drawing conclusions based on subjective information, as well as what is influenced by their personal values and emotions within the given moment. Further, individuals with the feeling dimension make decisions on a case-by-case basis in the context of their specific emotionality within a given situation.⁶⁹

To the researcher's knowledge, there have not been any peer-reviewed studies published to date which have examined MBTI PTs in relation to EDs. Given that the judging dimension implies that an individual has a cognitive preference for viewing and assessing the world in terms of an organized, structured, and less flexible manner, it is not surprising that 70.6% of the sample for this study possessed the judging MBTI personality dimension, as opposed to 54.1 %

of the general population, given that those with EDs, particularly in the case of AN, often exhibit rigidity and a need for orderliness and categorical thinking.^{63,64} Further, those with EDs are often described in literature as possessing extreme “black-and-white thinking”; in other words, they struggle to see the idiosyncrasies of situations and concepts when it comes to certain aspects of life, but particularly in regards to their self-perception.⁶⁸ Further, as was stated within Chapter 2, AN has a high rate of comorbidity with OCPD, which is characterized by obsessions with patterns, orderliness, and a pathological need to control aspects within one’s own life, as well as the lives of others.^{18,33} These findings provide the reader with beneficial insight into the potentially unique nature of an AN, over other ED types, in regards to the thinking vs. feeling dimension of PT.

Given that no significant association was found between MBTI PT dimensions and ED duration, one can tentatively infer that individuals possessing certain MBTI PT dimensions are not at a higher risk for suffering from an ED for a longer period of time than those who do not possess that given dimension. However, it can be stated that based on mean ED duration reported among participants, introverted, sensing, thinking, and judging participants had higher ED durations than their dimension counterparts (Table 7). With specific regards to the thinking vs. feeling dimension, the ED duration reported among those with the thinking aspect had almost double the mean ED duration as compared to those with the feeling aspect ($M=13.28$, $M=7.17$) (Table 7). It is interesting that the combination of all the aspects of the above four dimensions that possessed the longer ED durations comprise the PT of ISTJ, given that the ISTJ PT was the second most common PT among the sample, with 13.7% of the sample possessing this PT. The ISTJ PT is described as valuing orderliness, tradition, and logic and taking satisfaction in upholding these preferences in all aspects of life.⁴⁴ Further, this PT is goal driven and highly

skilled at working towards a long-term goal in congruence with their values and accepting the fact that they may have to delay satisfaction in the present for an extended period of time to achieve such an ED-mediated goal.⁴⁴ Research has shown that in specific regards to AN, the value system of the individual makes a profound shift, such that their value system almost solely consists of their profound desire for thinness, to the extent that other aspects of life are devalued.⁶² Given this PT's ability to forgo present pleasures to achieve a given goal, it makes sense that individuals with the culminations of such MBTI PT dimensions may be more likely to hold on to ED behaviors longer than those possessing other dimensions, especially in respect to AN.

Limitations

This study had many limitations. This was a cross-sectional study comprised of a convenience sample. Further, all but two of the participants were female, and thus, the results of the study are not necessarily generalizable to males with EDs nor representative of the gender distribution of the ED population, given that approximately 30% of those with AN and BN are estimated to be male and over 50% of those with BED are male.⁷ Further, this study only represented two ethnicities (White and Asian or Asian-American). One cannot be confident of the generalizability of the study's findings in light of the diverse ethnicities that suffer from EDs.^{8,9} The sample for this study was comprised of individuals 18-62 years of age, and therefore the results of this study in regards to its application to individuals with EDs who are under the age of 18 or above the age of 62 also remain unclear.

Another notable limitation for this study was that the sample was partially constructed from a convenience sample comprised of personal contacts of the researcher (see recruiting methods described in Chapter 3). Though this study utilized a convenience sample, however, every effort was made to gather as diverse a group of participants as the circumstances of recruiting permitted (i.e., contacting ED professionals, including dietitians, therapists, psychologists, and community support group facilitators, to ask if they would ask current or former patients if they would be interested in participating in the study and asking national ED support organizations if they would be willing to advertise for the study). Another limitation of the study was the small sample size of the study in respect to the minimum sample size required for an appropriate power for the study (see Appendix D). The fact that both the instruments utilized within this study are self-report instruments was also a notable limitation, due to the potential inaccuracy of self-reported data.

Conclusions

This study's findings revealed that MBTI PT dimensions are not necessarily indicative of an individual's likelihood to have suffered from an ED for a given duration. However, notably, a trend towards statistical significance was observed in regards to the association between the thinking vs. feeling and judging vs. perceiving dimensions and ED type as well as between the thinking vs. feeling dimension and a diagnosis of AN ($p=0.058$, $p=0.058$, $p=0.068$). A significant association was also found between the judging vs. perceiving dimension and a diagnosis of AN ($p=0.028$). Further, given the recognizably higher proportion of individuals within the sample with the judging dimension compared to the general population, as well as the fact that these

dimensions imply aspects of personality that have been described in those with EDs, specifically in AN, it may be of benefit for ED practitioners to consider whether the seemingly pathological signs of personality observed among those with EDs (which often lead to a PD diagnosis) may actually be a non-pathological aspect of personality that appears pathological due to the neurobiological, cognitive, and behavioral shifts caused by the ED.

Further studies should be conducted to explore these associations, with a larger and more diverse sample representative of the gender and ethnic distributions found among those with EDs. Conducting such studies in the future will provide an opportunity for the reliability of the findings of this present study to be further examined. Further, given that this cross-sectional study was comprised of a small convenience sample which predominantly consisted of females, further research exploring these same hypotheses in a longitudinal study comprised of a larger random sample would be beneficial to test the replicability of this present study's findings.

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APPENDIX A

IRB INITIAL APPROVAL AND AMENDMENT APPROVAL NOTICES



NORTHERN ILLINOIS UNIVERSITY

Office of Research Compliance and Integrity

Lowden Hall 301 · DeKalb, IL 60115-2584

815-753-8588 · Fax 815-753-1631 · www.niu.edu/orci

Approval Notice

Initial Review

07-Jun-2016

TO: Tiffany Haug
Family, Consumer and Nutrition Sciences

RE: Protocol # HS16-0197 “**Association between Myers-Briggs Personality types, eating disorder diagnoses, and eating disorder duration**”

Your **Initial Review** submission was reviewed and approved under **Expedited** procedures by Institutional Review Board #1 on **07-Jun-2016**. Please note the following information about your approved research protocol:

Protocol Approval period: **07-Jun-2016 - 06-Jun-2017**

If your project will continue beyond that date, or if you intend to make modifications to the study, you will need additional approval and should contact the Office of Research Compliance and Integrity for assistance. Continuing review of the project, conducted at least annually, will be necessary until you no longer retain any identifiers that could link the subjects to the data collected. Please remember to use your **protocol number (HS16-0197)** on any documents or correspondence with the IRB concerning your research protocol.

Please note that the IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Unless you have been approved for a waiver of the written signature of informed consent, this notice includes a date-stamped copy of the approved consent form for your use. NIU policy requires that informed consent documents given to subjects participating in non-exempt research bear the approval stamp of the NIU IRB. This stamped document is the only consent form that may be photocopied for distribution to study participants.

It is important for you to note that as a research investigator involved with human subjects, you are responsible for ensuring that this project has current IRB approval at all times, and for retaining the signed consent forms obtained from your subjects for a minimum of three years after the study is concluded. If consent for the study is being given by proxy (guardian, etc.), it is your responsibility to document the authority of that person to consent for the subject. Also, the committee recommends that you include an acknowledgment by the subject, or the subject's representative, that he or she has received a copy of the consent form. In addition, you are required to promptly report to the IRB any injuries or other unanticipated problems or risks to subjects and others. The IRB extends best wishes for success in your research endeavors.



NORTHERN ILLINOIS UNIVERSITY

Office of Research Compliance and Integrity

Lowden Hall 301 · DeKalb, IL 60115-2584

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Approval Notice Protocol Amendment

29-Aug-2016
Tiffany Haug
Family, Consumer and Nutrition Sciences

RE: Protocol # **HS16-0197** "Association between Myers-Briggs Personality types, eating disorder diagnoses, and eating disorder duration"

Dear Tiffany Haug,

Your **Protocol Amendment** submission was reviewed and approved under **Expedited** procedures by Institutional Review Board #1 on **29-Aug-2016**.

Please note the following information about your approved research protocol:

Protocol Approval period: **07-Jul-2016 - 06-Jun-2017**

If your project will continue beyond that date, or if you intend to make modifications to the study, you will need additional approval and should contact the Office of Research Compliance and Integrity for assistance. Annual review of the project will be necessary until you no longer retain any identifiers that could link the subjects to the data collected.

It is important for you to note that as a research investigator involved with human subjects, you are responsible for ensuring that the project has current IRB approval at all times, and for retaining any signed consent forms obtained from your subjects in a secure place for a minimum of three years after the study is concluded. The committee also recommends that the informed consent include an acknowledgement that the subject, or the subject's representative, that he or she has received a copy of the consent form. In addition, you are required to promptly report to the IRB any injuries or other unanticipated problems involving risks to subjects or others.

Please remember to use your **protocol number** (**HS16-0197**) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the Office of Research Compliance and Integrity at (815) 753-8588.

APPENDIX B

SOCIAL MEDIA STUDY ADVERTISEMENT WITH LINKS

Tiffany Haug at Northern Illinois University (EDpersonalitystudy@gmail.com) is conducting a study on the relationship between eating disorders and Myers Briggs Personality Types. Though extensive research has been conducted on the link between eating disorders and personality disorders, little research has explored non-pathological personality types in those with a current eating disorder diagnosis, or those who have recovered from an eating disorder in the past. This study has two main goals: 1. To determine whether the type of eating disorder someone has (or has had) is related to their personality type, and 2. To determine whether how long someone has had (or had) an eating disorder is related to their personality type. This study will utilize the Myers-Briggs Personality Type Assessment (Form M) to assess participant personality types. To participate in this study, one must be 18 years or older and currently have, or have had an eating disorder at some point in their life. Those who have never been formally diagnosed with an eating disorder but suspect that they may have had, or currently have an eating disorder also qualify for participation in this study.

The study proposed within, may assist in identifying dimensions of Myers-Briggs Personality Types that are correlated with the types and severity of eating disorder diagnosis. ED clinicians may be able to use such information to carefully examine whether the psychological and behavioral signs and symptoms exhibited from their patients stem from a personality disorder, or rather from a state-specific adaptation of individuals' non-pathological personality type, as influenced by the eating disorder

Click here (<https://online.cpp.com/en/index.aspx>) for a link which will lead you to a site where you can complete the Myers-Briggs Personality Type assessment and click here (https://niu.az1.qualtrics.com/jfe/form/SV_5BE2oXblgVZ0IU5) to complete the corresponding demographics and eating disorder history questionnaire. For the Myers Briggs assessment enter the login personalitystudy2016 and the password mbti2016 in order to gain access to the assessment. The ID box is left blank.

This study is being advised by Amy D. Ozier, PhD, RD, LDN, Associate Professor at Northern Illinois University. To contact her directly, she can be reached at aozier@niu.edu or 815-761-8711. This study has received approval by the Northern Illinois University Institutional Review Board for Human Subjects Research.

APPENDIX C

LETTERS TO RESEARCHER PERSONAL CONTACTS

Hi (insert name)!

I hope that this Facebook message finds you well.

I wanted to let you to let you know of a graduate thesis study that I am currently conducting, titled 'Associations Between Myers-Briggs Personality Types, Eating Disorder Diagnoses, and Eating Disorder Duration.'

I decided to conduct this study as a result of realizing that despite the fact that extensive research has been carried out on the link between eating disorders and personality disorders, little research has explored non-pathological personality types in those with eating disorders.

This study has two main goals:

To determine whether the type of eating disorder someone has (or has had) is related to their personality type.

To determine whether how long someone has had (or had) an eating disorder is related to their personality type (this study will utilize the Myers-Briggs Type Indicator assessment to assess personality types).

My hope is that this study may assist in identifying dimensions of Myers-Briggs Personality Types that are correlated with the types and severity of eating disorder diagnoses. I also hope that eating disorder clinicians might be able to use this information to consider whether the psychological/ behavioral signs and symptoms that they observe in their patients, stem from a true personality disorder, or rather from the individuals' personality type.

If you are interested in learning more about this study or becoming a participant for this study please click here (<https://online.cpp.com/en/index.aspx>) for a link which will lead you to a site where you can complete the Myers-Briggs Personality Type assessment and click here (https://niu.az1.qualtrics.com/jfe/form/SV_5BE2oXblgVZ0IU5) to complete the corresponding demographics and eating disorder history questionnaire.

For the Myers Briggs assessment enter the login personalitystudy2016 and the password mbti2016 in order to gain access to the assessment. The ID box is left blank.

Please also feel free to contact me at EDpersonalitystudy@gmail.com for any additional questions you might have related to the study.

Thank you so much for you time in reading this email/Facebook message.

Best,
Tiffany Haug
Graduate Student & Dietetic Intern
Northern Illinois University
EDpersonalitystudy@gmail.com

APPENDIX D

SAMPLE SIZE CALCULATIONS

For continuous covariate with power of 80% and 90%⁶⁹:

The formula is $n = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2}{p_1(1-p_1)\beta^{*2}}$, where n is the required total sample size, β^* is the effect size to be tested, p_1 is the event rate at the mean of X, and Z_u is the upper u-th percentile of the standard normal distribution.

Dependent variable - Extrovert or Introvert

Independent variable - ED Duration

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT MEAN OF X (P1)	0.627
ODDS RATIO (EXP OF THE EFFECT SIZE B*)	1.569
POWER	0.8
MULTIPLE CORRELATION^2 X1 WITH OTHER X	0
CRITICAL VALUE Z(1-ALPHA/2)	1.96
CRITICAL VALUE Z(1-POWER)	0.84
TOTAL N =	166

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT MEAN OF X (P1)	0.627
ODDS RATIO (EXP OF THE EFFECT SIZE B*)	1.569
POWER	0.9
MULTIPLE CORRELATION^2 X1 WITH OTHER X	0
CRITICAL VALUE Z(1-ALPHA/2)	1.96
CRITICAL VALUE Z(1-POWER)	1.28
TOTAL N =	222

Dependent variable - Intuitive or Sensing

Independent variable - ED Duration

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT MEAN OF X (P1)	0.517
ODDS RATIO (EXP OF THE EFFECT SIZE B*)	1.328
POWER	0.8
MULTIPLE CORRELATION^2 X1 WITH OTHER X	0
CRITICAL VALUE Z(1-ALPHA/2)	1.96
CRITICAL VALUE Z(1-POWER)	0.84
TOTAL N =	391

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT MEAN OF X (P1)	0.517
ODDS RATIO (EXP OF THE EFFECT SIZE B*)	1.328
POWER	0.9
MULTIPLE CORRELATION^2 X1 WITH OTHER X	0
CRITICAL VALUE Z(1-ALPHA/2)	1.96
CRITICAL VALUE Z(1-POWER)	1.28
TOTAL N =	523

Dependent variable - Thinking or Feeling

Independent variable - ED Duration

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT MEAN OF X (P1)	0.741
ODDS RATIO (EXP OF THE EFFECT SIZE B*)	0.648
POWER	0.8
MULTIPLE CORRELATION ² X1 WITH OTHER X	0
CRITICAL VALUE Z(1-ALPHA/2)	1.96
CRITICAL VALUE Z(1-POWER)	0.84
TOTAL N =	218

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT MEAN OF X (P1)	0.741
ODDS RATIO (EXP OF THE EFFECT SIZE B*)	0.648
POWER	0.9
MULTIPLE CORRELATION ² X1 WITH OTHER X	0
CRITICAL VALUE Z(1-ALPHA/2)	1.96
CRITICAL VALUE Z(1-POWER)	1.28
TOTAL N =	291

Dependent variable - Judging or Perceiving
Independent variable - ED Duration

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT MEAN OF X (P1)	0.309
ODDS RATIO (EXP OF THE EFFECT SIZE B*)	0.637
POWER	0.8
MULTIPLE CORRELATION ² X1 WITH OTHER X	0
CRITICAL VALUE Z(1-ALPHA/2)	1.96
CRITICAL VALUE Z(1-POWER)	0.84
TOTAL N =	181

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT MEAN OF X (P1)	0.309
ODDS RATIO (EXP OF THE EFFECT SIZE B*)	0.637
POWER	0.9
MULTIPLE CORRELATION ² X1 WITH OTHER X	0
CRITICAL VALUE Z(1-ALPHA/2)	1.96
CRITICAL VALUE Z(1-POWER)	1.28
TOTAL N =	242

For bivariate covariate with power of 80% and 90%⁶⁹:

The formula is $n = \frac{\left[Z_{1-\frac{\alpha}{2}} \sqrt{\frac{p(1-p)}{B}} + Z_{1-\beta} \sqrt{\frac{p_1(1-p_1) + p_2(1-p_2)(1-B)}{B}} \right]^2}{(p_2 - p_1)^2(1-B)}$, where n is the required total sample size, p is the overall event rate; B is the proportion of the sample with X=1; p_1 and p_2 are the event rates at X=0 and X=1, respectively, and Z_u is the upper u-th percentile of the standard normal distribution.

Dependent variable - Extrovert or Introvert

Independent variable - ED Status

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT X=0 (P1)	0.41
P(EVENT) AT X=1 (P2)	0.14
P(X=1) (B)	0.137
POWER	0.8
MULTIPLE CORRELATION^2 X1 WITH OTHER X	0.1105
CRITICAL VALUE Z(1-ALPHA/2)	1.959964
CRITICAL VALUE Z(1-POWER)	0.841621
TOTAL N =	207

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT X=0 (P1)	0.41
P(EVENT) AT X=1 (P2)	0.14
P(X=1) (B)	0.137
POWER	0.9
MULTIPLE CORRELATION^2 X1 WITH OTHER X	0.1105
CRITICAL VALUE Z(1-ALPHA/2)	1.959964
CRITICAL VALUE Z(1-POWER)	1.281552
TOTAL N =	264

Dependent variable - Intuitive or Sensing

Independent variable - ED Status

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT X=0 (P1)	0.5
P(EVENT) AT X=1 (P2)	0.286
P(X=1) (B)	0.137
POWER	0.8
MULTIPLE CORRELATION^2 X1 WITH OTHER X	0.1138
CRITICAL VALUE Z(1-ALPHA/2)	1.959964
CRITICAL VALUE Z(1-POWER)	0.841621
TOTAL N =	388

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT X=0 (P1)	0.5
P(EVENT) AT X=1 (P2)	0.286
P(X=1) (B)	0.137
POWER	0.9
MULTIPLE CORRELATION^2 X1 WITH OTHER X	0.1138
CRITICAL VALUE Z(1-ALPHA/2)	1.959964
CRITICAL VALUE Z(1-POWER)	1.281552
TOTAL N =	512

Dependent variable - Thinking or Feeling
Independent variable - ED Duration

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT X=0 (P1)	0.273
P(EVENT) AT X=1 (P2)	0.286
P(X=1) (B)	0.137
POWER	0.8
MULTIPLE CORRELATION ² X1 WITH OTHER X	0.0769
CRITICAL VALUE Z(1-ALPHA/2)	1.959964
CRITICAL VALUE Z(1-POWER)	0.841621
TOTAL N =	85328

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT X=0 (P1)	0.273
P(EVENT) AT X=1 (P2)	0.286
P(X=1) (B)	0.137
POWER	0.9
MULTIPLE CORRELATION ² X1 WITH OTHER X	0.0769
CRITICAL VALUE Z(1-ALPHA/2)	1.959964
CRITICAL VALUE Z(1-POWER)	1.281552
TOTAL N =	114454

Dependent variable - Judging or Perceiving
Independent variable - ED Duration

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT X=0 (P1)	0.68
P(EVENT) AT X=1 (P2)	0.857
P(X=1) (B)	0.137
POWER	0.8
MULTIPLE CORRELATION ² X1 WITH OTHER X	0.0432
CRITICAL VALUE Z(1-ALPHA/2)	1.959964
CRITICAL VALUE Z(1-POWER)	0.841621
TOTAL N =	410

TYPE I ERROR (TWO-SIDED)	0.05
P(EVENT) AT X=0 (P1)	0.68
P(EVENT) AT X=1 (P2)	0.857
P(X=1) (B)	0.137
POWER	0.9
MULTIPLE CORRELATION ² X1 WITH OTHER X	0.0432
CRITICAL VALUE Z(1-ALPHA/2)	1.959964
CRITICAL VALUE Z(1-POWER)	1.281552
TOTAL N =	527

APPENDIX E

LIST OF ED SUPPORT RESOURCES

Eating Disorder Support Resources

National Association of Anorexia Nervosa and Associated Disorders (ANAD)

- Website: <http://www.anad.org/>
- Helpline: (630) 577-1330

National Eating Disorder Association (NEDA)

- Website: <http://www.nationaleatingdisorders.org/>
- Helpline: 1-800-931-2237

Eating Disorder Hope

- Website: <http://www.eatingdisorderhope.com/>
- Helpline: 1-800-986-4160

Academy for Eating Disorders

- Website: <http://www.aedweb.org/>
- Find an eating disorder professional near you:
<http://www.aedweb.org/index.php/education/eating-disorder-information-2>

APPENDIX F
IN-PERSON STUDY FLYER



EATING DISORDERS & PERSONALITY TYPE STUDY

Do you currently have an eating disorder?
Have you recovered from an eating disorder?

If the answer is “yes” to either of these questions, then you may qualify to participate in a thesis study currently being conducted on the relationship between eating disorders and personality type!

ABOUT

This study has two main goals:

1. To determine whether the type of eating disorder someone has (or has had) is related to their personality type.
2. To determine whether how long someone has had (or had) an eating disorder is related to their personality type.

PARTICIPANT QUALIFICATIONS

- Must be 18 years or older.
- Must have had an eating disorder at some point in life.
- Must read and agree to terms of consent for participation in the study.

HOW TO BECOME A PARTICIPANT

1. Visit the study website, Eating Disorders and Personality Study (<http://edpersonalitystudy.wix.com/edpersonalitystudy>).
2. Click on the tab titled ‘Become a Participant.’
3. Click on the hyperlink which will lead you to a page where you can complete a brief, 10-question survey which will ask you some questions to determine whether you qualify for the study (some demographic questions and a few questions about your eating disorder history). If you agree to the consent terms stated at the beginning of the survey, you will be asked to provide your email address. The researcher will contact you via this email address after you have completed the survey, with a link to complete a Myers-Briggs Personality Type Assessment. Rest assured that your email address will never be shared or used for purposes outside of this study at anytime, for any reason.

PARTICIPANT INVOLVEMENT

- Complete the brief, 10-question demographics/eating disorder history survey.
- Complete the Myers Briggs Personality Type Assessment by clicking on the link that will be sent to your email address after you complete the initial survey.

To get in touch with the researcher to ask any additional questions about the study, please email EDpersonalitystudy@gmail.com. This study is being advised by Amy D. Ozier, PhD, RD, LDN, Associate Professor at Northern Illinois University. To contact her directly, she can be reached at aozier@niu.edu or 815-761-8711. This study has received approval by the Northern Illinois University Institutional Review Board for Human Subjects Research.

ABOUT THE RESEARCHER



Tiffany Haug is a graduate student and dietetic intern at Northern Illinois University. Tiffany entered into the field of dietetics specifically to help those suffering from eating disorders along their nutritional recovery process. Her research interests include the impact that nutrition has on neurobiology in those with eating disorders, as well as the neurochemical changes that occur in the brain when an individual is actively engaged in their eating disorder. Tiffany currently holds a Certificate of Graduate Study in Eating Disorders & Obesity from Northern Illinois University and will graduate from her dietetic internship and nutrition and dietetics master’s program in December of 2016.

APPENDIX G

CPP RESEARCH APPROVAL

June 24, 2016

Tiffany Haug
1212 Varsity Blvd. Unit 528, DeKalb, IL 60115
thaug1@niu.edu
540-266-8980
Dear Ms. Haug,

I am writing to inform you that we are pleased to offer our support your project entitled, "*Association Between Myers-Briggs Personality Types, Eating Disorder Diagnoses, and Eating Disorder Duration*". Our support offer includes:

- Free SkillsOne® (CPP's commercial website) account setup.
- \$1 per assessment for up to 100 MBTI® Form M Profile administrations on SkillsOne (product code 261145, billed upon administrations used. Taxes may apply.
- Free data file for online assessments (including demographics, item responses, and MBTI scores) upon completion of data collection.
- \$10 per package of 10 MBTI® self-scorable assessments (product code 6165), up to 10 packages. Taxes and shipping charges apply.

To accept our offer of support, please print and sign this letter and email to me at nas@cpp.com. By accepting this support you agree to: (a) present or publish your findings in a scholarly venue, (b) not share the data without further permission from CPP, and (c) not use support from CPP to develop competing instruments.

This offer of support may be accepted through August 24, 2016.

MBTI online administrations under this discount are good through June 24, 2018.

I appreciate your interest in the MBTI® assessment and look forward to hearing about the results of your work. Please feel free to contact me if I can be of further assistance. I can be reached at nas@cpp.com. Best of luck in your work!

Sincerely,

Nancy Schaubhut, M.S.
Senior Research Associate

CPP, Inc. 185 N. Wolfe Road, Sunnyvale, CA 94086 Tel: 650.969.8901 Fax: 650.969.8608 www.cpp.com



APPENDIX H
ONLINE & IN-PERSON EDHDS

Online EDHDS

ED Personality Study - Eating Disorder History and Demographics Survey

1. Please enter your first and last name (this information will never be shared)
2. What is your gender?
 - Male
 - Female
 - Other - please specify _____
3. What is your age?
4. Which race/ethnicity best describes you?
 - Native American/American Indian/Alaska Native
 - Asian or Asian-American
 - Black or African-American
 - Hispanic, Latino, or Spanish Origin – such as Mexico, Puerto Rico or Cuban
 - White
 - Native Hawaiian/Other Pacific Islanders
 - Some other race, specify: _____

- Eating until the point of discomfort
- Eating large amounts of food in the absence of hunger
- Eating in isolation due to embarrassment over how much is being eaten
- Feeling disgust with oneself, or depressed after bingeing
- Distress over bingeing behavior
- Bingeing occurs at least once a week for a period of three months
- Bingeing behavior is not followed by compensatory behaviors such as vomiting, excessive exercise, and laxative use
- Bulimia Nervosa

Characterized by the following:

- Frequent episodes of binge eating, that is, eating an amount of food larger than most would eat in a similar time frame or under similar conditions
- Feeling a sense of lost control over eating while engaging in bingeing behavior
 - Recurrent episodes (at least once a week for three months) of inappropriate compensatory behavior (vomiting, use of laxatives/diuretics, fasting, or excessive exercise)
 - Both binge eating and engaging in inappropriate compensatory behaviors occur for an average of once a week, for a period of three months
 - Evaluation of oneself is unduly centered around body shape or weight
- Otherwise Specified Feeding or Eating Disorder

Characterized by one or more of the following:

- Exhibiting all criteria for anorexia nervosa except weight loss, or weight is within normal range or above normal range

- Exhibiting criteria for binge eating disorder, with the exception of engaging in this behavior less than once a week for a period of three months
- Meeting criteria for bulimia nervosa, with the exception of engaging in this behavior less than once a week for a period of three months
- Exhibiting repeated purging behavior to influence weight or shape in the absence of binge eating
- Repeated episodes of night eating characterized by waking up from sleep to eat, or eating an excessive amount of food following the evening meal, where this behavior is not otherwise explained to by another mental health disorder, and the condition causes significant stress/impairment

7. If for question 4 you answered "I suspect I may have an eating disorder, but have not received a formal diagnosis or received treatment for this eating disorder," please select what type of eating disorder you think you might have.

- Anorexia Nervosa

Characterized by the following:

- Restriction of food intake resulting in a significantly low body weight
- An intense fear of gaining weight or becoming fat, despite being at a low weight
- Distorted view of body weight/shape

- Binge Eating Disorder

Characterized by the following:

- Frequent episodes of binge eating (eating an amount of food larger than most would eat in a similar time frame or under similar conditions)
- Feeling a sense of lost control over eating while engaging in bingeing behavior
- Exhibiting 3 more more of the following:
 - Eating more rapidly than normal
 - Eating until the point of discomfort
 - Eating large amounts of food in the absence of hunger
 - Eating in isolation due to embarrassment over how much is being eaten
 - Feeling disgust with oneself, or depressed after bingeing
- Distress over bingeing behavior
- Bingeing occurs at least once a week for a period of three months
- Bingeing behavior is not followed by compensatory behaviors such as vomiting, excessive exercise, and laxative use

- Bulimia Nervosa

Characterized by the following:

- Frequent episodes of binge eating, that is, eating an amount of food larger than most would eat in a similar time frame or under similar conditions
- Feeling a sense of lost control over eating while engaging in binge behavior
 - Recurrent episodes (at least once a week for three months) of inappropriate compensatory behavior (vomiting, use of laxatives/diuretics, fasting, or excessive exercise)
 - Both binge eating and engaging in inappropriate compensatory behaviors occur for an average of once a week, for a period of three months
 - Evaluation of oneself is unduly centered around body shape or weight

- Otherwise Specified Feeding or Eating Disorder

Characterized by one or more of the following:

- Exhibiting all criteria for anorexia nervosa except weight loss, or weight is within normal range or above normal range
- Exhibiting criteria for binge eating disorder, with the exception of engaging in this behavior less than once a week for a period of three months
- Meeting criteria for bulimia nervosa, with the exception of engaging in this behavior less than once a week for a period of three months
- Exhibiting repeated purging behavior to influence weight or shape in the absence of binge eating
- Repeated episodes of night eating characterized by waking up from sleep to eat, or eating an excessive amount of food following the evening meal, where this behavior

is not otherwise explained to by another mental health disorder, and the condition causes significant stress/impairment

8. How would you describe your current eating disorder status?

- I currently suffer from an eating disorder but want to recover.
- I currently suffer from an eating disorder but am not sure if I want to recover.
- I currently suffer from an eating disorder but do not want to recover.
- I am in recovery from an eating disorder.
- I have fully recovered from an eating disorder.

9. If you currently have an eating disorder: how long have you had an eating disorder? (in years)

10. If you are in recovery from an eating disorder or are fully recovered: How long did you have an eating disorder before you entered into recovery? (in years)

In-Person EDHDS

Note: numbering begins at 2 given the first question consisted of the informed consent form included in Appendix I.

2. What is your gender?

- Male
- Female
- Other - please specify _____

3. What is your age?

4. Which race/ethnicity best describes you?

- Native American/American Indian/Alaska Native
- Asian or Asian-American
- Black or African-American
- Hispanic, Latino, or Spanish Origin – such as Mexico, Puerto Rico or Cuban
- White
- Native Hawaiian/Other Pacific Islanders
- Some other race, specify: _____

5. Have you ever been diagnosed with, or received treatment for, an eating disorder?

- Yes, I have been diagnosed with, and treated for, an eating disorder.
- Yes, I have been diagnosed with, but not treated for, an eating disorder.
- I suspect I may have an eating disorder, but have not received a formal diagnosis or received treatment for this eating disorder.
- No, I have not been diagnosed with an eating disorder.

6. If for question 4, you selected "Yes, I have been diagnosed with, and treated for, an eating disorder," or "Yes, I have been diagnosed with, but not treated for, an eating disorder," please select what type of eating disorder you have been diagnosed with.

- Anorexia Nervosa

Characterized by the following:

- Restriction of food intake resulting in a significantly low body weight
- An intense fear of gaining weight or becoming fat, despite being at a low weight
- Distorted view of body weight/shape

- Binge Eating Disorder

Characterized by the following:

- Frequent episodes of binge eating (eating an amount of food larger than most would eat in a similar time frame or under similar conditions)
- Feeling a sense of lost control over eating while engaging in bingeing behavior
- Exhibiting 3 more more of the following:
 - Eating more rapidly than normal

- Eating until the point of discomfort
- Eating large amounts of food in the absence of hunger
- Eating in isolation due to embarrassment over how much is being eaten
- Feeling disgust with oneself, or depressed after bingeing
- Distress over bingeing behavior
- Bingeing occurs at least once a week for a period of three months
- Bingeing behavior is not followed by compensatory behaviors such as vomiting, excessive exercise, and laxative use
- Bulimia Nervosa

Characterized by the following:

- Frequent episodes of binge eating, that is, eating an amount of food larger than most would eat in a similar time frame or under similar conditions
- Feeling a sense of lost control over eating while engaging in bingeing behavior
 - Recurrent episodes (at least once a week for three months) of inappropriate compensatory behavior (vomiting, use of laxatives/diuretics, fasting, or excessive exercise)
 - Both binge eating and engaging in inappropriate compensatory behaviors occur for an average of once a week, for a period of three months
 - Evaluation of oneself is unduly centered around body shape or weight
- Otherwise Specified Feeding or Eating Disorder

Characterized by one or more of the following:

- Exhibiting all criteria for anorexia nervosa except weight loss, or weight is within normal range or above normal range

- Exhibiting criteria for binge eating disorder, with the exception of engaging in this behavior less than once a week for a period of three months
- Meeting criteria for bulimia nervosa, with the exception of engaging in this behavior less than once a week for a period of three months
- Exhibiting repeated purging behavior to influence weight or shape in the absence of binge eating
- Repeated episodes of night eating characterized by waking up from sleep to eat, or eating an excessive amount of food following the evening meal, where this behavior is not otherwise explained to by another mental health disorder, and the condition causes significant stress/impairment

7. If for question 4 you answered "I suspect I may have an eating disorder, but have not received a formal diagnosis or received treatment for this eating disorder," please select what type of eating disorder you think you might have.

- Anorexia Nervosa

Characterized by the following:

- Restriction of food intake resulting in a significantly low body weight
- An intense fear of gaining weight or becoming fat, despite being at a low weight
- Distorted view of body weight/shape

- Binge Eating Disorder

Characterized by the following:

- Frequent episodes of binge eating (eating an amount of food larger than most would eat in a similar time frame or under similar conditions)
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- Exhibiting 3 more more of the following:
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 - Eating until the point of discomfort
 - Eating large amounts of food in the absence of hunger
 - Eating in isolation due to embarrassment over how much is being eaten
 - Feeling disgust with oneself, or depressed after bingeing
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- Bingeing occurs at least once a week for a period of three months
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 - Evaluation of oneself is unduly centered around body shape or weight

- Otherwise Specified Feeding or Eating Disorder

Characterized by one or more of the following:

- Exhibiting all criteria for anorexia nervosa except weight loss, or weight is within normal range or above normal range
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- I currently suffer from an eating disorder but am not sure if I want to recover.
- I currently suffer from an eating disorder but do not want to recover.
- I am in recovery from an eating disorder.
- I have fully recovered from an eating disorder.

9. If you currently have an eating disorder: how long have you had an eating disorder?

Years:

10. If you are in recovery from an eating disorder or are fully recovered: How long did you have an eating disorder before you entered into recovery?

Years:

APPENDIX I

ONLINE AND IN-PERSON INFORMED CONSENT FORM

Online Informed Consent Form

**Informed Consent**

I agree to participate in the research project titled, 'Associations Between Myers-Briggs Personality Types, Eating Disorder Diagnoses, and Eating Disorder Duration,' conducted by Tiffany Haug, Nutrition and Dietetics Graduate Student and Dietetic Intern at Northern Illinois University. I have been informed that the purpose of the study is to investigate the correlation between personality type and eating disorders. I understand that if I agree to participate in this study, I will be asked to complete form M of the Myers-Briggs Type Indicator assessment, as well as complete a short demographics/eating disorder history survey developed by the researcher. I am aware that my participation in this study is voluntary and may be withdrawn at any time without penalty or prejudice, and that if I have any additional questions concerning this study, I may contact Tiffany Haug (540-266-8980) or Amy Ozier PhD, RD, LDN (aozier@niu.edu).

I understand that if I wish to obtain further information regarding my rights as a research subject, I may contact the Office of Research Compliance at Northern Illinois University at (815) 753-8588. I understand that the intended benefits of this study include expanding the field of research related to personality types and eating disorders. There are no anticipated potential risks or discomforts for participation in the study, aside from roughly 30 minutes of time that it will cumulatively take to complete the Myers-Briggs Type Indicator assessment and a maximum of 8 questions related to demographics and eating disorder history in addition to the Myers Briggs Type Indicator assessment. There is a possibility that questions asked on the survey may bring up unpleasant emotions or memories for participants. I am aware that I can contact any of the resources listed below if I experience these effects and wish to seek support.

I understand that all information gathered during this experiment will be kept confidential by the researcher, and that any data I provide will never be shared in association with my name, or in any other way in which the source of the data is identifiable. I realize that Northern Illinois University policy does not provide for compensation for, nor does the University carry insurance to cover injury or illness incurred as a result of participation in University sponsored research projects. I understand that my consent to participate in this project does not constitute a waiver of any legal rights or redress I might have as a result of my participation, and by completing this assessment, I acknowledge that I have read this form and consent to participation in the study. I also understand that due to regulations and stipulations set forth regarding the administration of the Myers-Briggs Type Indicator assessment, the researcher for this study will not be able to provide participants with their individual Myers-Briggs Personality Type results. However, I understand that if I wish to be sent an email copy of the executive summary of this study's findings following its completion, I may email the researcher at EDpersonalitystudy@gmail.com to receive a copy of this document.

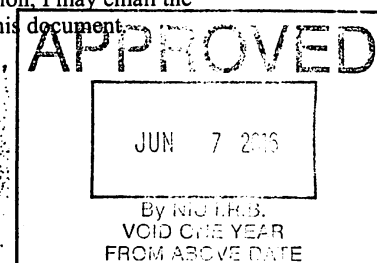
In-Person Informed Consent Form

1. Informed Consent

I agree to participate in the research project titled, 'Associations Between Myers-Briggs Personality Types, Eating Disorder Diagnoses, and Eating Disorder Duration,' conducted by Tiffany Haug, Nutrition and Dietetics Graduate Student and Dietetic Intern at Northern Illinois University. I have been informed that the purpose of the study is to investigate the correlation between personality type and eating disorders. I understand that if I agree to participate in this study, I will be asked to complete form M of the Myers-Briggs Type Indicator assessment, as well as complete a short demographics/eating disorder history survey developed by the researcher. I am aware that my participation in this study is voluntary and may be withdrawn at any time without penalty or prejudice, and that if I have any additional questions concerning this study, I may contact Tiffany Haug (540-266-8980) or Amy Ozier PhD, RD, LDN (aozier@niu.edu).

I understand that if I wish to obtain further information regarding my rights as a research subject, I may contact the Office of Research Compliance at Northern Illinois University at (815) 753-8588. I understand that the intended benefits of this study include expanding the field of research related to personality types and eating disorders. There are no anticipated potential risks or discomforts for participation in the study, aside from roughly 30 minutes of time that it will cumulatively take to complete the Myers-Briggs Type Indicator assessment and the 9 questions related to demographics and eating disorder history prior to the Myers Briggs Type Indicator assessment. There is a possibility that questions asked on the survey may bring up unpleasant emotions or memories for participants. I am aware that I can contact any of the resources listed below if I experience these effects and wish to seek support.

I understand that all information gathered during this experiment will be kept confidential by the researcher, and that any data I provide will never be shared in association with my name, or in any other way in which the source of the data is identifiable. I realize that Northern Illinois University policy does not provide for compensation for, nor does the University carry insurance to cover injury or illness incurred as a result of participation in University sponsored research projects. I understand that my consent to participate in this project does not constitute a waiver of any legal rights or redress I might have as a result of my participation, and by completing this assessment, I acknowledge that I have read this form and consent to participation in the study. I also understand that due to regulations and stipulations set forth regarding the administration of the Myers-Briggs Type Indicator assessment, the researcher for this study will not be able to provide participants with their individual Myers-Briggs Personality Type results. However, I understand that if I wish to be sent an email copy of the executive summary of this study's findings following its completion, I may email the researcher at EDpersonalitystudy@gmail.com to receive a copy of this document.



APPENDIX J

BLURB PRECEDING MBTI ASSESSMENT

Hello!

Thank you so much for taking the time to participate in this study on the relationship between personality types and eating disorders. If you have not yet completed the eating disorder history questionnaire, please complete that questionnaire first before beginning the personality assessment on this website. The eating disorder history questionnaire also includes an informed consent form that applies to both of the eating disorder history questionnaire and the personality assessment. The eating disorder history questionnaire can be accessed at this link:
https://niu.az1.qualtrics.com/SE/?SID=SV_5BE2oXblgVZ0IU5

Thank you!

If you have any questions or issues with the survey or assessment, please do not hesitate to contact me at EDpersonalitystudy@gmail.com

Best,
Tiffany Haug
EDpersonalitystudy@gmail.com