

The Five-Factor Model

*Recent Developments
and Clinical
Applications*

Psychology
Research
Progress



Cecilia Valentine
Editor

Novinka

PSYCHOLOGY RESEARCH PROGRESS

THE FIVE-FACTOR MODEL

RECENT DEVELOPMENTS

AND CLINICAL APPLICATIONS

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AND CLINICAL APPLICATIONS

CECILIA VALENTINE
EDITOR



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PREFACE

Personality traits are enduring dispositional tendencies commonly defined as “dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions”. The broad consensus within the personality literature is that normal or general personality traits can be organised around five higher-order dimensions. These five personality dimensions are Neuroticism, Extraversion, Openness to Experience (Openness), Agreeableness and Conscientiousness and they collectively constitute the Five-Factor Model (FFM) of personality structure. This book discusses recent developments and clinical applications of the FFM. Chapter One analyzes five types of personality continuity in three samples of adolescents. Chapter Two explains the personality variables included in the Five Factors Model that influence the negotiation process, with a set of studies that seeks to relate the personality factors included in the model, jointly or partially, with the behaviours displayed by the subjects’ negotiators, seeking, thus, to systematize the theme under review. Chapter Three firstly provides an overview of recent developments about FFM traits and personality pathology and, secondly, it presents a research study that explored the relationships between these personality characteristics. Chapter Four examines early maladaptive schemas and dysfunctional beliefs associated with personality disorders in relation to the FFM.

Chapter 1 – This study analyzes five types of personality continuity in three samples of adolescents. Personality was assessed when participants were 12, 15, and 20 years old depending on sample. Five hundred forty-three youngsters participated in the various phases of the longitudinal study. The five factors of personality were measured with both junior (JS NEO-S) and adult Spanish versions of the NEO-PI-R according to the assessment time. The

results showed stability in the personality trait structure, especially in younger participants. We also found decreases in the mean levels of conscientiousness and, to a lesser degree, agreeableness indicating a rebellion and opposition behavior pattern during adolescence, which supports the *disruption hypothesis*. Mean levels of extraversion also decreased. Conversely, openness to experience mean scores increased. The results also showed a moderate to high indices of rank-order consistency of the five dimensions. Individual differences in change were higher for neuroticism and conscientiousness. Finally, around 90% of participants presented ipsative consistency. The findings showed that some personality trait changes occurred, but the changes were less marked than expected during this period of biological and social development.

Chapter 2 – The effectiveness in conflict management is influenced by certain individual characteristics significant in the set of behaviours developed in this process. Researchers believe that personality traits are stable and lasting individual's characteristics that predispose negotiators to react to situations in particular ways. So, one of the most interesting issues that has aroused the negotiators' behaviour research, has been the study of personality traits. Barry and Friedman (1998) point out that the negotiators' personality traits are related both to the negotiation process as with the achievements. This research line remains coated with extraordinary interest and relevant consequences, namely, in the analysis of negotiating interaction in different contexts, the negotiating effectiveness and in the training of negotiators.

So, this chapter has the purpose to explain the personality variables included in the Five Factors Model that influence the negotiation process, with a set of studies that sought to relate the personality factors included in the model, jointly or partially, with the behaviours displayed by the subjects' negotiators, seeking, thus, to systematize the theme under review.

Chapter 3 – Decades of cross-cultural psychological research on individual differences has solidified the Five-Factor Model (FFM) as the dominant model of personality traits. Prior to the mid-1990s, the empirical research by personality psychologists focused primarily on normal personality variation. From the mid-1990s onwards, personality researchers turned their attention to studying the similarities, differences and relationships between normal and abnormal personality characteristics. More recently research has examined the clinical applications of the FFM, particularly in understanding and conceptualising personality pathology. Firstly, this chapter provides an overview of recent developments about FFM traits and personality pathology

and, secondly, it presents a research study that explored the relationships between these personality characteristics.

In previous research, the authors demonstrated theoretically-meaningful relationships between FFM personality traits and personality pathology conceptualised as personality disorder (PD) features. There is however a paucity of research that has explored whether FFM personality traits have relationships with other conceptualisations of personality pathology, such as dysfunctional cognitive and emotional schemas.

Early maladaptive schemas (EMSs) are trait-like cognitive and emotional constructs that have been used to explain individual differences in personality pathology. Recent research has demonstrated that EMSs have relationships with PD features in both clinical and non-clinical populations.

Whilst FFM personality traits and EMSs have been shown to have independent relationships with personality pathology in previous studies, comparatively little research has been conducted regarding the relationships these personality characteristics have with each other. However, this research does support this contention and the findings are presented as part of this chapter.

In this study, a non-clinical sample of 313 adult participants ($M = 26.50$ years, $SD = 10.10$, age range = 18-72 years) completed several self-report personality measures, including the NEO Personality Inventory–Revised (Costa & McCrae, 1992) and the Young Schema Questionnaire–Long Form 3 (Young, 2005a). Analyses revealed meaningful relationships between FFM personality traits and EMSs. In general, Neuroticism exhibited positive correlations with most EMSs, whereas Agreeableness, Extraversion and Conscientiousness exhibited negative correlations.

The results of this research have important implications for understanding the connections between these theoretically-divergent personality characteristics. Notably, the results provide evidence of the concurrent validity of FFM personality traits in relating to specific cognitive and emotional features of personality pathology. Further, the results could have important practical implications for the assessment and treatment of personality dysfunction. Overall, the findings from this research could have broader theoretical and practical implications for the conceptualisation and treatment of personality-related problems and these implications are discussed.

Chapter 4 – Cognitions, including early maladaptive schemas and dysfunctional beliefs, are highly relevant to psychological disorders. Specifically, research has demonstrated the relationship between schemas, dysfunctional beliefs, and categorical personality disorders (PDs). With the

move toward dimensional classifications of PDs, there have also been suggestions for the integration of maladaptive beliefs within these diagnostic systems. The current study examined early maladaptive schemas and dysfunctional beliefs associated with PDs in relation to the Five-Factor Model (FFM), a model similar to the alternative model for PD in DSM-5 Section III. This study extended previous research on maladaptive schemas and personality to assess two different measures of maladaptive beliefs and the FFM personality domains. These relationships were examined in a clinical and student sample. Both measures of maladaptive beliefs converged with the FFM domains. The dysfunctional beliefs appeared to provide more discriminant information compared with the early maladaptive schemas. Differences between samples, relationships, and clinical implications are discussed.

Chapter 1

DEVELOPMENT OF PERSONALITY IN ADOLESCENCE

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ABSTRACT

This study analyzes five types of personality continuity in three samples of adolescents. Personality was assessed when participants were 12, 15, and 20 years old depending on sample. Five hundred forty-three youngsters participated in the various phases of the longitudinal study. The five factors of personality were measured with both junior (JS NEO-S) and adult Spanish versions of the NEO-PI-R according to the assessment time. The results showed stability in the personality trait structure, especially in younger participants. We also found decreases in the mean levels of conscientiousness and, to a lesser degree, agreeableness indicating a rebellion and opposition behavior pattern during adolescence, which supports the *disruption hypothesis*. Mean levels of extraversion also decreased. Conversely, openness to experience mean scores increased. The results also showed a moderate to high

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indices of rank-order consistency of the five dimensions. Individual differences in change were higher for neuroticism and conscientiousness. Finally, around 90% of participants presented ipsative consistency. The findings showed that some personality trait changes occurred, but the changes were less marked than expected during this period of biological and social development.

Keywords: personality, development, stability, change, Five-Factor Model

1. INTRODUCTION

In trait psychology, personality is related to patterns of thoughts, feelings and behaviors, which remain *relatively stable* during people's lifetime and distinguish one person from another. The present research will focus on the *relatively stable* part of the definition at a particular and fairly unexplored period, adolescence. The first term, *relative*, reflects the broadly assumed fact that personality is not perfectly stable through time, and its development implies some degree of change. Nowadays, the main research questions would refer to the extent of personality change in different stages of peoples' lives (Roberts, Wood, & Caspi, 2008; Soto & Tackett, 2015), and what are the causes and processes underlying these patterns of stability and change (Specht et al., 2014).

The fact that the second term of the expression, *stability*, is a multi-faceted construct puts an additional difficulty in answering these questions. Five main types of stability/change have been proposed: structure consistency, rank-order consistency, mean-level change, ipsative consistency and intra-individual differences in individual change (Roberts et al., 2008). Briefly, structural consistency refers to the persistence of correlational patterns among traits or dimensions over time, and it is considered to be the basic step in order to explore other types of stability. Rank-order consistency indicates whether the rank order of individuals in a certain trait is maintained over time. Mean-level stability is the extent to which absolute levels of personality scores change on average with time. Ipsative consistency and intra-individual differences in individual change have been the least explored types of personality continuity and change. Ipsative stability tracks the relative ordering of constructs (i.e., profile) within an individual over time, whereas individual change indicates the magnitude of the increase or decrease in any given trait exhibited by a person.

Extensive research on adult personality structure and development supports several key conclusions (Soto & Tackett, 2015). First, the Five-Factor Model (FFM) has become a consensus model that offers a useful descriptive taxonomy for most personality traits according to many personality psychologists (John, Naumann, & Soto, 2008). Second, the evidence of the structural continuity of the FFM from late adolescence to old age seems to be strong (Roberts et al., 2008). Third, and in terms of rank-order stability, the *cumulative-continuity principle* has been proposed, which refers to the fact that personality becomes increasingly stable across adulthood (for meta-analytic summaries see Anusic & Schimmack, 2016; Ferguson, 2010; Roberts & DelVecchio, 2000). Finally, and in terms of mean-level development, studies consistently find that most people become more agreeable, conscientious and emotionally stable with age, the so-called *maturity principle* (for a meta-analytic summary see Roberts, Walton, & Viechtbauer, 2006).

Research on adolescent personality traits is scarcer than research on adult personality traits, so it is less clear if these conclusions may be applied to adolescent personality development. In relation to personality structure, substantial convergence between temperamental models and the FFM has been found in recent years (De Pauw & Mervielde, 2010), and there is compelling evidence that the FFM adequately represents the personality domain in adolescents (Goldberg, 2001; McCrae et al., 2002; Ortet et al., 2012; Soto, John, Gosling, & Potter, 2008). However, some differences have also appeared between youth and adult personality, although they seem more evident in childhood than in adolescence. For example, difficulties have been reported in identifying the openness/imagination dimension in younger samples (De Fruyt et al., 2006; Lamb et al., 2002; Mervielde et al., 1995; Soto et al., 2008). Moreover, possible additional temperamental factors have been described in childhood or early adolescence, such as irritability and activity (John et al., 1994; Lamb et al., 2002; Soto & Tackett, 2015). Finally, cross-sectional studies have found certain problems of structure differentiation, especially in younger samples and mainly within conscientiousness and agreeableness domains (Soto et al., 2008; Tackett et al., 2012). However, when structural continuity has been tested longitudinally, it has usually been found that the five-factor intercorrelations do not change substantially at a broad domain level (e.g., De Fruyt et al., 2006; Ibáñez et al., 2016; McCrae et al., 2002), although some differences appeared at a facet level at younger ages (De Fruyt et al., 2006). Clearly, additional research is needed to further clarify the trait structural continuity during adolescence.

In reference to the mean-level stability of personality in adolescence, researchers have moved from an initial *maturation* vision (Klimstra, Hale, Raaijmakers, & Meeus, 2012; Roberts et al., 2006) to a *disruption* one in recent years. Soto, John, Gosling, and Potter (2011), in a cross-sectional study of over a million participants, found that levels of agreeableness, conscientiousness and openness declined from late childhood to early adolescence, then increased rapidly from late adolescence to early adulthood. Similar trends have been found in a meta-analysis using fourteen cross-sectional and longitudinal studies (Denissen, Aken, Penke, & Wood, 2013), and in posterior longitudinal studies (Göllner et al., in press; van den Akker, Deković, Asscher, & Prinzie, 2014). These findings led to the *disruption hypothesis* in young personality development, which states that the biological, social and psychological transitions from childhood to adolescence are accompanied by temporary dips in some aspects of personality maturity (Soto & Tackett, 2015).

Meta-analyses on rank-order stability (e.g., Ferguson, 2010; Roberts & DelVecchio, 2000) have indicated that stability indices (correlations) among personality traits increase with age from adolescence to adulthood. The data available from research works in adolescents have shown a similar picture, with lower rank-order stability during late childhood and early adolescence than during late adolescence and early adulthood (e.g., Akse, Hale III, Engels, Raaijmakers, & Meeus 2007; Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009; Pullmann, Raudsepp, & Allik, 2006).

Finally, individual stability types, such as individual and ipsative or profile changes, have been examined even less frequently than the above-mentioned types. The few previous findings obtained in adolescents have indicated that most individuals show no significant variations (Ibáñez et al., 2016), and that openness is the dimension that presents more individual changes (De Fruyt et al., 2006; McCrae et al., 2002; Pullmann et al., 2006). Finally, the few previous findings obtained with ipsative stability indicated that changes occur in the profile personality configuration in fewer than 10% of adolescents (De Fruyt et al., 2006; Ibáñez et al., 2016), while older teenagers present a more stable profile (Klimstra et al., 2012).

Only a handful of studies have been conducted on personality development across adolescence using the FFM. As far as we know, only two research works have studied up to five types of personality continuity in the same sample of young participants under the FFM framework (De Fruyt et al. 2006; Ibáñez et al., 2016). Thus, longitudinal studies on the development of

personality across adolescence will contribute to the understanding of personality continuity in this developmental stage.

The present study examined adolescents' five-personality broad domains development from age 12 to age 20 through structural consistency, mean-level or normative change, rank-order consistency, structural consistency, individual differences in change and ipsative consistency. According to the reviewed literature, the hypotheses were that we would find: 1) structural continuity of the five factors; 2) a decrease in agreeableness, conscientiousness and openness according to the *disruption hypothesis* from age 12 to age 15; and then an increase of scores in these three traits as participants approach emerging adulthood according to the *maturity principle*; 3) moderate levels of rank-order consistency; and 4) low levels of ipsative and individual change, with openness being the dimension with more intra-individual changes.

2. METHOD

2.1. Participants and Procedure

Initial Sample 1 was composed of 371 secondary education students whose mean age was 12.03 years, $SD = .60$ (S1_T1). Of these, 234 (90 boys and 144 girls; mean age = 15.32, $SD = .71$) were re-assessed three years later, at 15 years of age (S1_T2). The attrition analysis indicated that the participants who answered at both T1 and T2 were moderately more agreeable ($p < .01$) and open to experience ($p < .05$) than those who answered only at T1. Sample 2 comprised 241 youngsters assessed at the age of 15 years (S2_T1), of whom 145 (44 boys and 101 girls) answered the questionnaires again when they were 20 years old (S2_T2; 72.5% formed part of Sample 1 and 27.5% were fresh participants). The comparison made of participants at T1 only and those who answered it at both T1 and T2 indicated that the latter sample was slightly more neurotic ($p < .05$). Finally, initial Sample 3 consisted in 164 adolescents (44 boys and 120 girls) from S1_T1 (S3_T1) for whom a follow-up was done until they reached the age of 20 (S3_T2). The attrition analysis showed no significant differences in the mean personality scores. Furthermore, no significant differences were found in the percentage of genders or socio-demographic characteristics in the attrition analyses of all three samples. Thus, 543 youngsters participated in the various phases of this longitudinal study.

In the compulsory secondary education study phases (the 12 and 15 age groups), four research fellows handed out the junior version of the personality

scales, followed the standard instructions and encouraged respondents to give sincere answers. All the attending students voluntarily completed the questionnaires in the classroom. Participants aged 20 years were contacted by post and answered the adult version of the questionnaires on a web page. They were all paid 40 euros for participating.

2.2. Ethics

This study was carried out in accordance with the recommendations of the ethical committee from the Universitat Jaume I. Parents or legal tutors of the under aged participants gave written informed consent in accordance with the Declaration of Helsinki.

2.3. Measures

The short form of the Junior Spanish NEO-PI-R version (JS NEO-S; Ortet et al., 2010) comprises 150 items, which are answered on a 5-point Likert-type scale ranging from *strongly disagree* to *strongly agree*. It assesses 30 specific traits or facets that define the five personality factors or domains: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. The JS NEO-S can be used in adolescents aged 12 to 18 years. The reliability and validity indices of the questionnaire are satisfactory and can be found in Ortet et al. (2010). The adult aged participants answered a 150-item version of the long Spanish NEO-PI-R version (Costa & McCrae, 1999). Its structure replicated the NEO-PI-R, and the reliability and validity data were adequate.

2.4. Data Analyses

Different analyses were carried out according to the type of personality continuity studied. We examined *structural continuity* using structural equation modeling (SEM) following the procedure described by De Fruyt et al. (2006), Ibáñez et al. (2016) and Robins, Fraley, Roberts and Trzesniewski (2001). Thus, using SEM, we specified a baseline model that was a single-indicator latent variable model, with one latent variable associated with all 10 scores (five dimensions X two assessment occasions). This is a fully saturated model, with the variances of the latent variables fixed at 1 and the variances of

the residuals fixed at 0. The correlations among the latent variables were freely estimated. In the second model, the correlations between all the pair-wise dimensions across the two assessment occasions were constrained to be equal. For instance, the correlation between neuroticism and conscientiousness at S1_T1 was forced to equal the correlation between neuroticism and conscientiousness at S1_T2. A significant difference in fit between these two models would indicate structural change. These analyses were repeated for T1 and T2 of Samples 2 and 3.

We assessed *mean-level change* by comparing the mean personality scores between measurement times. *Rank-order stability* was assessed by the correlation between personality scores at each time point. *Individual differences in change* were computed using the RC index (Christensen & Mendoza, 1986; De Fruyt et al., 2006; Ibáñez et al., 2016; Jacobson & Truax, 1991). This index calculates the probability of observing a difference in score equal to or greater than that obtained, assuming that no change occurred. This index accounts for the unreliability of measurement. Thus it is a valuable technique for separating true personality change from change due to measurement error (Robins et al., 2001). The RC index is computed as $RC = X_2 - X_1 / S_{diff}$, where X_1 signifies a person's score at T1, X_2 denotes the same person's score at T2, and S_{diff} is the standard error of difference between the two personality scores. A detailed description of this method can be found in De Fruyt et al., 2006, p. 545.

Finally, two methods were employed for *ipsative consistency*. The first was the D^2 , D'^2 , D''^2 indices proposed by Cronbach and Gleser (1953), which allowed us to obtain changes in the elevation (average level of scores), scatter (variability of scores) and shape (patterning of scores) of the individual profile of traits. The first index, D^2 , is sensitive to differences in elevation, scatter and shape, and quantifies the squared differences between traits on two assessment occasions. The second index, D'^2 , reflects differences only in scatter and shape, and quantifies the squared differences between trait profiles after each profile has been centered around its mean. The third index, D''^2 , is sensitive only to shape, and quantifies the squared differences between profiles after each profile has been standardized. They are computed as:

$$D_{12}^2 = \Sigma(x_1 - x_2)^2; D'_{12}{}^2 = D^2 - 5\Delta^2 El_{12}; D''_{12}{}^2 = \frac{D^2 - \Delta^2 S}{S_1 S_2}.$$

Thus D^2 is the sum of the differences of the values of each score of the five dimensions between T1 and T2, $\Delta^2 El_{12}$ is the squared difference of the mean

scores, and S is the result of $\sqrt{5}$ (because we measured five personality variables) multiplied by standard deviation. In order to interpret these indices, a simulation of trait scores was performed on a sample of 50,000 individuals with identical levels of elevation, scatter and shape in a person's profile at the two measurement points, and the corresponding distributions were examined as reported in previous studies (De Fruyt et al., 2006; Ibáñez et al., 2016; Robins et al., 2001). After obtaining the D^2 , D'^2 , D''^2 indices, they were compared to the simulated value of the 95th percentiles, which would be the cutting point for the values of our samples. They indicate which individual profiles show significant changes in elevation, scatter or shape. The second method of examining ipsative continuity was q -correlations (Ozer & Gjerde, 1989); that is, the within-person correlations across traits at T1 and T2. They are computed as:

$$r = \frac{\Sigma(\text{score}_{T1} - \text{mean}_{T1})(\text{score}_{T2} - \text{mean}_{T2})}{NSD_{T1}SD_{T2}}.$$

Correlation values of around 1 indicate that the pattern or configuration of traits is stable between the two measurement points. A value that is negative or around -1 suggests that the person shows an opposite personality profile between the two measurement points (e.g., De Fruyt et al., 2006; Ibáñez et al., 2016; Klimstra et al., 2009; 2012).

3. RESULTS

3.1. Structural Consistency

We formally tested if intercorrelations among FFM dimensions changed from T1 to T2 using SEM in the three samples. For the three samples, the base line model leads to a fully saturated model. We reestimated the model after placing 10 pairwise equality constraints between paths at T1 and T2 in the three samples. In Sample 1, a chi-squared difference test indicated that constraining the model did not lead to a significant reduction in fit, $\chi^2\Delta$ ($df = 10$) = 11.58, $p = .31$, indicating that the saturated model did not fit better than the model with equal correlations. Therefore, we can conclude that the intercorrelations of the five factors were structurally invariant across the two measurement points. However, chi-squared difference test indicated that constraining the model led to a significant reduction in fit in Samples 2 and 3

(Sample 2: $\chi^2\Delta$ (df = 10) = 20.05, p = .03; Sample 3: $\chi^2\Delta$ (df = 10) = 19.54, p = .03). The *post hoc* analyses gave significant differences in the magnitude of the correlations between extraversion and conscientiousness ($\chi^2\Delta$ (df = 1) = 6.64, p = .01), and between openness and agreeableness ($\chi^2\Delta$ (df = 1) = 6.50, p = .01) in Sample 2; and in the magnitude of the correlation between neuroticism and extraversion ($\chi^2\Delta$ (df = 1) = 5.13, p = .02), and between openness and conscientiousness ($\chi^2\Delta$ (df = 1) = 4.93, p = .03) in Sample 3.

3.2. Mean-Level Change

Table 1 presents the results of the mean comparisons made of the five personality dimensions between T1 and T2 in the three samples of participants. Conscientiousness and, to a lesser extent, agreeableness mean scores lowered in early adolescence (Sample 1), which may indicate a teenage

Table 1. Mean-level comparisons of the five dimensions at times 1 and 2 per sample

Sample 1 (between 12 and 15 years)						
	<i>M</i> T1	<i>SD</i> T1	<i>M</i> T2	<i>SD</i> T2	<i>t</i> Test <i>p</i>	Cohen's <i>d</i>
Neuroticism	54.30	12.66	55.10	14.90	<i>ns</i>	.06
Extraversion	77.74	11.21	78.90	13.06	<i>ns</i>	.10
Openness to Experience	68.28	10.17	67.99	12.25	<i>ns</i>	-.03
Agreeableness	79.75	10.41	77.51	10.73	<.01	-.21
Conscientiousness	82.10	12.73	70.52	15.61	<.001	-.81
Sample 2 (between 15 and 20 years)						
	<i>M</i> T1	<i>SD</i> T1	<i>M</i> T2	<i>SD</i> T2	<i>t</i> Test <i>p</i>	Cohen's <i>d</i>
Neuroticism	58.49	14.06	57.67	14.89	<i>ns</i>	-.06
Extraversion	79.56	12.59	70.79	11.55	<.001	-.73
Openness to Experience	68.08	12.24	70.73	12.57	<.01	.21
Agreeableness	76.57	10.25	75.70	11.17	<i>ns</i>	-.08
Conscientiousness	71.18	13.46	72.53	14.57	<i>ns</i>	.10
Sample 3 (between 12 and 20 years)						
	<i>M</i> T1	<i>SD</i> T1	<i>M</i> T2	<i>SD</i> T2	<i>t</i> Test <i>p</i>	Cohen's <i>d</i>
Neuroticism	55.93	13.15	56.10	14.55	<i>ns</i>	.01
Extraversion	79.54	11.64	71.37	12.10	<.001	-.69
Openness to Experience	67.20	10.72	69.60	12.17	<.01	.21
Agreeableness	78.33	10.99	76.15	10.11	<.05	-.21
Conscientiousness	78.41	12.77	72.60	13.99	<.001	-.43

Note. Sample 1: N = 234, Sample 2: N = 145, and Sample 3: N = 164; *ns* = non-significant difference; Cohen's *d* values of .20, .50, and .80 correspond to small, medium, and large effect sizes, respectively (Cohen, 1992).

rebellion pattern in this stage. For the transition to early adulthood (Sample 2), the extraversion mean scores went down, while the openness ones went up. When comparing the five personality factors between early adolescence and early adulthood (Sample 3), the mean scores of extraversion, agreeableness and conscientiousness significantly decreased, while the mean openness scores increased. No mean-level changes were found for neuroticism.

3.3. Rank-Order Consistency

The correlation indices between the measurement points were moderate (see Table 2). These values in Sample 1 (aged between 12 and 15 years) ranged from .42 to .50, ranged from .45 to .68 in Sample 2 (aged between 15 and 20 years) and ranged from .34 to .50 in Sample 3 (aged between 12 and 20 years). Thus our results indicate that personality is relatively stable in adolescence. Another finding was that the shorter the time interval between measurement points, the greater rank-order stability becomes (sample 3 overall correlations were lower than in Samples 1 and 2).

Table 2. Intercorrelations among the five dimensions at times 1 and 2 per sample

	N_T2	E_T2	O_T2	A_T2	C_T2
Sample 1 (between 12 and 15 years)					
N_T1	.42***	.07	-.02	-.03	-.14*
E_T1	.01	.47***	.13*	.14*	-.06
O_T1	-.11	.22**	.49***	.21**	.08
A_T1	-.11	.12	.23***	.50***	.20**
C_T1	-.14*	.07	.07	.11	.45***
Sample 2 (between 15 and 20 years)					
N_T1	.53***	-.10	.11	-.05	-.21*
E_T1	-.11	.52***	.12	.03	.01
O_T1	.14	.24**	.68***	.24**	.05
A_T1	-.03	.27**	.33***	.63***	.23**
C_T1	-.13	.11	.19*	.23**	.45***
Sample 3 (between 12 and 20 years)					
N_T1	.34***	-.14	.00	.12	-.03
E_T1	-.13	.46***	.24**	.07	-.00
O_t1	-.01	.24**	.50***	.04	.15
A_T1	.01	.06	.10	.38***	.12
C_T1	-.12	.08	.18*	.16*	.36***

Note. N = Neuroticism; E = Extraversion; O = Openness to Experience; A = Agreeableness; C = Conscientiousness; Sample 1: N = 234, Sample 2: N = 145, and Sample 3: N = 164.

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

3.4. Individual Differences in Change

The RC indices of the five personality dimensions for the three samples were computed (see Table 3). Lower percentages of participants were obtained for domains openness (fewer than 10% in the three samples) and agreeableness (fewer than 12% in the three samples). Conversely, neuroticism (more than 18% in the three samples) and conscientiousness (more than 25% in the three samples) obtained the highest percentage of participants with significant RC indices. Furthermore, openness, agreeableness and neuroticism showed a balanced percentage of participants with lower and higher values for the RC indices, but conscientiousness presented a decline (32.9% decrease and 1.7% increase) in early adolescence (Sample 1), and a rise (15.9% increase and 9.7% decrease) from mid-adolescence to early adulthood (Sample 2). Finally, extraversion exhibited a significant individual-level decline (16.6% decrease and 1.4% increase) also from mid-adolescence to early adulthood (Sample 2).

Table 3. Percentage of participants showing reliable change index (RC)

Sample 1 (aged between 12 and 15 years)			
	No change %	% decreased	% increased
Neuroticism	77.8	12.4	9.8
Extraversion	91.4	4.3	4.3
Openness to Experience	92.3	4.3	3.4
Agreeableness	92.3	6.0	1.7
Conscientiousness	65.4	32.9	1.7
Sample 2 (aged between 15 and 20 years)			
	No change %	% decreased	% increased
Neuroticism	81.4	8.3	10.3
Extraversion	82.0	16.6	1.4
Openness to Experience	93.8	3.4	2.8
Agreeableness	94.6	2.7	2.7
Conscientiousness	74.4	9.7	15.9
Sample 3 (aged between 12 and 20 years)			
	No change %	% decreased	% increased
Neuroticism	76.2	12.2	11.6
Extraversion	83.0	15.2	1.8
Openness to Experience	90.9	3.0	6.1
Agreeableness	88.4	7.9	3.7
Conscientiousness	68.9	23.8	7.3

Note. Sample 1: $N = 234$, Sample 2: $N = 145$, and Sample 3: $N = 164$.

3.5. Ipsative Consistency

The Cronbach and Gleser's D^2 , D'^2 , D''^2 indices of the five domains for the three samples were calculated. The results indicated low percentages of change in the elevation (Sample 1: $N = 10$, 4.3%; Sample 2: $N = 8$, 5.5%; Sample 3: $N = 8$, 4.9%), scatter (Sample 1: $N = 9$, 3.9%; Sample 2: $N = 7$, 4.8%; Sample 3: $N = 4$, 2.4%) or shape (Sample 1: $N = 14$, 6%; Sample 2: $N = 6$, 4.1%; Sample 3: $N = 10$, 6.1%) of individual profiles. The number of participants who exhibited change in any of these three indices was below 7%, and fewer than 10% of participants showed any profile change.

The q-correlations were also computed and the results revealed that the average was .45 (ranging from -.75 to .80) and the median was .55 for the three samples. The Q_1 of the q-correlations distribution was .36 in Samples 1 and 2, and .23 in Sample 3; and the Q_3 was .71, .72, and .66 in Samples 1, 2 and 3 respectively. In addition, more than 70% of the participants obtained q-correlations of over .30 in all three samples. The number of participants with negative values ($r < 0$) ranged between 6.4% and 12.8%.

CONCLUSION

Traditionally, adolescence has been considered a difficult period of transition from childhood to adulthood, a time of "storm and stress." Adolescent-typical behaviors such as conflict with parents, mood disruption, or risk behavior tend to occur during adolescence (Arnett, 1999), although there is a wide range of variability between individuals. Consequently, it has been proposed that a more comprehensive approach to adolescence should incorporate the role of temperament and personality characteristics (Hollenstein & Loughheed, 2013; McAdams & Olson, 2010). Most studies on personality structure and development have been carried out in adults and, consequently, much less it is known about adolescent personality. The present research has studied five types of personality continuity in adolescence in three samples of participants who were longitudinally followed. The *structural stability* of the five dimensions was higher in younger adolescents than in older ones, thus the results partially support our first hypothesis. As expected, for *mean-level change*, a rebellion and opposition behavior pattern is noted (drop in agreeableness and conscientiousness), especially in early adolescence (Sample 1), which is characteristic of this developmental stage. Although we did not find a decrease in openness in younger adolescents, our results

indicated an increase of this factor in older adolescents (Samples 2 and 3), which reflects increased cognitive ability to understand the world, relevance of emotions, appreciation of art or tolerance to different values. No significant mean-level change for neuroticism is seen in our samples. Finally, a significant decrease in extraversion is observed for older adolescents (Samples 2 and 3), which is in line with the findings of Soto et al. (2011). The results also showed, as we predicted, *rank-order consistency* indices that Roberts and DelVecchio (2000) considered as moderate. Furthermore, our coefficients at older ages in Sample 2 are larger in size than in Sample 1, but are smaller when the time between assessments is longer (Sample 3). In reference to individual types of stability/change, as hypothesized, they were low. The highest *individual differences in change* indices were for neuroticism and conscientiousness domains. Moreover, around 90% of participants also presented *ipsative consistency*, in line with previous findings (De Fruyt et al., 2006). Taken together, our findings support the view that personality presents some degree of variation during early adolescence as agreeableness and conscientiousness mean scores decreased, but it is more consistent over time than expected during this period of remarkable biological and social transformations (cf., Robins et al., 2001). However, we did not find the hypothesized individual changes in openness.

Very few longitudinal studies have examined structural personality change during adolescence (De Fruyt et al., 2006; Ibáñez et al., 2016; McCrae et al., 2002). However, cross-sectional investigations indicate some differences between youth and late adolescence personality structure (Soto & Tackett, 2015). Our findings indicate that the five-factor structure of personality is stable in early adolescence. However in older adolescents, significant differences in 2 of the 10 interrelations were found among traits between the assessment occasions in Samples 2 and 3. The use of the adult NEO-PI-R at T2 in both samples, when participants were 20 years old, can explain this lower structural consistency. Sample 1, whose participants answered the junior version on both measurement points, presents no structural differences. Nonetheless, our findings are in line with the few previously published studies that have examined structural personality change (e.g., De Fruyt et al., 2006). Therefore although adolescence is a time of considerable identity construction and major life changes, it does not seem to involve a dramatic change in the structure of personality dimensions. Nonetheless, according to our results and previous studies, some slight variations were detected, especially in openness, probably indicating that this trait is the most difficult to comprehend in this stage (Ortet et al., 2012; Soto et al., 2008).

In reference to normative continuity, we found the most significant changes in two of the five dimensions in younger adolescents, a drop in agreeableness and conscientiousness, which may imply a rebellion and oppositional behavior pattern. A very similar pattern has been described in other cross-sectional and longitudinal studies (Denissen et al., 2013; Göllner et al., in press; Ibáñez et al., 2016; Soto et al., 2008; van den Akker et al., 2014), although some of these investigations found that openness also tends to decline during early adolescence. Thus our results would support the *Disruption Hypothesis*, which posits that the transition from childhood to adolescence is accompanied by temporary dips in some aspects of personality maturity (Soto & Tackett, 2015).

For rank-order stability, previous meta-analyses (Ardelt, 2000; Ferguson, 2010; Roberts & DelVecchio, 2000) have stated that correlations in adolescence were around .35 - .70, which indicates moderate to high stability. Our results (between .32 and .68) replicate these findings and are in line with previous results for similar age ranges (e.g., Akse et al., 2007; McCrae et al., 2002). Furthermore, our coefficients at older ages (Sample 2) are also slightly larger in size, but are somewhat smaller when the time between assessments is longer (Sample 3), as expected. Thus although rank-order stability is lower at younger ages than in adulthood, personality traits are rather consistent in adolescence.

Individual-level personality studies are scarce, especially in adolescence. We found that very few adolescents obtained reliable higher or lower personality trait scores for individual differences in change. Most participants showed no significant changes for any personality dimension, which is in accordance with previous findings (De Fruyt et al., 2006; Ibáñez et al., 2016; McCrae et al., 2002; Pullmann et al., 2006). Neuroticism and conscientiousness were the traits in which the minority of youngsters presented the most marked individual score changes. It seems that individual-level changes in one personality dimension, or more, are associated with particular life events (Lüdtke, Roberts, Trautwein, & Nagy, 2011). For ipsative stability, fewer than 10% of the participants exhibited a change in the elevation, scatter or shape of individual personality profiles. The q-correlations also reflected a stable individual trait profile. Our results replicate some few previous studies, which were conducted on intra-individual consistency (De Fruyt et al., 2006; Ibáñez et al., 2016; Klimstra et al., 2012), and support the idea that individual personality profiles are consistent in adolescence.

This study has two main limitations. The first is that there was a fairly substantial amount of attrition, which could affect the generalizability of our

results. Nonetheless those participants who were retained only differ slightly in terms of the mean personality scores from those who dropped out from Samples 1 and 2. The second limitation is that this research only covered two time points during the follow-up period in the three samples. Three time points or more for the same sample, from age 12, would enable us to examine non-linear development trajectories throughout adolescence.

In summary, the transition from childhood to adolescence has been traditionally viewed as a period of dramatic changes in personality development, probably more than in any other developmental stage. Our results, and taking into account previous studies, would contradict this vision in relation to the five factors of personality. Thus, adolescent personality development seems to be characterized by structural continuity of the FFM, especially in younger participants. In addition, although we found low to moderate changes in the other four stability/change types, they seem to be lower than those presented in other developmental stages, such as young adulthood (Roberts et al., 2006). In any case, studies that have examined the main five types of personality continuity under the FFM framework are nearly inexistent, so further longitudinal investigations in adolescence that take into account structural, population and individual levels of analysis in personality development are clearly necessary.

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Chapter 2

FIVE PERSONALITY FACTORS MODEL AND CONFLICT MANAGEMENT

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ABSTRACT

The effectiveness in conflict management is influenced by certain individual characteristics significant in the set of behaviours developed in this process. Researchers believe that personality traits are stable and lasting individual's characteristics that predispose negotiators to react to situations in particular ways (Caputo, 2016). So, one of the most interesting issues that has aroused the negotiators' behaviour research, has been the study of personality traits. Barry and Friedman (1998) point out that the negotiators' personality traits are related both to the

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negotiation process as with the achievements. This research line remains coated with extraordinary interest and relevant consequences, namely, in the analysis of negotiating interaction in different contexts, the negotiating effectiveness and in the training of negotiators.

So, this chapter has the purpose to explain the personality variables included in the Five Factors Model that influence the negotiation process, with a set of studies that sought to relate the personality factors included in the model, jointly or partially, with the behaviours displayed by the subjects' negotiators, seeking, thus, to systematize the theme under review.

Keywords: conflict, personality, negotiation, big five

1. INTRODUCTION

One of the issues that has aroused more interest in research of the negotiators' behaviour has been the study of personality traits. Research in this area is wide, particularly in the second half of the twentieth century, with studies intended to observe the role of individual variables in the process and outcome of negotiations (Monteiro, Rodríguez & Serrano, 2002). However, much of the work in this line of research led to inconsistent results that proved difficult to replicate, mainly due to the use of different instruments and methods in several studies (Pruitt, 1981) and, above all, because it analysed the individual features in an isolated way (Barry & Friedman, 1998).

The Five Factor Model, providing a comprehensive, robust taxonomy of personality differences between individuals (Antonioni, 1998; Digman, 1990; McCrae & Costa, 1994), represents a possibility to overcome the limitations from the perspective of individual traces (Antonioni, 1998). The literature portrays an extension of studies that intend to relate the personality factors included in the Five Factor Model with the behaviour displayed by the negotiators. These studies show the growing interest in establishing the conditions in which personality traits influence the results of the negotiations and the relationship between these traits and conflict management (Cisneros, Medina & Dorado, 2005; Wood & Bell, 2008).

The features of the negotiators compete to establish the nature of the negotiation process (Bercovitch, 1984), influence the negotiation climate (Herman & Kogan, 1977), influence the way individuals interpret the experienced conflict (Bono, Boles, Judge & Lauver, 2002) and are related to the negotiation process and the results achieved (Barry & Friedman, 1998;

Lewicki, Saunders & Barry, 2014), also share the belief that the individual characteristics of the negotiators play a fundamental role in the explanation of the process of negotiation and, predictably, in its outcome. Also, Yiu and Lee (2011) consider that the success of a negotiation can be determined by personality traits which influence the behaviour of negotiators and affect the outcome of a negotiation. Personality traits may influence the initial orientation, the use of tactics and other variables in the negotiating process.

As referred Bono et al., (2002) the relationship between personality and conflict can be visible on three distinct levels, specifically in the possible relationship between certain traits and motivations that give rise to a conflict, in the specific behaviours developed in the situation of conflict and in the way individuals interpret the experienced conflict. In other words, the author considers that personality influences both the behaviour in conflict, and the later interpretations of the events in it.

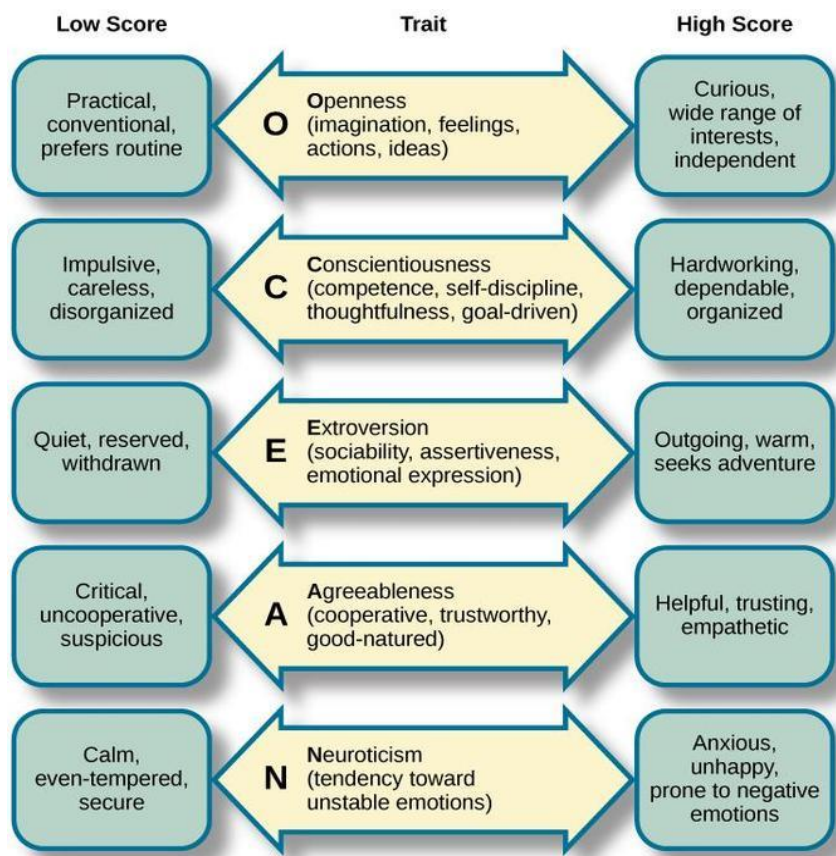
It should be noted that until validation of the Five Factor Model (FFM) and in parallel to the appearance of personality inventories known by the acronym NEO-PI-R and NEO-FFI, the selection of an instrument to measure the personality structure was not presented as an easy task.

The personality model of Costa and McCrae (1992) is based on the organization of personality traits into five general dimensions. The authors gathered individual affective characteristics, experiential, interpersonal, motivational and attitudinal in a comprehensive scheme where the individual is positioned in a top to bottom *continuum* in the five factors. The acronym OCEAN is often used to designate the five factors.

Even though in a concise way, it is important to present the factors that make the model of the five personality factors (Costa & McCrae, 1992):

- Openness to Experience (O): concerning the curiosity, originality, imagination, creativity, diversity and non-traditional interests;
- Conscientiousness (C): the individual tends to be organized, persistent and responsible;
- Extraversion (E): it relates to the tendency to be sociable, assertive, optimistic, active, talkative, and kind, to appreciate socializing and to enjoy having fun;
- Agreeableness (A): it is observable in flexible people, who are cooperative, tolerant, confident and concerned with others;
- Neuroticism (N): the tendency to experience negative emotions such as sadness, fear, anger, guilt, embarrassment and abomination.

The figure below sets out the factors under consideration:



Source: Boundless. “The Five Factor Model.” Boundless Psychology. Retrieved from: <https://www.boundless.com/psychology/textbooks/boundless-psychology-textbook/personality-16/trait-perspectives-on-personality-79/the-five-factor-model-311-12846/>.

Figure 1. The Five Factor Model.

The Five Factor Model has been characterized by many investigators as being basic for the personality description, as it provides a comprehensive, robust taxonomy of personality differences between individuals (Digman, 1990; Costa & McCrae, 1994). According to Antonioni (1998), the Five Factor Model is a possibility to help overcoming the limitations in the perspective of individual traits, which characterised previous investigations, instead of using

a generic model of personality structure, now made possible by the already mentioned Five Factor Model. It had such a big importance that, in the 90s of the last century, it was considered the leading system in the organization and understanding of the universe of personality traits (Funder, 2001), with its remarkable expansion in applied areas of Psychology such as Health, Clinical Psychology and the Psychology of Work (Sanz, Silva & Avia, 1999).

Among the advantages of the Five Factor Model referred by several authors (Costa & McCrae, 1992; Digman, 1990; John & McCrae, 1992) the authors emphasized four. First, the model includes a large collection of personality constructs, facilitating communication among researchers in different directions. Second, the model is understanding, providing a basis for the systematic exploration of the relationship between personality and other phenomena. Third, the model is considered efficient, by providing a comprehensive description of personality with just five scores. And, finally, the factors are found at different age, gender, race and language, although in different cultures they can be expressed with some differences.

2. MODEL OF FIVE PERSONALITY FACTORS APPLIED TO CONFLICT MANAGEMENT

In order to explain the personality variables included in the Five Factors Model that influence the negotiation process, we will focus on a set of studies that intended to relate the personality traits included in that model, jointly or in an individualized way, with the behaviours presented by negotiators, thus seeking to systemize the subject under review.

Much of this research evaluates the negotiating behaviour through conflict management styles, as these are considered important indicators of negotiating behaviours (Ma, 2005). Other authors are dedicated to the analysis of the effectiveness in the negotiating process because of its theoretical and practical effects (Montes & Rodríguez, 2007; Serrano & Rodríguez, 1996).

2.1. Agreeableness and Conflict Management

Agreeableness is the factor that is mostly associated with the interpersonal relationship and the motivation to establish positive interpersonal relationships (Graziano, Jensen-Campbell & Hair, 1996; Jensen-Campbell & Graziano,

2001). Agreeableness was considered by Jensen-Campbell and Graziano (2001) as the most important personality characteristic in research among the big five personality traits and the conflict. This is particularly important in social situations, such as situations of conflict, where cooperation and consideration for the results of others are important aspects.

Graziano et al. (1996) state that individuals who score high on agreeableness tend to react to hostile behaviour more positively than individuals with little agreeableness because of their motivation to maintain positive relationships. The motivation to maintain positive relationships by individuals who score high on agreeableness leads them to react to hostile behaviour in a more positive manner than individuals with little agreeableness. Therefore, in a conflict, kind individuals elect more constructive conflict tactics and are more likely to respond to conflict with less negative emotions than individuals with low scores in agreeableness (Graziano et al., 1996).

High agreeableness can also contribute to the negotiator to meet the needs of the other party and to a reduction in the choice of rivalry tactics that would alleviate the integrative potential of negotiation (Barry & Friedman, 1998).

Agreeableness can also reveal a stable pro-social character in situations involving interdependence such as negotiation, rather than a manifestation only by self-interest (Lourenço & Paiva, 2009).

Lourenço and Paiva (2009) investigated the role of agreeableness in negotiating conflicts in schools with high school students. The results showed that individuals more effective in negotiating had also higher scores in agreeableness. Cunha (2000), in an experimental study with the aim to analyse the relationship between negotiating effectiveness and personality traits, done with executives, students and negotiators, noted that agreeableness showed no positive relationship between negotiating effectiveness and the analysed features of that factor (trust, honesty, compliance and sensitivity).

In a recent research Selvarajan, Singh and Cloninger (2016) found out that the individuals with high agreeableness are more proactive in the workplace and use more the resources leading to better management of work-family conflict in a more effective way.

The individuals who score high on agreeableness have a greater concern for others, and, therefore, the most used conflict management styles will tend to be integration (Monteiro et al., 2012) and compromising (Ma, 2007; Moberg, 2001; Monteiro et al., 2012). For the individuals who score low in agreeableness it is predictable the adoption of a style conflict in which they seek to compete to achieve individual goals over the aims of the opponent (Moberg, 2001). Further investigation, including Antonioni (1998) and Park

and Antonioni (2007), established that this factor is related with conflict management styles, integration, avoidance and submission, and with the compromising style only in research conducted with students. On the other hand, Ma (2007) and Monteiro et al. (2012) verified a negative correlation between agreeableness and the use of the domination style.

Ma (2005) also noted that this personality trait maintains a positive relationship with compromising style and an inverse relationship with the competitive style. The results supported the pre-announced correlation between agreeableness and its impact on conflict handling styles.

Wood and Bell (2008) conducted a research with psychology students in Colorado, noted that high scores on agreeableness relate positively with the use of accommodation style, and as the score agreeableness decreases, increases the preference for competitive style jobs. The results also stated there is a close relationship between the collaborative style and agreeableness.

It should be noted that subjects who score high on agreeableness tend to be more tolerant and willing to believe in others and likely to forgive (Jones & White, 1985; McCrae & John, 1992), so these qualities make it difficult to defend individual interests in conflict situations. Tolerance and the tendency to forgive, characteristic of individuals who score high on agreeableness, may contribute to the use of the avoidant style (McCrae & John, 1992; Monteiro et al., 2012). Possibly agreeableness contributes to the use of the avoidant style in place of the integration style. This opinion is supported by studies carried out by Jones and White (1985), who have discovered a relationship between the need of consideration to each other and the tendency to avoid conflict.

The recent literature on agreeableness and negotiation has recognized the importance of context to determine whether this is an advantage or a weakness in the process and results of a negotiation (Dimotakis, Conlon & Ilies, 2012). Despite the positive contribution of agreeableness to the development of a good negotiation climate, the results show that this feature may influence negatively the achievement of results on the matter in dispute, since individuals can focus their attention on the relational process aspects (Jensen-Campbell & Graziano, 2001). As a result, to apprehend the effect of agreeableness in the negotiation we will have to understand clearly whether the negotiation has an integrative or a distributive character.

According to Barry and Friedman (1998) different effects are perceived during their relation with personality factors taking into account the situations of purely distributive negotiation and integrative potential. These authors indicate extraversion, agreeableness and conscientiousness as the model factors of greatest relevance in the negotiating process and its results.

It is worth mentioning that in the case of purely distributive negotiation, the parties have interests negatively correlated so that when a party wins the other loses and vice versa, it is the so-called myth of the "fixed pie." By contrast, in the integrative negotiation coexist important positive elements in the relationship, so that both parties can win, if they can take a good decision for the problem.

In the case of distributive negotiation, Barry and Friedman (1998) established that agreeableness could represent a weakness for negotiators. Therefore, acting in a cooperative and confident way can be constructive when negotiators give priority to mutual gains, but in a distributive negotiation agreeableness tends to give origin to the non-achievement of self-interest.

These predicted effects can be understood by a sequence of offers and counteroffers in cases of distributive negotiation and in respect with the aspirations and purposes of the negotiator. High agreeableness can contribute to the negotiator to meet the needs of the other party and to a reduction in adopting rivalry tactics (such as the extreme demands) that decrease the potential of integrative negotiation. However, Barry and Friedman (1998) point out that the effects of the personality trait under consideration in the negotiation can be reversed in situations where the individual tends to be cooperative, reduce his/her demands and make more concessions.

Consequently, the results of the research by Selvarajan et al., (2016) suggest that the characteristics associated with agreeableness are useful in contexts that require strong social skills and interaction with unpleasant or angry individuals, revealing a weakness in competitive environments.

Dimotakis et al.(2012) developed and tested a model that suggests that the personality of a negotiator interacts with the negotiating situation to influence the results and processes of it. In both studies, the authors verified that negotiators with high levels of agreeableness were more capable in integrative negotiations and negotiators with low agreeableness were more efficient in distributive negotiations.

Therefore, agreeableness can be an advantage or a disadvantage depending on the adequacy between the willingness of the negotiator and the requirements of negotiation. That adequacy of the individual to situational characteristics will influence the reactions of individuals and, hence, their performance in negotiating. Thus, the integrative potential of a negotiation will depend on the adequacy of the behavioural responses of individuals to the requirements of the context (Dimotakis et al., 2012).

2.2. Extraversion and Conflict Management

Several conceptualizations of extraversion include adjectives like domineering, assertive, authoritative and strong (Bono et al., 2002). For Antonioni (1998) extroverts exhibit an aggressive potential, i.e., they are more focused on meeting their needs, not respecting each other's needs, which is reflected in the resolution of the conflict by imposing behaviours. In the view of Park and Antonioni (2007) extraversion is closely related to social interactions, thus, very extroverted individuals are usually characterized as sociable, assertive and emotionally positive, being usually very motivated to reward. Bono et al., (2002) suggest that extraversion, as a personality trait, plays a central role in the allocation that individuals make about the nature and source of the conflict.

For Lourenço and Paiva (2006) the extroverts are naturally sociable, enjoy interacting with others, they are affirmative, optimistic, affectionate, active and highly motivated for conversation. These individuals have an increased effectiveness when negotiating a conflict situation, especially when a flexible dynamic between the negotiators and the development of a more beneficial atmosphere to the act of negotiation is necessary, in order to obtain better results.

In conflict situations extraversion was related to the preference for the use of domination and competition as conflict resolution strategies, as domination and affirmation, characteristic of extroverts, is triggered in these situations (Antonioni, 1998; Schneer & Chanin, 1987). These features seem to suggest that it is more plausible extraversion to be related to the use of domination handling styles and less likely its relationship with submission and avoidance styles (Antonioni, 1998; Park & Antonioni, 2007). On the other hand, highly extroverted individuals also show a strong affection to develop interpersonal relationships, are endowed with social skills and willingness to work with the other, crucial aspects to solve conflicts in a collaborative way.

In the research of Antonioni (1998) there were used two types of sample (351 University students and 120 middle level managers), where the main results indicated that extraversion has a positive relationship with the integration style. The positive correlation between extraversion and domination found in the group of students was not observed in the group of managers. Though extraversion scores were similar for both groups, the authors noted that such results were difficult to justify. One possible explanation advanced may be in the low score in the style of domination of

managers. Another reason may be the difference in the sample size between students and managers.

In the aforementioned research of Wood and Bell (2008), from the results achieved stands out a close relationship between the collaborative style with agreeableness, i.e., individuals with higher scores on extraversion also had higher scores on the collaboration style. In turn, Ma (2005) found that extroverts are more likely to prefer confrontation styles in conflict handling, such as competition and collaboration and less likely to choose non-confrontational styles, such as avoidance.

Chen, Tsai and Chen (2009), in an investigation with professional working in Banks, verified that Bank executives with high levels of extraversion also had higher scores in the following styles of conflict handling: domination, avoidance and submission. On the other hand, the Bank employees with high levels of extraversion had higher scores in styles such as avoidance and submission and lower scores on the integration style.

In a research carried out with University students aiming to evaluate the role of personality in negotiating effectiveness (conceptualized according to the model of Mastenbroek, 1989), Montes and Rodríguez (2007) verified that extraversion has proved to be a significant predictor of the size of effectiveness – achieving relevant results.

Similarly, as for agreeableness, also for extraversion different effects are conjectured, taking into account purely distributive negotiating situations and of integrative potential (Barry & Friedman, 1998).

Regarding the integrative negotiation, Barry and Friedman (1998) postulate that extraversion represents a potential advantage for the negotiators. The extraversion can establish a positive relationship with the perception of integrative potential, as the exploration of ideas and the unveiling of information about interests in cases of integrative negotiation contribute to that perception.

In fact, the tendency of an extrovert to be talkative can potentially constitute a gain in situations where the exchange of information contributes to a positive result. However, in the purely distributional case, the strategy is more advantageous than cooperation and also the negotiator's interests are more easily affected by the acquisition of the opponent's information than by the exchange of information.

Moreover, extraversion is not intrinsically linked to the negotiating hardness, although it is understood as possibly having the power to anticipate a first movement. According to Barry and Friedman (1998), the completion of the first offer implies both positive and negative aspects for negotiators. Thus,

the negotiator who presents the opening motion reveals information regarding his/her aspirations and uses. On the other hand, the realization of the opening proposal can lead to the counterparty to note that the agreement will be more favourable to the party who presented it, this is more likely to happen if the first proposal is extreme (Pruitt, 1981). As such, when the initial proposals are extreme they can demonstrate the harshness of the negotiator, indicating to the other party that he/she is facing an individual who is not accustomed to retreat. Thus, the negotiator receiving an extreme proposal may tend to restrict his/her goals and lean toward concessions. In conclusion, the end of the opening proposal can be determined by the personality traits that lead to the adoption of a demanding strategy.

Regarding the counterproposal Neale and Bazerman (1991) point out that this may be biased by the original proposal value, as this can be an anchor for the assessments of the other party. Personality can help to determine the likelihood that the negotiator gives to the anchoring heuristic. First, it is more likely that the anchoring occurs when negotiators are highly concerned with maintaining social ties. Secondly, the anchoring is less likely to occur when negotiators are concerned only with their own interests. Consequently, the anchoring in distributive negotiation is another ambush for individuals with dispositional orientation to sociability, unlike individuals with competitive orientation.

2.3. Conscientiousness and Conflict Management

The conscientiousness represents responsibility, punctuality, organization, work, self-discipline, persistence and motivation in behaviour oriented towards a particular goal (McCrae & Costa, 1989). By contrast, individuals who score low on conscientiousness have a more relaxed attitude, are spontaneous and can be messy.

This dimension of personality is considered relevant, given that negotiating is an interpersonal exchange. Within the context of conflict resolution, this personality characteristic is relevant to the work of preparation and planning of negotiating, fundamental aspects for a successful negotiation.

Therefore, McCrae and John (1992) indicate that the negotiator who prepares his/her actions will probably be less influenced by the initial proposal of the opponent. Moreover, those responsible, as individuals tending to be more organized, planners focused on task-oriented achievement, will find agreements more beneficial for themselves in the negotiating activity.

The conscientiousness has also been pointed out as the dimension of personality that best predicts academic success, professional success and job performance (Conrad & Patry, 2012; Judge, Higgins, Thoreson & Barrick, 1999).

The conscientiousness appears to be the trait of personality that has similar effects on both distributive and integrative negotiations (Barry & Friedman, 1998). More specifically, in distributive negotiating it contributes to a thorough analysis and strategic planning and in the integrative negotiation it contributes to the analysis of the self-interests and for the sustaining *momentum* throughout the process of information exchange and creation of solutions.

Some authors suggest that conscientiousness may possibly be associated with the use of some styles, specifically domination (Antonioni, 1998) and collaboration (Park & Antonioni, 2007). The possible association of conscientiousness with the domination style finds its basis in the high motivation for success and the capacity of preparation for discussion that show the individuals with high conscientiousness (Antonioni, 1998). The probable association of conscientiousness with the collaboration style results from the integrity characteristic of the conscientious people that can opt for strategies that make it easy to meet the interests of both parties. However, in an investigation of Ma (2005), the author noted that conscientiousness showed no relationship with the management styles. Similar results have been found by other authors who observed that conscientiousness, generally, is not related to any specific preference behaviour in conflict situations (Barry & Friedman, 1998; Ma & Jaeger, 2003).

2.4. Openness to Experience and Conflict Management

The individuals who score high on openness to experience demonstrate strong ability to adjust and adapt in conflict situations. This flexibility leads people to easily adjust their tactical and strategic preferences according to different situations.

The openness to experience relates to exploratory behaviour and information exchange in interaction with the others. Sandy et al. (2000) found that individuals with high scores in this dimension evaluate the relationships they establish with others in a more positive way. On the other hand, Bazerman and Neale (1983) warn that a number of investigations indicate that most individuals assume that all conflicts are of the “win-lose” type, although

most conflicts include opportunities for mutual gain (Bazerman & Neale, 1983). Although openness to experience is seen as a possible contribution to overcome this inclination and assist individuals to contemplate the possibilities of collaboration in a conflict situation (Sharma et al., 2013), the greater flexibility and divergent thinking, characteristic of openness to experience, may help negotiators to better plan negotiating for themselves and the other party (Sharma et al., 2013).

On the other hand, Bickel (1997) argues that openness to experience correlates positively with the tendency to argumentative confrontation, being the best predictor of the five personality factors for rational argument centred on positions rather than people (Bickel 1997).

For Ma (2005) the individuals receptive to the experience may consider the conflict a source of attention, as they are more likely to prefer a flexible and adaptable approach to solving the conflict and probably will use the collaboration and compromising as handling styles.

In the context of dyadic negotiations, senior negotiators in openness to experience are more likely to take into account both their interests and those of the other party and, consequently, are less likely to have an orientation win-lose in the definition of negotiating situations (Ma, 2008).

Some empirical studies carried out in order to understand the relationship between the openness to experience factor and the conflict management styles have not produced consistent results. In the study of Antonioni (1998), openness to experience had a positive correlation with integration style and a negative one with the avoidant style. On the research developed by Park and Antonioni (2007) to evaluate the influence of personality and situation (other party's behaviour in the conflict) in conflict management styles, the results showed a negative correlation between openness to experience and style integration, contrarily to the expectations of the authors. The authors consider being difficult to interpret the negative relationship found between openness to experience and the collaborative style. As a possible explanation the authors argue that people with high openness to experience, as well as imaginative, original and adventurous, are also independent. This suggests that independence, while characteristic of people with high openness to experience, predisposes to a lower attention to the concerns of the other party in conflict. However, Park and Antonioni (2007) argued that it is important to replicate these results before assigning too much importance to this unexpected result.

In the research of Monteiro et al., (2012) openness to experience revealed an important role in predicting styles of integration and compromising. It has not been proven the negative interaction announced with the styles avoidance

and dominance, or the positive interaction announced between openness to experience and the submission style.

However, in the investigation of Ma (2007), openness to experience was not found related to any specific style of conflict management, probably due to the situational flexibility characteristic of these individuals.

Sandy et al., (2000) point out that a combination of little openness to experience, little agreeableness and little conscientiousness showed a significant correlation with the competitive style as a strategy of conflict resolution.

It is also worth mentioning the study of Ahmed, Nawaz, Shaukat and Usman (2010) with Management students who included the correspondence of two personality traits, namely, extraversion and openness to experience and conflict management styles. The results show that individuals with high scores on extraversion and openness to experience prefer to use the compromise instead of avoidance in conflict management. Thus, the authors infer that students tend to maintain positive relationships with the others and try to use win-lose or win-win strategies.

2.5. Neuroticism and Conflict Management

Neuroticism is the opposite of emotional stability. The individuals with high values in neuroticism tend to experience negative feelings such as emotional instability, embarrassment, guilt, pessimism and low self-esteem (Zhang, 2006; Ma, 2008; Sharma, Bottom, & Elfenbein, 2013). Nevertheless, such features make them more vulnerable in negotiating situations guided by uncertainty (Ma, 2008; Sharma et al., 2013).

According to Antonioni (1998) emotional stability contributes to the development of a relaxed interaction, promoting the ability to work together in the resolution of interpersonal conflicts. On the other hand, the less emotionally stable individuals have more difficulties in establishing interpersonal relationships.

Neuroticism, in the perspective of Bono et al., (2002), is seen as a tendency to experience emotions of fear, sadness, anger and guilt. The authors reported that neuroticism is studied in its relation with conflict, and that this personality trait has a positive relationship with the frequency and intensity in which the conflict occurs, since individuals with high levels of neuroticism are more likely to feel anger and hostility.

Neuroticism has also been linked to job performance (Antonioni & Park, 2007), and a high level of neuroticism is likely to lead to low performance levels. The neuroticism level of individuals that perform evaluation functions can also be important, because individuals with high levels of neuroticism may be more likely to assign lower grades because they see the world and the situations in a prism of negativity (Antonioni & Park, 2007). Consequently, we can predict that this negative view of the typical neurotic situations may difficult the creation of trust between the parties, and thereafter the search for a mutually satisfactory solution.

A high level of neuroticism, according to Hogan, Curphy and Hogan (1994), affects interactions with others, while a low level of neuroticism is important in the resolution of conflict and to prevent its dangerous feedback. A low level of neuroticism is also relevant in a working relationship, because the relaxed individuals tend to have greater ability to work cooperatively as compared to those who demonstrate high levels of neuroticism (Hogan et al., 1994).

Ma (2005) points out that conflicts often encourage negative feelings and that their management is a demanding cognitive task; as such, neurotic individuals possibly view conflict as a threat and, thus, show a strong need to avoid any conflict or act in a very combative way to protect their interests. So, some empirical studies have shown a correlation between neuroticism and the avoidance style (Antonioni, 1998; Moberg, 2001; Sandy et al., 2000). In turn, Ma (2007) found a negative connection between neuroticism and the compromising style of conflict management. Nevertheless, some studies that perceived a positive association of neuroticism with the most competitive styles, such as domination, found no empirical confirmation (Ma, 2005; Park & Antonioni, 2007).

Park and Antonioni (2007) also indicate that individuals who have a strong neurotic tendency give greater emphasis to negative events, causing them to have a greater difficulty controlling their impulses, affecting the results of the conflict situations. In this sense, Monteiro et al., (2012) found out that the negotiating effectiveness is negatively correlated with neuroticism, i.e., individuals who have higher scores on neuroticism correspond to individuals who have obtained a lower score in negotiating effectiveness.

The research results of Montes and Rodríguez (2007) demonstrated that the negotiating effectiveness can be predicted, from the five major personality factors. However, neuroticism was the only factor that did not correlate with the negotiating effectiveness or some of its dimensions.

In the study of Caputo (2016) individuals with higher values in emotional stability perceive less justice in third-party intervention and demand greater value after their intervention. Emotional stability showed significant interactions with the willingness to accept a suggested agreement and then reach a negotiated agreement.

FINAL CONSIDERATIONS

The effects of personality in negotiation are related to certain conditions. It is noteworthy that Barry & Friedman (1998) consider that the effects of personality in the process and in the negotiation results can be decreased when the negotiator has a strong motivation for success and may have performances somehow contradictory with his/her personality. In situations where the negotiator does not have a strong motivation to succeed, his/her performance can be determined by his/her personality traits.

In turn, Park and Antonioni (2007) argue that the interactions between the parties in situations of conflict are strongly guided by the principle of reciprocity, since individuals can tend to use the same strategy of conflict used by the other party. Research of Sandy et al., (2000) noted that, in general, the choice of the conflict style also depends on the relationship between the parties. For this reason, the avoidance style was often used in conflicts with family or friends, and the style of competition was mainly used with closer people, more than with supervisors or subordinates.

Thus, the abovementioned studies demonstrate some empirical support in the interrelation between personality and situation, suggesting that an individual's behaviour in conflict is more complex than the situational view might suggest (Park & Antonioni, 2007).

The results from the research of Montes and Rodríguez (2007) showed that the negotiating effectiveness can be predicted from the big five personality factors, however, it was noted that the influence of personality focuses more on the process dimensions than on the instrumental dimensions. It was also stated that negotiating is more than a process of interaction between social actors.

In short, a retrospective vision enables us to conclude that the initial investigations made from the standpoint of the individual traits were losing emphasis in favour of the investigations based on the Five Factor Model, so that the postulate that personality traits play a major role in the course of negotiation processes is now the target of a widespread acceptancy.

For this progress have contributed investigations as the ones listed due to their implications, both at the theoretical and the pragmatic levels. At the theoretical level we are pleased to note that the results already obtained have increased knowledge about the correlation between personality and the results of negotiation. However, as stated by Cisneros et al. (2005), it is essential to obtain more information to facilitate differentiating the behaviour demonstrated by the negotiators in negotiating contexts both integrative and distributive, and the effectiveness of those behaviours. The abovementioned authors also note that the observation of the participants in negotiation meetings, and not only the use of questionnaires, appears as essential to understand the role of individual characteristics in negotiating. It should be noted that many researchers continue to base themselves on the assumption that individual differences matter continuing the theme of the study, regardless of their popularity.

At the pragmatic level, the results of these studies are important because they encourage valuable information for the planning of training activities that attempt to develop characteristics or skills related to relevant personality dimensions in negotiating. They can also contribute to the development of more consistent selection criteria and, therefore, provide a closer alignment between the candidate and the role of negotiator (Ma, 2008).

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Chapter 3

THE FIVE-FACTOR MODEL OF PERSONALITY TRAITS AND EARLY MALADAPTIVE SCHEMAS

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ABSTRACT

Decades of cross-cultural psychological research on individual differences has solidified the Five-Factor Model (FFM) as the dominant model of personality traits (McCrae & Costa, 2003). Prior to the mid-1990s, the empirical research by personality psychologists focused primarily on normal personality variation (Digman, 1990; John, Naumann, & Soto, 2008). From the mid-1990s onwards, personality researchers turned their attention to studying the similarities, differences and relationships between normal and abnormal personality characteristics (Widiger & Costa, 1994). More recently research has examined the clinical applications of the FFM, particularly in understanding and conceptualising personality pathology (Widiger, 2011). Firstly, this chapter provides an overview of recent developments about FFM traits and personality pathology and, secondly, it presents a

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research study that explored the relationships between these personality characteristics.

In previous research, we (Butrus & Witenberg, 2015) demonstrated theoretically-meaningful relationships between FFM personality traits and personality pathology conceptualised as personality disorder (PD) features. There is however a paucity of research that has explored whether FFM personality traits have relationships with other conceptualisations of personality pathology, such as dysfunctional cognitive and emotional schemas.

Early maladaptive schemas (EMSs) are trait-like cognitive and emotional constructs that have been used to explain individual differences in personality pathology (Young, Klosko, & Weishaar, 2003). Recent research has demonstrated that EMSs have relationships with PD features in both clinical (Thimm, 2011) and non-clinical populations (Reeves & Taylor, 2007).

Whilst FFM personality traits and EMSs have been shown to have independent relationships with personality pathology in previous studies, comparatively little research has been conducted regarding the relationships these personality characteristics have with each other. However, our research does support this contention and the findings are presented as part of this chapter.

In our study, a non-clinical sample of 313 adult participants ($M = 26.50$ years, $SD = 10.10$, age range = 18-72 years) completed several self-report personality measures, including the NEO Personality Inventory–Revised (Costa & McCrae, 1992) and the Young Schema Questionnaire–Long Form 3 (Young, 2005a). Analyses revealed meaningful relationships between FFM personality traits and EMSs. In general, Neuroticism exhibited positive correlations with most EMSs, whereas Agreeableness, Extraversion and Conscientiousness exhibited negative correlations.

The results of this research have important implications for understanding the connections between these theoretically-divergent personality characteristics. Notably, the results provide evidence of the concurrent validity of FFM personality traits in relating to specific cognitive and emotional features of personality pathology. Further, the results could have important practical implications for the assessment and treatment of personality dysfunction. Overall, the findings from this research could have broader theoretical and practical implications for the conceptualisation and treatment of personality-related problems and these implications are discussed.

Keywords: personality, five-factor model, traits, schemas, early maladaptive schemas

INTRODUCTION

The Five-Factor Model of Personality Traits

Personality traits are enduring dispositional tendencies commonly defined as “dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions” (McCrae & Costa, 2003, p. 25). The broad consensus within the personality literature is that normal or general personality traits can be organised around five higher-order dimensions (John, Naumann, & Soto, 2008). These five personality dimensions are Neuroticism, Extraversion, Openness to Experience (Openness), Agreeableness and Conscientiousness and they collectively constitute the Five-Factor Model (FFM) of personality structure (McCrae, 2009).

With its origins in the lexical approach, which hypothesises that the most important individual differences become encoded in language (Goldberg, 1993), the FFM is the end-product of many factor-analytic studies of English language trait adjectives and personality questionnaire scales by notable personality psychologists such as Allport, Cattell, Eysenck, Costa and McCrae (John et al., 2008). The FFM is an empirically-derived hierarchical model of general personality trait structure that encompasses higher- and lower-order bipolar trait dimensions (Costa & McCrae, 1995; McCrae & Costa, 2003). For instance, within the most widely-used measure of the FFM, the NEO Personality Inventory—Revised (NEO-PI-R; Costa & McCrae, 1992), the hierarchical structure of the FFM is operationalised in terms of the five higher-order orthogonal dimensions, known as domains, each of which subsume six lower-order traits, known as facets. Table 1 contains a description of the bipolar domain and facet traits of the FFM as operationalised in the NEO-PI-R, which was used in the present research.

Research has shown that the FFM of personality is robust. Various factor-analytic studies have demonstrated that most, if not all, of the five domains can be extracted from several major personality questionnaires (see Piedmont, 1998). Other studies have shown that the FFM structure can be replicated across different cultures and languages (McCrae & Allik, 2002; McCrae, Terracciano, & 78 members of the Personality Profiles of Cultures Project, 2005). Moreover, studies have shown that FFM traits are heritable (Jang, Livesley, & Vernon, 1996; Yamagata et al., 2006) and that FFM trait scores reach a plateau in early adulthood (Terracciano, Costa, & McCrae, 2006;

Terracciano, McCrae, & Costa, 2010). That is, there may be some variability in FFM trait scores during young adulthood but FFM traits become more stable with age. Further, research has shown that FFM traits can predict a myriad of outcomes, such as happiness, psychopathology, physical health and occupational performance (Ozer & Benet-Martinez, 2006). Importantly, FFM traits have been associated with various psychological disorders (Kotov, Gamez, Schmidt, & Watson, 2010; Malouff, Thorsteinsson, & Schutte, 2005) and could be predisposing factors in the development of psychological dysfunction (Clark, 2005; Craske, 2003; Watson, Kotov, & Gamez, 2006). Overall, a large body of research points to the comprehensiveness, reliability, validity, utility and, most importantly, generalisability of the FFM in describing general personality traits (e.g., John et al., 2008; McCrae & Costa, 2008).

Table 1. Description of the FFM Domain and Facet Traits

FFM Trait	Bipolar Descriptors	
	High	Low
Neuroticism	<i>Contrasts emotional maladjustment with emotional stability.</i>	
Anxiety	Nervous, tense, prone to worry	Calm, relaxed
Angry Hostility	Angry, bitter, resentful	Easy-going, slow to anger
Depression	Sad, guilty, hopeless, pessimistic	Rarely experiences depressive affect
Self-Consciousness	Interpersonally sensitive, embarrassed	Rarely interpersonally sensitive
Impulsiveness	Unable to resist impulses and cravings	Self-controlled, tolerant of frustration
Vulnerability	Copes poorly with stress	Capable, resilient
Extraversion	<i>Contrasts the level and intensity of interpersonal interaction, activity, need for stimulation and capacity for joy.</i>	
Warmth	Friendly, forms attachments easily	Reserved, distant
Gregariousness	Outgoing, seeks social stimulation	Socially-withdrawn, a loner
Assertiveness	Dominant, speaks without hesitation	Passive, unconfident
Activity	Energetic, fast-paced	Leisurely, slow-paced
Excitement-Seeking	Intrepid, craves excitement and thrills	Cautious, prudent, dull
Positive Emotions	Happy, cheerful, joyous	Less exuberant

	Bipolar Descriptors	
FFM Trait	High	Low
Openness	<i>Contrasts open-mindedness and appreciation of divergent ideas and experiences with closed-mindedness.</i>	
Fantasy	Imaginative, a dreamer	Realistic, prosaic, concrete
Aesthetics	Appreciative of aesthetics	Uninterested in aesthetics
Feelings	Receptive to inner feelings	Emotionally constricted
Actions	Unconventional, prefers novelty	Conventional, prefers routine
Ideas	Intellectually curious	Limited intellectual curiosity
Values	Flexible, willing to question beliefs	Conservative, dogmatic
Agreeableness	<i>Contrasts a prosocial disposition with antagonism.</i>	
Trust	Trusting, believes that others are honest	Sceptical, suspicious of others
Straightforwardness	Sincere, frank, genuine	Crafty, deceptive, manipulative
Altruism	Generous, considerate of others	Self-centred, withholding
Compliance	Cooperative, meek, defers to others	Competitive, uncooperative
Modesty	Humble, self-deprecating	Arrogant, conceited
Tender-Mindedness	Empathic, sympathetic to others	Hard-headed, less empathic
Conscientiousness	<i>Contrasts the level of organisation, control and motivation in goal-directed behaviour.</i>	
Competence	Capable, skilled, prepared	Unprepared, incapable, inept
Order	Organised, neat, tidy	Disorganised, unmethodical
Dutifulness	Principled, ethical, reliable	Casual, undependable
Achievement Striving	Diligent, hard-working, ambitious	Lackadaisical, lazy, aimless
Self-Discipline	Self-disciplined, completes tasks	Procrastinating, easily discouraged
Deliberation	Reflective, thinks before acting	Hasty, makes snap decisions

Note. FFM = Five-Factor Model. Adapted from Costa and McCrae (1992), Costa and Widiger (2002), and Widiger, Costa, and McCrae (2002).

Personality Pathology

Given that the FFM is a comprehensive model of the basic dimensions of personality and that it was developed independently of the psychiatric

nosology, researchers turned their attention to investigating whether the FFM may also be useful for understanding personality pathology (Harkness & McNulty, 2002; McCrae, Lockenhoff, & Costa, 2005; Widiger & Costa, 1994). According to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association [APA], 2013), a personality disorder (PD) is an enduring, pervasive and inflexible pattern of inner experience and behaviour that deviates from cultural norms, originates in adolescence or early adulthood and leads to distress or impairments in functioning. The DSM-5 definition elaborates that this enduring pattern of inner experience and behaviour must be manifested in at least two out of four areas of functioning: cognition, affectivity, interpersonal behaviour and impulse control (APA, 2013). As with its previous edition (DSM-IV-TR; APA, 2000), DSM-5 officially recognises 10 PD categories and groups them into three clusters based on their descriptive similarities (APA, 2013). Table 2 displays the DSM-5 personality disorders (PDs).

Table 2. Description of the 10 DSM-5 PDs

PD Category	DSM-5 Description
Cluster A: <i>Appearance is odd or eccentric.</i>	
Paranoid PD	Pattern of mistrust and suspiciousness towards others.
Schizoid PD	Pattern of detachment from social relationships and restricted affect.
Schizotypal PD	Pattern of acute discomfort in close relationships, cognitive or perceptual distortions and eccentric behaviour.
Cluster B: <i>Appearance is dramatic, emotional or erratic.</i>	
Antisocial PD	Pattern of disregarding and violating the rights of others.
Borderline PD	Pattern of instability in interpersonal relationships, self-image and affect, and impulsive behaviour.
Histrionic PD	Pattern of excessive emotionality and attention-seeking behaviour.
Narcissistic PD	Pattern of grandiosity, need for admiration and lack of empathy.
Cluster C: <i>Appearance is anxious or fearful.</i>	
Avoidant PD	Pattern of social inhibition, feelings of inadequacy and hypersensitivity to negative evaluation.
Dependent PD	Pattern of submissive and clinging behaviour related to excessive dependency needs.
Obsessive-Compulsive PD	Pattern of preoccupation with orderliness, perfectionism and control.

Note. Adapted from APA (2013).

To date, a growing body of international research using clinical and non-clinical samples has provided support for the idea that DSM-5 PDs can be understood as maladaptive and extreme variants of the FFM domains (see Widiger & Costa, 2002 for an overview). A meta-analysis of data from 12 studies by Saulsman and Page (2004) found meaningful, though modest, effect size estimates regarding the relationships between FFM domains and PDs. Specifically, they found that all PDs were characterised by a positive relationship with Neuroticism and a negative relationship with Agreeableness, with the exception of dependent PD which was positively correlated with Agreeableness. They also found that Extraversion and Conscientiousness played a discriminatory role across the PD categories. For instance, whereas most PDs were negatively related with Extraversion, conversely the histrionic and narcissistic PD categories were positively related with Extraversion. Likewise, whereas most PDs were negatively related with Conscientiousness, in contrast the obsessive-compulsive PD category was positively related with Conscientiousness. Openness evidenced little relationship with PDs. Taken together, the findings indicate that most PDs can generally be described as enduring patterns of emotional maladjustment (high Neuroticism), interpersonal antagonism (low Agreeableness), either detachment or gregariousness (low or high Extraversion) and further either behavioural under-control or over-control (low or high Conscientiousness), depending on the specific PD category involved (Saulsman & Page, 2004).

Given that most PDs shared a similar FFM domain-level profile, researchers suggested that better description and differentiation of PDs may be achieved by examining their relationships with FFM facet traits (Clark, 1993; Dyce & O'Connor, 1998). To facilitate research at this level, Widiger, Trull, Clarkin, Sanderson, and Costa (1994, 2002) hypothesised a set of directional relationships between specific PDs and FFM facet traits. To clarify these relationships, Samuel and Widiger (2008) performed a meta-analysis using data from 16 published and unpublished studies. Results largely corresponded with the hypothesised PD-FFM facet trait profiles proposed by Widiger, Trull, et al. (2002). Such findings provide support for the idea that the FFM could be a useful dimensional alternative to the DSM-5's categorical model of defining PDs (Widiger, 2011).

In recent work (Butrus & Witenberg, 2015), we demonstrated that FFM personality traits were meaningfully related with theoretically-relevant PD features, as measured by the Wisconsin Personality Disorders Inventory-IV (WISPI-IV; Klein & Benjamin, 1996), in a non-clinical analogue sample.

Notably, our study showed that FFM facet traits explained moderate proportions of variance in PD features; however, unexplained variance remained. The results also revealed that each PD was associated with its own profile of a unique combination of dimensional FFM facet predictors.

Personality pathology has been conceptualised as PDs in most previous research. However, cognitive-behavioural models conceptualise personality pathology in terms of dysfunctional schemas or core beliefs that an individual holds about the self, others and the world that guide their interpretations of events (Beck, Freeman, Davis, & Associates, 2004; Young, Klosko, & Weishaar, 2003). There has been a lack of personality trait research that has used cognitive conceptualisations of personality pathology, as will be discussed later.

Early Maladaptive Schemas

Similar to Beck and colleagues' (2004) cognitive theory, schema theory as formulated by Young and colleagues (2003) proposes that adaptive and dysfunctional schemas develop as a result of interactions between an individual's innate temperament and early environmental experiences. However, schema theory conceptualises schemas in a broader sense than cognitive theory and focuses on a particular type of dysfunctional schema, known as the early maladaptive schema (EMS). Young et al. defined early maladaptive schemas (EMSs) as extremely broad, pervasive and enduring cognitive and emotional themes or patterns about the self, others, events and relationships that develop during childhood or adolescence and are elaborated throughout one's lifetime and dysfunctional or self-defeating to a significant degree. EMSs consist of memories, cognitions, emotions, bodily sensations and images; all of which are said to influence information-processing and subsequent behavioural responses (Young et al., 2003).

According to Young et al. (2003), EMSs comprise the core of an individual's self-concept and underlie personality pathology and characterological or chronic mental state disorders. Once activated, EMSs give rise to schema-driven behaviours, such as those outlined in the DSM-5 PD criteria, and cause significant psychological, emotional and interpersonal distress (Young et al., 2003). In order to cope with their EMSs, individuals are said to unconsciously use three types of coping strategies in any given

situation. These coping strategies are: *surrender* or thinking, feeling and behaving in accordance with the EMS; *avoidance* or blocking any thoughts, feelings or situations that could activate the EMS; and *overcompensation* or thinking, feeling and behaving in ways that are opposite to the EMS (Young et al., 2003).

EMSs are explicitly dimensional constructs and they can have different levels of severity and pervasiveness (Young et al., 2003). That is, EMSs can be present in all individuals to varying degrees and the stronger or more dysfunctional the EMS is, the more likely it is to become activated by most situations, which subsequently leads to greater emotional distress and impairments in functioning. Further, the EMSs in schema theory cut across diagnostic categories and are independent from DSM-5 conceptualisations of psychopathology (Young, 1999; Young & Gluhoski, 1996). That is, the dysfunctional content contained within EMSs is theorised to be common in varying degrees amongst individuals with a broad range of chronic mental state disorders and personality pathology (Weishaar & Beck, 2006). The goal of schema therapy is to modify an individual's EMSs and coping strategies, which in turn is hypothesised to improve psychological functioning (Livesley, 2003; Young et al., 2003; Young & Lindemann, 1992).

On the basis of his clinical work, Young identified 18 EMSs and grouped them into five domains according to unmet emotional needs which he hypothesised were common to specific EMSs (Young, 1999; Young et al., 2003). Table 3 contains a description of Young's 18 EMSs which are grouped by domain. In order to measure the EMSs, Young developed the Young Schema Questionnaire (YSQ), which is available in long (YSQ-LF; Young & Brown, 2003a) and short (YSQ-SF; Young & Brown, 2003b) forms. The current version of the YSQ, the long-form YSQ-3 (Young, 2005a) and its short-form YSQ-S3 (Young, 2005b), measures all 18 EMSs, whereas previous versions of the YSQ measured up to 15 EMSs. Whilst previous research has predominantly used earlier versions of the YSQ, the current research utilised the YSQ-S3. Previous research has demonstrated that EMSs have relationships with PD features in both clinical (Thimm, 2011) and non-clinical populations (Reeves & Taylor, 2007).

Table 3. Descriptions of Early Maladaptive Schemas

EMSs	Description of Main Theme
Disconnection & Rejection (<i>Core Need: Secure attachment</i>)	<i>Individuals with EMSs from this domain believe that their needs for safety, nurturance, love and belonging will not be met and, thus, are unable to form secure attachments.</i>
Abandonment/Instability	Interpersonal relationships are unstable and unreliable.
Mistrust/Abuse	Others will intentionally hurt, abuse, humiliate or manipulate me.
Emotional Deprivation	My emotional needs will not be adequately met.
Defectiveness/Shame	I am flawed, bad or inferior and unlovable if my defects are exposed.
Social Isolation/Alienation	I am different and do not fit in with others.
Impaired Autonomy & Performance (<i>Core Needs: Autonomy, competence & sense of identity</i>)	<i>Individuals with EMSs from this domain have expectations about themselves and the world that interfere with their ability to differentiate themselves from others and function autonomously.</i>
Dependence/Incompetence	I am unable to competently handle daily responsibilities without others' help/advice.
Vulnerability to Harm/Illness	Exaggerated fear of an imminent, unavoidable catastrophe.
Enmeshment/Undeveloped Self	Excessive emotional involvement with significant others at the expense of individuation.
Failure	I am inept, untalented and have failed or will fail.
Impaired Limits (<i>Core Needs: Realistic limits & self-control</i>)	<i>Individuals with EMSs from this domain have not adequately developed internal limits regarding responsibilities or self-discipline and, thus, have difficulty respecting others' rights, making commitments or meeting goals.</i>
Entitlement/Grandiosity	I am superior to others, entitled to special treatment and not bound by conventional rules of social reciprocity.
Insufficient Self-Control/Self-Discipline	Inability to exercise self-control or frustration tolerance to achieve goals and/or regulate the excessive expression of emotions.
Other-Directedness (<i>Core Need: Freedom to express valid needs & emotions</i>)	<i>Individuals with EMSs from this domain place an excessive emphasis on meeting others' needs at the expense of their own.</i>
Subjugation	Excessive submissiveness, suppression of needs/emotions and surrendering of control to others, usually to avoid others' retaliation, anger or abandonment.

EMSs	Description of Main Theme
Self-Sacrifice	Excessive focus on voluntarily meeting others' needs at the expense of one's own.
Approval/Recognition-Seeking	Excessive emphasis on gaining approval, recognition or attention from others at the expense of developing a secure sense of self.
Overvigilance & Inhibition (<i>Core Needs: Spontaneity & play</i>)	<i>Individuals with EMSs from this domain place an excessive emphasis on suppressing spontaneous feelings and impulses.</i>
Negativity/Pessimism	Pervasive focus on the negative aspects of life while minimising and/or neglecting the positive or optimistic aspects.
Emotional Inhibition	Excessive inhibition of spontaneous emotions, actions or communication, usually to avoid shame or to ensure a sense of predictability.
Unrelenting Standards	Excessive strive to meet very high internalised standards of behaviour/performance, usually to avoid disapproval or shame.
Punitiveness	I and others should be harshly punished for making mistakes.

Note. EMSs = Early Maladaptive Schemas. Adapted from Young et al. (2003).

Previous Research on FFM Personality Traits and EMSs

A literature search could only identify three published studies to date that have explored the relationships between FFM personality traits and EMSs and results were generally mixed. These studies are presented chronologically.

In the first study, Muris (2006) explored the relationships between FFM domains, EMSs, perceptions of parental rearing behaviours and psychopathological symptoms in a non-clinical sample of 173 adolescents aged between 12 and 15 years. Muris used the Big Five Questionnaire for Children (BFQ-C; Barbaranelli, Caprara, Rabasca, & Pastorelli, 2003) and his age-appropriate version of the YSQ. Results indicated that Neuroticism was positively correlated with all EMSs, Extraversion and Conscientiousness were positively correlated with Unrelenting Standards, Agreeableness was positively correlated with Self-Sacrifice and Unrelenting Standards, and Intellect/Openness was positively correlated with Unrelenting Standards and Vulnerability to Harm/Illness. Muris also found that perceptions of detrimental parental rearing behaviours and various types of psychopathological symptoms were positively correlated with a range of EMSs. Lastly, Muris investigated whether Neuroticism and early rearing experiences could predict EMSs. He

reported that Neuroticism and a composite score of detrimental parental rearing behaviours together explained up to 35.7% of the variance in a range of EMSs. However, Neuroticism was the only significant predictor of the EMSs of Defectiveness/Shame, Failure, Dependence/Incompetence, Vulnerability to Harm/Illness, Enmeshment/Undeveloped Self, Subjugation, Self-Sacrifice and Unrelenting Standards. Muris concluded that “both nurture and nature play a role in the formation of these distorted thinking patterns” (p. 411), which is consistent with the position of Young et al. (2003) who suggest that both temperament and toxic early life experiences together lead to the development of EMSs.

In the second study, Sava (2009) investigated the relationships between FFM domains, as measured by his own DECAS Personality Inventory, and EMSs, as measured by the YSQ-LF, in a non-clinical sample of 154 Romanian university students. Sava performed a canonical correlation analysis and extracted four canonical functions. All EMSs had positive loadings on the first canonical function, whilst Agreeableness and Emotional Stability (low Neuroticism) obtained negative loadings. On the second canonical function, Emotional Stability obtained a negative loading whereas Abandonment/Instability, Failure, Dependence/Incompetence, Vulnerability to Harm/Illness, Enmeshment/Undeveloped Self, Subjugation and Self-Sacrifice had positive loadings. On the third canonical function, Conscientiousness obtained a negative loading whereas Insufficient Self-Control/Self-Discipline and Dependence/Incompetence had positive loadings. Finally, on the last canonical function, Extraversion, Openness and Unrelenting Standards obtained negative loadings whereas Subjugation obtained a positive loading. Sava retained the first and second canonical functions due to statistical considerations and concluded that low levels of Emotional Stability and Agreeableness are associated with the presence of EMSs.

In the third study, Thimm (2010) investigated the relationships between EMSs, as measured by the YSQ-SF, and the FFM domains, as measured by a Norwegian translated version of the NEO-PI-R, in a clinical sample of 147 Norwegian adult outpatients. Correlational analyses revealed that all EMSs except for Self-Sacrifice and Entitlement/Grandiosity were positively correlated with Neuroticism; while Extraversion was negatively correlated

with Emotional Deprivation, Mistrust/Abuse, Social Isolation/Alienation, Defectiveness/Shame, Failure, Subjugation and Emotional Inhibition. Very few EMSs obtained statistically significant correlations with Openness or Conscientiousness. Specifically, Failure and Emotional Inhibition were negatively correlated with Openness, whilst Dependence/Incompetence and Insufficient Self-Control/Self-Discipline were negatively correlated with Conscientiousness. Lastly, Agreeableness was negatively correlated with Mistrust/Abuse, Entitlement/Grandiosity and Insufficient Self-Control/Self-Discipline, yet positively correlated with Self-Sacrifice. Using squared multiple correlation coefficients, Thimm found that 9% (Enmeshment/Undeveloped Self) to 42% (Insufficient Self-Control/Self-Discipline) of the variance in EMSs could be accounted for by the collective FFM domains. Similar to Muris (2006), Thimm argued that the results supported the schema theory position that innate temperament or personality dispositions contribute to the development of EMSs (Young et al., 2003).

In addition, Thimm (2010) performed a hierarchical regression analysis to examine whether a composite score of EMSs (YSQ-SF Total) could add to the prediction of depression symptoms over and above the FFM domains. The collective FFM domains were entered as predictors in the first block and they explained 35% of the variance in depression scores. The YSQ-SF Total score was entered in the second block and it explained an additional 11% of variance in depression scores, over and above the amount of variance explained by the FFM domains alone. One clear implication from Thimm's study is that the incremental validity of personality traits and EMSs in predicting other symptoms of psychopathology, such as PD features, should be explored in future studies since both FFM traits and EMSs appeared to be significant predictors of depressive symptoms.

The reviewed studies provide preliminary evidence of the relationships between FFM personality traits and EMSs. However, these studies all had relatively low sample sizes, measured FFM domains rather than facet traits and utilised earlier versions of the YSQ. Importantly, what these studies did not do was to explore all possible relationships between the FFM traits and EMSs that were assessed. Thus, one of the major aims of the research presented next was to address these limitations in order to better understand the relationships between FFM personality traits and personality pathology conceptualised as EMSs.

THE CURRENT STUDY

The aim of this study was to investigate whether there are theoretically-meaningful relationships between FFM personality traits and personality pathology conceptualised as EMSs. As reported above, to date only three published studies that have examined the relationships between the FFM and EMSs could be located (Muris, 2006; Sava, 2009; Thimm, 2010). Despite some mixed findings, these studies revealed that the FFM domains, particularly Neuroticism and to a lesser extent Agreeableness, were correlated with a range of EMSs. However, since these studies focused only on domain-level FFM traits, the relationships between EMSs and the specific lower-order facet traits of the FFM have remained unexplored. Moreover, all three studies utilised an earlier version of the YSQ which identifies only 15 EMSs and excludes Negativity/Pessimism, Punitiveness and Approval/Recognition-Seeking. Hence, the relationships between these three EMSs and the FFM domains and facets remain unclear. Based on previous findings (Muris, 2006; Sava, 2009; Thimm, 2010) it was hypothesised that most EMSs would be positively correlated with Neuroticism and negatively correlated with Agreeableness. Specific hypotheses about the relationships between FFM facet traits and EMSs were not made given the lack of previous research and the exploratory nature of the current study.

Method

Participants

The participants in this study comprised 316 non-clinical adults who were recruited simultaneously from both an urban university in Melbourne and the general population through the use of flyers, email invitations and word-of-mouth recruitment so as to obtain a larger and more diverse community sample. The only exclusion criterion was that participants were required to be aged over 18 years. Three participants did not return their questionnaire packs. Thus, the final sample consisted of 313 participants ($M = 26.50$ years, $SD = 10.10$, age range = 18-72 years), with 114 men ($M = 28.73$ years, $SD = 11.83$, age range = 18-72 years) and 199 women ($M = 25.23$ years, $SD = 8.74$, age range = 18-58 years). Collectively, the study participants had completed an average of 14.91 years of formal education ($SD = 1.94$). Table 4 contains a breakdown of other characteristics of the sample.

Table 4. Sample Characteristics

Characteristic	<i>n</i>	%
<i>Currently attending university</i>		
Yes	236	75.4%
No	77	24.6%
<i>Ethnic or cultural background</i>		
Australian or New Zealander	184	58.8%
Asian	66	21.1%
European	28	8.9%
Middle Eastern	25	8.0%
South American	6	1.9%
African	3	1.0%
North American	1	0.3%
<i>Employment status</i>		
Full-time student	102	32.6%
Full-time student & employed	98	31.3%
Employed full-time	60	19.2%
Part-time student & employed	28	8.9%
Part-time student	8	2.6%
Employed part-time	8	2.6%
Not employed	7	2.2%
Other	2	0.6%
<i>Relationship status</i>		
Single	146	46.7%
Attached	109	34.8%
Married	56	17.9%
Other	2	0.6%

Note. *N* = 313.

Materials

This study was part of a larger program of research about personality and personality pathology that involved multiple measures. Only the measures relevant to this current study are reported here. The study participants received an information letter, consent forms and a questionnaire pack that contained sociodemographic questions and the measures, which will be described next. In order to minimise any potential practice, order or fatigue effects, the measures were counterbalanced and each participant received one of three predetermined versions of the questionnaire pack.

FFM of personality traits. The NEO Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1992) was used to measure FFM personality

traits. The NEO-PI-R is a 240-item self-report inventory that provides scores for the FFM domains of personality, as well scores for the six facet traits that define each domain. Items are rated on a 5-point Likert-type scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*) and each facet scale is assessed by eight items. Facet raw scores are obtained by summing scores on the items that comprise the facet scale. Domain raw scores are obtained by summing the six facet scale scores that comprise relevant domain. Raw scores for all scales are then converted into *T* scores which have a mean of 50 and a standard deviation of 10 (Costa & McCrae, 1992). Higher *T* scores indicate higher levels of a specific personality trait. For a list and description of the FFM personality traits see Table 1 which was presented earlier.

The NEO-PI-R is the standard and most widely used measure of the FFM and reliability and validity studies have consistently demonstrated its good psychometric properties (Costa & McCrae, 1992; Piedmont, 1998). Internal consistency alpha coefficients reported by Costa and McCrae (1992) ranged from $\alpha = .86$ (Agreeableness) to $\alpha = .92$ (Neuroticism) for the five domains and from $\alpha = .56$ (Tender-Mindedness) to $\alpha = .81$ (Depression) for the 30 facets in a large ($N = 1,539$) non-clinical sample.

EMSs. EMSs were measured by the Young Schema Questionnaire-Short Form 3 (YSQ-S3; Young, 2005b), which is the shorter version of the current 232-item Young Schema Questionnaire-Long Form 3 (YSQ-L3; Young, 2005a). The YSQ-S3 is a 90-item self-report questionnaire designed to assess the 18 EMSs conceptualised by Young (1999). Items are rated on a 6-point Likert-type scale ranging from 1 (*completely untrue of me*) to 6 (*describes me perfectly*). Each EMS is measured by five items and raw scores for each EMS scale are summed and averaged to obtain mean scores. A total score on the YSQ-S3 can also be obtained by summing the raw scores on all scales. Higher EMS scale scores or YSQ-S3 Total scores indicate that the respondent holds stronger and more dysfunctional EMSs. For a list of Young's 18 EMSs see Table 3 which was presented earlier.

Previous research on the earlier 75-item version of the questionnaire (Young Schema Questionnaire-Short Form [YSQ-SF]; Young, 1998; Young & Brown, 2003b) which measured only 15 EMSs demonstrated that it had comparable psychometric properties to the 205-item long version of the questionnaire (Young Schema Questionnaire-Long Form [YSQ-LF]; Young & Brown, 1990, 2003a) from which it was derived (Baranoff, Oei, Cho, & Kwon, 2006; Hoffart et al., 2006; Lachenal-Chevallet, Mauchand, Cottraux, Bouvard, & Martin, 2006; Oei & Baranoff, 2007; Rijkeboer & van den Bergh, 2006; Stopa, Thorne, Waters, & Preston, 2001; Waller, Meyer, & Ohanian,

2001; Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002). Nilsson et al. (2010) reported Cronbach's alpha coefficients for the YSQ-S3 scales ranging from $\alpha = .72$ (Unrelenting Standards) to $\alpha = .95$ (Defectiveness/Shame) in a mixed sample ($N = 85$) of clinical and non-clinical female participants, indicating good reliability.

Procedure

Approval to conduct this study was obtained from the University's Human Research Ethics Committee. The participants that were recruited from the university were sent a response email invitation to attend a testing session in a quiet room at the university. The testing sessions generally involved small groups of participants; however, some participants attended individual testing sessions. At the start of each testing session, the researcher provided participants with an information letter and consent forms to read, plus a verbal description of the general aims of the study. Upon providing written consent, each participant was then given a questionnaire pack to complete. The researcher provided participants with instructions on how to complete the measures inside the pack. Typically, the researcher remained in the room with the participants for the duration of the testing session so as to answer any questions. Overall, each testing session lasted approximately 60 to 120 minutes and participants were encouraged to take short breaks as required. Some university students received minor course credit for their voluntary participation in this study. The participants that were recruited from the general population were provided with questionnaire packs to complete in their own time and return to the researcher in sealed envelopes.

Results

Descriptive Statistics

Table 5 shows that participants' mean T scores for the majority of the NEO-PI-R scales were within the Average range of 45-55 (Costa & McCrae, 1992). Further, Cronbach's alpha coefficients for FFM domains were all above $\alpha = .87$, indicating excellent internal consistency. The 30 lower-order facet scales obtained lower Cronbach's alpha coefficients, yet the majority of these were still above $\alpha = .60$ which some consider to be the lower limit value for acceptable internal consistency (Hair, Black, Babin, & Anderson, 2010). However, applying the lower limit value of $\alpha = .60$ meant that the facet scales of Activity ($\alpha = .57$), Actions ($\alpha = .56$) and Tender-Mindedness ($\alpha = .44$)

evidenced poor internal consistency. Costa and McCrae (1992) reported somewhat similar alpha coefficients of $\alpha = .63$ for Activity, $\alpha = .58$ for Actions and $\alpha = .56$ for Tender-Mindedness and argued that such alpha coefficients were acceptable given that only eight items comprised each facet scale. Since a large body of research has demonstrated that the NEO-PI-R has good psychometric properties (Costa & McCrae, 1992), these scales were retained and used in the analyses with the caveat that any results obtained using the Tender-Mindedness scale in particular should be interpreted with caution.

In terms of the YSQ-S3 scales, Table 6 shows that overall participants' highest mean score was on the Unrelenting Standards scale and their lowest mean score was on the Defectiveness/Shame scale. The YSQ-S3 scales also evidenced acceptable internal consistency, with Cronbach's alpha coefficients ranging from $\alpha = .63$ (Dependence/Incompetence) to $\alpha = .88$ (Failure) for specific scales and $\alpha = .96$ for the composite YSQ-S3 Total scale.

Correlational Analyses

Pearson's correlations were performed to examine the relationships between FFM personality traits and EMSs. The results of these analyses are presented in Table 7 and this table can be read either vertically (i.e., down each column) or horizontally (i.e., along each row) to ascertain relationships between specific variables. Given the large number of separate correlations, it was necessary to protect against inflated Type I errors. Therefore, a conservative alpha level of $p \leq .001$ was used to determine statistical significance for all correlations. Statistical power of the correlational analyses was determined using Cohen's (1988) power tables for r . Using the following criteria: (a) an alpha level of $p < .05$ (two-tailed) and (b) a minimum sample size of 300, the power tables revealed that the correlational analyses had a 41% chance of detecting r s of .10, a 94% chance of detecting r s of .20 and greater than a 99.5% chance of detecting r s of .30 or larger, that is, medium effect sizes (Cohen, 1988).

Relationships between FFM Neuroticism traits and EMSs. As expected, Neuroticism had a positive correlation with most EMSs, including the Total score on the YSQ-S3, indicating that a higher level of Neuroticism is generally associated with the presence of a broad range of dysfunctional EMSs. Moreover, the patterns of the correlations with Neuroticism were theoretically-meaningful given the descriptions of the EMSs that were provided in Table 3 which was presented earlier. For example, Neuroticism had stronger positive correlations with Negativity/Pessimism and Abandonment/Instability than with Entitlement/Grandiosity. Neuroticism

facets also evidenced positive correlations with most EMSs, however more nuanced and theoretically-meaningful correlations emerged. For instance, Anxiety was positively correlated with Defectiveness/Shame but evidenced little relationship with Entitlement/Grandiosity. Angry Hostility was positively correlated with Mistrust/Abuse but had little relationship with Self-Sacrifice. Likewise, Impulsiveness was positively correlated with most EMSs, but had little correlation with Unrelenting Standards or Emotional Inhibition. Vulnerability was positively correlated with Dependence/Incompetence but had little relationship with Unrelenting Standards.

Relationships between FFM Extraversion traits and EMSs.

Extraversion was negatively correlated with most EMSs and the Total score on the YSQ-S3, suggesting that a higher level of Extraversion is generally associated with the presence of fewer or less severe EMSs. Extraversion facets also evidenced differential relationships with EMSs. For instance, Gregariousness was most strongly negatively correlated with Social Isolation/Alienation whereas Warmth and Positive Emotions were most strongly negatively correlated with Emotional Inhibition. Further, Activity was actually positively correlated with Unrelenting Standards.

Relationships between FFM Openness traits and EMSs. Openness did not obtain any statistically significant correlations with EMSs at the $p \leq .001$ level. Conversely, some Openness facets did obtain statistically significant correlations with a few specific EMSs; however, the strength of these correlations were nonetheless small or weak in effect (i.e., $r < .30$; Cohen, 1988). For example, Fantasy was positively correlated with Abandonment/Instability and Social Isolation/Alienation; whereas Values was negatively correlated with Mistrust/Abuse, Dependence/Incompetence, Enmeshment/Undeveloped Self and Emotional Inhibition. Actions was negatively correlated with Emotional Inhibition.

Relationships between FFM Agreeableness traits and EMSs.

Consistent with the hypothesis, Agreeableness was negatively correlated with most EMSs and the Total score on the YSQ-S3. Similar to Extraversion, this indicates that a low level of Agreeableness is generally associated with the presence of a greater range of and more severe EMSs. For instance, Trust was strongly negatively correlated with Mistrust/Abuse whereas Modesty was negatively correlated with Entitlement/Grandiosity. However, there were a few specific exceptions to this pattern and these exceptions were theoretically-meaningful. That is, Agreeableness and its facet of Altruism were positively correlated with Self-Sacrifice. Moreover, Modesty was positively correlated with Failure and Self-Sacrifice.

Table 5. Descriptive Statistics and Reliability of the NEO-PI-R Scales

NEO-PI-R Scale	<i>M</i>	<i>SD</i>	Range	Cronbach's α
Neuroticism	55.73	11.20	25 – 80	.93
Anxiety	54.90	10.24	29 – 80	.78
Angry Hostility	52.82	10.49	27 – 80	.73
Depression	55.03	10.99	32 – 80	.84
Self-Consciousness	54.46	11.17	23 – 80	.72
Impulsiveness	53.59	10.72	25 – 80	.68
Vulnerability	54.79	11.63	23 – 80	.79
Extraversion	54.39	10.50	21 – 80	.88
Warmth	51.15	10.39	20 – 74	.73
Gregariousness	54.50	10.95	20 – 80	.75
Assertiveness	50.38	10.93	20 – 78	.77
Activity	49.96	9.37	23 – 75	.57
Excitement-Seeking	56.82	9.92	29 – 80	.64
Positive Emotions	54.55	10.65	23 – 79	.75
Openness	56.00	10.98	27 – 80	.88
Fantasy	56.85	11.18	28 – 80	.79
Aesthetics	53.40	10.70	25 – 78	.78
Feelings	54.70	11.63	20 – 80	.74
Actions	49.16	10.16	28 – 80	.56
Ideas	54.24	10.86	22 – 78	.80
Values	54.00	10.10	20 – 75	.67
Agreeableness	47.27	11.48	20 – 77	.87
Trust	47.18	11.21	20 – 76	.79
Straightforwardness	46.66	11.42	20 – 73	.73
Altruism	51.37	11.21	20 – 76	.73
Compliance	46.69	11.88	20 – 80	.68
Modesty	48.81	11.28	20 – 77	.72
Tender-Mindedness	50.96	10.01	20 – 79	.44
Conscientiousness	45.35	12.29	20 – 76	.92
Competence	46.28	11.61	20 – 76	.68
Order	46.62	11.51	20 – 76	.70
Dutifulness	46.17	11.62	20 – 71	.67
Achievement Striving	47.65	12.07	20 – 74	.75
Self-Discipline	42.35	12.67	20 – 73	.83
Deliberation	50.69	11.40	21 – 78	.73

Relationships between FFM Conscientiousness traits and EMSs. Conscientiousness exhibited negative correlations with most EMSs and the Total YSQ-S3 score, with the exception of a positive correlation with Unrelenting Standards. This indicates that having a low level of Conscientiousness is generally associated with greater EMSs. In contrast, Conscientiousness facets were positively correlated with Unrelenting Standards. Further, Dutifulness was positively correlated with Self-Sacrifice whereas Deliberation was negatively correlated with Dependence/Incompetence and Insufficient Self-Control/Self-Discipline.

Table 6. Descriptive Statistics and Reliability of the YSQ-S3 Scales

YSQ-S3 Scale	<i>M</i>	<i>SD</i>	Range	Cronbach's α
Emotional Deprivation	1.72	0.82	1 – 4.80	.76
Abandonment/Instability	2.05	0.98	1 – 5.60	.86
Mistrust/Abuse	2.01	0.88	1 – 6.00	.84
Social Isolation/Alienation	2.02	0.93	1 – 5.60	.84
Defectiveness/Shame	1.63	0.78	1 – 5.20	.86
Failure	1.96	0.95	1 – 6.00	.88
Dependence/Incompetence	1.84	0.74	1 – 4.60	.63
Vulnerability to Harm/Illness	1.85	0.81	1 – 5.20	.72
Enmeshment/Undeveloped Self	1.87	0.83	1 – 5.40	.72
Subjugation	1.96	0.77	1 – 4.60	.73
Self-Sacrifice	3.17	0.98	1 – 6.00	.76
Emotional Inhibition	2.28	0.90	1 – 5.40	.72
Unrelenting Standards	3.32	0.95	1 – 6.00	.68
Entitlement/Grandiosity	2.55	0.83	1 – 6.00	.68
Insufficient Self-Control/ Self-Discipline	2.50	0.91	1 – 5.80	.77
Approval/Recognition-Seeking	2.72	0.95	1 – 5.80	.80
Negativity/Pessimism	2.32	0.91	1 – 6.00	.80
Punitiveness	2.45	0.80	1 – 5.20	.69
YSQ-S3 Total Score	200.71	51.16	96 – 375	.96

Table 7. Correlations between FFM Traits and EMSs

FFM Traits	EmD	Aban	Mis	SI	Def	Fail	Dep	Vuln	Enm	Subj	Self	EmI	UnSt	Ent	Insuf	Appr	Pesi	Punit	Total
Neuroticism	.23*	.49*	.41*	.48*	.47*	.42*	.45*	.50*	.26*	.47*	.04	.33*	.13	.21*	.46*	.27*	.51*	.24*	.54*
Anxiety	.17	.37*	.28*	.31*	.34*	.27*	.33*	.46*	.24*	.34*	.08	.22*	.17	.10	.28*	.16	.46*	.14	.40*
Angry Hostility	.17	.38*	.42*	.34*	.32*	.23*	.26*	.36*	.20*	.24*	.01	.24*	.13	.29*	.30*	.26*	.36*	.20	.40*
Depression	.29*	.47*	.41*	.53*	.53*	.50*	.46*	.48*	.22*	.50*	.13	.41*	.16	.17	.42*	.27*	.54*	.23*	.57*
Self-Consciousness	.22*	.31*	.36*	.41*	.44*	.40*	.39*	.39*	.18	.45*	-.01	.35*	.18*	.12	.34*	.23*	.44*	.24*	.46*
Impulsiveness	.05	.27*	.15	.28*	.16	.12	.12	.21*	.09	.18	-.03	.07	-.01	.25*	.39*	.18*	.18*	.11	.23*
Vulnerability	.20*	.44*	.28*	.35*	.37*	.37*	.48*	.41*	.26*	.47*	-.04	.23*	-.04	.11	.41*	.17	.42*	.16	.42*
Extraversion	-.27*	-.19	-.24*	-.40*	-.34*	-.33*	-.25*	-.25*	-.10	-.33*	.09	-.38*	.03	.07	-.19	-.01	-.26*	-.12	-.29*
Warmth	-.23*	-.18	-.36*	-.36*	-.29*	-.19	-.26*	-.24*	-.09	-.18	.17	-.40*	-.04	-.14	-.11	-.10	-.23*	-.12	-.28*
Gregariousness	-.25*	-.20*	-.27*	-.47*	-.33*	-.25*	-.16	-.20*	-.13	-.26*	-.02	-.37*	-.16	-.04	-.15	-.03	-.25*	-.17	-.32*
Assertiveness	-.21*	-.14	-.10	-.23*	-.24*	-.33*	-.26*	-.14	-.02	-.35*	.07	-.22*	.12	.09	-.23*	-.04	-.19*	-.09	-.21*
Activity	-.16	-.11	-.02	-.18*	-.16	-.26*	-.14	-.12	-.07	-.23*	.09	-.11	.24*	.16	-.24*	.00	-.13	.03	-.12
Excitement-Seeking	-.01	.01	.01	-.08	-.09	-.04	.02	-.11	-.00	-.05	.01	-.07	.00	.20	.09	.15	-.02	-.02	.00
Positive Emotions	-.25*	-.18	-.27*	-.32*	-.32*	-.27*	-.25*	-.25*	-.10	-.26*	.09	-.40*	-.02	.00	-.16	-.05	-.26*	-.11	-.29*
Openness	-.07	.11	-.06	.11	-.01	-.10	-.15	.02	-.04	-.06	.04	-.17	.08	-.01	-.03	-.05	-.01	-.06	-.04
Fantasy	.00	.20*	.06	.18*	.07	.03	.09	.09	.10	.12	.01	-.04	.02	.13	.17	.12	.11	-.06	.12
Aesthetics	.04	.20*	.09	.19*	.12	.01	-.04	.12	.06	.06	.11	-.02	.06	.02	.02	-.02	.11	.02	.10
Feelings	-.09	.12	-.06	.04	-.05	-.13	-.08	.03	.00	-.03	.08	-.18	.09	-.01	.01	-.03	.01	-.01	-.02
Actions	-.11	-.06	-.13	-.12	-.16	-.13	-.22*	-.11	-.18*	-.18	-.04	-.23*	-.10	-.03	-.14	-.08	-.14	-.04	-.18
Ideas	-.04	.03	-.02	.10	-.03	-.14	-.22*	-.01	-.02	-.10	.03	-.03	.17	-.01	-.15	-.06	-.06	-.05	-.05
Values	-.15	-.09	-.22*	-.05	-.08	-.06	-.18*	-.07	-.18*	-.17	-.02	-.23*	.05	-.19	-.08	-.17	-.14	-.10	-.18
Agreeableness	-.21*	-.28*	-.43*	-.26*	-.21*	-.04	-.18	-.33*	-.16	-.07	.19*	-.24*	-.09	-.42*	-.19	-.28*	-.28*	-.09	-.30*
Trust	-.28*	-.24*	-.54*	-.33*	-.32*	-.25*	-.30*	-.39*	-.26*	-.26*	-.04	-.32*	-.19*	-.23*	-.15	-.17	-.44*	-.18*	-.41*
Straight forwardness	-.11	-.21*	-.34*	-.17	-.22*	-.01	-.12	-.25*	-.09	-.06	.14	-.14	-.05	-.30*	-.12	-.25*	-.22*	-.04	-.22*

Table 7. (Continued)

FFM Traits	EmD	Aban	Mis	SI	Def	Fail	Dep	Vuln	Enm	Subj	Self	EmI	UnSt	Ent	Insuf	Appr	Pesi	Punit	Total
Altruism	-.25*	-.20*	-.27*	-.27*	-.27*	-.14	-.23*	-.25*	.00	-.13	.33*	-.27*	.06	-.21*	-.16	-.11	-.18*	-.05	-.22*
Compliance	-.06	-.15	-.21*	-.05	-.01	.08	-.02	-.15	-.11	.10	.04	-.08	-.14	-.29*	-.10	-.10	-.12	-.10	-.13
Modesty	-.02	-.08	-.06	-.02	.11	.20*	.05	-.03	-.08	.17	.18*	.06	-.02	-.37*	-.04	-.27*	.02	.06	-.01
Tender-Mindedness	-.13	-.21*	-.26*	-.20*	-.16	-.06	-.13	-.21*	-.05	-.09	.16	-.24*	-.05	-.25*	-.18	-.22*	-.11	-.05	-.21*
Conscientiousness	-.25*	-.34*	-.19*	-.30*	-.29*	-.39*	-.41*	-.23*	-.13	-.35*	.13	-.12	.32*	-.15	-.54*	-.18*	-.25*	-.04	-.31*
Competence	-.25*	-.29*	-.21*	-.27*	-.32*	-.46*	-.46*	-.25*	-.18	-.42*	.07	-.18*	.20*	-.10	-.44*	-.19*	-.30*	-.13	-.35*
Order	-.20*	-.19*	-.09	-.24*	-.23*	-.29*	-.31*	-.13	-.05	-.26*	.02	-.10	.19*	-.10	-.38*	-.09	-.17	-.01	-.22*
Dutifulness	-.18	-.26*	-.13	-.20*	-.21*	-.24*	-.31*	-.18	-.09	-.17	.24*	-.05	.31*	-.12	-.33*	-.10	-.13	.06	-.17
Achievement Striving	-.16	-.29*	-.16	-.23*	-.18*	-.33*	-.28*	-.17	-.05	-.29*	.13	-.07	.39*	-.02	-.46*	-.13	-.18	-.04	-.21*
Self-Discipline	-.20*	-.39*	-.24*	-.33*	-.28*	-.42*	-.38*	-.29*	-.19*	-.39*	.08	-.16	.16	-.22*	-.62*	-.25*	-.30*	-.10	-.38*
Deliberation	-.17	-.11	-.03	-.10	-.11	-.13	-.20*	-.05	-.05	-.12	.06	.00	.23*	-.11	-.26*	-.07	-.08	.03	-.10

Note. EmD = Emotional Deprivation; Aban = Abandonment/Instability; Mis = Mistrust/Abuse; SI = Social Isolation; Def = Defectiveness/Shame; Fail = Failure; Dep = Dependence/Incompetence; Vuln = Vulnerability to Harm/Illness; Enm = Enmeshment/Undeveloped Self; Subj = Subjugation; Self = Self-Sacrifice; EmI = Emotional Inhibition; UnSt = Unrelenting Standards; Ent = Entitlement/Grandiosity; Insuf = Insufficient Self-Control/Self-Discipline; Appr = Approval/Recognition-Seeking; Pesi = Negativity/Pessimism; Punit = Punitiveness; Total = Total YSQ-S3 score.

* $p \leq .001$.

FFM facet profiles of EMSs. When Table 7 is read down each column, the FFM facet profile for each EMS can be ascertained. Inspection of the facet trait profiles of each EMS revealed theoretically-meaningful patterns of correlations. For example, the facet trait profile of Entitlement/Grandiosity consists of positive correlations with Angry Hostility and Impulsiveness, but negative correlations with all Agreeableness facets and the Conscientiousness facet of Self-Discipline. In contrast the facet trait profile of Self-Sacrifice consists of positive correlations with Altruism, Modesty and Dutifulness. Further, the facet trait profile of Unrelenting Standards consists of positive correlations with Self-Consciousness, Activity and most Conscientiousness facets except Self-Discipline, and a negative correlation with Trust. In general, EMSs from the same schema domain (see Table 3) obtained similar facet trait profiles. For example, the facet trait profiles of EMSs from the Impaired Autonomy and Performance domain (i.e., Dependence/Incompetence, Vulnerability to Harm/Illness, Enmeshment/Undeveloped Self and Failure) were characterised by stronger positive correlations with Neuroticism facets and negative correlations with Conscientiousness facets in comparison to facets from Extraversion, Agreeableness or Openness.

DISCUSSION

The aim of this study was to examine the relationships between higher- and lower-order FFM personality traits and personality pathology conceptualised as EMSs. Consistent with previous research (Muris, 2006; Sava, 2009; Thimm, 2010), the hypotheses that most EMSs would be positively correlated with Neuroticism and negatively correlated with Agreeableness were supported. In fact, correlational analyses revealed that Neuroticism, Extraversion, Agreeableness and Conscientiousness, and their respective facet traits, were meaningfully related with a broad range of EMSs. These results are discussed in turn.

FFM Domains and EMSs

Results showed that most EMSs obtained a largely similar pattern of correlations with the high-order FFM domains. That is, with a few theoretically-meaningful exceptions, the majority of the EMSs were positively correlated with Neuroticism but negatively correlated with Extraversion,

Agreeableness and Conscientiousness. However, the magnitudes of the correlations differed and were consistent with theoretical expectations. Openness did not obtain any statistically significant correlations with any of the EMSs. This overall pattern of results is consistent with the meta-analytic work of Saulsman and Page (2004) on the relationships between FFM domains and PDs. Taken together, the implication from the collective results is that personality pathology irrespective of whether its defined in terms of PDs or EMSs can generally be described as enduring patterns of emotional maladjustment (high Neuroticism) and interpersonal antagonism (low Agreeableness). It also involves either detachment or gregariousness (low or high Extraversion) and either behavioural under-control or over-control (low or high Conscientiousness), depending on the type of personality pathology in question (Saulsman & Page, 2004). In FFM personality trait terms, the collective findings suggest that the personality tendencies towards emotional maladjustment, reclusiveness and low positive emotions, interpersonal antagonism, and behavioural under-control are specifically associated with a myriad of deeply-rooted, rigid and maladaptive thinking patterns in general. Interestingly, this personality profile is not unique to dysfunctional schemas, rather it is also generally characteristic of most mental disorders (Kotov et al., 2010; Malouff et al., 2005; Watson et al., 2006). As such, one implication from these findings is that excesses or deficiencies in levels of these personality dimensions could reflect an underlying vulnerability or risk factor towards psychological dysfunction in general and particularly if this vulnerability is accompanied by adverse life experiences (Clark, 2005).

In comparison to the other FFM domains, Neuroticism in particular evidenced stronger correlations with a broader range of EMSs. This finding indicates a link between traits that are associated with a proneness to experience a range of negative emotional states and the maladaptive thinking patterns that are associated with personality dysfunction. According to Costa and McCrae (1992), individuals high in Neuroticism are more susceptible to dysfunctional or irrational thoughts and beliefs because the negative emotions that are associated with Neuroticism can interfere with how an individual interprets, adapts to and copes with the environment. Since it has been suggested that Neuroticism “appears to be approximately 50 per cent heritable in humans” (Craske, 2003, p. 46), this innate personality disposition may therefore be an important risk factor for the development of a wide array of maladaptive schemas and dysfunctional beliefs. Indeed, Muris (2006) found that Neuroticism accounted for a unique proportion of variance in most EMSs.

Whilst a positive correlation with Neuroticism was common to most EMSs, the domains of Agreeableness, Conscientiousness and Extraversion appeared to differentiate some specific EMSs, suggesting that these personality domains may be important for the development of particular maladaptive thinking patterns. For instance, Agreeableness was negatively correlated with most EMSs but positively correlated with the EMS of Self-Sacrifice, which is characterised by an excessive and maladaptive focus on voluntarily meeting others' needs to the detriment of one's own needs (Young et al., 2003). Similarly, although Conscientiousness was negatively correlated with most EMSs it was nonetheless positively correlated with the EMS of Unrelenting Standards, which is characterised by an inexorable drive to meet extremely high internalised standards of behaviour and performance (Beck et al., 2004; Young et al., 2003). Finally, although weak and not statistically-significant, the positive correlation between Extraversion and Entitlement/Grandiosity could suggest a possible link between these two personality characteristics which further research could clarify. Overall, these results run counter to Thimm's (2010) suggestion that the positive poles of Agreeableness, Conscientiousness and Extraversion may be "irrelevant or unnecessary" (p. 377) for the understanding of EMSs. Rather, the current results indicate that the positive poles of these personality domains are also related to specific maladaptive thinking patterns that are associated with personality dysfunction and this in turn could have important implications for understanding, conceptualising and treating personality pathology.

FFM Facets and EMSs

Despite the finding that some EMSs were differentially correlated with Agreeableness, Conscientiousness and Extraversion, the overall domain-level pattern of a positive relationship with Neuroticism and negative relationships with Extraversion, Agreeableness and Conscientiousness provided little discrimination between the EMSs. However, these dysfunctional schemas were further differentiated by their theoretically-meaningful relationships with the lower-order facet traits of the FFM. For example, the EMS of Punitiveness was characterised by positive correlations with Depression and Self-Consciousness and a negative correlation with Trust. In other words, a dispositional proneness to experience negative emotions such as sadness, guilt, shame or embarrassment and a basic sense of mistrust about the world are associated with the presence of a rigid, pervasive and self-defeating EMS that

the self and others should be harshly punished for making mistakes. These findings are in line with PD research wherein each PD has been found to have its own unique and theoretically-meaningful FFM facet profile (Butrus & Witenberg, 2015; Samuel & Widiger, 2008; Widiger, Trull, et al., 2002).

Further, the magnitudes of the correlations were also theoretically-meaningful and suggested stronger relationships between those FFM facet traits and EMSs that captured similar aspects of personality pathology features, thus reflecting the concurrent validity of the relevant FFM facet trait and EMS dimensions. For example, the Agreeableness facet of Straightforwardness had a moderate negative correlation with the EMS of Mistrust/Abuse. That is, individuals who tend to be disingenuous and manipulative (low Straightforwardness) tend to hold a stronger dysfunctional schema surrounding the theme that others will intentionally hurt, deceive and abuse them and that others can therefore not be trusted (high Mistrust/Abuse). Likewise, the EMS of Dependence/Incompetence had a positive correlation with the Neuroticism facet of Vulnerability and a negative correlation with the Conscientiousness facet of Competence. In other words, individuals who strongly believe that they are unable to function autonomously (high Dependence/Incompetence) have a dispositional tendency to feel easily overwhelmed with even minor stress (Vulnerability) and tend to perceive themselves as ill-prepared or ineffective (Competence), thus damaging their self-esteem (Costa & McCrae, 1992).

Overall, the results revealed nuanced relationships between specific FFM facet traits and specific EMSs that were theoretically-meaningful given the descriptions of each facet trait and EMS concept that were provided in Table 1 and Table 3, respectively. While causal inferences cannot be made due to the correlational and cross-sectional design of the study, these findings are nonetheless in line with the idea that individuals develop characteristic maladaptations, such as dysfunctional schemas, that are consistent with their personality traits (McCrae & Costa, 2003). The findings are also in accordance with the schema theory assertion that specific temperament or personality dispositions are associated with the development of specific EMSs (Young et al., 2003). The overall patterns of theoretically-meaningful correlations among conceptually similar FFM facet traits and EMSs could suggest that these constructs share common variance with latent superordinate personality dimensions, especially since some dysfunctional schemas correlated in predictable ways with different poles of the personality dimensions. For example, most EMSs were negatively correlated with Conscientiousness facets, but Unrelenting Standards obtained positive correlations with

Conscientiousness facets. Hence, an important goal for future research is to examine whether personality traits and dysfunctional schemas can be organised within a broader taxonomy as this could bridge the gap between trait and cognitive-behavioural models of personality (Thimm, 2010).

Whilst Openness did not obtain statistically significant correlations with any EMSs, a few Openness facets, notably Values, did obtain some weak negative correlations with specific EMSs, such as Mistrust/Abuse, Dependence/Incompetence, Enmeshment/Undeveloped Self and Emotional Inhibition. Clearly, being willing to question existing belief systems (high Values) is incompatible with holding rigid, dysfunctional schemas (Costa & McCrae, 1992; McCrae, 2006). The emerging trend in these results is consistent with our previous work on the relationships between FFM personality traits and PD features (Butrus & Witenberg, 2015). Specifically, in our previous study we found that the Openness facet of Values was a significant correlate and a predictor of most categories of PD features. Accordingly, we argued that such results could suggest that low Values may be a risk factor for the development and maintenance of inflexible dysfunctional beliefs which are common cognitive features of personality pathology (Butrus & Witenberg, 2015). Indeed, a dispositional unwillingness to re-examine dysfunctional schemas may explain why PDs are chronic conditions that are notoriously difficult to treat (Young et al., 2003).

Clinical Implications

The overall pattern of results indicates that, with a few theoretically meaningful exceptions, the high or positive pole of Neuroticism and the low or negative poles of Extraversion, Agreeableness and Conscientiousness are associated with the presence of deeply-rooted dysfunctional schemas in general.

Dysfunctional schemas about the self, others and the world that have been derived from past experiences are central features of personality pathology and are important targets for change in many PD treatments (Beck et al., 2004; Livesley, 2003; Young, 1999). As previously mentioned, there has been a paucity of research to date that has investigated the relationships between FFM personality traits and dysfunctional schemas. Accordingly, this current study represents a much-needed investigation to assess the relationships between specific personality traits and personality pathology conceptualised as EMSs.

The identification of theoretically-meaningful relationships between higher- and lower-order FFM personality traits and EMSs is not only important in its own right, but it could also have important implications when reconceptualising PDs using dimensional trait models. As mentioned previously, the FFM is one dimensional personality trait model that proponents argue should replace the DSM-5's categorical model of classifying PDs (Widiger, 2011). The theoretically-meaningful FFM trait-EMS relationships that were identified in this research provide evidence of the concurrent validity of FFM traits in relating to specific cognitive and emotional features of personality pathology. Thus, if PDs are to be reconceptualised using FFM traits, the findings of this research could therefore have important implications for the treatment of PDs and personality pathology more broadly. Specifically, since EMSs are characteristic maladaptations that are acquired over time they may therefore be more amenable to change than are dispositional personality traits (McCrae, Lockenhoff, et al., 2005). Hence, the implication is that while PDs could be described in terms of traits, PD treatment on the other hand should focus on the dysfunctional schemas that are associated with the traits (Harkness & McNulty, 2002). This idea is reinforced by the fact that there exists a growing body of literature on the treatment of the cognitive-behavioural aspects of PDs (Beck et al., 2004; Young, 1999), but little in the way of the treatment of personality traits (Alwin et al., 2006; Heim & Westen, 2009).

Limitations

There are some limitations which may temper the findings of this study. First, whilst the study involved a relatively large and gender-balanced non-clinical sample, the participants were primarily university students with relatively high levels of education. Future studies should examine relationships between FFM personality traits and EMSs in more diverse community or clinical samples so as to sample adequate variance for all variables. In turn, this would enable wider generalisability of results. Second, the implication from the cross-sectional and correlational design of this study is that we are unable to make casual inferences regarding the relationships amongst the variables. Longitudinal studies are needed to examine how FFM personality traits are causally related to the development of EMSs. Finally, since all variables were measured through self-report methods, the possibility that shared method variance could have influenced the results cannot be ruled out.

Future Directions

The results of this research point to a number of potential avenues for future research. First, given the relationships between conceptually similar higher- and lower-order FFM personality traits and EMSs, an important direction for future research is to explore whether personality traits and dysfunctional schemas can be organised within an integrated model of personality. Specifically, factor-analytic research could clarify further the patterns of relationships amongst FFM traits and EMSs and elucidate whether these personality characteristics load onto broader personality dimensions in meaningful ways. Second, research on the relationships between EMSs and personality traits from other personality models is required to explore similarities and differences with the FFM. Third, longitudinal clinical research that explores the relationships between psychological therapies and modifying EMSs is required. It will be particularly informative to investigate whether particular higher- or lower-order FFM traits act as mediators or moderators of distress levels or whether specific FFM traits impact on the modifiability of particular EMSs.

CONCLUSION

This study demonstrated that FFM personality traits were meaningfully related with personality pathology conceptualised as EMSs in a non-clinical analogue sample. These are significant findings which could have important theoretical and practical implications for the conceptualisation and treatment of personality pathology.

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Chapter 4

**MALADAPTIVE SCHEMAS, UNDERLYING
BELIEFS, AND DIMENSIONAL PERSONALITY
DOMAINS: ASSOCIATIONS WITHIN CLINICAL
AND STUDENT SAMPLES**

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ABSTRACT

Cognitions, including early maladaptive schemas and dysfunctional beliefs, are highly relevant to psychological disorders. Specifically, research has demonstrated the relationship between schemas, dysfunctional beliefs, and categorical personality disorders (PDs). With the move toward dimensional classifications of PDs, there have also been suggestions for the integration of maladaptive beliefs within these

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diagnostic systems. The current study examined early maladaptive schemas and dysfunctional beliefs associated with PDs in relation to the Five-Factor Model (FFM), a model similar to the alternative model for PD in DSM-5 Section III. This study extended previous research on maladaptive schemas and personality to assess two different measures of maladaptive beliefs and the FFM personality domains. These relationships were examined in a clinical and student sample. Both measures of maladaptive beliefs converged with the FFM domains. The dysfunctional beliefs appeared to provide more discriminant information compared with the early maladaptive schemas. Differences between samples, relationships, and clinical implications are discussed.

Keywords: early maladaptive schemas, dysfunctional beliefs, personality disorders, dimensional personality traits, Five Factor Model

INTRODUCTION

One of the general diagnostic criteria for personality disorders (PDs) within the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) is an enduring pattern of inner experience that deviates from what is expected within the culture, and must be manifested in at least two ways (i.e., cognition, affectivity, interpersonal functioning, or impulse control). PDs can be understood from a cognitive perspective by examining an individual's thoughts, underlying beliefs, and maladaptive schemas (Young, Klosko, & Weishar, 2003). Maladaptive cognitive schemas are considered to be at the core of PDs as they are developed early in childhood, resulting from interactions between the child's temperament and relationships with others (Young et al., 2003).

The cognitive theory of PDs incorporates dysfunctional beliefs, which are similar to maladaptive schemas (Pretzer & Beck, 1996). Evidence has supported this theory, demonstrating that schemas are integral to understanding personality pathology. Maladaptive schemas are present in persons with personality pathology (Gilbert & Daffern, 2013; Lawrence, Allen & Chanen, 2001; Nordahl, Holthe, & Haugum, 2005; Petrocelli, Glaser, Calhoun, & Campbell, 2001), endure over time (Riso et al., 2006), and may play a role in sustaining PDs due to their persistent nature. Persons below the clinical range for PD symptomology do not typically exhibit elevations on any early maladaptive schemas, whereas those with moderate clinical range

symptoms or prominent PD symptoms tend to have elevations on the schemas (Petrocelli et al., 2001). Maladaptive schemas significantly predict most categorical PDs (Carr & Francis, 2010) and are related to other types of psychopathology including mood, eating, and substance use disorders (Connan et al., 2009; Muris, 2006). Personality traits may be an expression of underlying core beliefs (Beck et al., 1990; Hopwood, Schade, Krueger, Wright, & Markon, 2013); therefore, it is important to have a solid understanding of the relationship between schemas/beliefs, personality traits, and associated impairment. For example, Leite, Lopes, and Lopes (2012) stated “from a clinical standpoint, identification of these beliefs is a fundamental starting point during the diagnostic process, case conceptualization, psychological assessment, and therapeutic interventions” (p. 71). Research incorporating cognitive aspects into PD models is necessary as cognitions are vital mechanisms that are used to target treatment, understand the underlying aspects of PDs, and predict treatment outcome (Beck et al., 2001; Fournier, DeRubeis, & Beck, 2012; Kuyken, Kurzer, DeRubeis, Beck, & Brown, 2001).

MALADAPTIVE SCHEMAS AND DYSFUNCTIONAL BELIEFS

While there are alternative instruments for the assessment of schemas and beliefs, two are the focus of the current study. The Young Schema Questionnaire (YSQ; Young & Brown, 1990) is a well-researched and reliable measure that assesses early maladaptive schemas (Schmidt, Joiner, Young, & Telch, 1995) and the Personality Belief Questionnaire (PBQ; Beck & Beck, 2001) is a measure designed to assess dysfunctional beliefs underlying PDs (Bhar, Beck, & Butler, 2012). The PBQ (Beck & Beck, 2001) was developed specifically to assess the dysfunctional beliefs associated with PDs based on Beck’s cognitive model (Beck et al., 1990). Research has demonstrated there are specific beliefs associated with each PD based on the content of the belief and conceptual understanding of the PD (e.g., the belief that ‘mistakes are intolerable’ is associated with obsessive compulsive PD; Beck et al., 1990). The PBQ has good psychometric properties and there is evidence that it is moderately to strongly correlated with other measures of PDs (Beck et al., 2001; Hyler, Skodol, Oldham, Kellman, & Doidge, 1992).

The PBQ and YSQ assess similar constructs and both significantly relate to measures of personality pathology (Beck et al., 2001; Carr & Francis, 2010; Fournier et al., 2012; Jovev & Jackson, 2004). However, there are some

important distinctions between the measures. The YSQ maladaptive schemas were not developed to correspond directly with PDs, whereas the PBQ belief scales were created to be direct assessments of beliefs underlying DSM PDs. Further, the PBQ measures beliefs, whereas the YSQ also assesses associated behavior patterns and symptoms (e.g., Beck et al., 2001; Bhar et al., 2012). The associations between categorical PDs and schemas have been inconsistent as evidenced by gaps in the literature and inconclusive findings across studies (e.g., avoidant PD is not consistently related to the social isolation schema, although theory suggests it should be; Ball & Cecero, 2001; Jovev & Jackson, 2004). Inconsistencies in the literature may be due to a variety of issues such as the validity of the schema constructs, the ability of the measures to adequately capture the schemas, the inherent problems of the PDs categories themselves, or simply that PDs and schemas are not related as strongly as expected. While the schemas provide useful information, the discrepancies may impact the implications of utilizing schemas within treatment. If the PBQ examines beliefs more specifically (e.g., unpleasant/distressing feelings will escalate out of control), rather than the YSQ which also assesses symptoms and behaviors (e.g., ‘testing’ others to see if they are being honest) and other background information (e.g., history of abuse from important people in one’s life). It may be beneficial to consider the PBQ to provide more targeted information to address in cognitive therapy for PDs.

In comparison to the YSQ, fewer studies have examined the PBQ in relation to PDs. Overall, current literature suggests that the PBQ scales are associated with PDs and can discriminate between PDs (Beck et al., 2001; Butler, Beck, & Cohen, 2007). However, the PBQ structure does not align well with the categorical PDs (e.g., borderline PD beliefs are not just related to BPD), likely due to high overlap across the disorders (Fournier et al., 2012). This may be a reflection of the problems inherent to categorical PDs. However, while limited research is available on the PBQ and PDs, there is evidence for the use of underlying beliefs in treatment. For instance, Kuyken et al. (2001) found that PD diagnoses did not predict how an individual with depression progressed in treatment; however, dysfunctional beliefs did predict important progress and information related to functioning and depressive symptoms.

SCHEMAS AND DIMENSIONAL MODELS OF PERSONALITY

The categorical diagnostic classification system of PDs has a number of limitations, including inadequate coverage, arbitrary cut-offs for diagnoses, high levels of diagnostic co-occurrence, and heterogeneity within diagnoses (Clark, 2007; Widiger & Trull, 2007). Given the problems with the categorical approach, a potentially useful alternative approach is to assess the schemas within dimensional models of personality. This is a timely topic given recent attention on the incorporation of dimensional models for classification of PDs, including an alternative dimensional model for PD in DSM-5 Section III (APA, 2013). Beck et al. (2001) states that, “the ability to assess the relative strengths of beliefs associated with a variety of PDs may be particularly appealing to clinicians and researchers who prefer a dimensional approach to understanding personality dysfunction” (p. 1224). Dimensional trait models are related to dysfunctional beliefs and compared to diagnostic categories, dimensional traits can provide more specific information specific to beliefs (Hopwood et al., 2013).

The Five-Factor Model (FFM) is a well-validated dimensional model that describes general personality traits (McCrae & Costa, 1997; McCrae & John, 1992) and extends to describe pathological personality with maladaptive variants of the traits (Widiger & Mullins-Sweatt, 2009; Widiger & Trull, 2007). The FFM effectively describes DSM PDs and provides more comprehensive information than categorical PDs through facet-level analyses (Samuel & Widiger, 2008; Saulsman & Page, 2004; Widiger & Mullins-Sweatt, 2009). McCrae (2006) suggests that maladaptive cognitions interact with one’s personality traits, thus impacting symptoms, distress, and impairment. The alternative model for PDs in DSM-5 includes five domains that are considered “maladaptive variants of the five domains of the extensively validated and replicated personality model known as the “Big Five,” or Five Factor Model” (APA, 2013, p. 773). Therefore, the FFM is particularly relevant to this area of research.

Maladaptive schemas in relation to personality have been studied from the perspective of the FFM (e.g., Bahramizadeh & Ehsan, 2011; Muris, 2006; Sava, 2009; Thimm, 2011); however, no research has directly assessed the relationship of all five of the FFM domains with the PBQ. To our knowledge, only one study has examined the relationship between the PBQ and neuroticism, which was used as a general distress factor (Butler et al., 2007). Early maladaptive schemas and the FFM provide unique variance in PD symptoms, suggesting both personality traits and schemas can be clinically

useful and relevant for diagnosis (Thimm, 2011). Further, utilizing schemas/beliefs and personality factors concurrently has been recommended as the optimal way to approach intervention planning and patient education, rather than DSM categories alone (Ball & Cecero, 2001).

Most studies have indicated that the FFM domain of neuroticism is positively related to nearly all of the maladaptive schemas (Bahramizadeh & Ehsan 2011; Muris, 2006; Thimm, 2010) and is a significant, unique predictor for schemas when accounting for relevant variables (e.g., gender, age, and detrimental parenting; Muris, 2006) and other FFM domains (Thimm, 2010). This is not surprising given that neuroticism is associated with distress, lower life satisfaction, and psychopathology including mood disorders, substance abuse, and PDs (Presnall, 2013; Saulsman & Page, 2004). Using schemas to distinguish PDs may be problematic given that neuroticism is prevalent across many disorders and tends to be associated with many dysfunctional beliefs and schemas. For example, neuroticism was related to all of the PBQ scales with the exception of histrionic (Butler et al., 2007). Further, elevations on many PBQ scales is indicative of general distress; however, a mixture of high and low scores across PBQ scales implies disorder-specific difficulties. Therefore, similar to schemas, elevations on many PBQ scales may be indicative of PD pathology in general, rather than specific PD impairment.

In contrast to dysfunctional beliefs (PBQ), maladaptive schemas have more existing research regarding their relationship to the FFM. In addition to the strong relationships with neuroticism, three additional domains (i.e., low extraversion, low conscientiousness, and high/low agreeableness) tend to be associated with maladaptive schemas in adult and adolescent samples (Bahramizadeh & Ehsan, 2011; Ehsan & Bahramizadeh, 2011; Muris, 2006; Thimm, 2010). Further, the combination of low agreeableness and high neuroticism has been associated with a number of schemas (Sava, 2009). Extraversion primarily has been negatively associated with about half of the schemas (Bahramizadeh & Ehsan, 2011; Thimm, 2010); however, it was related to fewer schemas after controlling for the other FFM domains (Muris, 2006; Thimm, 2010). Based on the literature, it is more likely that low, rather than high extraversion, is associated with maladaptive schemas. In comparison to the other FFM domains, low conscientiousness is related to fewer schemas and few studies have found associations between openness to experience and the maladaptive schemas. Some of these relationships may be limited due to the extent that measures of general personality traits (e.g., NEO PI-R; Costa & McCrae, 1992) are not adequately assessing maladaptive aspects of the traits.

TREATMENT IMPLICATIONS

Young and Lindemann (1992) state that treating maladaptive schemas can address chronic issues relevant to PDs (e.g., interpersonal dysfunction, avoidance). Recent research examining the DSM-5 alternative model in relation to the cognitive theory of PDs has suggested that the PBQ beliefs can be integrated into the alternative pathological trait model in Section III for a more unified and comprehensive approach to treatment (Hopwood et al., 2013). Dimensional trait domains of the alternative model were related to unique combinations of beliefs (Hopwood et al., 2013). This lends support for the inclusion of dysfunctional cognitions into a clinically useful model that can assist clinicians' efforts to tailor treatment. Hopwood et al. (2013) assert that the beliefs can extend the DSM-5 trait model and demonstrate the "potential to integrate these systems in a more parsimonious, empirically viable, and clinically useful model of personality pathology" (p. 166). Due to the inconsistent and limited research about schemas and dysfunctional beliefs as related to dimensional models of personality, further research is necessary before moving forward with integration into diagnostic models and treatment planning.

CURRENT STUDY

The current study examined the relationship between a dimensional model of personality (the FFM), early maladaptive schemas (YSQ), and dysfunctional beliefs associated with PDs (PBQ) in a college student sample and a residential clinical sample. The following hypotheses were developed based on the existing literature and relationships between personality traits and disorders (e.g., Bahramizadeh & Ehsan 2011; Muris, 2006; Saulsman & Page, 2004; Thimm, 2010). It was hypothesized that FFM neuroticism would be positively related to the paranoid, borderline, avoidant, and dependent PBQ scales; extraversion would be positively related to histrionic and narcissistic beliefs and negatively related to schizoid and avoidant beliefs; agreeableness would be positively associated with the dependent belief scale and negatively associated with borderline, antisocial, narcissistic, and paranoid belief scales; and conscientiousness was hypothesized to be positively related to obsessive-compulsive beliefs and negatively related to borderline and antisocial belief scales. Finally, it was hypothesized that openness to experience would not

exhibit any significant relationships to the PD belief sets, particularly because the PBQ does not include schizotypal PD.

It was hypothesized that all YSQ schema scales would be positively associated with neuroticism, and primarily negatively related to extraversion, agreeableness, and conscientiousness. However, we would expect certain schemas to be positively related to agreeableness (subjugation, self-sacrifice, dependence/incompetence) and conscientiousness (unrelenting standards) based on the schema descriptions.

METHOD

Participants

Sample 1. One hundred and ninety-nine students from a midwestern university were part of Sample 1. Due to the online nature of the study, where observation and control by researchers was limited (see procedure section), stringent and conservative validity cut-offs were utilized; 77 cases were eliminated for endorsing significant levels of infrequency or virtue-based validity items. The remainder of the student sample analyses includes 122 participants. Participants were recruited through an online subject pool and participated in the study for class credit. The participants' ages ranged from 18 to 44 ($M = 19.92$, $SD = 3.05$) and 56.6% were female. Seventy-seven percent of the sample identified as Caucasian, 6.6% Native American/Alaska Native, 5.7% Hispanic, 4.1% Black/African American, 4.1% Multiracial, and 2.5% Asian/Pacific Islander.

Sample 2. Participants included 118 females from a residential substance abuse treatment facility. Due to incomplete data, 7 participants were excluded from analyses and 111 participants were included in the final sample. Ages ranged from 20 to 53 years ($M = 28.98$, $SD = 6.87$). Approximately half (56.3%) of the participants identified as Caucasian, 11.6% Other, 7.1% African American, 1% Asian/Pacific Islander, 1% Native American, and 23% did not report their ethnicity. Forty percent of the sample self-reported psychiatric diagnoses. Of those, 29.5% listed a mood disorder, 18.75% anxiety disorder, 7% PD, 5% substance abuse disorder, 1.7% other disorder, and 1% eating disorder. Fifty-one percent of the participants who reported diagnoses had two or more psychiatric diagnoses.

Measures

NEO Personality Inventory Revised (NEO PI-R; Costa & McCrae, 1992). The NEO PI-R is a 240-item standardized self-report measure that assesses general personality from the perspective of the five-factor model of personality. The measure assesses five bipolar domains (neuroticism versus emotional stability, extraversion versus introversion, openness to experience versus closedness to experience, agreeableness versus antagonism, conscientiousness versus disinhibition) and six facets within each domain. Each question is rated on a 5-point Likert scale ranging from 1 (Disagree strongly) to 5 (Agree strongly). Cronbach's alpha demonstrated acceptable to excellent reliability .87 (openness to experience) to .90 (conscientiousness) in Sample 1 and .71 (openness to experience) to .85 (conscientiousness) in Sample 2.

Young Schema Questionnaire (YSQ-L2; Young & Brown, 2001). The YSQ is a 205-item self-report measure designed to assess 18 early maladaptive schemas. The questions are rated on a 6-point Likert scale ranging from "completely untrue" to "describes me perfectly." The individual schema scales demonstrated poor to excellent reliability, with Cronbach's alpha ranging from .87 (unrelenting standards) to .96 (defectiveness/shame and social undesirability) in Sample 1 and .51 (subjugation) to .81 (defectiveness/shame and social undesirability) in Sample 2.

Personality Belief Questionnaire (PBQ; Beck & Beck, 1991). The PBQ is a 126-item self-report questionnaire that assesses dysfunctional beliefs underlying PDs and has 10 belief scales, which includes 9 of the DSM-5 PDs (excluding schizotypal PD) and passive aggressive PD. Item responses are rated on a 5-point Likert scale ranging from "I don't believe it at all" to "I believe it totally." The scales demonstrated acceptable to excellent reliability, with Cronbach's alpha ranging from .82 (schizoid) to .92 (paranoid) in Sample 1 and .76 (passive aggressive) to .88 (dependent) in Sample 2 for the 10 PD belief scales.

Procedure

Sample 1. Student participants were recruited through the university subject pool. Following consent, participants completed the measures via an online survey platform at remote locations. Researchers did not interact with participants in any manner; therefore, conservative selection processes were

utilized when cleaning the data (e.g., participants with potentially invalid or significant missing data). Participants completed the demographics questionnaire followed by the self-report measures in a randomized order. All participants earned research credits for a course of their choosing as compensation for participation.

Sample 2. The clinical sample was recruited with flyers placed in a female residential treatment facility. Researchers informed participants about the study and if interested, participants completed paper copies of the measures and returned them to researchers at a later date when completed. All participants were provided with \$20 compensation at the end of the study.

RESULTS

Chi-square analyses were conducted to examine race/ethnicity differences and independent sample t-tests were utilized to examine sample differences on the FFM facets, PBQ scales, and YSQ scales between samples. Pearson *r* correlation analyses were conducted to assess the relationships between the measures within each sample. Due to the large number of analyses, a more conservative alpha value of .01 was utilized for all results.

Group Comparisons

The student sample was more ethnically homogenous sample compared to the clinical sample, $\chi^2 = 18.13$ (1, $N = 208$), $p < .001$. The clinical sample was significantly older ($M = 28.98$, $SD = 6.87$) than the student sample ($M = 19.92$, $SD = 3.05$), $t(118.10) = 11.80$, $p < .001$. Means and standard deviations for each sample on the PBQ PD scales, FFM domains and facets, and early maladaptive schemas are listed in Table 1. The clinical sample had significantly higher mean scores on nearly all PBQ scales and on a majority of the early maladaptive schemas (see Table 1). The mean FFM domains were all significantly different between the two samples such that neuroticism was significantly higher and the other four domains were significantly lower in the clinical sample.

The FFM means for Sample 1 (students) were compared with the NEO PI-R manual norms for student samples (McCrae & Costa, 2010). Extraversion,

Table 1. T-tests of sample differences for PBQ, NEO PI-R and YSQ

	Student Sample (S1)	Clinical Sample (S2)	Sample differences
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t</i>
PBQ			
Paranoid	14.99 (11.14)	28.42 (8.81)	-9.35**
Schizoid	20.26 (8.63)	25.83 (8.95)	-4.36**
Antisocial	14.56 (9.24)	24.65 (10.14)	-7.24**
Borderline	11.53 (10.14)	24.68 (9.09)	-9.03**
Histrionic	14.86 (9.99)	23.94 (9.67)	-6.39**
Narcissistic	12.51 (10.17)	24.20 (10.40)	-7.89**
Avoidant	12.46 (10.47)	25.76 (8.86)	-9.60**
Dependent	14.20 (10.01)	23.21 (11.39)	-5.84**
Obsessive-compulsive	22.78 (8.70)	25.43 (8.67)	-2.12
Passive aggressive	16.95 (9.39)	26.23 (8.48)	-7.00**
NEO PI-R			
Neuroticism	88.39 (21.73)	106.12 (20.84)	-5.76**
Extraversion	120.33 (20.79)	101.00 (19.09)	6.82**
Openness to experience	116.89 (20.22)	100.15 (15.05)	6.34**
Agreeableness	117.15 (20.12)	99.07 (17.05)	6.49**
Conscientiousness	118.20 (18.66)	94.86 (21.04)	7.99**
YSQ			
Emotional deprivation	19.03 (10.33)	25.78 (5.72)	-5.92**
Abandonment	36.94 (19.12)	54.78 (9.15)	-8.73**
Mistrust/abuse	38.29 (17.67)	52.67 (8.81)	-7.58**
Social isolation	21.27 (11.43)	29.15 (6.62)	-6.13**
Defectiveness/shame	28.02 (15.77)	44.75 (8.73)	-9.57**
DS + social undesirability	45.75 (22.96)	70.96 (12.54)	-9.92**
Failure	17.52 (9.75)	28.01 (4.86)	-10.09**
Dependence/incompetence	27.58 (13.63)	44.35 (7.18)	-11.26**
Vulnerability to harm/ illness	29.44 (13.33)	40.96 (7.01)	-7.99**
Enmeshment	20.13 (11.09)	31.56 (6.78)	-9.00**
Subjugation	19.98 (9.77)	29.22 (5.21)	-8.71**
Self-sacrifice	52.82 (16.47)	52.68 (7.77)	.08
Emotional inhibition	20.26 (10.22)	25.81 (5.42)	-4.97**
Unrelenting standards	46.21 (15.51)	47.41 (6.65)	-.74
Entitlement	25.09 (10.50)	32.20 (6.54)	-5.83**
Insufficient self-control	32.58 (14.43)	44.74 (8.13)	-7.56**

Note: *M* = mean, *SD* = standard deviation. ** $p \leq .001$. DS = Defectiveness/shame.

openness to experience, and conscientiousness were not significantly different between samples. Neuroticism was significantly higher and agreeableness was significantly lower in the normative college sample compared to the current student sample. Normative clinical data are not included within the manual; therefore, the normative adult female means were used as a comparison for Sample 2 (clinical). The clinical sample in the current study had significantly higher means for neuroticism and significantly lower means for extraversion, openness to experience, agreeableness, and conscientiousness. This would be expected when comparing a general and community sample.

FFM Domains and Personality Belief Questionnaire

As hypothesized, neuroticism was positively related to three PBQ scales in both samples (paranoid, borderline, and avoidant; Table 2), which is consistent with personality and neuroticism-related impairment specific to those PDs. Neuroticism was also related to dependent PD beliefs in the student sample. These relationships all demonstrated medium to large effects using Cohen's (1992) conventions. Extraversion was negatively associated with the paranoid and borderline PBQ scales in both samples, and with the avoidant and dependent PBQ scales in the student sample. These relationships were of small and medium effect sizes (see Table 2) and were not consistent with the hypothesized relationships. Agreeableness was negatively associated with most of the hypothesized PBQ scales (avoidant, antisocial, borderline, narcissistic) in the student sample and was negatively associated with the schizoid scale in the clinical sample. Of the hypothesized relationships, conscientiousness was only significantly associated with the borderline PBQ scale in the clinical sample. Other PBQ scales were associated with this domain in both samples (see Table 2). While there were no hypothesized relationships for the openness to experience domain and PBQ beliefs, the results demonstrated that seven PBQ scales were negatively related to openness in the student sample. However, only the dependent PBQ scale was significantly associated with the openness domain in the clinical sample.

Table 2. Pearson r correlations: NEO PI-R domains and PBQ dysfunctional beliefs in student and clinical sample

	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2
	Neuroticism		Extraversion		Openness		Agreeableness		Conscientiousness	
PAR	.34**	.47**	-.27*	-.37*	-.32**	.05	-.41**	-.29	-.11	-.57**
SZD	.17	.18	-.20	-.28	-.14	.01	-.31**	-.34*	-.11	-.23
ATS	.14	.13	-.13	-.12	-.35**	-.13	-.53**	-.27	-.15	-.21
BOR	.37**	.37*	-.31**	-.35*	-.38**	-.15	-.31**	-.24	-.23	-.42**
HST	.12	-.03	.04	.04	-.25*	-.11	-.34**	-.05	-.18	.01
NAR	.10	-.11	-.03	-.04	-.32**	-.16	-.44**	-.07	-.26*	.17
AVD	.45**	.32*	-.41**	-.26	-.42**	-.08	-.26*	-.11	-.29*	-.32*
DEP	.33**	.09	-.29*	-.22	-.41**	-.31*	-.09	.01	-.24	-.10
CMP	.18	.05	-.01	-.01	-.18	-.04	-.04	.14	.12	.10
PAS	.22	.30	-.15	-.16	-.23	.16	-.38**	-.17	-.24	-.25

Note: * $p \leq .01$; ** $p \leq .001$. S1 = student sample, $N = 97$ -114. S2 = clinical sample, $N = 64$ -75. PBQ Scales: PAR = paranoid, SZD = schizoid, ATS = antisocial, BOR = borderline, HST = histrionic, NAR = narcissistic, AVD = avoidant, DEP = dependent, CMP = obsessive-compulsive, PAS = passive aggressive.

FFM Domains and Early Maladaptive Schemas

Consistent with the hypotheses, the neuroticism domain was positively correlated (ranging from small to large effects) with 15 maladaptive schemas in the student sample (see Table 3), which may suggest a general level of distress across the schemas (provided that neuroticism tends to be associated with general distress/impairment; Presnall, 2013; Saulsman & Page, 2004). However, neuroticism was only related to one schema in the clinical sample. The hypotheses were partially supported for extraversion, such that the domain was negatively related to many schemas in the student sample; however, it was not related to any schemas in the clinical sample. Agreeableness was negatively related to some schemas in each sample (see Table 3). Conscientiousness was negatively related to a majority of the schemas in the student sample and approximately one-third of the schemas in the clinical sample (ranging from small to large effects). Inconsistent with predictions, there were no significant positive associations between schemas and agreeableness or conscientiousness. Openness to experience was only related to schemas in the student sample.

Table 3. Pearson r correlations: NEO PI-R domains and YSQ schemas in student and clinical sample

	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2
	Neuroticism		Extraversion		Openness		Agreeableness		Conscientiousness	
ED	.24	.21	-.29**	-.25	-.21	-.13	-.28*	-.05	-.35**	-.31*
AB	.37**	.30	-.31**	-.14	-.22	-.04	-.31**	.02	-.40**	-.26
M/A	.44**	.10	-.34**	-.05	-.20	-.09	-.44	-.22	-.28*	-.29
SI	.40**	.32*	-.39**	-.24	-.13	.04	-.18	-.13	-.34**	-.45**
DS	.34**	.30	-.34**	-.27	-.21	-.10	-.22	-.33*	-.34**	-.50**
DSSU	.40**	.23	-.46**	-.29	-.25*	-.14	-.21	-.23	-.40**	-.38**
F	.41**	.10	-.40**	.08	-.28*	-.04	-.14	.09	-.44**	-.06
DI	.36**	.13	-.29*	-.22	-.34**	-.01	-.23	.01	-.34**	-.21
V	.49**	.06	-.36**	-.08	-.24	-.20	-.24	-.05	-.26*	-.10
EM	.29*	-.07	-.25*	-.14	-.37**	-.04	-.30*	.18	-.27*	.02
SU	.41**	.05	-.36**	-.14	-.27*	.01	-.19	.01	-.31**	-.04
SS	.28*	.06	-.09	-.14	.06	.28	.17	.29	.04	.10
EI	.53**	.12	-.42**	-.12	-.21	-.27	-.24	-.02	-.36**	-.04
US	.37**	.14	-.10	-.15	-.04	.05	-.16	.10	-.03	-.01
ET	.39**	.17	-.11	-.22	-.22	-.17	-.48**	-.42**	-.26*	-.32
IS	.53**	.16	-.28*	-.10	-.28*	-.19	-.35**	-.33*	-.45**	-.34*

Note: * $p \leq .01$; ** $p \leq .001$. S1 = student sample, $N = 101-118$. S2 = clinical sample, $N = 62-73$.

Schemas: ED = emotional deprivation, AB = abandonment, M/A = mistrust/abuse, SI = social isolation, DS = defectiveness/shame, DSSI = DS + social undesirability, F = failure, DI = dependence/incompetence, V = vulnerability to harm/illness, EM = enmeshment, SU = subjugation, SS = self-sacrifice, EI = emotional inhibition, US = unrelenting standards, ET = entitlement, IS = insufficient self-control.

Early Maladaptive Schemas and Personality Belief Questionnaire

Each set of underlying beliefs were related to nearly all of the maladaptive schemas (see Table 4). The only variables that were not significantly correlated include the self-sacrifice schema with the antisocial, histrionic, narcissistic, and passive aggressive PD belief scales, and the unrelenting standard schema with the obsessive-compulsive PD belief scale. In Sample 2 (clinical), most of the PBQ scales (e.g., borderline, paranoid scales) were significantly related to at least half of the YSQ scales (see Table 5 for correlations). Other PBQ scales (e.g., narcissistic scale) were related to fewer schemas. Additionally, certain schemas (e.g., self-sacrifice, failure) were related to fewer PBQ scales compared to other schemas (e.g., vulnerability to harm and illness, defectiveness shame and social undesirability, mistrust/abuse) that were related to all or nearly all of the PBQ scales.

Table 4. Pearson r correlations: PBQ beliefs and YSQ schemas in S1 (student sample)

	PAR	SZD	ATS	BOR	HST	NAR	AVD	DEP	CMP	PAS
ED	.58**	.46**	.59**	.64**	.50**	.47**	.64**	.43**	.36**	.60**
AB	.69**	.47**	.62**	.79**	.58**	.58**	.74**	.65**	.40**	.62**
MA	.78**	.53**	.62**	.77**	.54**	.54**	.68**	.58**	.41**	.59**
SI	.50**	.32**	.39**	.59**	.35**	.31**	.60**	.53**	.31**	.47**
DS	.61**	.47**	.59**	.75**	.54**	.54**	.76**	.63**	.38**	.66**
DSSU	.62**	.45**	.56**	.77**	.54**	.55**	.79**	.67**	.38**	.64**
F	.56**	.39**	.51**	.73**	.51**	.51**	.75**	.70**	.40**	.58**
DI	.64**	.44**	.61**	.81**	.65**	.65**	.79**	.74**	.41**	.70**
V	.68**	.41**	.52**	.78**	.53**	.52**	.75**	.72**	.37**	.60**
EM	.66**	.49**	.72**	.81**	.69**	.73**	.76**	.74**	.43**	.71**
SU	.65**	.46**	.57**	.79**	.59**	.56**	.79**	.74**	.43**	.64**
SS	.26*	.24*	.02	.29*	.18	.06	.28*	.36**	.31**	.22
EI	.59**	.41**	.46**	.66**	.47**	.36**	.69**	.60**	.36**	.57**
US	.29*	.20	.25*	.33**	.34**	.22	.43**	.40**	.41**	.47**
ET	.56**	.35**	.59**	.60**	.58**	.56**	.58**	.53**	.35**	.67**
IS	.58**	.41**	.52**	.67**	.54**	.52**	.70**	.59**	.32**	.63**

Note: * $p \leq .01$; ** $p \leq .001$. $N = 107-118$. S2 = clinical sample, $N = 66-78$. Schemas: ED = emotional deprivation, AB = abandonment, M/A = mistrust/abuse, SI = social isolation, DS = defectiveness shame, DSSI = DS + social undesirability, F = failure, DI = dependence/incompetence, V = vulnerability to harm/illness, EM = enmeshment, SU = subjugation, SS = self-sacrifice, EI = emotional inhibition, US = unrelenting standards, ET = entitlement, IS = insufficient self-control. Underlying beliefs: PAR = paranoid, SZD = schizoid, ATS = antisocial, BOR = borderline, HST = histrionic, NAR = narcissistic, AVD = avoidant, DEP = dependent, CMP = obsessive-compulsive, PAS = passive aggressive.

Table 5. Pearson r correlations: PBQ beliefs and YSQ schemas in S2 (clinical sample)

	PAR	SZD	ATS	BOR	HST	NAR	AVD	DEP	CMP	PAS
ED	.25	.20	.31*	.36*	.29	.20	.34*	.26	.17	.18
AB	.28	.30*	.45**	.44**	.33*	.20	.44**	.38**	.37**	.40**
MA	.46**	.31*	.40**	.57**	.39**	.13	.39**	.40**	.35*	.38**
SI	.56**	.46**	.48**	.49**	.36**	.26	.41**	.19	.17	.47**
DS	.57**	.40**	.35*	.48**	.33*	.15	.30*	.23	.16	.31*
DSSU	.53**	.44**	.42**	.54**	.46**	.29*	.45**	.35*	.35*	.43**
F	.23	.10	.30*	.29	.30*	.15	.24	.31*	.27	.36**
DI	.39**	.29	.26	.54**	.31*	.25	.40**	.42**	.19	.37**
V	.48**	.47**	.43**	.52**	.34*	.35*	.47**	.53**	.48**	.50**
EM	.25	.34*	.23	.38*	.38**	.42**	.28	.34*	.23	.27
SU	.37**	.31*	.26	.58**	.26	.26	.48**	.38**	.30*	.47**
SS	.18	.29	.02	.30	.05	.08	.34*	.29	.35*	.35*
EI	.38**	.22	.23	.42**	.28	.33*	.37**	.21	.21	.21
US	.40**	.21	.21	.42**	.23	.20	.33*	.23	.26	.30*
ET	.52**	.46**	.37**	.47**	.22	.29	.44**	.21	.05	.29
IS	.49**	.36*	.39**	.45**	.25	.17	.37**	.27	.17	.36*

Note: * $p \leq .01$; ** $p \leq .001$. $N = 66-78$. Schemas: ED = emotional deprivation, AB = abandonment, M/A = mistrust/abuse, SI = social isolation, DS = defectiveness shame, DSSI = DS + social undesirability, F = failure, DI = dependence/incompetence, V = vulnerability to harm/illness, EM = enmeshment, SU = subjugation, SS = self-sacrifice, EI = emotional inhibition, US = unrelenting standards, ET = entitlement, IS = insufficient self-control. Underlying beliefs: PAR = paranoid, SZD = schizoid, ATS = antisocial, BOR = borderline, HST = histrionic, NAR = narcissistic, AVD = avoidant, DEP = dependent, CMP = obsessive-compulsive, PAS = passive aggressive.

DISCUSSION

The results indicated that maladaptive schemas and dysfunctional beliefs are related to personality traits in somewhat different ways. Specifically, schemas are related to personality traits in a manner that provides information regarding overall distress or impairment, and this is more salient in the student sample compared to the clinical sample. Dysfunctional beliefs underlying PDs provide similar information but with more specificity in both samples. Limitations regarding the utility of the YSQ and PBQ scales should be considered in light of these findings. These relationship patterns were evident in both samples, though not as strong in the clinical sample. The inclusion of a student and clinical sample in the present study allows for greater breadth of examination as researchers have called for investigation of the PBQ in nonclinical samples (e.g., Bhar et al., 2012). Research has suggested that the structure of the PBQ may differ between clinical and nonclinical samples and further validation studies are needed in nonclinical samples compared to clinical samples. While the current study did not examine the structure of the PBQ between samples, the data provide information regarding PBQ means and correlations with the YSQ in a clinical and nonclinical sample. The results within the student sample seem to suggest less specificity (see Tables 4 and 5). This perhaps reflects that these measures function differently in nonclinical samples. Within the clinical sample, the data suggest that the PBQ scales may provide more specific information relative to certain PDs as there were fewer significant associations between each schema/belief scale and FFM domain. The results in the current study can provide clinically relevant information related to assessment and cognitive treatment for PDs. Future research should examine the factor structure of the PBQ across samples to further clarify these relationships.

Maladaptive Schemas and Personality Traits

The FFM domains and YSQ scales were highly related in the student sample, particularly in the neuroticism, extraversion, and conscientiousness domains. The clinical sample, while exhibiting fewer significant relationships, demonstrated that the schemas were associated with some of the same domains that are often related to PDs (e.g., conscientiousness, agreeableness). The pattern of results in the student sample are consistent with previous studies (Bahramizadeh & Ehsan 2011; Muris, 2006; Thimm, 2010) that have

demonstrated strong convergence between neuroticism and early maladaptive schemas. These relationships are not surprising given that neuroticism and maladaptive schemas are associated with psychopathology and distress; however, the specificity of the schemas to certain personality traits or problems is limited due to the high number of relationships. This does not suggest that early maladaptive schemas are not useful, rather they may have more utility in assessing for general distress and may not be specific to certain types of personality pathology. The relationships between the schemas and personality traits (e.g., many overlapping relationships) do not lend themselves to smooth incorporation into a classification model for PDs. Further, the lack of relationships in the clinical sample is surprising and warrants further research and investigation.

Consistent with the existing body of literature on early maladaptive schemas, there are some discrepancies regarding the schema and personality domain relationships. Some associations that would be anticipated based on previous literature were not significant. For example, subjugation would be expected to be positively related to agreeableness; however, this relationship was not significant in either sample. This is not inconsistent with other studies that have failed to find a large relationship between the general personality trait of agreeableness and variants of submissiveness (e.g., Gore, Presnall, Miller, Lynam, & Widiger, 2012). However, when using maladaptive variants of agreeableness, the relationship of agreeableness with submissiveness-related traits tends to be stronger, as can be seen in Gore et al. (2012). Examining schemas in the context of maladaptive agreeableness may clarify this relationship. Similarly, unrelenting standards was not significantly related to conscientiousness in either sample, which is surprising based on the definition of the schema and with previous findings. However, this may be due, in part, to the limited assessment of maladaptivity of high conscientiousness by the NEO PI-R. On the other hand, Cramer, Torgersen, and Kringlen (2006) noted that OCPD had no reduction or impact on quality of life, perhaps suggesting a weaker link between this PD and dysfunction or schemas (if the YSQ is also measuring overall distress).

Dysfunctional Beliefs and Personality Traits

When examining the specific PBQ belief sets in relation to the personality domains, it is evident that avoidant, paranoid, and borderline PD have the most consistent relationships with the FFM domains (neuroticism, extraversion, and

conscientiousness) in both samples, suggesting that those PD-based beliefs are closely associated with certain personality domains. Some of these relationships (e.g., borderline with conscientiousness, paranoid with neuroticism and extraversion) are consistent with the literature on personality domains and DSM PDs (see Samuel & Widiger, 2008; Saulsman & Page, 2004).

There are also consistencies with other research examining PDs and related impairment. In comparison with the other categorical PDs, avoidant, paranoid, and borderline PDs are associated with the biggest reduction in quality of life (Cramer et al., 2006). The OCPD and histrionic PBQ scales were not related to any FFM domains in the clinical sample, again consistent with the research on these PDs in relation to little reduction in quality of life (Cramer et al., 2006). This finding also aligns with the results regarding conscientiousness and unrelenting standards within the YSQ. Similar findings were present in the student sample with the exception of histrionic PD's relationship to openness to experience and agreeableness. Compared with the YSQ-FFM relationships, there are fewer associations between the PBQ and personality domains, perhaps suggesting that the PBQ beliefs may be more specific to particular areas of personality traits or pathology, particularly within the clinical sample.

Across both samples, the YSQ schemas were related with many PBQ belief sets and neuroticism, perhaps suggesting that the schemas are associated with personality pathology or distress/impairment in general, and may not be specific to certain PDs. Therefore, schemas may provide beneficial information in the assessment phase of treatment for identifying the level of general distress associated with personality pathology and other psychiatric disorders. However, if seeking specific pathological beliefs to target in treatment that relate to one's personality pathology and current problems in living, the dysfunctional beliefs (PBQ) may be a better option. This idea may also be supported by the lack of relationships between histrionic and OCPD beliefs scales and the FFM as the literature has indicated these PDs are not associated with significant impairments in quality of life (e.g., Cramer et al., 2006). However, the histrionic and OCPD belief scales were related to many maladaptive schemas in the current study, which would be expected if the schemas assess broader distress or impairment. The association between schemas and distress has also been documented in recent research, including a treatment study that found early maladaptive schemas were predictive of general distress during and after treatment (Schapp, Chakhssi, & Westerhof, 2016).

The current study may also have useful treatment implications. Just like treatment can be targeted or tailored based on personality traits (Presnall, 2013; Sanderson & Clarkin, 2013), treatment can also be tailored or individualized by targeting specific schemas and dysfunctional beliefs. Further, the literature has suggested that personality traits and schemas offer unique information about PDs (Thimm, 2011). While the PBQ and YSQ measures are not designed to diagnose PDs, they likely have utility in providing important information and data to clinicians regarding potential diagnoses and areas for growth in treatment. Beck et al. (2001) discussed how the early identification of beliefs or schemas can assist in focusing treatment in an efficient manner. The identification of dysfunctional beliefs can launch treatment from a cognitive perspective, and can assist clinicians and clients to collaboratively and efficiently target treatment efforts. This aligns with schema therapy, which is an extension of cognitive-behavioral therapy that identifies and confronts early maladaptive schemas (Young et al., 2003). Schema therapy was developed in order to address disorders with rigid and chronic characteristics, such as personality disorders (Young & Lindemann, 1992). As recommended by Young and colleagues (2003), the YSQ is incorporated into treatment after the first or second session. Following completion of the YSQ, the therapist can look for patterns of items endorsed within each schema group, and can discuss the relevance of the schema and provide education about the schema. The client and therapist can connect the schemas to the client's current difficulties and life history as a part of treatment.

However, within the current study, the lack of conclusive evidence regarding the manner or pattern in which schemas and PDs are related is problematic and could potentially limit the effectiveness of treatment and delay time to symptomatic relief for the client. Additionally, since the current measure of maladaptive schemas (YSQ) includes behaviors and symptoms in addition to maladaptive beliefs, the PBQ may be preferred for this integration of personality and beliefs in treatment. The YSQ may complicate the process of intertwining beliefs and traits into a comprehensive model (e.g., Beck et al., 2001; Bhar et al., 2012).

More research is necessary to compare the utility of schemas and other key factors (e.g., individual personality traits) due to recommendations in the literature to incorporate personality traits (Harkness & Lilienfeld, 1997; Krueger & Eaton, 2010; Lengel, Helle, DeShong, Meyer, & Mullins-Sweatt, in press; Widiger & Mullins-Sweatt, 2009) and schemas into therapy and treatment planning for PDs (Hopwood et al., 2013; Young et al., 2003). Additionally, integrating schemas, personality traits, and other interpersonal

factors may be more beneficial compared to the use of DSM categories for educating individuals about their diagnosis and treatment, and for the treatment itself (Ball & Cecero, 2001). Recent research (Hopwood et al., 2013) supports the inclusion of the PBQ beliefs within dimensional models of personality (e.g., FFM and the DSM-5 Section III alternative dimensional model). The current study provides further evidence for the relationship between the PBQ and dimensional models of personality, and also extends to include a comparison to an alternative measure (i.e., YSQ). With that said, there is little research directly comparing the PBQ with the FFM or the DSM-5 dimensional model, therefore, future research is needed in this area prior to inclusion within a classification model. Future studies should also focus on how to best incorporate these models in clinical practice.

Limitations and Future Directions

While examining maladaptive variants of the FFM personality traits may have strengthened the results of the current study, the results using general traits (e.g., NEO PI-R) provide a good basis for the associations between dysfunctional beliefs and a well-validated model of personality. To address the potential limitations arising from using a measure of general personality, future research should examine these variables with a measure of maladaptive personality traits (e.g., Personality Inventory for DSM-5; Krueger, Derringer, Markon, Watson, & Skodol, 2013; Five Factor Borderline Inventory, Mullins-Sweatt et al., 2012). This may be most relevant to the clinical sample, as they potentially have more extreme or maladaptive variants of the personality traits assessed in the current study. However, research has shown that general personality traits are related to PDs and can provide a full picture of a client in terms of strengths and weaknesses, so they still provide relevant information within nonclinical samples. Future research should examine and discuss the clinical utility of including maladaptive schemas and personality traits in practice, and the best way to implement these tools when working with a variety of clients. The sole use of self-report methods is a limitation of the current study. Informant report or interview measures could provide more comprehensive and rich data regarding the associated impairment. Further, including measures of problems in living or specific areas of dysfunction could further clarify the relationships between the traits and maladaptive underlying beliefs.