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# MALADAPTIVE PERSONALITY FUNCTIONING WITHIN THE BIG FIVE AND THE FIVE-FACTOR MODEL

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The five-factor model (FFM) of general personality functioning was derived originally from lexical studies of trait terms within the English language. Many studies have been conducted on the relationship of the FFM to personality disorder symptomatology but, as yet, no lexical study of the representation of maladaptive personality functioning within a language has been conducted. The current study identified the distribution of socially undesirable trait terms within each of the poles of the Big Five and compared this distribution to findings obtained with FFM personality disorder measures. The implications of the results for a FFM of personality disorders and for the FFM assessment of maladaptive personality functioning are discussed.

The conceptualization of personality disorders in the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 2000) "represents the categorical perspective that Personality Disorders are qualitatively distinct clinical syndromes" (p. 689). Researchers, however, have raised compelling concerns regarding the validity of this categorical model (Clark, Livesley, & Morey, 1997; Livesley, 1998; Widiger, 1993) and have offered alternative dimensional models (Clark, 1993a; Cloninger, 2000; Livesley, Jang, & Vernon, 1998; Widiger & Costa, 1994).

One such alternative is the five-factor model (FFM). The FFM was derived originally from studies of the English language in an effort to identify the domains of general personality functioning most important in describing the personality traits of oneself and other persons (John & Srivastava, 1999). This lexical research has emphasized five broad domains of personality, identified by Goldberg (1992, 1993) as surgency, agreeableness, conscientiousness, emotional instability, and intellect.

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## FFM PERSONALITY DISORDER RESEARCH

Wiggins and Pincus (1989) were the first to provide published data concerned with the relationship of the FFM to the APA (1980, 1987) personality disorder symptomatology, although many previous FFM studies had also provided data relevant to the question of whether the FFM includes clinically relevant maladaptive personality traits (McCrae, Costa, & Busch, 1986). Since the original effort of Wiggins and Pincus, over 50 published studies have shown relations between the FFM and the personality disorder symptomatology (Widiger & Costa, 2002).

FFM personality disorder research has suggested that both poles of all five domains of the FFM may contain at least some form of maladaptivity. Maladaptivity is readily apparent with respect to high neuroticism (correlated with the borderline and most other personality disorders), although low neuroticism has also been associated with both narcissistic and psychopathic personality traits (Miller, Lynam, Widiger, & Leukefeld, 2001; Costa & McCrae, 1990). Introversion has been associated with schizoid and avoidant symptomatology (Costa & McCrae, 1990; Trull et al., 1998), whereas extraversion has been associated with histrionic (Hyer et al., 1994; Trull et al., 1998). Antagonism has been associated with a number of personality disorders (i.e., antisocial, borderline, paranoid, narcissistic, and passive-aggressive) but studies have also reported an association of agreeableness with dependency (Costa & McCrae, 1990; Hyer et al., 1994; Dyce & O'Connor, 1998). Low conscientiousness has been consistently associated with antisocial, passive-aggressive, and borderline personality traits but studies have also reported that high conscientiousness is associated with obsessive-compulsive personality traits (Costa & McCrae, 1990; Soldz, Budman, Demby, & Merry, 1993; Hyer et al., 1994; Dyce & O'Connor, 1998). The FFM domain of openness to experience has not received equally consistent support for the presence of maladaptive traits (Clark, 1993b; Livesley et al., 1998), although studies have reported that closedness to experience is associated with alexithymia (Luminet, Bagby, Wagner, Taylor, & Parker, 1999; Wise, Mann, & Shay, 1992) and high openness with schizotypal thinking (Trull, Widiger, & Burr, 2001; Wiggins & Pincus, 1989).

## FFM AND BIG FIVE

If the validity of the FFM of personality disorder is supported in part by the validity of the lexical paradigm, then it is important to document that the maladaptive personality functioning associated with FFM measures is consistent with findings obtained in lexical studies. FFM questionnaire research, however, does not provide direct, and may not even provide relevant, data concerning the lexical Big Five model of personality (Block, 1995). The distribution of undesirable personality traits within the language, for example, may not in fact parallel findings obtained from FFM questionnaires. Both high and low scores on measures of the FFM domains have obtained significant correlations with maladaptive personality functioning, although there may not be undesirable trait terms within both poles of the lexical Big Five.

Most FFM personality disorder research has used as a measure of the FFM either the NEO Five Factor Inventory (NEO-FFI), the NEO Personality Inventory (NEO-PI), or the NEO Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1992). Widiger and Costa (2002) identified 56 FFM personality disorder studies, 40 of which used either the NEO-FFI, the NEO-PI, or the NEO-PI-R, and the representation of maladaptive personality functioning within the NEO-PI-R may not correspond to the representation of maladaptive personality traits within the language. Saucier and Goldberg (1996) have even suggested that the expression "Big Five" be restricted to studies within the lexical tradition, and the expression "five-factor model" be restricted to studies involving questionnaires, such as the NEO-PI-R, to provide a clear and explicit distinction between lexical studies of the language and studies based on derivative questionnaires. The validity of the NEO-PI-R does not necessarily depend, of course, on its correspondence with or representation of the lexical Big Five (Costa & McCrae, 1992; McCrae & Costa, 1999); however, the FFM and the Big Five are generally presented as complementary, closely aligned, and conceptually integrated models of personality structure (Digman, 1990; John & Srivastava, 1999; Wiggins, 1996). The construct validity of the NEO-PI-R FFM model of maladaptive personality functioning would be supported if the representation of maladaptive personality functioning within the NEO-PI-R closely corresponded with the representation of maladaptive personality functioning within the lexical Big Five.

There are reasons to be concerned that a close correspondence between the lexical Big Five and the NEO-PI-R FFM might not always be obtained, however. The first three scales of the NEO-PI-R (i.e., neuroticism, extraversion, and openness) were developed before the authors' interest in assessing the lexical Big Five (Costa & McCrae, 1976, 1978); thus, the constructs measured are not identified by the same names. Costa and McCrae (1992) describe the FFM as consisting of extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience, whereas Goldberg (1992, 1993) refers to the respective domains as surgency, agreeableness, conscientiousness, emotional instability, and intellect. Costa and McCrae use the terms provided by Goldberg only for the two domains added when the original NEO was revised to include the two additional Big Five constructs (Costa & McCrae, 1976, 1978, 1985). It is then quite possible that the maladaptive personality functioning represented with the FFM domains of extraversion, openness, and neuroticism do not correspond well to the representation of maladaptive personality functioning within the Big Five domains of surgency, intellect, and emotional instability, respectively.

In addition, Haigler and Widiger (2001) reported that tests of FFM hypotheses concerning maladaptive variants of high agreeableness, high conscientiousness, and high openness have obtained inconsistent results in part because of a relatively weaker representation by the NEO-PI-R of the maladaptive variants of these poles of the FFM domains. They reported that only 2% of the NEO-PI-R items keyed for low neuroticism, 10% of the items keyed for high extraversion, 12% of the items keyed for high openness, 17% of the items keyed for high agreeableness, and 10% of the items keyed for high conscientiousness described maladaptive, undesirable behavior. They

indicated further that the hypotheses of Widiger and Costa (1994) concerning the relationship of (a) FFM agreeableness with dependent personality disorder symptomatology; (b) FFM openness with schizotypal symptomology; and (c) FFM conscientiousness with obsessive-compulsive symptomatology were confirmed when maladaptive variants of the respective NEO-PI-R items were used.

## BIG FIVE PERSONALITY DISORDER RESEARCH

A considerable amount of lexical Big Five data have been published (Goldberg, 1992, 1993; Saucier & Goldberg, 1996) but no data concerning the distribution of maladaptive or socially undesirable trait terms within the Big Five lexicon have ever been reported. Encouraging results though have been obtained from studies that have used adjective checklists constructed to represent Big Five constructs.

Using a very abridged list of only 28 markers of the Big Five, Blais (1997) had clinicians attending a workshop on personality disorders describe one of their patients in terms of the Big Five domains and in terms of the DSM-III personality disorders (APA, 1980). He reported that three of the five domains (surgency, agreeableness, and conscientiousness) correlated both positively and negatively with personality disorder symptomatology. For example, (a) surgency correlated positively with narcissistic and histrionic symptomatology and negatively with avoidant, schizotypal, and schizoid symptomatology; (b) conscientiousness correlated positively with obsessive-compulsive and negatively with antisocial and borderline; and (c) agreeableness correlated positively with dependent and negatively with antisocial, narcissistic, and paranoid symptomatology. However, only positive correlations were obtained for emotional instability (borderline, avoidant, and dependent) and only one negative correlation (with antisocial) was obtained for intellect.

Soldz et al. (1993) examined the correlations between personality disorder symptomatology and the Big Five, with the latter assessed by the 50-Bipolar Rating Scale (50-BSRS; Goldberg, 1992) that includes 100 of Goldberg's (1982) extensive pool of 1,710 trait terms. In this study, both poles of all five domains demonstrated at least some correlations with maladaptive personality functioning. For example, surgency was negatively correlated with the schizoid, schizotypal, avoidant, and obsessive-compulsive personality disorders and was positively correlated with the histrionic, narcissistic, and antisocial personality disorders. Conscientiousness was negatively correlated with the histrionic, antisocial, and borderline personality disorders, and positively correlated with the compulsive personality disorder. Emotional instability was positively correlated with the paranoid, schizoid, schizotypal, histrionic, antisocial, borderline, avoidant, and dependent personality disorders and negatively correlated with the narcissistic personality disorder.

A study by Clark, Vorhies, and McEwen (2002) included both a measure of the Big Five (i.e., 80 trait terms identified as potential markers by Goldberg [1992,1993]) and the FFM (i.e., NEO PI; Costa & McCrae, 1985), along with the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark,

1993a). The inclusion of measures of both the Big Five and the FFM provided the potential for comparing directly whether results obtained for the FFM would generalize to the Big Five. Replication was obtained for all five domains. More specifically, (a) FFM extraversion and Big Five surgency, (b) FFM openness and Big Five intellect, and (c) FFM and Big Five conscientiousness all obtained positive and negative correlations with the same SNAP maladaptive personality scales. FFM neuroticism and Big Five emotional instability both correlated positively with the same SNAP scales; FFM and Big Five agreeableness both correlated negatively with the same SNAP scales. Clark et al. (1993a) indicated that a number of additional correlations were also obtained with the Goldberg (Big Five) and NEO-PI (FFM) scales, suggesting, for example, the possibility that both FFM neuroticism and Big Five emotional instability might have correlated negatively with one or more SNAP scales (although not the same SNAP scales) but specific details concerning these additional results were not provided.

Wiggins and Pincus (1989) also included a measure of the FFM (NEO-PI; Costa & McCrae, 1985) and a measure of the Big Five (Interpersonal Adjective Scales Revised-Big Five [IASR-B5]; Wiggins & Trobst [2002]), along with two personality disorder measures. They submitted the Big Five, FFM, and personality disorder measures to a joint factor analysis. The results indicated convergence across the Big Five and FFM measures as both loaded on each of the five extracted factors. In addition, the factors of extraversion/surgency, agreeableness, conscientiousness, and neuroticism/emotional instability each obtained both positive and negative personality disorder factor loadings. For example, the histrionic and narcissistic personality disorders loaded positively on the surgency/extraversion factor, whereas the schizoid loaded negatively; the dependent loaded positively on the agreeableness factor, whereas the antisocial, paranoid, and narcissistic loaded negatively. The compulsive personality disorder loaded positively on the conscientiousness factor, whereas the antisocial and passive-aggressive loaded negatively. Finally, the narcissistic and antisocial personality disorders loaded negatively on the neuroticism/emotional instability factor, whereas the borderline, dependent, avoidant, and compulsive loaded positively. The intellect/openness factor obtained only positive factor loadings (for schizotypal scales); however, on examination of the bivariate correlations, negative correlations were found for the compulsive, schizoid, and avoidant personality disorders with NEO-PI openness (the bivariate correlations for the IASR-B5 intellect scale were not reported).

One can infer support from the adjective checklist studies for the hypothesis that both poles of all Big Five domains may have at least some implications for maladaptivity, consistent with findings obtained with measures of the FFM. However, the precise distribution of maladaptivity across the poles of the Big Five is difficult to infer from this research. The prior research has also been limited substantially by the absence of more comprehensive assessments of the Big Five domains, relying instead on substantially abbreviated measures. For example, the most exhaustive and explicit measure of the Big Five domains used in the prior research was the 50-BSRS (Goldberg, 1992, 1993), which is still confined to just 100 of Goldberg's (1982) more comprehensive pool of 1,710 trait terms. It is possible that the abbreviated

measures fail to provide an adequate representation of the maladaptivity present within one or more of the poles of the Big Five.

It is the hypothesis of the current study that the distribution of undesirable trait terms within the English language will correspond closely to the distribution of undesirable or maladaptive items within the NEO-PI-R FFM scales. More specifically, it is hypothesized that undesirable trait terms will be present in both the high and low poles of each domain of the Big Five and will be distributed in a manner consistent with the distribution of maladaptive, undesirable items within the NEO-PI-R. For example, Haigler and Widiger (2001) determined that 17% of the trait terms coded for high agreeableness within the NEO-PI-R refer to maladaptive or socially undesirable agreeableness. It is therefore hypothesized that approximately 17% of the trait terms within the English language that refer to traits of agreeableness will be rated as being socially undesirable.

## METHOD

The results of this study are based in part on social desirability ratings of the 1,710 trait terms included within the Big Five by Goldberg (1982) that had been obtained in two previous data collections (i.e., Norman [1963, 1967]; Sankis Corbitt, & Widiger [1999]) and the unpublished coding of each term with respect to the Big Five (Saucier & Goldberg, 2002). The only findings from these data collections previously reported are the correlations of the social desirability ratings with one another and with measures of gender by Sankis et al. (1999). The relationship of the social desirability ratings of the 1,710 trait terms with their respective locations within the Big Five have not been previously considered.

### SANKIS ET AL. (1999) SOCIAL DESIRABILITY RATINGS

The methodology for the data collection of Sankis et al. (1999) has been previously reported and will only be summarized briefly here. Sankis et al. obtained ratings of social desirability for each of the 1,710 trait terms identified by Goldberg (1982) by 461 male and female introductory psychology college students attending a large southeastern university in the 1990s. Because it was believed that fatigue might compromise the validity of a person rating all of the 1,710 terms, the terms were divided into 14 lists of 120 terms each and one list of only 30 terms. Each list was arranged alphabetically and each participant was asked to complete only one list of terms. The instructions were as follows:

> On the following pages are characteristics of people. Indicate on a scale from 1 to 9 *how desirable* you think each trait or characteristic is for an adult person: 1 = Very undesirable, 3 = Undesirable, 5 = Neutral, 7 = Desirable, 9 = Very desirable. Use any number from 1 through 9 (i.e., 1, 2, 3, 4, 5, 6, 7, 8, or 9) that best indicates your opinion regarding how desirable that trait is. If you do not know the meaning of the word, then provide a score of zero (0) on the answer sheet. If the word is neutral (i.e., neither desirable nor undesirable), then provide a score of 5. Scores of 1 through 4 indicate that the trait is undesirable; *scores of 6 through 9*

> *indicate that the trait is desirable.* Take your time, please, and carefully consider each word. (Sankis et al., 1999, p. 1290)

Ratings were provided by students fulfilling requirements for research participation. The number of students who provided a rating for each term ranged from 29 to 37; each group was approximately 43% male and 57% female (ratings were collapsed across sex of participants). The mean social desirability rating obtained for each term was used in the analyses of the current study.

### NORMAN (1967) SOCIAL DESIRABILITY RATINGS

Participants in Norman (1963, 1967) were male and female college students attending a large midwestern university in the 1960s who were asked to indicate on a 9-point scale, "how desirable or undesirable you feel it is for others to be or act this way," where 1 = very undesirable, 3 = moderately undesirable, 5 = neutral, 7 = moderately desirable, and 9 = very desirable. Each student was provided with 1,666 of the 1,710 trait terms of Goldberg (1982). The social desirability ratings provided by the Sankis et al. (1999) southeastern college students correlated .90 with the social desirability ratings provided by Norman's male college students and .87 with his female college students. The correlation between the ratings by the male and female participants of Norman (1967) was .92.

### BIG FIVE CODING

Goldberg has also developed a factor analytically based coding scheme that classifies each member of his 1,710 trait term pool as being high or low on one or two of the five domains (Saucier & Goldberg, 2002). Each term is given a code to designate its position in Big Five space (I = surgency, II = agreeableness, III = conscientiousness, IV = emotional instability, and V = intellect). For example, the term "warm" is coded as II+/I+. This means that the term "warm" has a primary loading on the high pole of agreeableness and a secondary loading on the high pole of surgency. This coding system was quantified in the current study to analyze empirically the relationship of social desirability to a term's location within the Big Five lexicon. For example, the term "warm" received a score of 1, 2, 0, 0, 0 for the surgency, agreeableness, conscientiousness, emotional instability, and intellect Big Five domains, respectively (i.e., primary loading on the second factor of agreeableness, secondary loading on the first factor of surgency, and no loading on any other domain).

## RESULTS

Sankis et al. (1999) developed cut-off scores to classify terms as desirable, undesirable, or neutral (i.e., undesirable = less than 4.5 on the social desirability scale, neutral = scores from 4.5 to 5.4, desirable = scores of 5.5 or higher). Table 1 provides the distribution of desirable and undesirable trait terms for each pole of each domain of the Big Five. It is apparent that each of

**TABLE 1. Distribution of Desirable and Undesirable Trait Terms Across Poles of the Big Five**

| | Big Five Domain and Polarity | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | S | | A | | C | | EI | | I | |
| | High | Low | High | Low | High | Low | High | Low | High | Low |
| Desirable | 95 | 15 | 146 | 6 | 96 | 5 | 49 | 140 | 62 | 5 |
| Undesirable | 71 | 126 | 24 | 226 | 24 | 140 | 73 | 12 | 22 | 85 |

*Note.* S = surgency; A = agreeableness; C = conscientiousness; EI = emotional instability; I = intellect. Three–way $\chi^2$ for desirability, polarity, and domain = 706.1, df = 13, $p < .001$; Two–way $\chi^2$ for desirability and polarity within each domain = 72.0, df = 1, $p < .001$ (surgency); 289.5, df = 1, $p < .001$ (agreeableness); 163.1, df = 1, $p < .001$ (conscientiousness); 85.3, df = 1, $p < .001$ (emotional instability); 85.5, df = 1, $p < .001$ (intellect).

the 10 poles of the five domains of the Big Five does contain at least some undesirable trait terms. Table 2 provides examples of undesirable trait terms from each pole of the Big Five.

It is also apparent, however, that the distribution of undesirable and desirable trait terms is not consistent across the poles of the Big Five. $\chi^2$ analysis indicates the presence of a significant three-way interaction of desirability, domain, and polarity ($\chi^2 = 706.1$, df = 13, $p < .001$). Two-way $\chi^2$ analyses of desirability and polarity are also provided in Table 1 within each of the five domains. There are substantially more undesirable (and fewer desirable) trait terms in the low poles than in the high poles of surgency, agreeableness, conscientiousness, emotional stability, and intellect.

To determine whether the distribution of desirable and undesirable trait terms within the domains of the Big Five is consistent with the proportion of adaptive and maladaptive items within the NEO-PI-R domain scales, the correlation between the proportion of undesirable trait terms in the Big Five domains and within the NEO-PI-R domain scales was obtained (neutral terms were excluded from these analyses because no NEO-PI-R items were coded as neutral by Haigler & Widiger [2001]). The correlation between the proportion of undesirable trait terms in each of the 10 poles in the Sankis et al. (1999) data set and in the NEO-PI-R was .92 ($p < .01$). For example, it is evident that the proportion of terms describing low levels of surgency, agreeableness, conscientiousness, emotional instability, and intellect that are socially undesirable (i.e., 89%, 97%, 97%, 40%, and 94%, respectively) matches closely the proportion of NEO-PI-R items describing low levels of extraversion, agreeableness, conscientiousness, neuroticism, and openness that are maladaptive or socially undesirable (i.e., 90%, 83%, 90%, 2%, and 88%, respectively). However, it should be noted that there were higher proportions of undesirable trait terms characterizing low levels of emotional instability (40%) and high levels of surgency (57%) than socially undesirable, maladaptive items within the NEO-PI-R for the characterization of low neuroticism (2%) and high extraversion (10%).

Tables 3 and 4 provide the distribution of desirable and undesirable items within the Big Five domains provided by the male and female college students, respectively, of Norman (1976). Undesirable trait terms were again identified for each of the 10 poles of the Big Five. In addition, the distribu-

**TABLE 2. Examples of Undesirable Trait Terms from each Pole of the Big Five**

| Pole | Surgency | Agreeableness | Conscientiousness | Emotional Instability | Intellect |
|---|---|---|---|---|---|
| High | Long–Winded | Deceivable | Leisureless | Anxious | Impious |
| | Blustery | Dependent | Overbookish | Defensive | Overindulgent |
| | Exaggerative | Ingratiating | Overcautious | Hypersensitive | Rebellious |
| | Flaunty | Soft–Shelled | Stringent | Moody | Unconformable |
| | Showy | Transparent | Tight | Self–Destructive | Unconventional |
| Low | Aloof | Deceitful | Careless | Conscienceless | Closed–Minded |
| | Humorless | Heartless | Disorderly | Emotionless | Dogmatic |
| | Introverted | Lecherous | Heedless | Inexcitable | Prejudiced |
| | Reclusive | Treacherous | Reckless | Inhuman | Unimaginative |
| | Somber | Violent | Wasteful | Unemotional | Unreflective |

tion of terms was again inconsistent across the poles in a manner that paralleled the distribution of socially undesirable, maladaptive items within the NEO-PI-R. For example, the male raters considered 90%, 94%, 99%, 97%, and 97% of the trait terms for low surgency, low agreeableness, low conscientiousness, high emotional instability, and low intellect, respectively, to be socially undesirable; the percentages for the female raters were 88%, 98%, 97%, 97%, and 94%, respectively. The correlation between the proportion of socially undesirable trait terms and NEO-PI-R across all 10 poles of the Big Five and FFM was .96 for the male raters and .95 for the female raters. However, it should again be noted that the proportion of high surgency and low emotional instability trait terms considered to be socially undesirable by the male raters (33% and 30%, respectively) and by the female raters (41% and 33%, respectively) were considerably higher than the proportion of extraversion and neuroticism items reported by Haigler and Widiger (2001) to be maladaptive or socially undesirable (10% and 2%, respectively).

## DISCUSSION

The FFM was derived originally from studies of the English language for the purpose of identifying the domains of general personality functioning that would be most important in describing the personality traits of oneself and other persons (John & Srivastava, 1999). The lexical paradigm has hypothesized that (a) personality traits have been encoded within the language; (b) the most important traits for the description of self and others are represented by the most number of trait terms; and (c) a meaningful, descriptive personality structure can be derived from the relationships among these trait terms (Goldberg, 1992, 1993). Lexical studies of English and other languages have identified five broad domains of personality, identified by Goldberg as surgency, agreeableness, conscientiousness, emotional instability, and intellect (McCrae & Allik, 2002).

The FFM domains of personality have been shown to be effective for integrating the seemingly disparate personality studies of children, the elderly, gender, health psychology, industrial-organization psychology, and even animal spe-

**TABLE 3. Distribution of Desirable and Undesirable Trait Terms across Poles of the Big Five: Ratings by Male Students obtained by Norman (1967)**

| | Big Five Domain and Polarity | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | S | | A | | C | | EI | | I | |
| | High | Low | High | Low | High | Low | High | Low | High | Low |
| Desirable | 72 | 8 | 113 | 9 | 77 | 1 | 24 | 93 | 57 | 2 |
| Undesirable | 35 | 70 | 14 | 152 | 9 | 107 | 57 | 3 | 7 | 64 |

*Note.* S = surgency; A = agreeableness; C = conscientiousness; EI = emotional instability; I = intellect. Three–way $\chi^2$ for desirability, polarity, and domain = 581.6, $df = 13$, $p < .001$; Two–way $\chi^2$ for desirability and polarity within each domain = 59.8.0, $df = 1$, $p < .001$ (surgency); 202.2, $df = 1$, $p < .001$ (agreeableness); 156.4, $df = 1$, $p < .001$ (conscientiousness); 88.7, $df = 1$, $p < .001$ (emotional instability); 97.0, $df = 1$, $p < .001$ (intellect).

cies (Feingold, 1994; Gosling, 2001; McCrae & Costa, 1999; Shiner, 1998). Widiger and Costa (1994) have suggested that the maladaptive personality traits included within the DSM-IV personality disorder diagnostic categories can also be understood from the perspective of the FFM. A considerable amount of FFM personality disorder research has now been conducted (Widiger & Costa, 2002) but this has been confined largely to questionnaire studies. Lexical studies of the representation of maladaptive personality traits within the language itself have not been conducted.

## BIG FIVE AND FFM OF PERSONALITY DISORDER

The results of the current study did confirm the hypothesis that each pole of the Big Five does include at least some undesirable (potentially maladaptive) personality traits, consistent with existing FFM personality disorder research. One can find many trait terms within the extensive Goldberg (1992, 1993) trait term pool that would be closely associated with each of the DSM-IV (APA, 2000) personality disorders; (a) the antisocial personality disorder is represented by such terms as treacherous, deceitful, devious, heartless, pitiless, compassionless, inhumane, unfeeling, warmthless, predatory, devious, and violent; (b) the narcissistic personality disorder by such terms as arrogant, shrewd, manipulative, swell-headed, abrasive, and egocentric; (c) the schizoid personality disorder is represented by such terms as aloof, asocial, distant, humorless, impersonal, introverted, joyless, reclusive, silent, somber, unresponsive, vigorless, and withdrawn; (d) the avoidant personality disorder is represented by such terms as aloof, awkward, bashful, distant, inhibited, introverted, meek, shy, timid, and withdrawn; (e) the histrionic personality disorder is represented by such terms as brazen, broody, exaggerative, exhibitionistic, flaunty, flighty, overemotional, and showy; and (e) dependent personality disorder is represented by such terms as clingy, deceivable, dependent, ingratiating, insecure, self-denying, self-defeating, solicitous, soft-shelled, and weepy.

In addition, it was also apparent from this study that the distribution of undesirable trait terms is not consistent across the poles of the Big Five. Not

**TABLE 4. Distribution of Desirable and Undesirable Trait Terms across Poles of the Big Five: Ratings by Female Students obtained by Norman (1967)**

| | Big Five Domain and Polarity | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | S | | A | | C | | EI | | I | |
| | High | Low | High | Low | High | Low | High | Low | High | Low |
| Desirable | 65 | 11 | 135 | 4 | 70 | 3 | 30 | 107 | 56 | 4 |
| Undesirable | 45 | 79 | 13 | 184 | 17 | 105 | 60 | 3 | 9 | 66 |

*Note.* S = surgency; A = agreeableness; C = conscientiousness; EI = emotional instability; I = intellect. Three–way $\chi^2$ for desirability, polarity, and domain = 658.4, $df = 13$, $p < .001$; Two–way $\chi^2$ for desirability and polarity within each domain = 46.2, $df = 1$, $p < .001$ (surgency); 271.0, $df = 1$, $p < .001$ (agreeableness); 124.1, $df = 1$, $p < .001$ (conscientiousness); 93.8, $df = 1$, $p < .001$ (emotional instability); 88.3, $df = 1$, $p < .001$ (intellect).

surprisingly, there is substantially more socially undesirable trait terms to characterize high, rather than low, emotional instability. In addition, there are more socially undesirable trait terms to characterize (a) low, rather than high, agreeableness, (b) low, rather than high, conscientiousness, (c) low, rather than high, surgency, and (d) low, rather than high, intellect. It is possible, of course, that the findings of this study reflect simply idiosyncratic and subjective biases of the persons who provided the trait term ratings. A language is always in the process of revision by the society in which it is being used and perhaps social desirability ratings of trait terms will vary substantially across time and place. However, the disproportionate representation of trait terms reported in the current study was replicated across gender, across three decades of time, and across southeastern and midwestern college populations. Further support is also provided by an earlier study by Hampson, Goldberg, and John (1987). Hampson et al. obtained social desirability ratings for 444 of Norman's (1967) trait terms from a sample of British adults. Their desirability ratings correlated .96 with those obtained by Norman. Hampson et al. (1987) concluded that "the social desirability values showed exceptional stability both across a 20-year time interval as well as across the two cultures" (p. 1294). It is quite possible that much of the social desirability and undesirability judged by the raters reflect actual differences in the desirability of the traits rather than subjective, idiosyncratic, or biased opinions.

The trait terms within a language do appear to be closely related to actual behaviors (Costa & McCrae, 1995; Goldberg & Saucier, 1995). The presence of a trait term in a language does not necessarily suggest that there is in fact a corresponding phenotypic representation of that trait within the population (Block, 1995). "Lexical representation is not a pure reflection of objective reality" (Saucier & Goldberg, 1996, p. 27). Nevertheless, actual behaviors do appear to be encoded within a language as the persons who create the language develop words to describe the behaviors they observe in themselves and in other persons (Goldberg, 1993). "In cases in which lexical representation is very prominent (such as a large cluster of related words in a language with a large lexicon . . .) the likelihood of objective, real-world reference is very high" (Saucier & Goldberg, 1996, p. 27). The

results of the current study would then suggest, for example, that low agreeableness is relatively less socially desirable (or adaptive) than high agreeableness.

The results of this study also have implications for controversies and issues that currently beset the personality disorder field that could be addressed in future research. For example, one such controversy has been a potential gender bias in the diagnosis of personality disorders (Widiger, 1998). Kass, Spitzer, and Williams (1983) argued that there is no bias in the diagnosis of personality disorders because just as many males are diagnosed with personality disorders as females. However, "in the absence of a comprehensive model of personality disorder pathology it is difficult to determine whether there should be an equal proportion of males and females receiving a personality disorder diagnosis" (Widiger & Spitzer, 1991, p. 18). Differential sex prevalence rates for personality disorders should not be based on a democratic value that the sexes should be diagnosed at an equal rate. The actual differential sex prevalence rate of maladaptive personality functioning should instead be discovered through unbiased epidemiological research. To the extent that the FFM does provide a reasonably comprehensive model of personality functioning (John & Srivastava, 1999; McCrae & Costa, 1999), then the prevalence of personality disorders and gender differences should parallel the representation of maladaptive personality functioning and gender differences within the FFM. For example, consistent gender differences have been obtained for the domain of agreeableness (Costa, Terracciano, & McCrae, 2001; Feingold, 1994) and substantially more socially undesirable trait terms are present within the pole of antagonism than within the pole of agreeableness. A potential implication of this finding is that, at least for the domain of agreeableness versus antagonism, perhaps there should be more personality disorder diagnoses that would apply to males than would apply to females.

A limitation of this study, however, is that ratings of social undesirability by undergraduates may not generalize to professional judgments of clinically significant maladaptivity. Not all socially undesirable behavior will be maladaptive and not all socially desirable behavior will be adaptive. For example, some of the terms classified by the college students as socially undesirable (sassy, noisy, and rambunctious) would probably involve simply behavior that is annoying or troublesome to others, rather than representing behavior that results in a clinically significant impairment in social or occupational functioning warranting the diagnosis of a personality disorder. Nevertheless, there may still be a close association of social undesirability and maladaptivity. There might not be many terms that describe clinically significant impairments in social or occupational functioning that would not be considered to be socially undesirable. It is apparent from the examples given above that many terms rated as undesirable are found within the descriptions of the DSM-IV personality disorders. However, it would be informative for future research to obtain professional judgments of the maladaptivity and adaptivity of the 1,710 trait terms included within Goldberg's (1982) extensive item pool.

## FIVE-FACTOR PERSONALITY DISORDER ASSESSMENT

The results of the current study did indicate that the proportional representation of socially undesirable trait terms within the English language do parallel the proportional representation of socially undesirable and maladaptive items within NEO-PI-R scales. Haigler and Widiger (2001) reported that (a) 90% of the NEO-PI-R items describing low extraversion refer to socially undesirable or maladaptive traits; (b) 83% of the low agreeableness (antagonism) items are undesirable; (c) 90% of the low conscientiousness items are undesirable; (d) 98% of high neuroticism items are undesirable; and (e) 88% of items describing low levels of openness (i.e., closed to experience) are undesirable. The proportion of undesirable trait terms within the English language paralleled these proportions. For example, based on the ratings obtained by Sankis et al. (1999), 89% of the (desirable and undesirable) trait terms describing low surgency are socially undesirable, 97% of the trait terms describing low agreeableness are socially undesirable, 97% of the trait terms describing low conscientiousness are undesirable, 92% of the trait terms describing high emotional instability are undesirable, and 94% of the trait terms describing low intellect are undesirable. However, it should be noted that there were consistently more trait terms within the language to represent undesirably low emotional instability (ranging from 30% to 40% across the three samples) and high surgency (33% to 57%) than there were maladaptive, socially undesirable items within the NEO-PI-R to represent low neuroticism (2%) or high extraversion (10%). Overall, the results of this study do provide construct validity for the disproportionate representation of maladaptive personality functioning within the NEO-PI-R, as the assessment of maladaptive personality functioning by the NEO-PI-R does appear to parallel nicely the representation of maladaptive personality functioning within the Big Five lexicon (with the exceptions of high emotional instability and high surgency).

Nevertheless, the fact that the representation of maladaptive personality functioning within the NEO-PI-R is weighted heavily in favor of high (relative to low) neuroticism, low (relative to high) extraversion, low (relative to high) openness, low (relative to high) agreeableness, and low (relative to high) conscientiousness, does have potentially problematic implications for the assessment of maladaptive personality functioning. For example, hypotheses concerning the maladaptive correlates of high agreeableness are less likely to be confirmed than hypotheses concerning the maladaptive correlates of low agreeableness. This problem could be magnified further if abbreviated measures of the FFM are used, such as the NEO-FFI (Costa & McCrae, 1992), which are likely to provide even less attention to the assessment of maladaptive variants of the FFM.

The current study did not indicate an absence of socially undesirable surgency, agreeableness, conscientiousness, emotional stability, or intellect. On the contrary, the results supported the hypothesis that maladaptivity is evident in all 10 poles of the Big Five and failures to confirm hypothesized relationships between the FFM and personality disorder symptomatology can be due in part to an inadequate coverage of maladaptive personality functioning within existing measures of the FFM.

For example, dependent personality disorder has been hypothesized from the perspective of the FFM to be primarily a maladaptive variant of agreeableness and neuroticism (Widiger, Trull, Clarkin, Sanderson, & Costa, 1994). Existing measures of FFM agreeableness have at times failed to correlate with dependency (Bornstein & Cecero, 2000). Haigler and Widiger (2001), however, indicated that only 17% of the NEO-PI-R items keyed in the direction of high agreeableness concerned maladaptive or socially undesirable traits. When the undesirability of the items of this scale were reversed, substantial correlations of agreeableness with dependent personality disorder symptomatology were replicated across three independent measures of dependent personality disorder.

The NEO-PI-R currently assesses maladaptive agreeableness with as many items as would be suggested by their presence within the Big Five lexicon, although as the FFM is extended to the clinical assessment of personality disorders, the assessment of maladaptive agreeableness might become as clinically and scientifically important as the assessment of maladaptive antagonism. The Big Five domain of intellect is itself relatively smaller (i.e., fewer trait terms) than the Big Five domain of surgency (Saucier & Goldberg, 1996). Nevertheless, just as many items are included within the NEO-PI-R for the assessment of FFM openness as there are items for the assessment of FFM extraversion. If the domain is important enough to include, then it is important enough to be assessed as reliably, validly, and comprehensively as any one of the other four domains of personality functioning. Similarly, although there are fewer trait terms in the language for maladaptive agreeableness than for maladaptive antagonism, maladaptive agreeableness might be as important to assess as reliably, validly, and comprehensively within clinical populations as maladaptive antagonism. Some components of maladaptive agreeableness (dependency) can be of considerable clinical and theoretical importance in personality disorder research (Bornstein, 1992, 1993; O'Neill & Kendler, 1998; Pincus & Wilson, 2001).

Conversely, it may not be realistic to expect any single instrument to provide both the bandwidth of a comprehensive measure of general personality functioning and the fidelity of a sensitive and powerful measure for every specific component of maladaptive personality functioning. Researchers and clinicians whose interest is confined largely to maladaptive personality traits might be well served by using such instruments as the Dimensional Assessment of Personality Disorder Pathology (DAPP-BQ; Livesley et al., 1998) or the SNAP (Clark, 1993a), as these instruments will provide more specific and thorough assessments of maladaptive personality functioning than will be provided by the NEO-PI-R (Clark & Harrison, 2001; Kaye & Shea, 2000). However, researchers and clinicians whose interest also includes general personality functioning, in addition to maladaptive personality traits, might be well served by using such instruments as the NEO-PI-R, as the latter will provide a more thorough coverage of general personality functioning and will indicate the relationship of maladaptive personality functioning to general personality structure.

## CONCLUSIONS

Many studies have been conducted on the relationship of the FFM to personality disorder symptomatology but this research has been confined largely to self-report questionnaire and semistructured interview research. No study of the representation of maladaptive personality functioning within the English language has been conducted. The current study demonstrated that the distribution of socially undesirable traits within the predominant measure of the FFM, the NEO-PI-R (Costa & McCrae, 1992), is largely consistent with the distribution of socially undesirable trait terms within the English language. Nevertheless, the findings of this study also suggested that there may indeed be clinically relevant maladaptive personality functioning at both high and low levels of each of the five domains of the Big Five.

## REFERENCES


American Psychiatric Association. (1980). Diagnostic and statistical manual of mental disorders (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (Rev. 3rd ed.). Washington, DC: Author.

American Psychiatric Association (2000). Diagnostic and statistical manual of mental disorders (4th ed., text revision). Washington, DC: Author.

Blais, M. A. (1997). Clinician ratings of the five-factor model of personality and the DSM-IV personality disorders. *Journal of Nervous and Mental Disease*, *185*, 388-393.

Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin*, *117*, 187-215.

Bornstein, R. F. (1992). The dependent personality: Developmental, social, and clinical perspectives. *Psychological Bulletin*, *112*, 3-23.

Bornstein, R. F. (1993). *The dependent personality*. New York: Guilford.

Bornstein, R. F., & Cecero, J.J. (2000). Deconstructing dependency in a five-factor world: A meta-analytic review. *Journal of Personality Assessment*, *74*, 324-343.

Clark, L. A. (1993a). *Manual for the Schedule for nonadaptive and adaptive personality*. Minneapolis, MN: University of Minnesota Press.

Clark, L. A. (1993b). Personality disorder diagnosis: limitations of the five-factor model. *Psychological Inquiry*, *4*, 100-103.

Clark, L. A., & Harrison, J.A. (2001). Assessment instruments. In W. J. Livesley (Ed.), *Handbook of personality disorders* (pp. 277-306). New York: Guilford.

Clark, L. A., Livesley, W. J., & Morey, L. (1997). Personality disorder assessment: The challenge of construct validity. *Journal of Personality Disorders*, *11*, 205-231.

Clark, L. A., Vorhies, L., & McEwen, J. L. (2002). Personality disorder symptomatology from the five-factor model perspective. In P. T. Costa and T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed., pp. 125-147). Washington, DC: American Psychological Association.

Cloninger, C. R. (2000). A practical way to diagnosis personality disorders: A proposal. *Journal of Personality Disorders, 14*, 99-108.

Costa, P. T., & McCrae, R. R. (1976). Age differences in personality structure: A cluster analytic approach. *Journal of Gerontology*, *31*, 564-570.

Costa, P. T., & McCrae, R. R. (1978). Objective personality assessment. In M. Storandt, I.C. Siegler, & M.F. Elias (Eds.), *The Clinical psychology of aging* (pp. 119-143). New York: Plenum.

Costa, P. T., & McCrae, R. R. (1985). *The NEO personality inventory manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., & McCrae, R. R. (1990). Personality disorders and the five-factor model of personality. *Journal of Personality Disorders*, *4*, 362-371.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO personality inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., & McCrae, R. R. (1995). Solid ground in the wetlands of personality: A reply to Block. *Psychological Bulletin*, *117*, 216-220.

Costa, P. T., Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology*, *81*, 322-331.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology*, *41*, 417-440.

Dyce, J. A., & O'Connor, B. P. (1998). Personality disorders and the five-factor model: A test of facet-level predictions. *Journal of Personality Disorders*, *12*, 31-45.

Feingold, A. (1994). Gender differences in personality: A meta-analysis. *Psychological Bulletin*, *116*, 429-456.

Goldberg, L. R. (1982). From ace to zombie: Some explorations in the language of personality. In C. D. Spielberger & J. N. Butcher (Eds.), *Advances in personality assessment* (Vol. 1, pp. 203-234) Hillsdale, NJ: Erlbaum.

Goldberg, L. R. (1992). The development of markers of the Big-Five factor structure. *Psychological Assessment*, *4*, 26-42.

Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, *48*, 26-34.

Goldberg, L. R., & Saucier, G. (1995). So what do you propose we use instead? A reply to Block. *Psychological Bulletin, 117*, 221-225.

Gosling, S. D. (2001). From mice to men: What can we learn about personality from animal research? *Psychological Bulletin*, *127*, 45-86.

Haigler, E. D., & Widiger, T. A. (2001). Experimental manipulation of NEO-PI-R items. *Journal of Personality Assessment*, *77*, 339-358.

Hampson, S. E., Goldberg, L. R., & John, O. P. (1987). Category-breadth and social-desirability values for 573 personality terms. *European Journal of Personality, 1,* 241-258.

Hyer, L., Brawell, L., Albrecht, B., Boyd, S., Boudewyns, P., & Talbert, S. (1994). Relationship of NEO-PI to personality styles and severity of trauma in chronic PTSD victims. *Journal of Clinical Psychology*, *50*, 699-707.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L.A. Pervin & O.P. John (Eds.), *Handbook of personality. Theory and research* (2nd ed., pp. 102-138). New York: Guilford.

Kass, F., Spitzer, R. L., & Williams, J. B. W. (1983). An empirical study of the issue of sex bias in the diagnostic criteria of DSM-III Axis II personality disorders. *American Psychologist*, *38*, 799-801.

Kaye, A. L., & Shea, M. T. (2000). Personality disorders, personality traits, and defense mechanisms measures. *Handbook of psychiatric measures* (pp. 713-749). Washington, DC: American Psychiatric Association.

Livesley, W. J. (1998). Suggestions for a framework for an empirically based classification of personality disorder. *Canadian Journal of Psychiatry*, *43*, 137-147.

Livesley, W. J., Jang, K. L., & Vernon, P. A. (1998). Phenotypic and genetic structure of traits delineating personality disorder. *Archives of General Psychiatry*, *55*, 941-948.

Luminet, O., Bagby, R. M., Wagner, H., Taylor, G. J., & Parker, J. D. (1999). Relation between alexithymia and the five-factor model of personality: A facet-level analysis. *Journal of Personality Assessment, 73*, 345-358.

McCrae, R. R., & Allik, J. (2002). *The five-factor model of personality across cultures*. New York: Plenum.

McCrae, R. R., Costa, P. T., & Busch, C. M. (1986). Evaluating comprehensiveness in personality systems: the California Q-Set and the five-factor model. *Journal of Personality, 54*, 430-446.

McCrae, R. R., & Costa, P. T. (1999). A five-factor theory of personality. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality* (2nd ed., pp. 139-153). New York: Guilford.

Miller, J. D., Lynam, D. R., Widiger, T. A., & Leukefeld, C. (2001). Personality disor-

ders as extreme variants of common personality dimensions: Can the five-factor model adequately represent psychopathy? *Journal of Personality*, *69*, 253-276.

Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *Journal of Abnormal and Social Psychology*, *66*, 574-583.

Norman, W. T. (1967). *2800 personality trait descriptors: Normative operating characteristics for a university population*. Ann Arbor, MI: University of Michigan, Department of Psychology.

O'Neill, F. A., & Kendler, K. S. (1998). Longitudinal study of interpersonal dependency in female twins. *British Journal of Psychiatry, 172*, 154-158.

Pincus, A. L., & Wilson, K. R. (2001). Interpersonal variability in dependent personality. *Journal of Personality, 69*, 223-252.

Sankis, L. M., Corbitt, E. M., & Widiger, T. A. (1999). Gender bias in the English language? *Journal of Personality and Social Psychology*, *6*, 1289-1295.

Saucier, G., & Goldberg, L. R. (1996). The language of personality: Lexical perspectives on the five-factor model. In J. S. Wiggins (Ed.), *The five-factor model of personality: Theoretical perspectives* (pp. 21-50). New York: Guilford.

Saucier, G., & Goldberg, L. R. (2002). Assessing the big five: Applications of 10 psychometric criteria to the development of marker scales. In B. de Raad & M. Perugini (Eds.), *Big five assessment* (pp. 29-58). Seattle, WA: Hogrefe & Huber.

Shiner, R. L. (1998). How shall we speak of children's personalities in middle childhood? A preliminary taxonomy. *Psychological Bulletin*, *124*, 308-332.

Soldz, S., Budman, S., Demby, A., & Merry, J. (1993). Representation of personality disorders in circumplex and five-factor space: Explorations with a clinical sample. *Psychological Assessment*, *5*, 41-52.

Trull, T. J., Widiger, T. A., & Burr, R. (2001). A structured interview for the assessment of the five-factor model personality: Facet-level relations to the Axis II personality disorders. *Journal of Personality, 69*, 175-198.

Trull, T. J., Widiger, T. A., Useda, J. D., Holcomb, J., Doan, D.-T., Axelrod, S. R., Stern, B. L., & Gershuny, B. S. (1998). A structured interview for the assessment of the five-factor model of personality. *Psychological Assessment*, *10*, 229-240.

Widiger, T. A. (1993). The DSM-III-R categorical personality disorder diagnoses: A critique and an alternative. *Psychological Inquiry*, *4*, 75-90.

Widiger, T. A. (1998). Sex biases in the diagnosis of personality disorders. *Journal of Personality Disorders*, *12*, 95-118.

Widiger, T. A., & Costa, P. T. (1994). Personality and personality disorders. *Journal of Abnormal Psychology*, *103*, 78-91.

Widiger, T. A., & Costa, P. T. (2002). Five-factor model personality disorder research. In P. T. Costa & T. A. Widiger (Eds.), *Personality disorders and the five factor model of personality* (2nd ed., pp. 59-88). Washington, DC: American Psychological Association.

Widiger, T. A., & Spitzer, R. L. (1991). Sex bias in the diagnosis of personality disorders: Conceptual and methodological issues. *Clinical Psychology Review*, *11*, 1-22.

Widiger, T. A., Trull, T. J., Clarkin, J. F., Sanderson, C., & Costa, P. T. (1994). A description of the DSM-III-R and DSM-IV personality disorders with the five-factor model of personality. In P. T. Costa & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (pp. 41-56). Washington, DC: American Psychological Association.

Wiggins, J. S. (Ed.). (1996). *The five-factor model of personality: Theoretical perspectives*. New York: Guilford.

Wiggins, J. S., & Pincus, H. A. (1989). Conceptions of personality disorder and dimensions of personality. *Psychological Assessment*, *1*, 305-316.

Wiggins, J. S., & Trobst, K. K. (2002). The interpersonal adjective scales: Big five version (IASR-B5). In B. de Raad & M. Perugini (Eds.), *Big five assessment* (pp. 263-280). Seattle, WA: Hogrefe & Huber.

Wise, T. N., Mann, L. S., & Shay, L. (1992). Alexithymia and the five-factor model of personality. *Comprehensive Psychiatry*, *33*, 147-151.