INTERPERSONAL DISTINCTIONS AMONG HYPOCHONDRIACAL TRAIT COMPONENTS: STYLES, GOALS, VULNERABILITIES, AND PERCEPTIONS OF HEALTH CARE PROVIDERS

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Cognitive-behavioral models are the prevailing perspective on hypochondriasis and health anxiety. Recent research suggests the value of an interpersonal perspective, but has not addressed the multi-faceted nature of hypochondriasis. Two samples of young adults (n = 186, 116 women; n = 129, 62 women; 65% Caucasian; mean age = 21.5 years) completed self-report measures of: multiple hypochondriacal traits; adult attachment styles; interpersonal style (i.e., trait affiliation and control), goals (i.e., communal and agentic goals), and vulnerabilities (i.e., social support, loneliness, interpersonal stressors); and perceptions of physician behavior. The tendency to see family members and healthcare providers as failing to appreciate the seriousness of one's health problems and to express appropriate concern and support (i.e., health-related alienation, illness conviction) was unique among hypochondriacal traits in its association with an anxious attachment style, hostile interpersonal style and goals, the full set of interpersonal vulnerabilities, and perceptions of physicians as hostile. Health anxiety (i.e., somatic worry, illness phobia) was associated with an anxious attachment style, high levels of interpersonal stress, and perceptions of physicians as hostile, but not with hostile interpersonal style or goals. Results support the interpersonal perspective, but suggest specificity among hypochondriacal traits.

Hypochondriasis is characterized by preoccupation with physical symptoms, fears of illness, and medically-unjustified convictions of suffering from disease. Hypochondriasis and subclinical levels
of the closely related trait of health anxiety are associated with excessive health care utilization and related expenditures (Barsky, Orav, & Bates, 2005). A cognitive-behavioral framework focusing on health-related beliefs, appraisals, and attention, has been central to understanding and treating hypochondriasis and health anxiety (Marcus, Gurley, Marchi, & Bauer, 2007; Williams, 2004). However, recent theory and research also identify potentially important interpersonal processes (Noyes et al., 2003; Williams, Smith, & Jordan, 2010). The broader interpersonal perspective in personality and clinical psychology offers a well-articulated conceptual framework from which to consider the multi-faceted nature of hypochondriasis and its interpersonal features (Horowitz & Strack, 2011; Pincus & Ansell, 2013).

Interpersonal models of hypochondriasis and health anxiety (Noyes et al., 2003; Stuart & Noyes, 1999; Williams et al., 2010) suggest that unexplained medical symptoms and related anxiety and care seeking first arise from anxious and insecure parent-child attachment. Neglected or mistreated children may receive care when expressing illness-related affect and behavior, and hypochondriasis may develop as their expressions of somatic concerns are met with comfort and connection with others. While initially and intermittently successful in evoking reassurance and connection, this form of care seeking is ultimately maladaptive in that the symptoms they are based upon are medically unfounded or excessive. Dismissive and rejecting responses from family, friends, and health care providers often result. Such responses further escalate the hypochondriacal individual’s insecurity and maladaptive interpersonal behavior.

The interpersonal perspective in personality and clinical psychology (Horowitz & Strack, 2011; Pincus & Ansell, 2013) may be useful in describing and explicating these aspects of hypochondriasis. In the interpersonal circumplex (IPC) two dimensions characterize social behavior—affiliation (i.e., friendly, warm vs. hostile, cold) and control (i.e., dominant, directive vs. submissive, yielding). The IPC dimensions also correspond to broad motives/goals. Agency refers to striving for achievement, status, and autonomy, whereas communion refers to striving for connection with others (Locke, 2000). Associations of a characteristic with these dimensions captures its related interpersonal style or motives (Wiggins & Broughton, 1991). Associations of multiple aspects of hypochondriasis (e.g., disease conviction vs. illness anxiety) with these dimensions of interpersonal
sonal style and motivation could clarify their similarities and differences.

According to the principle of complementarity, the behavior of one individual elicits responses from interaction partners that are similar in affiliation and opposite in control (Cundiff, Smith, Butner, Critchfield, & Nealey-Moore, 2015; Pincus & Ansell, 2013). For example, insecure attachment is associated with a hostile submissive interpersonal style (Gallo, Smith, & Ruiz, 2003), and hence should be associated with hostile and dominant responses from others (e.g., rejection, criticism). In this way, the interpersonal framework provides theory-driven predictions regarding the likely interpersonal correlates of different hypochondriacal traits.

The present study attempted to replicate and extend prior research on the interpersonal perspective on hypochondriasis. First, we attempted to replicate past findings of Noyes and colleagues (2003) on insecure adult attachment styles, and to extend them by examining multiple hypochondriacal traits. Second, we evaluated the interpersonal style and goals associated with hypochondriacal traits by examining their associations with IPC-based measures. We also examined the association of these component scales with the three other five-factor model personality traits (i.e., neuroticism, openness, conscientiousness), expecting all hypochondriacal traits to be closely associated with neuroticism (Cox, Borger, Asmundson, & Taylor, 2000; Longley, Watson, & Noyes, 2005; Noyes et al., 2005). Third, we attempted to replicate and extend prior findings regarding interpersonal difficulties associated with hypochondriasis. Finally, we examined associations of hypochondriacal traits with participants’ perceptions of physicians’ behavior during medical appointments (cf., Kiesler & Auerbach, 2003), as one implication of the interpersonal perspective is that at least some aspects of hypochondriasis will eventually lead to strained relations with health care providers (Noyes, Longley, Langbehn, Stuart, & Kukoyi, 2010; Williams et al., 2010).

METHOD

PARTICIPANTS AND PROCEDURE

Two samples of young adults (Sample 1 = 186, 116 females; Sample 2 = 129, 62 females) participated in the study, receiving partial
course credit (mean age = 21.5, $SD = 4.4$, range = 17 – 52). Sixty-five percent were Caucasian, 17% were Asian/Pacific Islander, 5% were multiracial, 4% were Hispanic, 2% were African American (remaining 7% other). After obtaining informed consent, questionnaires were administered via computer in small groups.

MEASURES

The Whiteley Index (WI; Sample 1 and 2; Pilowsky, 1967) includes three subscales: Bodily Preoccupation (e.g., Are you bothered by many aches and pains?), Disease Phobia (e.g., Do you worry a lot about your health?), and Disease Conviction (e.g., Do you get the feeling that people are not taking your illness seriously enough?). The scoring procedure for the WI was based on Pilowsky’s original three dimensional model (Pilowsky, 1967) as modified by Hiller, Rief, and Fichter (2002). The Multidimensional Inventory of Hypochondriacal Traits (MIHT) (Sample 1 and 2) includes four factors: Reassurance, Alienation, Absorption, and Worry (Longley et al., 2005). These factors assess the behavioral (e.g., I turn to others for support when I do not feel well), cognitive (e.g., People seem unconvinced my symptoms are signs of illness), perceptual (e.g., I am aware of physical sensations), and affective (e.g., When I experience pain, I fear I may be ill) components, respectively. The reassurance/behavioral scale measures the tendency to seek reassurance to quell illness worry. The cognitive/alienation scale assesses the extent to which the individual is frustrated that others are not taking his or her health problems seriously. The perceptual/absorption scale measures bodily preoccupation, and the affective/worry scale measures the fearful concern that a disease might be present. Descriptive information and internal consistencies for the WI and MIHT are presented in Table 1.

The Experiences in Close Relationships—Revised (ECR-R; Sample 1) scale is a measure of adult attachment style, with two dimensions, anxiety and avoidance (Fraley, Waller, & Brennan, 2000), and has good internal consistency and construct validity (Brennan, Clark, & Shaver, 1998). Internal consistency in the present study was .93 for both dimensions.

The Interpersonal Adjective Scales—Big Five (IASR-B5) (Samples 1 and 2) includes a circumplex measure of affiliation and control, as well as scales for neuroticism, openness to experience, and con-
scientiousness (Wiggins, Trobst, de Raad, & Perugini, 2002). Octant scores (i.e., Dominant, Friendly-Dominant, Friendly, Friendly-Submissive, Submissive, Hostile-Submissive, Hostile, and Hostile-Dominant) are derived from 8-item scales; neuroticism, openness to experience, and conscientiousness are derived from 20-item scales. The scales have demonstrated high levels of internal consistency, expected circumplex structure, and construct validity (Trapnell & Wiggins, 1990; Wiggins et al., 2002). Reliabilities were .93 and .92 for affiliation and control for sample 1, and .92 and .91 for sample 2, respectively. For sample 1, reliabilities for neuroticism, openness to experience, and conscientiousness were .93, .90, and .94, respectively. For sample 2, reliabilities were .95, .91, and .94, respectively.

The Circumplex Scales of Interpersonal Values (CSIV; Samples 1 and 2) assess communal and agentic values or goals corresponding to the IPC (Locke, 2000). Respondents rate how important it is for them to act or be treated a certain way by others. The CSIV includes 8 scales that conform to a circumplex structure, and shows convergent and discriminant validity with other IP measures (Locke, 2000). Internal consistency was .80 for affiliation and .78 for control

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Note. *p < .05; **p < .01 (2-tailed)
goal scores in sample 1, and .85 for affiliation and .70 for control in sample 2.

The Revised UCLA Loneliness Scale (Samples 1 and 2; Russell, Peplau, & Cutrona, 1980) assesses the experience of loneliness. The scale has high internal consistency (.94), and convergent and discriminant validity (Russell et al., 1980). In sample 1, internal consistency was .90 and .94 in sample 2. The Test of Negative Social Exchanges (TENSE; Samples 1 and 2) measures exposure to aversive social experiences such as insensitivity, hostility, interference, and ridicule (Ruehlman & Karoly, 1991). It has acceptable internal consistency and construct validity (Gallo et al., 2003). In the present study, internal consistencies were .90 for sample 1 and .89 for sample 2. The Interpersonal Support Evaluation List—12 (ISEL-12; Samples 1 and 2) measures perceptions of social support, and has good internal consistency and construct validity (internal consistencies = .87 sample 1, .89 for sample 2; Cohen, 2008).

The Impact Message Inventory (Sample 2; Wagner, Kiesler, & Schmidt, 1995) was used to assess participants’ perceptions of physician behavior during their typical health care visits. It is a 32-item circumplex-based measure with 4 items per octant, and standardized octant scores were combined to form affiliation and control scale scores. The IMI has demonstrated adequate psychometric properties (Smith et al., 2009). In our sample, internal consistency was .84 for the affiliation scale score and .38 for the control scale score. The low internal consistency for the control scale prompted a factor analysis of this measure in the present study, and as a result a different set of scores were derived, as discussed later in the Results section.

STATISTICAL ANALYSES

To determine the IP style and motives associated with WI and MIHT scales, each hypochondriasis component score was regressed on affiliation and control interpersonal style scores from the IAS-R, and agency and communion goal scores from the CSIV. The multiple R indicates the extent to which a scale is interpersonal in nature, and the regression coefficients indicate the specific interpersonal style or goal orientation (Gurtman, 1991). Correlational analyses tested associations of hypochondriacal trait components with attachment
styles, loneliness, negative social exchanges, social support, and perceptions of physician behavior.

RESULTS

CORRELATIONS AMONG WI AND MIHT SCALES

Correlations among WI and MIHT subscales are presented in Table 1. The three dimensions of the WI are highly correlated, whereas the four dimensions of the MIHT are considerably less so. The perceptual/absorption scale of the MIHT is weakly related to other subscales of the MIHT and WI, and the behavioral/reassurance subscale of the MIHT also shows low correlations with the other subscales. Of the MIHT scales, the cognition/alienation and affect/worry scales were most closely related to the WI scales. The correlation of the MIHT affect/worry scale with the WI illness phobia scale, and the correlation of the MIHT cognitive/alienation with the WI illness conviction scale provided the strongest evidence of convergent validity, suggesting similar measures of health anxiety in the first correlation, and a felt lack of validation, support, and concern from others regarding health concerns in the second.

ASSOCIATIONS WITH ADULT ATTACHMENT STYLE

With the exception of MIHT perceptual/absorption scale, \( r(186) = .07 \), each of the hypochondriasis scales were significantly associated with the ECR anxious attachment style scale. The MIHT behavioral/reassurance scale was weakly associated, \( r(186) = .15, p < .05 \), whereas the remaining scales were moderately associated with anxious attachment: MIHT cognitive/alienation, \( r(186) = .35, p < .001 \); MIHT affective/worry, \( r(186) = .36, p < .001 \); WI illness phobia, \( r(186) = .35, p < .001 \); WI bodily preoccupation, \( r(186) = .31, p < .001 \); WI illness conviction, \( r(186) = .32, p < .001 \). For the ECR avoidant attachment scale, only the MIHT behavior/reassurance scale was significantly associated, but this was an unexpected inverse association, \( r(186) = -.19, p < .05 \). Thus, with two notable exceptions, hypochondriasis trait components were associated with anxious attachment, as predicted.
ANALYSES OF INTERPERSONAL STYLE AND
FIVE FACTOR TRAITS

Results for regressions of the hypochondriasis scales on the IAS-R dimensions of affiliation and control are presented in Table 2 (see Figure 1). The cognitive/alienation subscale of the MIHT and the illness conviction subscale of the WI displayed a consistent hostile style. There was inconsistent evidence of a warm style associated with the behavioral/reassurance scale of the MIHT, and a somewhat warm-dominant style associated with the perceptual/absorption MIHT scale. The other subscales were not significantly related to dimensions of the IPC, suggesting little if any association with stable aspects of interpersonal style.

In regression analyses controlling IAS-R affiliation and control in a prior step, each hypochondriasis component scale was regressed on neuroticism, conscientiousness, and openness to experience. The
MIHT perceptual/absorption scale was not associated with neuroticism, $\beta = -.01, .07$ in samples 1 and 2, respectively. Each of the other scales was significantly associated with neuroticism: MIHT behavior (reassurance) $\beta = .27, .41$, both $p < .01$; MIHT cognitive (alienation) $\beta = .16, .22$, both $p < .05$; MIHT affective (worry) $\beta = .39, .31$, both $p < .01$; Whiteley Illness phobia $\beta = .37, .34$, both $p < .01$; Whiteley somatic focus $\beta = .38, .33$, both $p < .01$; Whiteley illness
conviction $\beta = .30, .35$, both $p < .01$. Unlike the other scales, MIHT perceptual/absorption was significantly associated with openness to experience: Sample 1 $\beta = .26$, Sample 2 $\beta = .33$, both $p < .001$. Thus, all components of hypochondriasis except the MIHT measure of absorption with physical sensations were significantly associated with a general propensity to anxiety and other aspects of emotional distress, as expected.

INTERPERSONAL GOALS

Associations of hypochondriasis component scales with interpersonal goals are presented in Table 3 (see Figure 1). The MIHT cognitive/alienation and the WI illness conviction scales were consistently associated with hostile goals, suggesting little interest in maintaining positive relations with others, and higher interest in main-
taining distance and guarding against potential mistreatment. The MIHT perceptual/absorption scale demonstrated a very different pattern, being consistently related to warm and perhaps somewhat dominant goals (i.e., maintaining positive connections, advising and leading others). The MIHT behavioral/reassurance scale was associated with warm goals, whereas the MIHT affective/worry scale, the WI illness phobia scale, and the WI somatic focus scale were unrelated to social goals. Thus, as with interpersonal styles, the hypochondriasis components had widely varying social goal correlates.

INTERPERSONAL VULNERABILITIES

Correlations of the hypochondriasis scales with social support, loneliness, and aversive interpersonal events are presented in Table 4. Except for the MIHT perceptual/absorption scale, all scales were positively associated with the TENSE measure of aversive interpersonal events (e.g., experiencing criticism, insensitivity, impatience, and hostility). High scores on the MIHT cognitive/alienation and WI illness conviction scales were consistently associated with low social support. There was weak evidence of a positive association of MIHT behavioral/reassurance and perceptual/absorption scales with social support. The other hypochondriasis components were weakly associated with low social support. The MIHT cognitive/alienation and WI illness conviction scales were associated with
greater reported loneliness, and the WI somatic focus scale was more weakly associated with loneliness.

PERCEPTIONS OF PHYSICIAN BEHAVIOR

As noted above, the low internal consistency of the IMI-C control scale for ratings of physician behavior during health care visits suggested that the measure did not have the expected circumplex structure in this application. Therefore, the eight scales IMI-C scales were subjected to a principle components analysis. Two factors emerged (eigenvalues = 2.71, 2.70; 33.85% and 33.80% of the variance, respectively; next largest factor eigenvalue = .78, 9.75% of the variance). Varimax rotated factor loadings for factor 1 were highest for hostile-dominance (.86), hostility (.85), dominance (.77), and hostile-submissiveness (.63) octant scales. This pattern reflects clearly hostile and somewhat dominant perceived physician behavior. For factor 2, loadings were highest for friendly-submissiveness (.90), friendliness (.88), friendly-dominance (.77), and submissiveness (.58), suggesting that the factor reflects perceptions of physician warmth. Physician hostile-dominance and warmth scores were calculated via unit weighting.

With the exception of the MIHT behavioral and perceptual scales, $r(126) = .07$ and $-.18$, respectively, each hypochondriasis component was associated with perceptions of physicians as hostile (and somewhat dominant): MIHT cognitive-alienation, $r(126) = .30$, $p < .001$, and affective-worry, $r(126) = .40$, $p < .001$; Whiteley illness conviction, $r(126) = .34$, $p < .001$, illness phobia, $r(126) = .40$, $p < .001$, and somatic focus, $r(126) = .21$, $p < .05$. Prototypical behaviors in this IPC location would include criticism, blame, and coldness. None of the hypochondriasis component scales were significantly related to perceptions of the physician as warm: Range of $r(126) = .17$ (MIHT behavioral-reassurance seeking) to $-.10$ (MIHT cognitive-alienation).

DISCUSSION

The current findings replicate and extend prior research on the interpersonal model of hypochondriasis. Importantly, the interpersonal perspective provided an accurate account of some aspects of hypo-
chondriasis, but less so for others. The MIHT cognitive/alienation and WI illness conviction scales displayed the full range of expected interpersonal correlates, including an anxious adult attachment style, hostile or defensive interpersonal style and goals, a broad set of interpersonal vulnerabilities (i.e., social isolation and conflict), and strained relations with health care providers. The MIHT affective/worry scale and the WI illness phobia and somatic focus scales had only some of these interpersonal correlates, being associated with an anxious adult attachment style, some interpersonal vulnerabilities, and strained relations with physicians. However, these core hypochondriacal traits were not related to interpersonal style or goals. Importantly, the MIHT behavior/reassurance and perceptual/absorption scales displayed a very different pattern, with minimal evidence of maladaptive interpersonal processes. Hence, this broader application of the interpersonal perspective to various aspects of this multi-faceted domain suggests potential refinements in the interpersonal model of hypochondriasis.

The finding that the WI illness conviction and MIHT cognitive/alienation scales were both associated with a hostile and somewhat submissive interpersonal style, and with overall hostile interpersonal goals, indicates a lack of warm connection with others and an active interest in maintaining distance and avoiding criticism or ridicule. This suggests a defensive or self-protective interpersonal stance. Given the sense of alienation central to these aspects of hypochondriasis, goals to avoid ridicule from others and keep up a guarded interpersonal stance are understandable. However, by inviting or pulling for hostility (e.g., rejection) and perhaps hostile dominance (e.g., criticism, blame) from others, this style may serve to maintain maladaptive transactions over time.

Future research on hypochondriasis may benefit from applications of an additional component of the interpersonal perspective. In the transactional cycle (Wagner, Kiesler, & Schmidt, 1995), aspects of an actor’s internal or covert experience (e.g., appraisals, goals, expectations, etc.) influence their overt behavior during social interactions, which in turn shape the internal experience and subsequent overt behavior of interaction partners, in an on-going reciprocally-determined process. This expanded interpersonal model of hypochondriasis (Williams et al., 2010) includes two such cycles: one involving hypochondriacal individuals and their friends and family members, the other involving health care providers, as depicted in Figure 2.
Initially, the hypochondriacal individual’s concerns, symptom reports, reassurance seeking, and health care use may be met with positive attention, sympathy, support, appropriate medical evaluation, and reassurance. However, over time, these cycles likely come to involve mutual frustration, defensiveness, and strain, as actual medical problems remain unsubstantiated. Importantly, the present findings suggest that the illness conviction and alienation aspects of the hypochondriasis domain may be embedded in the most dysfunctional versions of this cycle, similar to interpersonal models of depression (Pettit & Joiner, 2006; Starr & Davila, 2008). The primarily anxiety-based aspects of hypochondriasis may be somewhat less embedded in such maladaptive interpersonal processes. Indeed, anxiety-based reassurance seeking may be maintained more by a negative reinforcement cycle, such that instances of seeking reassurance or medical attention may serve to temporarily alleviate anxiety, much like the compulsions of individuals with obsessive-compulsive disorder (Warwick & Salkovskis, 1990). The perceptual absorption and perhaps some support-seeking aspects of hypo-
Hypochondriacal tendencies may be minimally involved in maladaptive transactional cycles, at least initially.

The present study has important methodological limitations that qualify these conclusions. Although examining hypochondriacal tendencies in younger, healthier samples informs understanding of the vulnerability to and development of hypochondriasis, findings with undergraduate samples might not generalize to patient samples or older adults. Also, all of the measures were self-report, and findings should be replicated with other methods. Behavioral measures of interpersonal processes might be particularly informative in this regard. Finally, the cross-sectional design limits conclusions regarding causal relationships.

These limitations notwithstanding, the results provide support for the interpersonal perspective on health anxiety and hypochondriasis proposed by Noyes and colleagues (2003), as well as refinements and extensions. Future research should include replication with behavioral observations, reports from social network members, and longitudinal studies. If supported in such research, the interpersonal perspective might also suggest refinements in the treatment of hypochondriasis. Cognitive-behavioral and related interventions are generally effective (e.g., McManus, Surawy, Muse, Vazquez-Montes, & Williams, 2012; Seivewright et al., 2008). However, for other anxiety disorders, patients reporting significant interpersonal difficulties often respond less well to such approaches (Borkovec, Newman, Pincus, & Lytle, 2002). In the case of hypochondriacal individuals with interpersonal difficulties stemming from a sense that others do not understand and respond appropriately to their medical problems, adjunctive interpersonal approaches may be useful (Stuart & Noyes, 2006).

REFERENCES


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