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College of Liberal Arts

11-8-2021

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Moving Toward, Moving Against, and Moving Away: An Interpersonal Approach to Construct Validation of the Horney-Coolidge Type Inventory

Abstract

Karen Horney's (1945, 1950) interpersonal theory of adjustment defined three different neurotic trends involving characteristic social behavior and motives: compliant (moving towards people), aggressive (moving against people), and detached (moving away from people). The Horney-Coolidge Type Inventory (HCTI) was developed to assess these trends (Coolidge et al., 2001), but has not been validated using standard methods in the interpersonal perspective. The present studies refined the structure of the HCTI, and utilized the structural summary method (SSM) to identify relationships of the three shortened HCTI trend scales with the interpersonal circumplex (IPC) in single university (n = 514) and multisite university (n = 3,283) samples. Results across both studies confirmed predicted interpersonal characteristics of each trend: compliance was associated with warm submissiveness, aggression was associated with hostile dominance, and detachment was associated with hostile or cold submissiveness. However, analyses of facets within the three HCTI trend domains revealed significant differences. Results are discussed as a potential guide to further refinement of assessments of the Horney maladaptive trends, and support inclusion of Horney's model in current interpersonal theory.

Moving Toward, Moving Against, and Moving Away: An Interpersonal Approach to

Construct Validation of the Horney-Coolidge Type Inventory

Introduction

The interpersonal tradition in personality and clinical psychology (Benjamin, 1974; Carson, 1969; Kiesler, 1983; Leary, 1957; Sullivan, 1953) has long held that personality and emotional adjustment are primarily evident in recurring patterns of social interaction and experience. Contemporary Integrative Interpersonal Theory (CIIT) extends this far-reaching premise in emphasizing the key role of interpersonal situations, including those that comprise interactions between individuals but also individuals' internal representations of such interactions (Hopwood et al., 2021; Pincus & Ansel, 2013; Pincus et al., 2020). CIIT further elaborates prior theory and research in its organization of a wide variety of interpersonal events, experiences, and processes through the broad dimensions of agency and communion (Bakan, 1966; Wiggins, 1991). The complementarity principle in this perspective (Carson, 1969; Kiesler, 1983) describes patterns in which characteristic ways individuals pursue social connection (Baumeister & Leary, 1995) and social status (Anderson et al., 2015) invite or evoke responses from interaction partners that are similar in communion (i.e., warmth vs. hostility or coldness) and opposite in agency (i.e., dominance vs. submissiveness or deference). These evoked responses maintain the individual's interpersonal style in a reciprocal process, further influencing emotional adjustment, quality of personal relationships, overall well-being (Horowtiz, 2004), and health (e.g., Smith et al., 2004).

Karen Horney (1945, 1950) is a notable historical figure in the interpersonal perspective (Strack & Horowitz, 2011). However, her model of interpersonal motives and related character styles or trends has played a limited role in recent theory and research, perhaps because measures of her central concepts have not been examined using established, theory-driven interpersonal

approaches to construct validation and conceptual integration (Gurtman, 1992). The present

studies examine the most frequently used measure of Horney's character trends (Coolidge et al.,

2001), using a refinement of interpersonal construct validation (Zimmerman & Wright, 2017).

Such analyses of Horney's model could foster an expanded account of interpersonal functioning.

Horney's Typology and Related Assessments

Horney (1945, 1950) postulated that children raised in environments characterized by

neglect, criticism, and lack of warmth develop "basic anxiety" that includes feelings of isolation,

helplessness, frustration, and resentment, and respond in specific ways that can continue into

adulthood. Hence, her model anticipated attachment perspectives (Bowlby, 1982) that are

foundational elements of the interpersonal perspective (Critchfield & Benjamin, 2008; Gallo et

al., 2003; Shaver & Mikukincer, 2011). Horney's "neurotic trends" comprise interpersonal

motives or goals, as well as characteristic social behavior. Initially, the trends help individuals

cope with basic anxiety, but over time become maladaptive and inflexible, contributing to

distress and impaired relationships, similar to an over-arching conceptual premise of early

(Leary, 1957; Carson, 1969) and recent (Benjamin, 2018; Pincus & Ansel, 2013) statements of

the interpersonal perspective.

Horney (1945; 1950) described a variety of responses to basic anxiety, grouped into three

broader trends: compliant (i.e., moving *toward* others); aggressive (moving *against* others); and

detached (moving *away* from others). Compliant individuals desire acceptance and love, and

seek someone (e.g., spouse, close friend) who can ease feelings of isolation and helplessness.

They have a strong drive to please others, even at the expense of their own feelings and desires.

Aggressive individuals view others as hostile and untrustworthy, and strive to outsmart, exploit,

and gain control or dominance over others. Finally, in defending against basic anxiety and a

broad sense of interpersonal threat and vulnerability, detached individuals strive to avoid emotional connections with others, preferring privacy, self-sufficiency, and independence.

Horney's framework is relevant to a variety of current research areas. For example, given its developmental foundations, research on consequences of adverse childhood experiences for adult emotional and physical health (Petruccelli et al., 2019) could be informed by her description of the three maladaptive patterns. Concepts resembling Horney's trends have been examined in research on the development and continuity of personality, although sometimes without direct reference to her work (e.g., Caspi et al., 1987; 1988; Gazelle & Rudolph, 2004). The three neurotic trends are also potentially relevant for research on interpersonal heterogeneity within diagnostic categories such as social anxiety (Cooper & Anderson, 2019) and depression (Simon et al., 2015). Finally, current psychodynamic therapy approaches include Horney's perspective (Solomon, 2006; Smith, 2007), and measures of the neurotic trends could facilitate theory-driven tests of therapy process-outcome associations (c.f., Mullin et al., 2018).

The Horney-Coolidge Type Inventory (HCTI) is the most frequently-used measure of Horney's model (Coolidge et al., 2001), and consists of self-report scales for the three main trends, and specific elements within them. Items within the specific elements or facets were written to reflect needs or motives Horney (1945) described, grouped into the three broader trends in her subsequent refinement of the model (Horney, 1950). In the HCTI, the compliance domain includes altruism, need for relationships, and self-abasement facets. The aggression domain includes malevolence, power, and strength facets, and the detachment domain includes need for aloneness, avoidance, and self-sufficiency facets. This structure in which three domains each include three lower-order facets has been supported in exploratory analyses, but it has not been evaluated in confirmatory factor analyses (CFA).

The HCTI domain scales have expected associations with personality traits and symptoms of personality disorder (Coolidge et al., 2001; 2004; 2008; Shatz, 2004). The compliance domain is associated with neuroticism, agreeableness, and personality disorder symptoms involving anxiety, fearfulness, and dependency. The aggression domain is associated with antagonism and symptoms of antisocial, narcissistic and related personality disorders. The detachment domain is associated with introversion, neuroticism, and symptoms of avoidant, schizoid and related disorders. Similar associations have been observed in children and adolescents (Coolidge et al., 2010). However, associations are often inconsistent across facet scales within domains (Coolidge et al., 2001; 2004; 2008). This heterogeneity of facets within HCTI domains may suggest similarly inconsistent associations with interpersonal processes.

Importantly, no investigations have examined associations of HCTI scales with the interpersonal circumplex (IPC), the main structural model in the interpersonal perspective (Kiesler, 1983; Pincus & Ansell, 2013; Wiggins, 1996). The IPC describes social behavior through two central dimensions in interpersonal theory described previously: Agency or Control (dominance versus submissiveness or deference) and Communion or Affiliation (warmth versus coldness or hostility; see Figure 1). On the basis of Horney's description, likely IPC correlates are readily apparent: compliance reflects warm submissiveness; aggression reflects hostile dominance; and detachment is clearly related to coldness and perhaps cold submissiveness.

An Interpersonal Approach to Construct Validation

Construct validation in the interpersonal perspective examines associations of a given scale with IPC octant scales, or Affiliation and Control dimensions. Researchers often describe the Affiliation dimension as warmth versus coldness, but in this paper the negative affiliation pole is labeled *hostility*. The structural summary method (SSM; Gurtman, 1992) uses correlations

between a scale of interest and IPC octant scales to test their fit with the predicted circular

pattern (see Figure 1). If associations fit the IPC model, those correlations will conform to a

sinusoidal curve. For example, if the profile for the HCTI aggression domain scale conforms to

predictions, its strongest positive correlation would be with the dominant-hostile octant. The next

strongest positive correlations would be with adjacent octants, dominance and hostility. The

strongest negative correlation would be with submissive-warmth, followed by submissiveness

and warmth. Correlations with the submissive-hostile and dominant-warm octants, being located

90° from the dominant-hostile octant, would be expected to approach zero (see Figure 1).

The SSM generates several parameters, also depicted in Figure 1. Elevation refers to the

average correlation of the scale of interest with octants. For example, for interpersonal problems,

elevation refers to the association with the mean level of difficulty across the problems described

by the IPC. Amplitude refers to the difference between the peak of the correlation curve and the

elevation, or specificity of interpersonal content. Finally, angular displacement is the location

where the curve reaches its peak, indicating the interpersonal theme. A recent SSM refinement,

the Circumplex package for R generates confidence intervals (CIs) for these parameters (Girard

et al., 2020; Zimmerman & Wright, 2017), permitting direct theory-driven comparisons.

Overview of the Present Studies

After evaluating the structure of the HCTI in confirmatory analyses and refining item sets

to improve fit, we examined the construct validity of the HCTI using the refined SSM, by testing

associations of the domain and facet scales with IPC-based measures. We predicted that: the

aggression domain and facets would be associated with hostile-dominance; the detachment

domain and facets would be associated with cold or hostile-submissiveness; and the compliance

domain and facets would be associated with warm-submissiveness.

STUDY 1

Horney's account includes both characteristic interpersonal behavior (i.e., interpersonal style or trait social behavior) described previously for each trend, and related motives, which are emphasized in more recent elaborations of interpersonal theory (Horowitz et al., 2006; Locke, 2000). We predicted that each neurotic trend would be associated with goals that parallel the predicted interpersonal style.

Method

Participants

Participants were 514 undergraduates (68% female, mean age 21.5, SD = 5.1) from an American university who obtained partial course credit for participation (64% Non-Hispanic White, 12% Hispanic, 11% Asian/Pacific Islander, 7% Multiracial, 2% Non-Hispanic Black).

Procedure

Data collection was done remotely via Qualtrics. Respondents gave informed consent, and completed all surveys in a single session, averaging less than 1 hour. Measure items were presented together as sets, in a standard order of administration across respondents.

Measures

Neurotic Trends and Interpersonal Circumplex Measures

Horney-Coolidge Type Inventory (*HCTI*; Coolidge et al., 2001). The 57 items of the HCTI were written originally to reflect the content of Horney's three main trends or domains (i.e., compliant, aggressive, and detachment), as well as the more specific elements or facets she described within those domains. The HCTI uses 4-point Likert scales. Multiple factor structures have been reported in exploratory analyses (Coolidge et al., 2001; 2004), although the three

broad domains are consistently recovered. The initial scoring used here is based on the hierarchical structure described previously. Individual item numbers reported here correspond to the 57-item version of the scale as it appears in Coolidge et al. (2001). In the present sample, internal consistency for compliance was $\alpha = .76$, $\alpha = .84$ for aggression, and $\alpha = .80$ for detachment. For facets, internal consistency ranged from $\alpha = .56$ to .74.

Interpersonal Adjective Scales (*IAS-R*; Wiggins et al., 1988). The IAS-R assesses interpersonal style, and consists of 64 trait items rated on a 9-point Likert scale. Each octant score includes 8 items. Internal consistencies for octant scores ranged from $\alpha = .64$ to $\alpha = .81$.

Circumplex Scale of Interpersonal Values (*CSIV*; Locke, 2000). The 64-item CSIV measures interpersonal goals, values, or motives. Octant scores include 8 items, each rating the importance of a goal on a 5-point scale. Internal consistency ranged from $\alpha = .74$ to $\alpha = .85$.

Overview of Analyses

Confirmatory factor analyses (CFA) of the HCTI were conducted to evaluate the proposed factor structure (Coolidge et al., 2001), in which domain-level scales are composed of facet-level scales. In each model, domain scales were also allowed to correlate with each other. Models were considered appropriate if they had a comparative fit index (CFI) greater than 0.95, a root mean square error of approximation (RMSEA) below 0.06, and standardized root mean square residual (SRMR) below 0.08 (Hu & Bentler, 1999). CFAs were conducted using the R package Lavaan (Rosseel, 2012) using maximum likelihood estimation and standard fit indices[1].

Structural summary method (SSM) analyses were then conducted with the revised HCTI (i.e., after item deletions to improve fit; results reported here and in the on-line supplement were essentially identical when using the original 57-item HCTI). SSM is based on correlations of a

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[1] R code for CFA analyses is provided in the online supplement.

given scale with IPC octant scores. Initially, it assesses the fit of observed correlations with the predicted curve. A model fit of .70 or lower is considered poor, in which case amplitude and displacement should not be interpreted. Elevations above |.15| are considered notable, indicating an association with the general factor in the IPC measure. Amplitudes above |.15| are also notable, indicating a specific and differentiated profile. Finally, angular displacement indicates the particular interpersonal style. CIs of each parameter permit scale comparisons.

Results and Discussion

Confirmatory Factor Analysis

The hierarchical structure of the original HCTI described previously (i.e., three correlated facets within each of three broader domains) was a poor fit with observed item inter-correlations for the original scales, ($\chi^2(1527) = 4839.1$, $p < .001$, CFI = 0.64, RMSEA = 0.066, SRMR = 0.106). In an effort to improve fit while retaining the range of HCTI item content that was intended to capture Horney's description of domains and facets, we retained three or four items within each facet with the highest item-total correlations. The resulting 33 item scale[2] was subjected to a second CFA, in which the fit was significantly improved ($\chi^2(1044) = 3343.6$, $p < .001$), but did not reach a clear standard of acceptability across fit indexes ($\chi^2(483) = 1495.5$, $p < .001$, CFI = 0.79, RMSEA = 0.065, SRMR = 0.100).

Additional CFAs conducted to explicate sources of the limited model fit indicated that revised HCTI facets generally had adequate model fit, but revised HCTI domains failed to achieve acceptable fit[3]. Specifically, the compliance and detachment domains did not have

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[2] Compliance was comprised of items 1, 7, 10, 13, 22, 25, 31, 34, 37, 46, 52, and 55; aggression was comprised of items 2, 8, 11, 14, 17, 38, 41, 44, 47, and 56; detachment was comprised of items 3, 15, 18, 21, 27, 30, 33, 39, 42, 45, and 51 (Coolidge et al., 2001).
[3] Results for post-hoc CFAs are presented in the online supplement.

adequate model fit, but the aggression domain had acceptable fit. Self-abasement was the only facet with poor fit across each fit statistic; the malevolence and avoidance facet had adequate CFI and SRMR, but poor RMSEA.

Internal consistency for the revised domain structure, despite having fewer items, was similar to the original scale. The internal consistency was $\alpha = .73$ for compliance, $\alpha = .77$ for aggression, and $\alpha = .83$ for detachment. For the facet scales, internal consistencies improved slightly, with α ranging between .62 and .76[4]. As described in Study 2, the fit of this structure was replicated in a second, larger sample.

Using the revised scoring, consistent with prior research (Coolidge et al., 2001), men scored higher than women on aggressive ($F(2, 499) = 6.68$, $p = .001$, $\eta^2 = .026$) and detached ($F(2, 499) = 9.13$, $p < .001$, $\eta^2 = .035$) trend scales; females scored higher on compliance ($F(2, 499) = 12.65$, $p < .001$, $\eta^2 = .048$).

Interpersonal Circumplex Analysis

Interpersonal Style. Using the IAS-R, circumplex fit was good for all domains and facets (see Table 1), and amplitudes indicated specific interpersonal content in each case. As seen in Figure 2A, angular displacements indicated that, as expected, the aggression domain was associated with hostile-dominance and detachment with hostile-submissiveness. However, compliance was associated with warmth, as opposed to the expected warm submissiveness.

There was heterogeneity for facets within domains (see Table 1)[5]. Within aggression, malevolence and strength were associated with a hostile interpersonal style, whereas power was associated with hostile dominance. Within compliance, self-abasement was associated with submissiveness, whereas altruism and need for relationships were associated with a warm

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[4] Internal consistencies for each facet scale in study 1 and study 2 are presented in the online supplement.
[5] For additional figures depicting facet scale IPC profiles, see online supplement.

interpersonal style. For detachment, the self-sufficiency facet was significantly less submissive than the need for aloneness facet, but was not significantly different from the avoidance facet.

Interpersonal Goals. For the CSIV, fit was good for all domains and facets (see Table 1). Elevations were notable for each domain, and for several facets, indicating associations with a general tendency to endorse interpersonal goals or interpersonal engagement. Amplitudes for all domains and facets were notable, indicating specific and differentiated goals. As predicted, the aggression domain was associated with dominant-hostile goals, and the compliance domain was associated with submissive-warm goals (see Figure 2C). However, the detachment domain was most strongly associated with hostile goals, as opposed to the expected hostile-submissive goals.

Similar to interpersonal style, facets within domains had differing associations with goals (see Table 1). For the aggression domain, the power facet was associated more strongly with dominant goals than the strength and malevolence facets. Within compliance, self-abasement was strongly associated with submissive goals, whereas altruism and need for relationships were associated with mostly warm goals. In the detachment domain, all three facets had expected associations with hostile goals.

Summary. The HCTI domain scales generally had expected associations with IPC-based measures: aggression was associated with a hostile dominant interpersonal style and goals; compliance was associated with warm interpersonal style and warm submissive goals; and detachment was associated with hostile submissive style and hostile goals. However, within each domain there were significant differences in IPC correlates across facets.

STUDY 2

A limitation of the first study is the largely Non-Hispanic White sample. A larger and more diverse second sample provided a replication opportunity using a different interpersonal style measure, and allowed comparisons across racial and ethnic groups.

Method

Participants

Participants were 3,283 undergraduate students from four public universities in the United States who received partial course credit for participation. Inclusion criteria were: a) 18+ years of age, and b) verbal and written fluency in English. The sample was composed primarily (85.3%, N = 2,802) of Hispanics, Non-Hispanic Blacks (NHB), and Non-Hispanic Whites (NHW). Other groups (Asian Americans, Native Americans, and multiracial/others) were too small for SSM statistical tests, and were excluded from ethnic group comparisons. Sample characteristics are presented in Table 2.

Procedures

Data collection procedures for this study were part of a larger survey. All surveys were conducted online through RedCap and Qualtrics in a single session. Participants provided informed consent, and completed the surveys remotely, taking less than an hour to complete, on average. Measure items were presented as a set and with a standard order of administration.

Measures

Revised Horney-Coolidge Type Inventory (rHCTI). A 33-item form was constructed using results of the CFA in Study 1. Internal consistencies were $\alpha = .79$ for the compliance domain, $\alpha = .80$ for the aggression domain, and $\alpha = .84$ for the detachment domain. Internal consistency at the facet level ranged from $\alpha = .61$ to $\alpha = .76$. Thus, the shorter scales had internal consistencies equivalent to the original scales (see Study 1).

NEO-PI R Circumplex (Traupman et al., 2009). Forty-eight items from the NEO-PI-R extraversion and agreeableness scales were used to derive octant scores, each comprised of the average of six items. Participants were asked to rate whether they agreed with statements on a 5-point Likert scale. The internal consistency for the octant scores ranged from $\alpha = .60$ to $\alpha = .83$.

Circumplex Scale of Interpersonal Values (*CSIV*; Locke, 2000). A 32-item version of the CSIV was used to measure goals, values, and motives using the IPC structure. Each octant score is generated by averaging 4 items. Each item measures the importance of interpersonal attributes to the participant rated on a 5-point Likert. Internal consistency ranged from $\alpha = .66$ to $\alpha = .81$.

Results and Discussion

Confirmatory factor analysis with this larger sample replicated the results of Study 1; the proposed factor structure for the rHCTI did not reach acceptable levels of model fit across indexes ($\chi^2(483) = 6363.1$, $p < 0.001$, CFI = 0.79, RMSEA = 0.066, SRMR = 0.089). Additional analyses were conducted to identify sources of the poor fit in this study[6]. Similar to Study 1, fit statistics were generally acceptable at the facet level, but poor at the domain level. In contrast to Study 1, each domain had poor fit. Each facet had good CFI and SRMR values, but the self-abasement, need for relationships, and need for aloneness facets had poor RMSEA.

There were significant but small (eta-squared values were less than .02) sex differences in domain scores: males has higher scores on aggression, $F(2, 2847) = 13.43$, $p < .001$, and detachment, $F(2, 2848) = 25.00$, $p < .001$; females had higher scores on compliance, $F(2, 2848) = 22.79$, $p < .001$. There were also small ethnicity differences for compliance, $F(2, 2554) = 27.65$, $p < .001$, aggression, $F(2, 2553) = 6.89$, $p = .001$, and detachment, $F(2, 2554) = 15.34$, $p <$

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[6] Results for post-hoc CFAs are presented in the online supplement.

.001 (see Table 2). Tukey's post hoc tests investigating ethnic differences found that each ethnic group had significantly different compliance scores, with NHWs having the highest scores and were followed by Hispanics and NHBs. For aggression, Hispanics had significantly higher scores than NHWs (24.22 ± 4.96, $p = .001$). NHWs were also lower in detachment than NHBs (22.41 ± 5.89, $p < .001$) and Hispanics (21.97 ± 6.31, $p < .001$).

SSM statistics representing IPC correlates of the rHCTI scales were generated for each ethnic group. Comparing the 95% CIs for each scale across each ethnicity, there were small but significant ethnic differences when rHCTI scales were projected onto interpersonal style[7]. The detachment domain and avoidance facet were significantly more dominant for Hispanic participants compared to NHBs and NHWs. Small but significant ethnic differences emerged for interpersonal goals, as well. The compliance domain and the altruism facet were significantly more dominant for NHBs than for NHW and Hispanic participants. Also, the power and strength facet were somewhat less strongly associated with dominant goals for NHBs compared to NHWs. There were no differences between NHWs and Hispanic participants. Given the overall similarities in IPC results across these groups, combined analyses are presented in what follows.

Interpersonal Circumplex Analyses

Interpersonal Style. Using the NEO-IPC, model fit was good for all domain and facet scales (see Table 3); amplitudes indicated highly differentiated content for each scale. The aggression and detachment domains were most strongly associated with the dominant-hostile and submissive-hostile octants, respectively, as predicted. As in Study 1, the compliance domain was associated with warmth, as opposed to the expected warm submissiveness (see Figure 2B).

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[7] SSM tables for interpersonal style and goals of the rHCTI for each ethnic group are presented in the online supplement.

Also, consistent with Study 1, facets within each domain had varied IPC locations. For aggression, malevolence was associated with (somewhat submissive) hostility, whereas power and strength were associated with hostile dominance. For detachment, all facets were associated with hostile submissiveness, but varied in the magnitude of this association. For compliance, self-abasement was again strongly associated with submissiveness, whereas altruism and need for relationships were associated with (somewhat dominant) warmth.

Interpersonal Goals. Model fit was good for all domain and facet scales (see Table 3). Elevation was notable for all scales with the exception of the need for aloneness facet, indicating general interpersonal goal endorsement. Each domain and facet scale had notable amplitude, indicating specific and differentiated associations with goals. The aggression and compliance domains were associated with dominant-hostile and submissive-warm goals, respectively, as predicted (see Figure 2D). Detachment was again less submissive than expected, being most strongly associated with endorsement of hostile goals.

Facets within domains again had different associations with goals. For aggression, malevolence was most strongly associated with hostile goals, whereas power and strength were strongly associated with hostile dominant goals. Within detachment, all facets were associated with hostile goals. However, the self-sufficiency had a slightly but significantly more dominant-hostile association. Finally, for compliance, self-abasement was associated with submissive goals, whereas altruism and need for relationships were associated with warm submissive goals.

Summary. As in Study 1, IPC-based measures of interpersonal style and goals generally supported expected correlates of the domain scales. However, also as in Study 1, aggression was the only domain consistently located as hypothesized, with hostile-dominance evident for both style and goals. Detachment displayed the expected association with a hostile-submissive

interpersonal style, but with hostile goals. The compliance domain was associated, as expected, with warm-submissive interpersonal goals, but also with warm interpersonal style. The correlates again varied across facets within domains, suggesting interpersonal heterogeneity. Although there were small group differences in compliance, aggression, and detachment scores, and in associations with interpersonal goals, the predicted differences for IPC locations across rHCTI domain and facets scales were consistent for each ethnic group.

GENERAL DISCUSSION

Tests of construct validity are simultaneously tests of underlying theory (Straus & Smith, 2009). Given the focus of Horney's Tripartite Model, the CIIT perspective (Hopwood et al., 2013; Pincus & Ansel, 2013) is a useful lens through which to examine the validity of the HCTI as a measure of these maladaptive patterns of motivation and related behavior. The hypothesized structure (i.e., three facets within each of three broader domains) was not supported for the original HCTI. Fit was significantly improved through item deletions, but still did not meet standards across fit indexes, indicating an important area for refinement in future efforts to assess Horney's model. Specifically, across both studies the compliance and detachment domain had poor model fit, while the aggression domain had acceptable fit in Study 1. The self-abasement facet was the only facet in both studies to fail to reach acceptable model fit. This suggests that the total rHCTI model failed to achieve adequate fit due to heterogeneity of facets within domains, but not poor fit of the facets themselves. Nonetheless, results supported predictions that Horney's trends reflect distinct interpersonal constructs. Each domain was generally associated with a predicted IPC location; aggression with hostile-dominance, detachment with hostile-submissiveness, and compliance with warm-submissiveness.

However, in both studies there were notable differences for two HCTI domains in their IPC locations for interpersonal style as opposed to goals. Compliance was associated with a warm interpersonal style, but with warm submissive goals. Individuals high in "moving toward others" may pursue warm-submissive goals, perhaps seeking warm dominance from others (e.g., care-taking, reassurance, protection). However, based on the complementarity principle, their warm style may evoke only warmth in return, potentially frustrating and exacerbating their dependent motives. Similarly, detachment was associated with a hostile-submissive interpersonal style but hostile goals. Hence, individual's high in "moving away from others" may seek separation and distance, but their hostile submissiveness may invite or evoke hostile control from others (e.g., criticism, blame), potentially strengthening both their desires for distance and a defensive interpersonal stance. These patterns support approaches that use the IPC in multi-surface assessments to identify possible maladaptive patterns in interpersonal functioning in the context of research and clinical assessment (c.f., Cain et al., 2017; Dawood & Pincus, 2016).

The aggression domain was associated with hostile dominance in both style and goals, suggesting interpersonal consistency in the "moving against others" pattern. However, hostile dominance is often associated with reciprocated hostile-dominance (e.g., interpersonal conflict) (Cundiff et al., 2015; Kiesler, 1983), as opposed to the capitulation or begrudging deference (i.e., hostile-submissiveness) predicted by the complementarity principle. Further, the hostile-dominant goals and style associated with "moving against others" are also evident in narcissistic rivalry (Back et al., 2013; Grove et al., 2019), which is associated with increasing interpersonal difficulty over time (Leckelt et al., 2015). Thus, all three styles assessed by the HCTI domains contain possible indications of recurring maladaptive processes[8].

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[8] However, correlations between the HCTI and measures of distress show mixed support for the maladaptiveness of these trends, as compliance was weakly associated with emotional distress. See online supplement.

Importantly, across both samples CFA and facet-level SSM analyses consistently indicated that the domains may not represent unified patterns of interpersonal functioning[9]. Hence, use of the domain scales could mask heterogeneity or specificity across their components. For the aggression domain, malevolence was associated with hostile interpersonal style and goals. In contrast, the power and strength facets were associated with hostile-dominant style and goals. For detachment, all facets were associated with hostile or hostile-submissive interpersonal style and goals. However, the associations were weaker for self-sufficiency than for the other facets. For the compliance domain, the self-abasement facet was clearly and strongly submissive in both interpersonal style and goals in contrast to the other facets, whereas the need for relationships and altruism facets were associated with warm interpersonal style and goals. Hence, only the self-abasement facet of the "moving toward others" domain clearly reflected Horney's view of a dysfunctional submissive style of seeking relationships.

The wide range of interpersonal correlates of these compliance facets resemble those associated with measures of interpersonal dependency (Bornstein, 2012), a construct that closely resembles Horney's description of "moving toward others." Some measures of dependency are strongly associated with submissiveness in the IPC, whereas other are associated with warmth (Pincus & Gurtman, 1995; Pincus & Wilson, 2001). The stronger association of the need for relationships and altruism facets of the "moving toward others" domain with warmth may indicate that they assess less maladaptive characteristics, perhaps because of their emphasis of adaptive forms of agreeableness rather than maladaptive extremes (Gore & Widiger, 2015; Lowe et al., 2009) that are more consistent with Horney's model[10].

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[9] This was also evident by facet level correlations with measures of emotional distress and social support and post-hoc CFAs, see online supplement.

[10] For further evidence, see correlations between compliance facets and emotional distress measures on online supplement.

Limitations, Strengths, and Future Directions

There are several limitations of the current studies. First, Horney (1950) posited that neurotic trends were not necessarily maladaptive themselves, but rather that dysfunction arises from their fixity. Our designs precluded tests of this hypothesis, but CIIT includes related conceptual and analytic approaches that could be used in future research (Moskowitz & Zuroff, 2005; Wright et al. 2016). Also, reliance on self-report scales creates the possibility that common method variance contributes to observed associations (Podsakoff et al., 2003). Replications using additional methods such as behavioral assessments or informant ratings would be useful (Bornstein & Hopwood, 2017; Oltmanns et al., 2018). Additionally, although we evaluated the association between the HCTI and interpersonal style, the present studies did not examine associations with the quality of specific relationships (e.g., friendships, romantic relationships), an important avenue for future research. Attention checks for data validity were not used during measurement batteries. Inclusion of inattentive or unmotivated respondents may have weakened some of the effects observed here. Additionally, post-hoc CFAs of the strength, power, and self-sufficiency facets were limited by only having 3-items in their facets. As global model fit for these facets were impossible to generate, comparative model fit was assessed by comparing the original, saturated model to a model in which the item in each facet with the highest variance was fixed to equal 1. This approach, despite being inconsistent with the original conceptualization of the HCTI scale, allowed us to determine that the original 3-item facet scales performed better than the fixed-variance scale[11]. Finally, our sample was composed solely of undergraduate students and may not generalize to other populations, including individuals with clinically-relevant levels of emotional distress or personality disorders. However, previous

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[11] For more details, please see online supplement.

research using the HCTI has suggested that this measure can be used to describe both normal and clinical populations (Coolidge et al., 2001).

Despite these limitations, the present studies provide novel evidence of the construct validity of the HCTI, and support the relevance of Horney's social motivational model to interpersonal theory and research. The compliance, aggression, and detachment neurotic trends had generally expected associations with well-validated IPC-based measures. The convergent results from two samples, including the large and diverse sample in Study 2, increase confidence in the findings. Further, the refined SSM method (Zimmerman & Wright, 2017) facilitated evaluation of the HCTI scales through direct comparisons of their interpersonal profiles.

Horney's (1945, 1950) accounts of maladaptive trends, and the specific patterns they comprise, indicated that they are extremes of normal or even universal human tendencies. Hence, development of new measures of Horney's trends or refinements of the HCTI may benefit from recent efforts to develop measures of maladaptive extremes of normal traits (Gore et al., 2012; Widiger, 2015). Such efforts could address, for example, the somewhat paradoxical prediction that both "moving toward" and "moving away" can be maladaptive. The expected associations of HCTI scales with IPC-based measures observed here supports their construct validity and their possible use in clinical assessment and evaluation of psychotherapy when these activities are related to Horney's framework. This convergence between HCTI scales and IPC-based measures also suggests that recent refinements of interpersonal conceptual and assessment frameworks (Cain et al., 2017; Hopwood et al., 2013; Pincus & Ansell, 2013) can provide useful translations of Horney's model in clinical and research contexts.

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Table 1. Summary Statistics with 95% Confidence Intervals for HCTI Domains and Facets Structural Summary Method Analyses Using the IAS-R and CSIV in Study 1.

Profile	Elevation	Amplitude	Displacement	Fit
IAS-R *Interpersonal Style*				
Compliance	.00 [-.02, .03]	.35 [.29, .41]	344.4 [333.0, 355.4]	.88
Altruism	-.01 [-.03, .02]	.40 [.35, .46]	9.5 [358.5, 19.5]	.89
Need for Relationships	-.03 [-.05, .00]	.38 [.32, .44]	19.7 [9.8, 28.7]	.95
Self-Abasement	.03 [.01, .06]	.33 [.26, .39]	274.4 [261.3, 286.3]	.94
Aggression	.05 [.03, .08]	.32 [.26, .39]	150.4 [136.3, 163.7]	.97
Malevolence	.04 [.02, .07]	.23 [.16, .30]	192.9 [171.5, 212.4]	.96
Power	.03 [.01, .06]	.38 [.31, .44]	115.7 [104.8, 126.1]	.96
Strength	.03 [.01, .06]	.26 [.19, .33]	160.2 [143.9, 176.8]	.97
Detachment	.06 [.04, .09]	.39 [.34, .45]	212.4 [202.9, 222.5]	.96
Need for Aloneness	.06 [.04, .09]	.42 [.37, .47]	224.6 [215.8, 233.3]	.92
Avoidance	.04 [.01, .07]	.29 [.23, .36]	208.8 [193.4, 223.1]	.99
Self-Sufficiency	.05 [.02, .07]	.26 [.20, .33]	192.7 [177.7, 207.1]	.96
CSIV-*Interpersonal Goals*				
Compliance	.20 [.15, .26]	.36 [.31, .42]	329.0 [320.5, 336.9]	.98
Altruism	.06 [.00, .12]	.36 [.31, .41]	351.7 [343.4, 358.8]	.98
Need for Relationships	.08 [.03, .13]	.34 [.29, .40]	351.9 [342.9, 0.2]	.99
Self-Abasement	.26 [.21, .32]	.27 [.22, .31]	276.2 [263.2, 289.8]	.93
Aggression	.26 [.21, .31]	.22 [.17, .28]	152.4 [137.6, 165.1]	.96
Malevolence	.17 [.11, .23]	.16 [.11, .22]	178.3 [157.3, 197.8]	.98
Power	.23 [.17, .28]	.17 [.13, .23]	118.3 [98.1, 137.6]	.86
Strength	.20 [.14, .25]	.22 [.17, .28]	157.4 [143.4, 171.2]	.98
Detachment	.19 [.13, .24]	.35 [.29, .40]	187.6 [179.8, 195.8]	.97
Need for Aloneness	.15 [.10, .21]	.29 [.23, .34]	190.2 [179.8, 201.0]	.97
Avoidance	.19 [.13, .24]	.31 [.26, .37]	191.8 [182.6, 201.6]	.98
Self-Sufficiency	.12 [.06, .17]	.27 [.21, .33]	178.7 [167.4, 188.5]	.96

Table 2. Summary of Study 2 sample demographics

	NHW N = 1118	NHB N = 378	Hispanic N = 1297
Age Mean (SD)	21.42 (4.58)	21.31 (4.47)	20.29 (3.32)
Gender N (%)			
Male	304(27.4%)	110(29.1%)	355(27.5%)
Female	806(72.6%)	268(70.9%)	937(72.5%)
HCTI Mean Scores (SD)			
Compliance	34.58 (5.43)	32.04 (5.76)	33.40 (6.03)
Aggression	24.22 (4.96)	24.88 (5.35)	25.03 (5.49)
Detachment	20.78 (5.58)	22.41 (5.89)	21.97 (6.31)

Note: NHW = Non-Hispanic White, NHB = Non-Hispanic Black

Table 3. Summary Statistics with 95% Confidence Intervals for rHCTI Domains and Facets Structural Summary Method Analyses Using the NEO-IPC and CSIV in Study 2.

| Profile	Elevation	Amplitude	Displacement	Fit
NEO-PI-R IPC *Interpersonal Style*				
Compliance	.17 [.14, .20]	.30 [.27, .32]	9.5 [4.8, 13.9]	.99
Altruism	.16 [.13, .18]	.44 [.42, .46]	13.3 [1.3, 16.2]	.98
Need for Relationships	.11 [.09, .14]	.33 [.30, .35]	33.5 [29.5, 37.5]	.99
Self-Abasement	.12 [.09, .14]	.16 [.14, .19]	262.1 [252.8, 271.4]	.95
Aggression	.15 [.12, .17]	.25 [.23, .28]	156.1 [150.2, 161.8]	.99
Malevolence	.12 [.09, .14]	.23 [.20, .25]	196.1 [189.4, 202.3]	.98
Power	.12 [.10, .14]	.31 [.29, .33]	128.3 [123.2, 133.4]	.98
Strength	.11 [.09, .13]	.15 [.13, .18]	145.0 [133.5, 155.8]	.98
Detachment	.06 [.03, .08]	.40 [.38, .43]	211.4 [208.2, 214.5]	.99
Need for Aloneness	.03 [.01, .06]	.43 [.41, .45]	220.8 [217.4, 223.8]	.99
Avoidance	.06 [.03, .09]	.34 [.31, .36]	204.7 [200.9, 208.5]	.99
Self-Sufficiency	.05 [.03, .08]	.25 [.22, .27]	201.2 [195.2, 207.0]	.99
CSIV-*Interpersonal Goals*				
Compliance	.28 [.25, .31]	.26 [.24, .29]	337.6 [334.2, 34.8]	.94
Altruism	.14 [.11, .17]	.32 [.30, .34]	354.7 [352.0, 357.2]	.96
Need for Relationships	.23 [.20, .26]	.26 [.23, .28]	348.2 [344.6, 351.6]	.98
Self-Abasement	.26 [.23, .29]	.14 [.13, .16]	265.1 [255.5, 274.8]	.86
Aggression	.27 [.24, .30]	.19 [.17, .21]	149.0 [143.4, 153.9]	.96
Malevolence	.17 [.14, .20]	.18 [.15, .20]	165.6 [159.8, 171.0]	.97
Power	.27 [.24, .29]	.15 [.13, .17]	135.0 [126.6, 142.7]	.91
Strength	.20 [.17, .23]	.14 [.11, .16]	138.3 [128.9, 146.7]	.96
Detachment	.13 [.10, .16]	.32 [.30, .34]	178.5 [175.8, 181.3]	.98
Need for Aloneness	.08 [.05, .11]	.28 [.26, .30]	183.8 [18.4, 187.3]	.99
Avoidance	.16 [.13, .19]	.29 [.27, .31]	178.6 [175.6, 181.5]	.98
Self-Sufficiency	.10 [.07, .13]	.24 [.22, .26]	170.3 [166.4, 174.4]	.97
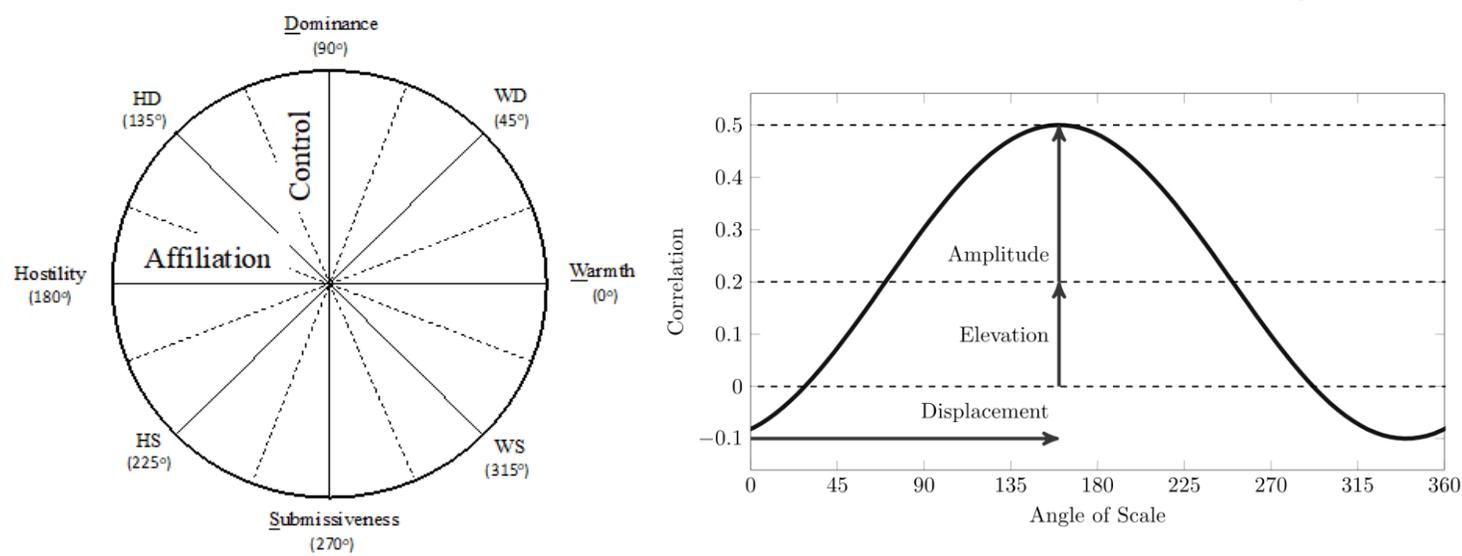
Figure 1. The Interpersonal Circumplex and interpersonal profile in the Structural Summary Method.
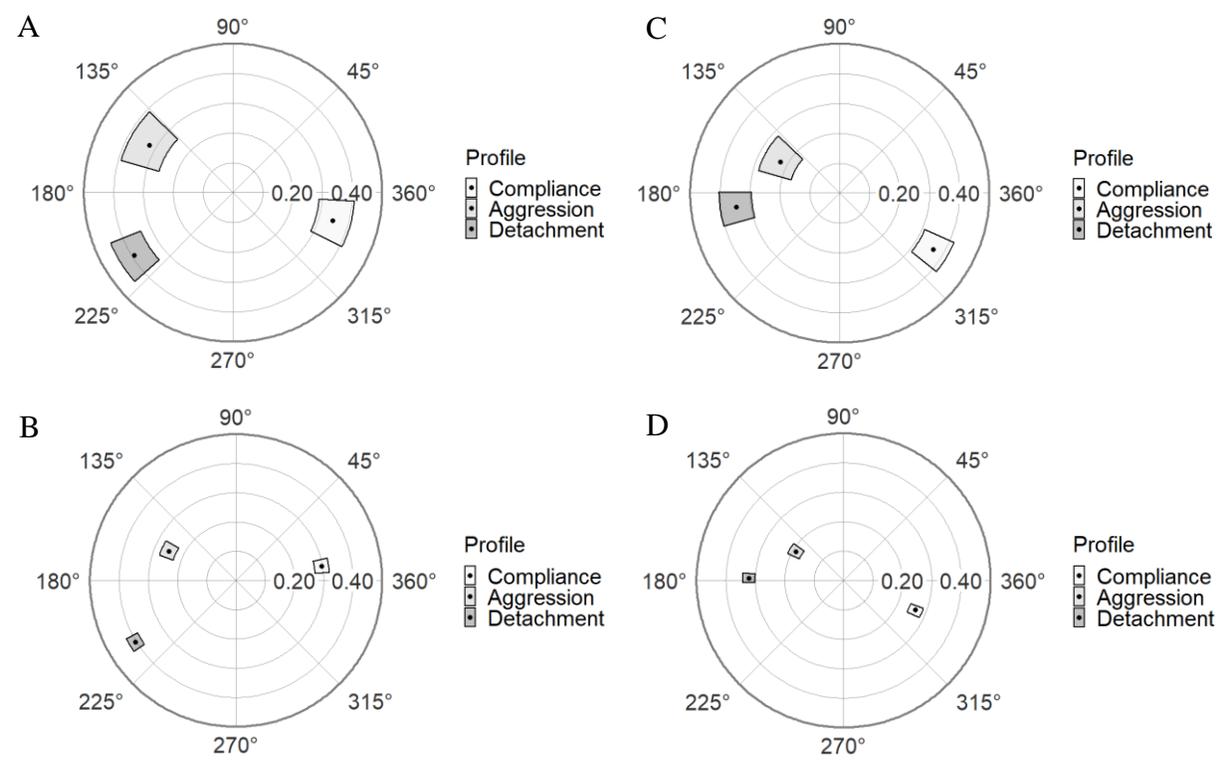

Figure 2. Amplitude and angular displacement confidence intervals for HCTI domains and interpersonal style, measured using the IAS-R (Panel A) and the NEO-PI-R C (Panel B), and interpersonal goals, measured by the CSIV in Study 1 (Panel C) and Study 2 (Panel D).