**Contemporary Integrative Interpersonal Theory:
Integrating Structure, Dynamics, Temporal Scale, and Levels of Analysis**

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Abstract

Theoretical accounts of psychopathology often emphasize social context as etiologically central to psychological dysfunction, and interpersonal impairments are widely implicated for many legacy diagnostic categories that span domains of psychopathology (e.g., affective, personality, thought disorders). Contemporary Integrative Interpersonal Theory (CIIT) seeks to explain the emergence, expression, and maintenance of socio-affective functioning and dysfunction across levels and timescales of analysis. We emphasize the importance of cohesively addressing the often-segregated challenges of establishing empirically supported structure, functional accounts of dynamic processes, and how together these facilitate theoretical and methodological consistency across levels of analysis ranging from biology to behavior. We illustrate CIIT's potential to serve as an integrative theory for generating falsifiable hypotheses that support strong inference investigations into the nature of psychological dysfunction across a range of traditional diagnostic constructs and superordinate spectra of psychopathology.

Keywords: Interpersonal Theory; Social Processes; Transdiagnostic; Personality; Psychopathology

General Scientific Summary: The field of psychopathology is transitioning away from discrete categories of mental disorders, and shifting towards understanding psychopathology using dimensions that cut across traditional dimensions. However, several challenges are associated with these changes, including linking a scientifically supported structure with basic dynamic processes, and how levels of analysis can be integrated into coherent systems of functioning. This paper describes how Contemporary Integrative Interpersonal Theory has anticipated and offers potential solutions to these challenges.

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The interpersonal dance begins at least as early as birth, and ends only with death.

Virtually all of the most important events in life are interpersonal in nature and most of what we call personality is interpersonal in expression. – Allen Francis, M.D. (1996)

An understanding of psychological functioning is necessary to understand its dysfunction (i.e., psychopathology), and this understanding must cut across levels¹ of analysis and span temporal scales. Comprehensive theoretical models of psychopathology need to address each of these components, and major ongoing efforts to develop revised psychiatric taxonomies – notably the Hierarchical Taxonomy of Psychopathology (HiTOP; Kotov et al., 2017) and the Research Domain Criteria (RDoC; Cuthbert, 2014) – have set their sights on some of these challenges. These efforts, though valuable, lack an organizing theory to guide their focus, coherence, and integration with a broader understanding of human behavior (Dalgleish et al., 2020). Here we outline, in broad strokes, how contemporary integrative interpersonal theory (CIIT; Dawood et al., 2018; Kiesler, 1996; Pincus, 2005; Pincus & Ansell, 2013) provides an established theoretical framework that can address the key challenges of modern psychopathology science. CIIT seeks to integrate an empirically based structural model with both short-term (momentary) and long-term (developmental) dynamics, across levels of analysis, and thus inform cause and effect models of psychopathology. Consistent with Frances' (1996) assertion above (see also Pincus & Wright, 2011), because CIIT seeks to account for the causes

¹ The National Institute of Mental Health's Research Domain Criteria uses the term "unit" in much the same way, to mean different levels of functioning or modalities of analysis.

and effects of functioning as well as dysfunction with broad patterns of interpersonal motives, perceptions, cognitions, behavior, and affect, it is a theory of personality and psychopathology.

Contemporary Integrative Interpersonal Theory

CIIT (Pincus, 2005) emerged from the relational movement in response to psychoanalytic drive theory in the first half of the 1900's (Sullivan, 1953a, 1953b, 1954), but has kept pace with major advances in psychological science over the past 70 years (Dawood et al., 2018; Laforge, 2004; Wiggins & Trapnell, 1996). From Sullivan's work to present day CIIT, the priority focus is on interpersonal functioning, which is organized around the "interpersonal situation" as a fundamental element of personality and psychopathology. Personality and psychopathology are explicitly linked in this perspective, because who we are, and the problems we have, bi-directionally influence each other (Pincus & Wright, 2011; Sullivan, 1948). Yet, this emphasis on the interpersonal should not be understood as narrow or disconnected from other important areas of psychological experience (Benjamin, 2002; Horowitz et al., 2006; Kiesler et al., 1997; Lukowitsky & Pincus, 2011). Indeed, virtually all domains of personality and psychopathology implicate interpersonal functioning and vice versa. CIIT elevates the interpersonal not only because humans are a social species but because functioning cannot be defined in a vacuum; it must serve some purpose, it must have an object (Leary, 1957).

We first outline the major tenets of CIIT before discussing how they address the major challenges facing modern theories of psychopathology. These assertions elaborate previous arguments (Kiesler, 1996; Leary, 1957; Pincus & Ansell, 2013; Sullivan, 1953a), and are intended to be broad. Prior descriptions of CIIT have addressed pieces of the full model (e.g., structure, development, dynamics, levels of analysis), though this is first to articulate how all of these components fit together in a cohesive model that integrates structure, processes, temporal

scales, and levels of analysis. Though we limit the summary of supporting research here, interested readers are directed to an expanded treatment in an on-line supplement.

1. *Fundamentally important functional expressions of personality and psychopathology typically occur in interpersonal situations.* This articulates the purpose of personality (as Allport [1937] argued, personality *is* and personality *does*) and is supported by the near ubiquitous inclusion of interpersonal elements in major structural and process-based models of psychological and behavioral functioning (e.g., systems theory, attachment theory, dimensional models of normal and pathological traits and temperament). In CIIT, the interpersonal situation is considered a fundamental unit of personality and psychopathology, and it encompasses direct in-person interactions as well as mental representations of interactions (recollected and imagined).
2. *Interpersonal functioning can be organized using the dimensions of agency and communion.* The empirically derived structural model used to organize interpersonal functioning is the interpersonal circumplex (top left of Figure 1). At the broadest and most abstract level, the vertical axis can be construed as agency and the horizontal axis as communion. Agency is defined by individuation and self-differentiation, encompassing needs and strivings for achievement, mastery, dominance, and control. Communion is defined by a focus on and connection with others, encompassing needs and strivings for belonging, intimacy, and nurturance. These constructs link CIIT to vast literatures that span the behavioral and social sciences (Wiggins, 1991). Labels for these dimensions have varied by author, depending in part on their focus or level of construal (e.g., communal motives vs. warm behavior). This structure not only serves the purpose of identifying and operationalizing the primary domains of

focus, but also how they relate to each other in mathematically precise ways that form a basis for falsifiable inferences (Gurtman & Pincus, 2003; Zimmermann & Wright, 2017). Moreover, these same domains are used to organize functioning and dysfunction; there are not separate models for normal functioning and psychopathology (Leary, 1957).

3. *The same structure organizes functioning across levels of experience.* From the outset, interpersonal theory recognized the need for a “multi-level” understanding of psychological functioning. Humans are complex systems that span modalities of experience and expression. These include, but are not limited to, overt interpersonal behaviors, perceptual foci, construal processes, motivations, goals, and neurobehavioral structures. As alluded to in Tenet 2, the structure of the interpersonal circle can be used to organize functioning across levels of inquiry. For instance, research has identified neurobehavioral agentic and communal reward systems as well as validated methods for assessing discrete overt dominant and affiliative behavior.
4. *Satisfying agentic and communal motives drives interpersonal behavior.* Sullivan’s initial socio-affective formulation of personality’s function involved seeking out self-esteem and security in social situations (1953a). As such, it can be understood as a control theory model (viz. Carver & Scheier, 1998), in which interpersonal behavior serves to satisfy agentic and communal motives, sometimes referred to colloquially as succeeding at work and love, or getting ahead and getting along. The theory posits that satisfaction of motives leads to decreased negative affect and vulnerability, increased positive affect, felt security, and self-esteem, whereas frustration of motives

leads to the opposite. These contingencies serve to reinforce/maintain or punish/decrease specific behaviors in the short and long-term. This tenet also provides an explicit link between the interpersonal and affective domains, highlighting that they are inexorably intertwined. Individuals differ from each other in their average levels of these motives based on innate biology that has interacted with life experience. Additionally, individuals differ dynamically from themselves moment to moment and across situations as they encounter differences in affordances and opportunities for motive satisfaction.

5. *The “interpersonal transaction cycle” provides probabilistic expectations for patterns of behavior and falsifiable predictions about behavioral sequences.* The dyadic processes that drive an interpersonal situation can be elaborated to include key components (e.g., motivation, perception, behavior, affect) of a transaction cycle that involves the interaction among modalities or levels of experience referenced in Tenet 3 (see Top right of Figure 1). CIIT makes specific predictions about the patterns of an interaction between individuals, such as complementarity (Sadler et al., 2011).
6. *Sustained deviations from these expected patterns may reflect psychopathology.* Typical patterns of functioning, either normatively or for the individual, provide a preliminary basis for comparison to identify maladaptive functioning. This respects individual differences and within-person fluctuations, but nevertheless can be used to describe and explain dysfunctional processes both nomothetically and idiographically.

Taken together, these principles can be used to generically define adaptive psychological functioning and dysfunction (i.e., psychopathology) from the perspective of CIIT. *Adaptive*

functioning is defined as a sustained ability to engage interpersonally in ways that coordinate and satisfy the agentic and communal needs of self and other, relatively consistent with one's developmental stage and socio-cultural context, through the flexible, stable, and effective regulation of self, affect, and interpersonal behavior. As stated in Tenet 4, CIIT recognizes and respects the rich heterogeneity in individual differences in dispositional levels of agentic and communal motivation, which are the result of accumulated life experience interacting with one's unique biological makeup. This means that adaptive functioning is not defined by dispositional levels per se: rather, it is defined by the ability to stably yet flexibly coordinate and satisfy self and others' motives within the contexts of developmental, socio-cultural, and situational demands.

Accordingly, dysfunction would be defined as *the sustained breakdown in any of the processes that support and maintain the flexible, stable, and effective regulation of self, affect, and/or interpersonal behavior.* The emphasis is on sustained difficulties so as to accommodate the expected transient deviations and regulation of processes in reaction to life events and stressors. Examples of contributing processes might be impairments, biases, or instability of perceptions of self and other; overvalued or extreme motivations or beliefs; interpersonal repertoire/skills deficits; idiosyncratic, deviant, inconsistent, or rigidly applied behavioral rules, such as overvalued or disavowed goals, amplified or exaggerated links among perceptions, affect, and behavior (e.g., rejection sensitivity), among others. The key is that any one of these could disrupt the successful and mutual navigation of interpersonal transaction cycles, thereby leading to self, affect, and behavioral dysregulation, and ultimately unstable, dissatisfying, and even destructive interpersonal relations. As such, an individual's psychopathology could reflect primary interpersonal dysfunction, as is often the case for personality disorders (Hopwood et al.,

2013; Pincus et al., 2020), or interpersonal dysfunction could result from psychopathology for which the primary impairments are commonly considered non-interpersonal, as is the case for many internalizing and thought disorders (e.g., the majority of delusions have social themes [Bell et al., 2020]; both depression [Hames et al., 2013] and eating disorders [Monteleone et al., 2018] broadly and uniquely impact social perception and behavior). Importantly, the content and processes outlined in CIIT may provide valuable insights into an individual's unique manifestation of any form of psychopathology. In each case, CIIT can serve as a useful lens for understanding the processes operant in the key domain of social functioning, and be leveraged to intervene and effect some desirable change for the individual (Anchin & Pincus, 2010; Benjamin, 2018).

We next elaborate how these basic principles give rise to an integrated theory of structure and process, spanning timescales and levels of analysis, and inform notions of cause and effect in psychopathology. Like most theories, some aspects of CIIT have achieved strong support, whereas other aspects remain speculative and in some cases are under active inquiry (see supplement).

Integration: From Structure to Function

Psychopathology is transitioning away from constructs (i.e., circumscribed syndromes and diagnostic categories) that were established in a top-down manner but have not held up to validation scrutiny, towards evidence-based “transdiagnostic” dimensions (Daggleish et al., 2020). The dual challenges facing the field are establishing the relevant domains of (dys)function and defining pathology within this space. Establishing the domains of functioning largely corresponds to structural questions, akin to anatomy. Defining pathology, however, requires elaborating the dynamic processes that correspond to the function of those domains,

akin to physiology. These are not independent goals, because mapping the structure of psychological domains facilitates accurate description of functional processes (Hopwood et al., 2015; Wright & Kaurin, 2020).

In trying to address these demands, emerging systems of psychopathology have prioritized different aspects of the challenges (Dalglish et al., 2020). For example, the HiTOP has targeted structure, taking a decidedly empirical approach by using quantitative models to establish points of convergence and divergence across traditional diagnoses and symptoms (Kotov et al., 2021). However, thus far the HiTOP Consortium has not targeted the functional processes associated with the identified domains. It therefore remains a descriptive structural model to date. In contrast, other approaches, often emerging directly from clinical intervention, have focused on transdiagnostic processes but have not directly sought to challenge the organizing structure of psychiatric disorders (e.g., Harvey et al., 2004; Hayes & Hofmann, 2018). Arguably, the RDoC framework falls somewhere in between, because it proposes novel structural elements organized around basic neurobehavioral processes with psychiatric relevance (Cuthbert, 2014).

These models each have important strengths, but are incomplete because they lack organizing functional theories. For instance, the HiTOP Consortium follows the guiding principle that quantitative empirical structural modeling will lead to a valid model for psychopathology. Its strength is its structural validation, but it is limited by its lack of articulation of functioning within the domains it identifies. Because it is primarily descriptive rather than process-focused or explanatory, it cannot distinguish between function and dysfunction. In contrast, theoretical models of specific psychiatric disorders have focused on the mechanistic functional processes that offer prime targets for intervention in treatment, though

these disorder-specific theories (and subsequent treatments) suffer because they are not organized within valid structure. For instance, myriad publications propose pathogenesis and maintenance mechanisms of major depression, generalized anxiety, borderline personality disorder, and so forth. As such, they remain overly specific and compartmentalized from a broader integrative perspective represented in the structural literature (cf. unified protocol; Barlow et al., 2017).

Taken together, the strengths and limitations of each of these efforts highlight that integrative models of psychopathology should be built upon a structurally valid model, but must also be focused and context specific, incorporating dynamic processes in those contexts (Hopwood, 2018; Hopwood et al., 2015; Leary, 1957; Wright & Kaurin, 2020). This is because domains of functioning are organized around specific purposes in relevant contexts. CIIT focuses on delimited domains of functioning, with identified functional purposes, providing a tractable level of breadth. Within these domains it has independently developed a well-established structural model, the interpersonal circumplex (top left of Figure 1), which provides the coordinates for mapping processes within and across levels of functioning (i.e., the interpersonal situation; top right of Figure 1).

Structurally, the dimensions of the interpersonal circumplex can be conceptualized as domains that can be found within extant models of personality and psychopathology. For instance, the first two dimensions of the Big-Five, extraversion and agreeableness (Goldberg, 1990), can be understood as rotational variants of the domains of agency and communion (DeYoung et al., 2013; McCrae & Costa, 1989; Pincus, 2002; Wiggins & Trapnell, 1996). Traditional personality disorder diagnoses reflect key points within this space, such that distinct dispositional interpersonal styles are associated with most personality disorder diagnoses (see

Wilson et al., 2017 for a meta-analysis). Relatedly, agency and communion provide two of the pillars of the DSM-5 Alternative Model for Personality Disorders (Williams & Simms, 2016; Wright, Pincus, et al. 2012; Wright, Thomas, et al., 2012) and the HiTOP (Girard et al., 2017).

The interpersonal content and implications of personality and psychopathology are not limited to these two domains, and all major domains of adaptive and maladaptive personality models (e.g., negative affectivity, disinhibition) are reflected in interpersonal profiles (Ansell & Pincus, 2004; Du et al., 2021; Wright, Pincus, et al. 2012). For many other forms of psychopathology, CIIT assumes a pathoplastic, or moderating relationship with interpersonal dispositions. Pathoplasticity is characterized by a mutually influencing non-etiological relationship between psychopathology and another psychological system (Widiger & Smith, 2008). Pathoplastic relationships between interpersonal dispositions and psychopathology have been found in social phobia (Cain et al., 2010; Kachin et al., 2001), generalized anxiety disorder (Przeworski et al., 2011; Salzer et al., 2008, 2011), panic disorder (Zilcha-Mano et al., 2015), depression (Dawood et al., 2013; Cain et al., 2012; Simon et al., 2015), post-traumatic stress disorder (Thomas et al., 2014), eating pathology (Ambwani & Hopwood, 2009; Hopwood et al., 2007), maladaptive perfectionism (Slaney et al., 2006), and fear of failure (Wright et al., 2009).

However, although the interpersonal circumplex structural model is centrally important to CIIT, the theory asserts that personality is dynamic and transactional (Dawood et al., 2018; Kiesler, 1996; Pincus & Hopwood, 2012). Functioning fundamentally concerns dynamic processes that unfold over time at different temporal scales, from the micro (the milliseconds it takes to perceive and react to stimuli) to the macro (change in traits across developmental epochs). These processes interface with context to variably determine (mal)adaptivity. For instance, well-functioning perceptual, construal, and behavioral selection processes allow

flexible and adaptive moment-to-moment interaction with others during social interactions. And, what is developmentally appropriate at one stage of life (e.g., the demanding behavior of a 3-year-old) is often considered maladaptive if they persist beyond that stage.

Interpersonal situations involve more than one person (we use only dyadic examples for simplicity), only one of which must be present or real. That is, the interpersonal situation encompasses direct in-person interactions as well as mental representations of interactions (recalled and imagined), and everything in between. Consistent patterns of functioning in these situations are a major part of what define personality and psychopathology (Cain & Pincus, 2016; Pincus & Wright, 2011; Sullivan, 1953a). By definition, interpersonal situations are dynamic and transactional, involving an ebb and flow of behavior as well as a give and take between participants. Kiesler (1996) unpacked the key components of the interpersonal transaction cycle, which involve both overt behavior and each person's mental construal of the other. These are detailed in the top right of Figure 1. As a cyclical process, where it begins is arbitrary, but we might begin with Person A's overt behavior (Box 1). This then is perceived by Person B (Path 1), which can then be said to impact Person B (i.e., their internal reaction; Box 2), in turn Person B responds with an overt response to Person A (the process of selecting this is reflected in Path 2), which is perceived and has its own impact. This sequence continuously cycles throughout the interaction. The boxes and paths in this diagram can be isolated to consider the constituents and components. For example, Box 1 includes overt behavior, Path 1 involves attention and perception, Box 2 includes construal and affective reactions, and Path 2 might involve motivation. Although this sort of transactional process and diagram is widely represented generically in social-cognitive formulations of behavior, CIIT brings the contextual focus and the structural model of the interpersonal circumplex to populate these processes with

specific content. By doing so, it tethers the structural to the dynamic and mechanistic, which provides a critical bridge to function. The dimensions of agency and communion define the purpose and meaning of behavior, its perceptions, impacts, and the motivations that drive it.

Within interpersonal situations, affect serves as the primary reinforcer and punisher, signaling whether an individual's motives and goals are being satisfied. Motivations to engage in interpersonal situations and for which behaviors are expressed are organized around agency and communion (Horowitz et al., 2006) and are represented by strivings for self-esteem (an agentic motivation) and security (a communal motivation) in interpersonal situations, and when satisfied lead to decreases in negative affect and vulnerability, and increases in positive affect. Individual differences in motivations, imbued through basic biological temperament (Depue & Collins, 1999; Depue & Marrone-Strupinsky, 2005) and shaped through development (e.g., Critchfield & Benjamin, 2008; Wright, Pincus, & Lenzenweger, 2012) and experience, influence the construal of situations, the types of situations entered and avoided, and the behaviors exhibited within situations in a probabilistic fashion based on available affordances. Individual differences in interpersonal functioning are shaped and can lead to longstanding change via accumulated outcomes of those situations. In this way, the trait and process approaches interpenetrate and form a coherent whole across brief and extended timescales (Bottom of Figure 1).

Interpersonal theory provides a network of falsifiable hypotheses about the patterns of behaviors that contribute to increased positive affect and stability, or negative affect and dissolution, of interactions. The most prominent is complementarity, which, in simple terms, states that in a probabilistic fashion dominant behavior pulls for or invites submission from the other, and warmth invites warmth. Transactions that adhere to these patterns should lead to

greater positive affect and stability of the transaction or relationship, and those that do not lead to renegotiation and possibly negative affect and dissolution. A comprehensive treatment of the interpersonal complementarity literature is beyond the scope of this article (see Sadler et al., 2011 for a review). However, it is informative because it illustrates a well-articulated hypothesis for normative transactional processes, linking the dynamics of behavior and affect within and across interpersonal situations. It therefore offers one potential framework for defining specific adaptive and maladaptive processes. Indeed, this generative concept has fostered a large supportive literature, yet ongoing research addresses remaining questions. For instance, what is the exact timescale on which complementarity occurs, is it consistent across the full range of behavior, and how is it influenced by contextual constraints (e.g., coworker vs. intimate relationships)?

Emphasizing the dynamics of interpersonal functioning within and across situations has led to the development of a sophisticated assessment and modeling apparatus (Pincus et al., 2014), including measuring behaviors unfolding moment-to-moment in laboratory-based interpersonal transactions (e.g., Ross et al., 2017; Sadler et al., 2009), behaviors expressed in interpersonal situations encountered in daily life (e.g., Moskowitz, 2009), and traditional dispositional summaries (Locke, 2011). To expand on the brief review of dispositional interpersonal findings above, results using these “dynamic” approaches to examine interpersonal functioning find that individuals vary considerably in their interpersonal behavior within and across situations in predictable ways. For instance, the fine-grained second-by-second coding method of Continuous Assessment of Interpersonal Dynamics (Lizdek et al., 2012; Girard & Wright, 2018), has revealed that conflict tasks are characterized by more cold behavior than non-conflict tasks and more negative affect in response to coldness (Hopwood et al., 2020), mother-

child interaction patterns were associated with less affiliative behavior as a function of ADHD diagnosis (Nilsen et al., 2015), maternal control is influenced by evocative gene-environment correlations (Klahr et al., 2013), and that wives' depressive symptoms influenced dynamics of dominance (wife increased while husband decreased over the interaction) but husbands' depressive symptoms influenced dynamics of affiliation (affiliation in husband and wife decreased over the interaction; Lizdek et al., 2016). Looking across situations in daily life using ecological momentary assessment, detailed articulations of contextualized dynamic processes associated with psychopathology have been empirically modeled, such as the perceptions of withdrawal→negative affect→hostility characteristic of borderline pathology (Sadikaj et al., 2013), or perceptions of dominance→negative affect→hostility characteristic of narcissistic pathology (Wright et al., 2017). Studies have also shown that decreases in binge eating were linked to increased interpersonal complementarity principles (Ambwani et al., 2015), marijuana use was associated with greater hostility in perceptions and behavior (Ansell et al., 2015), and stronger links have been found between social perception, behavior, and embarrassment among those diagnosed with social phobia relative to controls (Sadikaj et al., 2015).

In sum, functional interpersonal behavior serves to satisfy individuals' motivations and goals within the bounds of developmentally and culturally appropriate expectations (Tenet 4). Rich individual differences in basic motivations and goals allow for wide variability in functional behavior. Dysfunction is therefore defined as sustained departures from these expected patterns, but may manifest in different ways and due to multiple potential process breakdowns. The key point is that the interpersonal situation allows for strong inference (Platt, 1964) tests of the components of the process giving rise to or impacted by psychopathology, thereby suggesting optimal interventions. In other words, one can pit competing hypotheses

about whether observed patterns of dysfunction are explained by biased perception, differences in contingencies between affect and perception, or selection of maladaptive responses in response to others' behavior to explain hostile dynamics (viz. Hopwood, 2018; Pincus & Hopwood, 2012), to name some possible examples. We now shift to discussing the importance of placing questions about mechanisms within a framework that spans different levels of analysis.

Levels of Analysis: From Striatum to the Street

Though theories of psychopathology often prioritize one level of analysis (e.g., biological, motivational, cognitive, affective, behavioral), multi-level formulation is necessary for a comprehensive understanding of dysfunction because humans are complexes of multiple interacting biobehavioral systems. Moving from static structural models to functional models of complex behavioral dynamics necessitates integration across levels of analysis to achieve a mechanistic or explanatory account of psychopathology. This is the logic underlying the RDoC approach, which seeks to span “units” of analysis using domains that are presumed to reflect key circuits of functioning. In much the same way, CIIT’s two principal domains of agency and communion serve as the organizing framework to span levels of functioning in a coherent and cohesive manner. Using the same structural model for different levels of functioning was among the major early innovations of interpersonal theory (Leary, 1957; see Tenet 3 in text and supplement).

The levels that have received explicit attention in CIIT have varied over time and with evolving emphases in psychological science (Pincus et al., 2014). Early mainstays included overt behavior, values, and conscious description (i.e., self-report), as well as others less common in psychopathology research today, such as private symbolism and unexpressed

unconscious. In more recent articulations, although there remains a sustained interest in overt behavior, values, and self-concept (e.g., global self-report), there has also been expansion of interpersonal emphases to include perceptual, cognitive (e.g., efficacy), and neurobiological levels of functioning. Our goal here is not to define the exact set of levels that are necessary or valuable for understanding functioning and psychopathology. Instead, we aim to make the more general points that a multilevel understanding is necessary, and the interpersonal circumplex fulfils the need for an orienting structure to chart interpersonal functioning across levels of analysis in personality and psychopathology.

However, acknowledging that human functioning and psychopathology are realized across multiple levels does not resolve the difficulty of understanding how these levels associate and interact as an integrated whole (e.g., Bilder et al., 2013; Eronen, 2021). Structure and function are unlikely to be mirrored across levels and contexts with simple one-to-one correspondence. That is, agency and communion serve as broad abstract domains that will be instantiated more specifically at each level in relevant manifestations (see supplemental material Tenet 3) of genetic profiles, neural circuitries (e.g., corticolimbic-striatal networks), motivational strivings (e.g., affiliative incentive reward), mental representation (e.g., memories of warm interactions with others), and specific behaviors (e.g., smiling, affectionate touch). From a descriptive standpoint, there may be reasons to expect some degree of alignment or cohesion across levels (e.g., individual differences in average domain-relevant behavior correspond to neural structural or network differences). But from a functional standpoint, we would also expect interplay and reciprocal influence across units.

The interpersonal situation provides the necessary contextual crucible for elaborating how these levels interface, and links trait structure and dynamic processes over diverse

timescales. First, over a very brief timescale, as illustrated in the top right of Figure 1, different modalities of functioning weave together to form what is experienced as a seamless process (e.g., motivation→perception→construal→physiology→affect→behavior). Thus, the dynamics of the interpersonal situation serve as the context to study how the levels interact with each other and interpenetrate to form a coherent system. Although aspects of these sequences may be experienced as essentially automatic, distinguishing these levels provides entry points to articulating functional and dysfunctional aspects of the process. For instance, does an individual's overt behavior match their intended interpersonal communication? Or, does their perception and construal of another's behavior match a consensus perception and construal of the same person?

Second, over much larger timescales, by emphasizing a multilevel understanding of functioning, CIIT can account for individual differences in trait development and change. Individuals start life with genetically driven differences in relevant neural structures that manifest in the degree to which they are motivated for and experience reward from social interaction. Innate temperamental differences are upregulated or downregulated through positive and negative feedback loops in early life interpersonal situations, which lead to lasting individual differences in personality and its development through continued interactions. These processes are detailed by Depue and colleagues (Depue, 2006; Depue & Collins, 1999; Depue & Lenzenweger, 2016; Depue & Marrone-Strupinsky, 2005). More recently, Waller and Wagner (2019) have outlined how these long-term developmental processes may give rise to interpersonal psychopathology in a novel neurobehavioral model entirely consistent with CIIT. The bottom of Figure 1 also illustrates how individual differences and the interpersonal situation reciprocally influence each other, such that an individual's motives influence the selection of

specific situations, how they respond, and whether those situations are reinforcing or punishing, which in turn (slowly and over time) influence trait levels. These sorts of models have become popular in a generic fashion in contemporary personality theory (e.g., Baumert et al., 2017; Wrzus & Roberts, 2017). However, CIIT is unique in providing the necessary content (agency and communion) and context (social relating) to generate specific hypotheses about how these processes occur. These include normative trait differences and development, as well as departures from expected developmental trajectories.

In this section we have described the importance and potential of using the same structure to conceptualize variation in personality and psychopathology across interpenetrating levels of analysis. This shared structure across levels is what allows us to formulate connections from the striatum to the street and from development to daily life within the same theoretical model (e.g., biological bases establish set-points/reaction ranges that are shaped through development, setting up motivations that guide goal-directed pursuits in adulthood that are instantiated in day-to-day behavior). An elaborated multi-level dynamic model facilitates the articulation of specific dysfunctions emblematic of psychopathology, and supports strong inference tests of competing hypotheses of the location of the dysfunction (e.g., instability or excess of behavior vs. poorly applied behavior, unstable or inaccurate perceptions or construal of situational cues vs. mis-calibrated response). In the final section, we illustrate how CIIT can provide a model to define primarily interpersonal psychopathology, as well as how other-domain primary psychopathology results in interpersonal dysfunction.

Beyond Description: From Cause to Effect

The interpersonal situation distinguishes multiple kinds of problems, offering a clear, clinically useful, and theory-guided taxonomy for dysfunctional processes. These process-based

formulations serve not only to define psychopathology that is distinctly interpersonal (cause), but also can be used to understand how other forms of psychopathology can significantly impair basic interpersonal functioning (effect). Examples of traditional psychiatric diagnoses that are primarily interpersonal include the personality disorders (e.g., borderline, narcissistic, antisocial). Yet, affective, anxiety, externalizing, thought, eating, and other disorders often have significant interpersonal impacts as well. For instance, affect can serve as a moderator of situational construal and behavior through its well-known effects on perceptual and motivational processes. CIIT provides a framework or lens for understanding dysfunctional processes that are caused by interpersonal impairments or that are the effect of other impairments. We end with several exemplars intended to bring these articulations to life.

The personality disorders have often been considered the “interpersonal disorders,” and therefore detailed interpersonal formulations of these DSM constructs exist (Benjamin, 1996; Hopwood et al., 2013; Pincus & Hopwood, 2012). Some prime examples include characteristic interpersonal situations defined by distorted perceptions of or hypersensitive attunement to others’ interpersonal behavior, followed by affective and/or self-dysregulation, giving rise to self-protective motives, and maladaptive behaviors. In the case of borderline pathology, these revolve around affiliation/withdrawal, whereas in the case of narcissistic pathology dominance/status is the main organizing theme. Alternatively, some manifestations of pathology reflect overvalued/extreme motivations that color most interpersonal situations, leading to inflexible or misapplied behavior (e.g., the tendency for narcissistic individuals to view all situations as opportunities to self-promote without consideration of others’ goals, or the tendency for paranoid individuals to perceive nearly all ambiguous behavior as threatening).

When considering other domains of psychopathology, such as the internalizing spectrum,

though the core dysfunction is often presumed to be non-interpersonal, they nevertheless result in interpersonal impairments. Social anxiety is an apt example that often involves self-fulfilling interpersonal processes. For instance, strong threat-sensitivity manifests as hypersensitivity to rejection/evaluation, which leads to a variety of self-protective interpersonal behaviors that often ensure the individual is rejected, thereby confirming their fears and negatively rewarding their continued withdrawal. Other classical syndromes, such as major depression and generalized anxiety, are similarly associated with interpersonal impairments that can be enhanced with a CIIT formulation (Cain et al., 2012; Przeworski et al., 2011). Underscoring the integrative power of CIIT, both the psychoanalytic and cognitive-behavioral traditions have identified interpersonal dispositions as risk factors for depression, though using alternative names for agentic (introjective/autonomy) and communal (anaclitic/sociotropic) motives (Blatt, 2008). In either case, the deeply held motives, when thwarted, leave the individual vulnerable to depression, which then results in, among other things, interpersonal passivity and withdrawal. These are prime targets for intervention in well-supported treatments for disrupting depressive dynamics, such as behavioral activation.

The thought-disorder spectrum, which encompasses both positive and negative symptoms, is also associated with significant interpersonal impairments. It is readily apparent how perceptions distorted by positive symptoms, such as paranoia and persecutory delusions, might interfere with the natural harmony of an interpersonal situation (e.g., Lewis & Ridenour, 2020). Some have even argued that delusions may best be construed as impairments in basic social-cognitive processes (Bell et al., 2020). So, too, do negative symptoms, such as avolition, apathy, and flattened affect, dampen transactional processes at various points in the interpersonal cycle. One aspect of the broad, complex neural circuitry of negative symptoms (e.g., ventral

tegmental area to nucleus accumbens; see supplemental Tenet 3) likely reflects, in part, disruptions in the same dopaminergic neural circuits as agentic incentive sensitivity, and manifests in fewer interpersonal pursuits and lower responsivity when opportunities or requests from others arise (Brown & Pluck, 2000).

Consistent with CIIT, the cognitive-interpersonal model of eating disorders suggests that difficulties with interpersonal relatedness predispose to the development of anorexia nervosa and are also secondary consequences of the disorder, contributing to the maintenance of the illness (Treasure et al., 2020). Adversities in social development and impairments in social cognition can impact interpersonal behavior and disrupt identity development, potentially stimulating perfectionistic strivings and greater internalization of body image ideals to define the self. People with anorexia nervosa are more likely to report pervasive negative schemas regarding self and others and difficulties in emotion regulation, with a greater use of dysfunctional interpersonal emotion-regulation strategies (Oldershaw et al., 2015). In the acute phase, starvation has numerous interpersonal effects via its impact on social cognition, including deficits in nonverbal emotional expression, an inability to provide a spontaneous social narrative and to identify the social salience of stimuli, threat sensitivity, maladaptive social comparisons, misalignments in social reciprocity, and the avoidance of conflict (Ambwani et al., 2016; Oldershaw et al., 2018). Impairments in nonverbal communication and a lack of reciprocation of warmth can elicit aversive responses in others via interpersonal complementarity, leading to social exclusion and isolation. This can further the overvaluation of thinness and self-control for self-image.

Interpersonal dysfunctions represent both antecedents of problems in living and also the signs of psychopathologies with origins in other (e.g., affective) systems. Thus, CIIT can serve as a uniting and organizing framework for both causes and effects of psychiatric problems.

Conclusion

In summary, psychopathology is facing an exciting time of change and revision. There is considerable momentum to make paradigmatic shifts from longstanding, albeit fundamentally flawed, conceptualizations of psychological dysfunction. At the same time, as Dalgleish and colleagues (2020) argue, these efforts suffer from a lack of organizing theories that limit their ability to provide a comprehensive and cohesive account of psychopathology. Here we have presented CIIT as an exemplar paradigm for defining psychological functioning and dysfunction, bridging structural and mechanistic models, relevant across levels of analysis, and spanning temporal scales. We have highlighted how many of the interpersonal tradition's early innovations such as empirical structure, dimensional constructs, and defining function across levels and modalities, have proven prescient, and are now cornerstones of contemporary psychopathology science. Furthermore, CIIT's integrative nature has allowed it to remain current, incorporating the advances of other areas reflected in longstanding tenets of interpersonal theory (e.g., control theory, neurobehavioral circuitry). Though many of CIIT's tenets are rooted in substantial empirical support, it remains an active driver of research programs that seek to elaborate these tenets and expand the theory's reach. It can serve double duty as a way to explain psychopathology that is primarily interpersonal in nature, as well as a critical lens to understand interpersonal dysfunction secondary to other forms of psychopathology.

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Figure 1. Diagram of Contemporary Integrative Interpersonal Theory Features

This is a supplement to elaborate the fundamental tenets of Contemporary Integrative Interpersonal Theory, as part of the manuscript, “Contemporary Integrative Interpersonal Theory: Integrating Structure, Dynamics, Temporal Scale, and Levels of Analysis” authored by Aidan G.C. Wright, Aaron L. Pincus, and Christopher J. Hopwood.

1. The focus: *Fundamentally important functional expressions of personality and psychopathology typically occur in interpersonal situations.*

Basic needs for belongingness (Baumeister & Leary, 1995), the ability to negotiate social dominance hierarchies (Johnson et al., 2012), and the relational context of personality development itself (Reis et al., 2000) all speak to the importance of interpersonal functioning for personality, psychopathology, and well-being. Though virtually all theories of personality and psychopathology touch upon interpersonal functioning, in Contemporary Integrative Interpersonal Theory (CIIT; Pincus, 2005) it is a central proposition—integrating personality structures and dynamic processes in relation to interpersonal functioning is of fundamental importance for understanding and investigating personality, psychopathology, and their substrates. The integrative nature of CIIT can accommodate findings from several theoretical and research traditions that bear on personality and relational functioning (Horowitz, 2004; Horowitz & Strack, 2011; Pincus & Ansell, 2013). As Horowitz and colleagues stated, “Because the interpersonal approach harmonizes so well with all of these theoretical approaches, it is integrative: It draws from the wisdom of all major approaches to systematize our understanding of interpersonal phenomena. Although it is integrative, however, it is also unique, posing characteristic questions of its own” (Horowitz et al., 2006, p. 82).

Interpersonal models have been integrated conceptually and empirically with attachment (e.g., Benjamin, 1993; Bartholomew & Horowitz, 1991; Florsheim & McArthur, 2009) and evolutionary (Fournier et al., 2007; Hoyenga et al., 1998; Simpson et al., 2011; Zuroff et al., 1999) theories of personality and development, recognizing interpersonal relations as necessary for individual and species survival. CIIT also integrates social-cognitive (Locke & Sadler, 2007; Safran, 1990a, 1990b; Shoda et al., 1994) and psychodynamic (Caligor et al., 2018; Lukowitsky & Pincus, 2011; Luyten & Blatt, 2011) personality process models, by proposing that mediating internal psychological features (e.g., self–other schemas, motives and needs embedded in these schemas, and emerging emotional experiences) influence interpersonal patterns (Pincus, 2005). Finally, interpersonal functioning is also rooted in basic neurobiological systems underlying dominance/agency and communion/affiliation (Depue, 2006; Feldman, 2014; Klemm, 2015; Lenzenweger & Depue, 2020; Palumbo et al., 2020) and interpersonal functioning is impacted by pharmacological changes in brain chemistry (e.g., Moskowitz et al., 2011; Wright et al., 2019) and genetic variation (e.g., Tchalova et al., 2019).

The breadth and scope of CIIT promote the “interpersonal situation” (Hopwood et al., 2019; Pincus et al., 2020a; Sullivan, 1953a, 1953b) as a uniquely valuable unit of analysis for studying psychological phenomena at multiple levels. The interpersonal situation is the dynamically unfolding context in which social-learning takes place across the lifespan, promoting personality organization, development, and adjustment through the continuous patterning and re-patterning of interpersonal experience. Although interpersonal dysfunction is central to conceptualization of personality pathology (e.g., Pincus et al., 2020b), the structural (i.e., interpersonal dispositions) and process (i.e., patterns of interpersonal perception, affect, and behavior) aspects of CIIT have been empirically investigated across the spectra of psychopathology.

2. The structure: *Interpersonal functioning can be organized using the dimensions of agency and communion.*

Early efforts to outline a comprehensive interpersonal model of personality and psychopathology amenable to systematic scientific inquiry recognized the need for a valid organizational scheme, or structure (Freedman et al., 1951; Leary & Coffey, 1955). Deeply influenced by the relational psychoanalytic theories of Sullivan (1953a), among others, the Kaiser-Berkley group set about establishing a structural model that could account for the patterns of behaviors observed in psychotherapy groups, eventually arriving at a circular array (Freedman, 1985). The two primary axes (i.e., a vertical dimension and a horizontal dimension) of this circular array were initially used as a practical shorthand for summarizing the full system, and they were defined in terms of *Dominance* (vertical) and *Love* (horizontal). Since then, these two dimensions have been expanded and taken on various names depending on the author and specific application, but these include Control, Power, and Mastery for Dominance, and Affiliation, Warmth, and Connectedness for Love. More broadly, Wiggins (1991; 1997a; 2003) has construed them as the superordinate dimensions of Agency and Communion, which have propaedeutic explanatory power across scientific disciplines (Bakan, 1966).

Although the Kaiser-Berkeley group were not directly influenced by his work, their early efforts coincided with Guttman's (1954) articulation of a circumplex model, which was quickly enlisted to validate measures of the interpersonal circle (e.g., Lorr & McNair, 1963). Conceptually, a circumplex is a formal quantitative model of a circular array of variables whose associations are non-hierarchical, or not simply a matter of degree but rather of kind (Fabrigar et al., 1997; Guttman, 1954). Formally, a circumplex is represented in a circulant correlation matrix, which is defined by a pattern of decreasing associations moving away from the main diagonal. These associations can also be decomposed into two dimensions to summarize the pattern of associations. Unlike typical simple structure factor models, in a circumplex structure, it is expected that the entire two-dimensional space is populated by relevant content. That is, theoretically all combinations of the two dimensions manifest in relevant patterns of functioning. The original interpersonal circle, then formalized mathematically as the interpersonal circumplex (IPC), has provided CIIT with a firm structural basis and nomological net for tests of theory, measure development, and external construct evaluation (Gurtman, 1991; Gurtman & Pincus, 2003; Wiggins & Broughton, 1991; Zimmermann & Wright, 2017).

The IPC has been established in dispositional models and measures of an evolving set of interpersonal constructs including general traits, problems, impacts, strengths, sensitivities, efficacies, influence tactics, and values (Bliton & Pincus, 2020; Fournier et al., 2011; Hopwood et al., 2011; Locke, 2011; Wiggins, 1979). Agentic and communal dispositions imply enduring patterns of perceiving, thinking, feeling, and behaving that are probabilistic in nature, and describe an individual's interpersonal tendencies aggregated across time, place, and relationships. An individual's interpersonal dispositions, when understood in relation to their motives and goals, are assumed to give rise to variations in adaptive and maladaptive behavior that are contextualized yet consistent across relevant interpersonal situations (Horowitz & Wilson, 2005; Wiggins, 1997b). Thus, at this level IPC models can describe a person's typical ways of relating to others and refer to aspects of their interpersonal style.

At a more fine-grained level, the IPC structure can be used to classify the nature and intensity of specific interpersonal behaviors (Gifford, 1991; Moskowitz, 1994, 2005, 2009; Sadler et al., 2020), perceptions (Moskowitz & Zuroff, 2005), and impacts (Kiesler et al., 1997;

Schmidt et al., 1999). At the level of specific behaviors, interpersonal description permits moment-to-moment and transactional analyses of unfolding interpersonal processes. Thus, the agency and communion meta-structure and the IPC provide a “key conceptual map” (Kiesler, 1996, p. 172) for CIIT’s interpersonal description of personality structures and personality processes. Notably, interpersonal research on psychopathology is conducted at many levels of specificity (see Tenet 3; e.g., Bell et al., 2020; Luo et al., 2018; Sadler et al., 2015).

3. The levels: *The same structure organizes functioning across levels of experience (i.e., from brain to behavior)*

Early articulations of interpersonal theory recognized the need for organizing experience and functioning across multiple “levels” (Leary & Coffey, 1955). The basic issue is that human personality functioning spans different levels that interpenetrate and interact to emerge as a coherent whole. The IPC would then serve as the common conceptual map for ensuring consistency when traveling within and across these levels. Influenced by psychodynamic thinking, early description of levels included *public communication*, *conscious description*, *private symbolization*, *unexpressed unconscious*, and *values* (Leary, 1957). Although the taxonomy of levels is open to continuous updating in CIIT and other areas of psychology, there are clear parallels between the levels proposed by Leary and concepts in contemporary personality science (e.g., self-reports, overt behavioral ratings, self-other agreement; Vazire, 2010). The broader point is that the notion that human psychology cannot be summarized with a single level of analysis has perhaps never been more apparent than now (Venables & Patrick, 2020). For instance, this is a foundational principle of the National Institute of Mental Health’s Research Domain Criteria approach (Insel et al., 2010). Thus, it is important to retain this fundamental tenet of interpersonal theory in CIIT, even as we may seek to update or augment the specific set of levels that are under consideration. CIIT is therefore not a theory about traits, overt behavior, or even neural circuits, it is, at its core, an integrative theory about the interpersonal system as a whole.

Interpersonal traits are, like all personality traits, best understood to be abstractions or probabilistic descriptions of an individual’s tendency to think, feel, or behave in a particular manner. They are emergent phenomena, arising from the interplay among the various components of the interpersonal system. In the preceding section (Tenet 2), we mentioned several of the key domains that have been a focus in contemporary interpersonal research, including the basics of motivations (i.e., values), cognitions (e.g., efficacies), perception, behavior, and mental representations (Lukowitsky & Pincus, 2011), among others. Each of these has been fruitfully organized and operationalized using the agency and communion framework. However, these are not “levels” in the strictest sense, in that these are not all hierarchically organized. Rather, they might be better construed as different components or modalities of functioning that work in concert. Some of their key interaction processes are discussed below in Tenet 6, as we elaborate the dynamics of the interpersonal transaction cycle.

As fundamental organizing constructs, agency and communion are part of the evolutionary architecture of human functioning. They have been selected to help humans resolve the major life tasks of getting ahead and getting along (Hogan & Roberts, 2000). As such, they too should be reflected in the functional architecture of human biology, including devoted or supporting neural circuits, neurotransmitters, and hormones. Here there is no need to assume a literal representation of the IPC “in the brain,” and instead we can leverage Gray’s (Gray & McNaughton, 2000; Pickering & Gray, 1999) notion of a “conceptual nervous system.” That is,

we would expect that there are specific neurobiological features (e.g., structures, circuits, transmitters) that support or facilitate *agentic and communal reward systems*. By integrating the work from pioneering personality neuroscientists, the “levels” of CIIT now include key neurobiological systems and components. This draws on work directly referencing agentic and communal traits (Lenzenweger & Depue, 2020; Depue, 2006; Depue & Collins, 1999; Depue & Lenzenweger, 2005; Depue & Marrone-Strapinsky, 1999; Feldman, 2014; Klemm, 2015; Lenzenweger & Depue, 2016; Palumbo et al., 2020) as well as the Big Five/Five Factor Model (See Allen & DeYoung, 2017 for a review). Because dominance and affiliation, the two primary axes of the trait IPC, can be construed as rotational variants of extraversion and agreeableness (DeYoung et al., 2013; McCrae & Costa, 1989; Pincus, 2002), the Big Five personality neuroscience literature directly informs the biological levels of CIIT. Recall that the phenotypic topography mapped by the IPC is fully continuous and populated in its entirety by relevant markers (see Tenet 2), and the broad constructs of extraversion and agreeableness reflect blends of agency and communion. As such, there is no need to make assumptions of isomorphism between biological systems and specific articulations of phenotypic interpersonal traits as instantiated in particular questionnaires.

Though a full review is beyond the scope of the current treatment, there now appears to be strong support for neurobehavioral structures and systems associated with sensitivity to reward aligned with agency and communion (see Allen & DeYoung, 2017; Depue & Collins, 1999; Depue, 2006; Depue & Marrone-Strapinsky, 1999; Waller & Wagner, 2019 for detailed reviews). These models generally assume that individual differences in the sensitivity and reactivity to relevant stimuli classes are reflective of individual differences in biological functioning. The agentic reward system involves, in large part, dopaminergic activity. Dopamine acts as a broad neuromodulator supporting appetitive strivings, incentive reward pursuit, and feelings such as desire, potency, and self-efficacy. As such it is not specifically implicated in agentic reward, but in incentive reward more broadly. Neurological structures associated with the agentic reward system include the ventral tegmental area to nucleus accumbens (i.e., in the striatum) pathway. In contrast, the communal reward system involves endogenous opiate activity, which supports feelings of satisfaction and affection, though oxytocin and vasopressin are also implicated. Opioid receptors in the ventral tegmental area-nucleus accumbens pathways are similarly involved in affiliative reward, as well as networks of connections among corticolimbic regions. In addition, agreeableness appears to be related to serotonergic functioning, which, is a broad neurotransmitter that is implicated in regulatory mechanisms writ large (Depue & Spont, 1986; Spont, 1992; Wright et al., 2019). However, the majority of work has examined the agentic and affiliative rewards systems as operationalized in extraversion scales and facets, and less work has investigated the neurobehavioral underpinnings of agreeableness per se.

In sum, since its beginnings, interpersonal theory has explicitly incorporated a multi-level understanding of personality and psychopathology. In contrast to other structural models of personality and psychopathology, from the outset the aim was to find a structure that could serve as the common organizational scheme across levels and modalities of experience and functioning. Early theory emphasized how the dynamics of interactions among various levels gave rise to important personality processes (e.g., defense mechanisms). With some notable exceptions (e.g., Dawood & Pincus, 2016; Hopwood & Good, 2019; Kehl et al., 2020; Pincus et al., 2014), the particular manner in which levels interact with each other has received little empirical attention. That notwithstanding, the fundamental insight of needing a multi-level

articulation of human functioning has proved remarkably prescient, as this remains, or arguably has become, one of the major challenges facing the field. As we briefly summarize above, the agentic and communal meta-structure has proven useful for organizing the accumulating neurobehavioral findings, even as we integrate basic concepts from the broader field of personality neuroscience to extend interpersonal theory's original levels. Future work is needed to continue to flesh out this longstanding, yet still nascent, notion of a multi-level model of personality functioning and dysfunction, but the necessary perspective and structure are features of CIIT.

4. What gets us moving: *Satisfying agentic and communal motives drive interpersonal behavior*

In what is arguably CIIT's broadest and most interdisciplinary level, agency and communion classify the interpersonal motives, goals, and values of human relations (Horowitz, 2004). In interpersonal situations, motivation can reflect the agentic and communal nature of the individual's long-term strivings, or more specific agentic and communal goals and values (e.g., to be in control; to be close) that specific behaviors are enacted to achieve (Grosse Holtforth et al., 2011; Horowitz et al., 2006; Locke, 2015; Trapnell & Paulhus, 2012). Sullivan (1953a, 1953b) suggested individuals are motivated to increase security and self-esteem (positively reinforcing) and avoid anxiety (negatively reinforcing). Thus, although there are individual differences in the strengths and patterning of these motivations, they are assumed to broadly be human universals. Satisfaction of these motives leads to decreased negative affect and vulnerability, increased positive affect, felt security, and self-esteem, whereas frustration of motives leads to the opposite (Horowitz et al., 2006; Leary et al., 1995; Lakey & Orehek, 2011; Mahadevan et al., 2019; Pincus & Hopwood, 2012).

In this respect, CIIT shares much in common with a control-theory approach to personality functioning (e.g., Carver & Scheier, 1998). Individuals seek to satisfy these two broad, biologically-based approach motives (Tenet 3) through a variety of characteristic adaptations, scaffolding strategies, and specific goals and behavior designed or selected to fulfill the motivation in particular interpersonal situations (Corr et al., 2013; Grosse Holtforth et al., 2011; Horowitz et al., 2006). Individuals differ from each other in their level of these motivations, and they differ within themselves over time, both in the long and the short term. Individuals differ from each other because of innate biology, life experiences and social learning, and the ongoing patterning and repatterning of interpersonal experiences in situations and their reinforcement (Benjamin, 1993; Pincus & Ansell, 2013). Within-person variation over the long term is due to development in typical maturation patterns, life events, and social role transitions (Roberts & DelVecchio, 2000; Roberts et al., 2006; Trucco et al., 2014; Wright et al., 2012), whereas short term variation reflects the varying demands of specific interpersonal contexts (e.g., McCabe & Fleeson, 2012; Moskowitz & Zuroff, 2004). Successful navigation of each of these dynamic time-scales involves the flexible adaptation and reconciliation of one's motives with the demands of one's developmental stage, social roles, and specific interpersonal contexts.

A growing body of research supports these propositions. For instance, within the laboratory, experimental manipulations of inclusion/exclusion and status are associated with changes in self-esteem (Leary et al., 1995; Mahadevan et al., 2019). The same is true of such experiences in daily life (Mahadevan et al., 2020). In naturally occurring interpersonal situations, perceiving others as behaving more coldly or dominantly is associated with experiencing less positive and more negative affect (Sadikaj et al., 2013; Wright et al., 2017). In

the moment, goals to behave in an extraverted fashion explain observed extraverted behavior, which partially explains the link between goals and positive affect (McCabe & Fleenon, 2012). In each of these studies, though the average effect is consistent with theoretical predictions, individual differences in the strength of association between agentic and communal strivings and affective reactions were observed.

5. How we move: *The “interpersonal transaction cycle” provides probabilistic expectations for patterns of behavior and falsifiable predictions about behavioral sequences.*

An implication of Sullivan’s (1953a) definition of personality as the “enduring pattern of interpersonal situations that characterize a life” is that individual differences in personality and psychopathology are best characterized in terms of relatively stable patterns of within-person dynamics, contextualized within interpersonal situations. These patterns reflect interpersonal transactions cycles rooted in probabilistic functional connections between the thoughts, perceptions, feelings, and behaviors of individuals interacting with one another, and the situations contextualizing the interaction. Thus, CIIT is rooted in testable predictions about how interactions tend to unfold, and interpersonal researchers have pioneered methods for testing hypotheses about stability and variability in transactional social processes (e.g., Moskowitz & Zuroff, 2004; Sadler et al., 2009; Wright & Zimmermann, 2019).

CIIT is a rich theory that makes a range of specific hypotheses about normative transaction. Here we briefly review connections between: a) two peoples’ interpersonal behavior (i.e., complementarity), b) one person’s behavior and another’s internal experience, c) past experiences and current behavior (i.e., copy processes), and d) situations and behavior. The prediction for which there is the most robust evidence within the interpersonal research tradition is complementarity (Carson, 1969; Kiesler, 1983; Sadler, Ethier, & Woody, 2011; Tracey, 1994), or the principle that during an interaction, the behavioral dominance of two people will tend to be reciprocal, whereas behavioral warmth will tend to be similar. There is strong evidence for complementarity, particularly when it is measured as a dynamic process that occurs as a situation unfolds (Bluhm et al., 1992; Markey et al., 2003; Sadler et al., 2009; Hopwood et al., 2020; Tracey, 1994, 2004).

A second predicted pattern is between the behaviors of one person and the covert, internal reactions and experiences of another. Early work showed that different interpersonal behaviors provoked relatively predictable patterns of reaction from others in experimental studies (Wagner et al., 1995). Subsequent work in experience sampling studies has likewise shown systematic and normative connections between one person’s interpersonal behavior and another’s internal experience. For instance, there are reliable connections between one person’s coldness or dominance and another’s negative affect (Kaurin et al., 2020; Sadikaj et al., 2011; Sadikaj et al., 2013; Wang et al., 2014; Wright et al., 2017).

A third predicted pattern is between the transaction cycles characteristic of early development and the interactions characteristic of present functioning. Critchfield and Benjamin (2008, 2010; Critchfield et al., 2015) showed that there is specificity in the recalled scripts of developmental interactions with caregivers and patterns of contemporary interpersonal behavior among both patients and non-patients. These studies advanced research in this area by going beyond the general proposition that maladaptive behavior in childhood begets maladaptive behavior in adulthood, to empirically test and confirm specific links between the manner of positive and negative behavior recalled in childhood and the manner of behavior in adulthood.

However, longitudinal studies are needed to rule out alternative explanations to the interpersonal proposition that developmental processes are “copied” in adult interactions.

A final prediction is about the link between aspects of situations and interpersonal behavior. There is strong evidence that different situations (including settings, interaction partners, topics, etc.) influence levels of interpersonal behavior (e.g., Brown & Moskowitz, 1998; Moskowitz et al., 2007). There is also evidence that situational factors impact levels of complementarity (Hopwood et al., 2020) and may moderate the link between interpersonal behaviors and psychopathology symptoms (Dowgwillo et al., 2019; Roche, Pincus, Conroy et al., 2013; Sadikaj et al., 2010).

Overall, these data strongly support the assumption there are reliable and culturally normative dynamic connections between certain patterns of interpersonal transaction. While many of probabilistic predictions about CIIT have been demonstrated empirically, most of these tests have occurred in isolation. More work is needed to combine the various hypotheses into coherent sequences that distinguish people from one another in terms of their characteristic personality style and psychopathology symptoms. Ultimately, the promise of the interpersonal approach is to piece these findings together in order to establish normative cycles, which would enable tests of the temporal sequences characteristic of patients’ difficulties (Pincus et al., 2009; Pincus & Wright, 2011).

6. How we know we’re moving in the right direction (or not): *Sustained deviations from these expected patterns (likely) reflect psychopathology.*

Several authors have elaborated interpersonal transaction cycles for different psychological conditions (e.g., Benjamin, 2002; Hopwood, 2018) and particular patients (Cain & Pincus, 2016; Pincus & Hopwood, 2012). These cycles are characterized by systematic deviance from normative functional interpersonal patterns. As with the probabilistic patterns discussed above, most research to date has focused on specific segments of broader dynamic processes, and researchers have yet to test these processes as complete units. However, many specific findings speak to the general proposition that sustained deviations from normative interpersonal processes are associated with psychopathology and dysfunction.

There is robust evidence that maladaptive manifestations of interpersonal dispositions are characteristic of psychopathology (Pincus & Wiggins, 1990; Wilson et al., 2017; Wright et al., 2012) as well as levels and variability in negative affect over time (Liu et al., 2019; Wright et al., 2015). Interpersonal behaviors assessed at the momentary level are also related to levels of psychopathology (Dowgwillo et al., 2019; Roche, Pincus, Conroy et al., 2013; Sadikaj et al., 2010), and variability in momentary interpersonal behavior predicts interpersonal negative affect and interpersonal distress (Erickson et al., 2009).

Interpersonal research from a variety of paradigms indicates that non-normative levels of variability in interpersonal behaviors, relative to the norm, is generally maladaptive (Côté et al., 2012; Erickson et al. 2009; Moskowitz et al., 2011; Rappaport et al., 2014; Ringwald et al., 2020a, 2020b; Russell et al., 2007). Likewise, a number of studies using different methods suggests that psychopathology is associated with interpersonal perceptions in naturalistic settings (Ambwani et al., 2015; Dowgwillo et al., 2019; Roche, Pincus, Hyde, et al., 2013). An interesting recent study combined these effects, showing that people who tend to exhibit greater levels of behavioral variability in interpersonal interactions also tend to have systematic biases in perceiving those interactions (Clegg et al., in press).

Whereas an individuals' warmth is normatively unrelated to that individuals' dominance, some research suggests that interpersonal warmth and dominance are more likely to correlate within person in individuals with psychopathology, and that the nature of this correlation depends on the specific type of disorder (Fournier et al., 2009; Roche, Pincus, Hyde et al., 2013). Finally, a number of studies have suggested that deviations from complementarity are associated with psychopathology and dysfunction (Ansell et al., 2008; Dryer & Horowitz, 1997; Meisel et al., under review; Woods & Wright, 2019). There is also evidence that manipulating patterns of complementarity can be useful in psychotherapeutic treatment (Tracey, 1993; Tracey, Bludworth, & Glidden-Tracey, 2012).