An Analysis of Objectivity in the Hierarchical Taxonomy of Psychopathology

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Abstract

How can inherently first-personal phenomena be transformed into subjects of scientific investigation that produce intersubjectively or objectively valid knowledge? The Hierarchical Taxonomy of Psychopathology (HiTOP) serves as an illustrative case study for this philosophical inquiry. HiTOP offers an alternative to conventional categorical diagnostic frameworks through an empirically established dimensional structure that systematically arranges psychopathological phenomena hierarchically according to symptom covariation patterns. This paper analyzes HiTOP's methodology for generating objective knowledge regarding psychopathological experiences. I contend that HiTOP represents a philosophically sophisticated interpretation of scientific objectivity, one that dismisses the naïve or simplistic realist notion of value-free, theory-neutral observation while simultaneously steering clear of robust metaphysical assertions regarding the essence of mental disorders. HiTOP seeks psychometric and structural objectivity by reliably mapping patterns of covariation across reported experiences and observable signs across populations, employing factor-analytic techniques to discern dimensional structures. This analysis focuses on HiTOP's use of latent variables as statistical proxies instead of hidden causal entities, its two-stage validation process, its strategic neutrality on normativity, and its clear recognition of the influence of epistemic and non-epistemic values on classification. The outcome is objective knowledge, not as a "view from nowhere," but as the generation of systematically reliable descriptions of experiential patterns that are applicable across various populations and facilitate effective prediction and intervention.

Introduction

How can intrinsically first-person phenomena, such as excessive anxiety, obsessive cognition, and perceptual distortions, be transformed into subjects of scientific investigation that produce intersubjectively or objectively valid knowledge? Traditional responses have included eliminativist approaches that reject subjective reports as unreliable in favor of purely behavioral or neurobiological data, phenomenological methods that prioritize disciplined first-person description, and various forms of methodological pluralism that seek to triangulate between perspectives. Modern philosophy of science has increasingly scrutinized the objectivity/subjectivity dichotomy: objectivity should not be equated with perspective-independence but rather defined as the attainment of reliable, systematically constrained knowledge via transparent methods open to critical assessment (Douglas, 2009; Longino, 2002; Reiss & Sprenger, 2020).

Within psychiatry and clinical psychology, this philosophical tension acquires some degree of practical urgency. Clinicians and researchers must make knowledge claims about experiences that are simultaneously real features of people's lives and accessible only through their reports and observable manifestations. Diagnostic systems serve as the primary instruments through which subjective distress is rendered into intersubjectively communicable categories—categories that then guide treatment decisions, research funding, insurance reimbursement, and public health policy.

The Hierarchical Taxonomy of Psychopathology (HiTOP) represents a significant epistemological shift in psychiatric classification (Kotov et al., 2017, 2021). It is intended to be an alternative to the categorical diagnostic systems exemplified by the DSM (American Psychiatric Association, 2022) and ICD (World Health Organization, 2019) with an empirically derived dimensional and hierarchical framework. HiTOP organizes psychopathological phenomena based on their patterns of observed covariation, arranging them from narrow symptom components and maladaptive traits at the base to broad

spectra and a general psychopathology factor at the apex. In doing so, it offers an interesting case study for the philosophical question of how subjective experiences can be studied objectively.

[Fig 1. Office HiTOP Model]

[Fig 2. HiTOP profile for the fictional case illustration, from Ruggero et al, 2019]

One problem for DSM is that its syndromic categories are historically and culturally contingent. Different societies at different points in time have classified these syndromes differently, and the particular classification in the latest version of the DSM is not scientifically inevitable in any strong sense. This can be illustrated with the help of a thought experiment by Kendler and Zachar (2008). Kendler and Zachar borrow Stephen J. Gould's evolutionary "tape rewind" thought experiment to discuss the contingency of psychiatric nosology. If we rewound human history 10,000 years and let civilization redevelop, some medical categories would reliably reappear (e.g. diabetes, stroke) because they're anchored in biological regularities. But would the DSM? It appears unlikely. Do psychiatric diagnostic categories like schizophrenia, depression, or narcissistic personality disorder reflect something robust enough about human nature and biology to emerge again, or whether they are artifacts of particular historical, cultural, and institutional contingencies?

Kendler and Zachar also point out, however, that diagnostic reliability and stability improves as we move up the hierarchy of psychiatric classification. Clinicians agree more easily that a patient has *some* anxiety disorder than on which specific one. This suggests that the more robust, stable units in nosology may not be the fine-grained individual diagnoses but rather broader higher-order groupings. Empirical research supports this: studies have identified overarching dimensions like internalizing and externalizing disorders that hold up across populations, and genetic studies show risk factors shared

across clusters of related conditions. Broader categories of psychopathology appear to be less historically and culturally contingent and more likely to survive a "tape rewind," so to speak.

When studies organize psychiatric symptoms using statistical techniques such as latent factor analysis and principle components analysis, traditional DSM categories such as major depressive disorder, generalized anxiety disorder, and post-traumatic stress disorder do not emerge as statistically coherent clusters (Forbes et al, 2025). This is because these traditional categories are statistically heterogeneous and patients have overlapping profile. Instead, what we see in these analyses is that negative emotions representing psychological distress (low mood, anhedonia, excessive worry, etc.) tend to cluster into a Distress dimension and negative emotions directed at specific triggers, such as phobias, tend to cluster into a Fear dimension. And these dimensions correlate at a higher level, forming the Internalizing spectrum. A meta-analysis of 35 studies estimating factor-analytic models from 23 DSM diagnoses resulted in a model that closely resembled the HiTOP framework, supporting the validity of HiTOP (Ringwald et al, 2023). Results of statistical clustering from a large self-report survey (n=14,762) based on DSM-symptoms also show strong convergence with HiTOP (Forbes et al, 2025).

This paper draws on a recent detailed examination of HiTOP's conceptual and philosophical foundations (Aftab et al., 2026) to offer a philosophical account of HiTOP's approach to objectivity. It argues that HiTOP pursues what can be characterized as psychometric, structural objectivity. The analysis proceeds by examining five aspects of HiTOP's epistemology: its relationship to theory-ladenness, its treatment of latent variables, its validation strategy, its handling of normativity, and its approach to values in science.

The Problem of Subjectivity in Psychiatric Science

The challenge of studying subjective experience scientifically is not unique to psychiatry, but it is arguably more acute there than in most other domains of medicine. In cardiology, the subjective experience of chest pain is ultimately an entry point to observable pathophysiology in the form of blocked arteries, ischemic tissue, measurable enzyme elevations. In psychiatry, the subjective experience often is *the* phenomenon of interest. The anxious person's dread, the depressed person's anhedonia, the psychotic person's altered sense of reality, these are not necessarily pointing toward some underlying lesion that constitutes the "real" disease. They are, in many cases, the central features of the condition itself.

Traditional methods for addressing this issue have generally chosen between two strategies. The initial approach, linked to biological psychiatry and neuroscience-oriented frameworks like the Research Domain Criteria (RDoC; Kozak & Cuthbert, 2016), aims to establish psychiatric knowledge on objective biological metrics such as neuroimaging data, genetic indicators, and neurocircuitry models, thereby avoiding the complications of subjective accounts. The second, based on phenomenological psychiatry (Jaspers, 1913/1997), says that subjective experience should be taken seriously on its own terms, using strict methods of empathic understanding and careful description of the structures of experience.

Both strategies have well-known problems. The biological approach has had trouble finding clinically useful biomarkers for most mental illnesses, even after decades of hard work (Kapur et al., 2012). The phenomenological approach, despite providing detailed descriptions, encounters difficulties regarding intersubjective validation and scalability. Neither has fully reconciled the tension between the first-personal nature of psychopathological experience and the intersubjective requirements of scientific knowledge.

HiTOP presents a third approach that neither simplifies subjective experience to biological factors nor depends on phenomenological techniques. Instead, it works with reported experiences and observable signs through widely used clinical rating scales and clinical questionnaires. It treats these as data points whose patterns of covariation across populations can be mapped with psychometric accuracy. HiTOP's philosophical significance resides not in its assertions regarding the essence of mental disorders, but in its distinctive approach to the subjectivity–objectivity dichotomy.

Theory-Ladenness Without Positivism

HiTOP has been described in official publications as a "quantitative nosology based on consensus of evidence" (Kotov et al., 2021), which can easily be read as a claim that HiTOP is a purely empirical or "atheoretical" project operating within a naïve logical positivist philosophical worldview. Such a reading would make HiTOP vulnerable to well-established philosophical criticisms: the Duhem–Quine thesis on the underdetermination of theory by data, Kuhn's arguments about paradigm-dependence of observation, and Longino's (1990) demonstration that background assumptions always mediate the relationship between evidence and hypothesis.

However, this positivist reading is neither accurate nor the intent of the HiTOP consortium (Aftab et al., 2026; DeYoung et al., 2022). The HiTOP consortium doesn't make the claim that the framework is free of theoretical assumptions altogether and has sought to make its theoretical commitments explicit (Forbes et al, 2024; Aftab et al, 2026).

Two key assumptions of HiTOP are dimensionality and hierarchical organization.

The HiTOP model organizes psychopathology hierarchically, describing it at varying levels of specificity and generality. While hierarchical models can fit covariance data well, multiple alternative models could fit the same data equally well, meaning no single

hierarchical arrangement is definitively correct on statistical grounds alone. External validity evidence—such as discriminant validity with biological or environmental correlates—can help adjudicate between competing hierarchical structures, and HiTOP draws on precedents in personality research, such as the hierarchical organization of neuroticism and the PID-5, to support its approach. The debate between categorical and dimensional models has been substantially informed by taxometric research, with a 2020 meta-analysis finding evidence for dimensionality approximately five times more prevalent than evidence for categorical structure across both psychopathological and normal-range phenomena (Haslam et al., 2020). This supports HiTOP's foundational assumption that psychopathological features are *continuously distributed in the population*, though categorical constructs could in principle be accommodated if psychometric evidence warranted their inclusion.

HiTOP employs a specific and technically precise conception of dimensionality: continuous, empirically homogeneous, and structurally distinct constructs situated within a multidimensional hierarchical framework supported by discriminant validity evidence (Hopwood et al., 2023). This stands apart from looser usages of the term "dimension" in the literature, such as treating diagnostic categories merely as existing on a spectrum or operationalizing dimensions solely through unidimensional factor models. Importantly, HiTOP's assumption of continuous inter-individual distributions does not entail that psychopathology unfolds continuously within individuals over time; *within-person dynamics* may well involve discontinuities or phase transitions, as hypothesized by dynamical systems theorists, without contradicting the model's population-level dimensional assumptions.

Second, there are considerations around methodological choices, such as the privileging of factor analysis and related statistical techniques, and the reliance on particular psychometric instruments with their own built-in assumptions about what counts as psychopathologically relevant. Different statistical models can fit the same data equally

well (Greene et al., 2019; Markon, 2019), and the choice among them is not dictated by data alone.

Third, there are historical and sociocultural influences. HiTOP inherits a long tradition of dimensional models of psychopathology stretching back to Moore (1930) and Wittenborn (1951), is shaped by the scientific limitations of the DSM and ICD, and takes the scope of psychopathology to encompass clinical features that have traditionally been the focus of clinical attention; a scope that is historically contingent and reflects the interests and blind spots of the communities that have shaped clinical practice (Aftab & Ryznar, 2021; Zachar, 2014; Radden & Tsou, 2024).

Acknowledging these layers of theory-ladenness is not an objection to HiTOP. Rather, it is a precondition for a philosophically mature understanding of its objectivity. Following Longino (2002) and Douglas (2009), objectivity emerges not from the absence of theoretical assumptions but from making those assumptions transparent and subjecting them to critical scrutiny. HiTOP pursues this through systematic evidence evaluation protocols, a formal revisions process with transparent criteria (Forbes et al., 2024), and an openness to diverse critical perspectives.

As recently expressed by the HiTOP Revisions Workgroup, "Scientific objectivity is an aspiration to produce knowledge that would be agreed upon by any potential researcher who shared a sufficiently commensurate set of measurement tools and foundational assumptions." (Aftab et al, 2026)

Latent Variables as Statistical Proxies

Central to HiTOP's epistemology is its treatment of latent variables, and this is where the framework makes one of its most philosophically significant moves. Latent variable models have been the workhorses of structural psychopathology research: exploratory and

confirmatory factor analyses generate factor loadings between measured variables and latent constructs, and the resulting models are judged by parsimony, replicability, and goodness of fit (Forbes et al., 2024; Waldman et al., 2023). But how should these latent variables be interpreted?

In many areas of psychology, latent variables are treated as hidden causal entities: real but unobservable psychological structures that cause the observed patterns of behavior and experience. On this reading, "neuroticism" is something inside the person that causes them to worry, to be irritable, to feel vulnerable to stress. The arrows in a structural equation model are read as causal arrows, and the latent variable is understood as a common cause of its indicators (Borsboom, 2005). This interpretation aligns naturally with a scientific realist orientation.

HiTOP takes a deliberately agnostic position. A latent variable in HiTOP is defined mathematically as the shared variance of its indicators. It is a statistical representation of a portion of the variance of observed variables, not a claim about a hidden causal entity (DeYoung & Krueger, 2020; Markon & Jonas, 2016). Nothing about the mathematics of factor analysis necessitates a causal interpretation. The causal processes giving rise to a set of indicators may be common causes, the result of mutualistic interactions among the indicators themselves (van der Maas et al., 2006), or some combination of the two. The latent variable is a proxy, a way of representing and summarizing observed patterns, that operates with some error of prediction or representation (Markon, 2023).

By treating latent variables as statistical proxies rather than hidden essences, HiTOP avoids the kind of reification that has often plagued psychiatric nosology, the tendency to treat diagnostic constructs as if they refer to discrete, discoverable disease entities. At the same time, HiTOP does not collapse into a purely instrumentalist position. Accurately mapping patterns of covariation is itself a form of capturing something real about how psychopathological experiences cluster and co-occur across populations. This could be

interpreted as an alignment with structural realism, the view that what successful scientific theories capture about reality is mathematical structure and relational properties rather than unobservable entities (Ladyman, 2023).

The official HiTOP model (the visual depiction of spectra and their hierarchical arrangement) is itself a heuristic, expository scaffolding rather than a fitted statistical model (Aftab et al., 2026). It is based on statistical evidence but not intended to depict any particular mathematical model. It is instead a visual summary of available statistical models.

Part of the confusion surrounding latent variables arises from the visual vocabulary used to depict them. Latent variable models are typically drawn using the same circles, boxes, and arrows found in causal models, and the arrows in structural equation modeling diagrams are often described as if they represent causal influences. But just as in regression, these arrows represent statistical associations that are not necessarily causal. Strong causal inferences require data derived from methods that allow such inference (randomized experiments, genetically informative designs, or instrumental variable approaches) and it is important not to conflate statistical models with causal models (DeYoung & Krueger, 2020). HiTOP's measured caution on this point is a strength. It reflects a recognition that the inferential leap from covariation to causation requires additional evidence that a purely descriptive structural model cannot supply on its own.

A Two-Stage Validation Process

The validation strategy of HiTOP instantiates a philosophically interesting two-stage process. The first and most critical stage is structural validity: the extent to which a proposed construct explains the empirically observed covariance among signs and symptoms. Structural evidence comes from factor-analytic studies, and models are judged by parsimony, interpretability, replicability, and goodness of fit. The second stage

addresses external validity: the degree to which HiTOP constructs show predicted relationships with external validators: biological markers, treatment response, functional outcomes, familial aggregation, and so on.

This two-stage approach has a distinguished intellectual pedigree. It draws on the tradition of diagnostic validity initiated by Robins and Guze (1970) and expanded by Kendler (1980, 1990), in which validators serve to demonstrate that diagnostic categories describe real syndromes with predictive power. The DSM-5 steering committee codified eleven such validators divided into antecedent, concurrent, and predictive categories. HiTOP inherits this validatory tradition while reorienting it: structural validity takes precedence, and external validators serve to confirm and refine rather than to define constructs. This ordering reflects a specific epistemic commitment: that getting the descriptive structure right should come first, and that better descriptions will subsequently yield stronger associations with external validators. Research suggests that organizing symptoms factor-analytically yields stronger associations with cognitive and biological variables compared with organizing them according to traditional diagnostic constructs (Fox et al., 2024; Kotov et al., 2022). There is also genetic evidence that HiTOP dimensions show more coherent genetic architecture than DSM categories (Grotzinger et al., 2022).

However, the aggregation of validator evidence remains philosophically challenging (Solomon & Kendler, 2021; Solomon, 2022). Validators do not necessarily converge neatly, and how to weigh conflicting evidence across different types of validators is a difficult scientific and philosophical question. Solomon and Kendler (2021) outline five possible aggregation methods—informal, weighted, formal, accepting underdetermination, and including values—none of which resolves the problem definitively. HiTOP's revisions protocol attempts to systematize this process with explicit criteria for evidence evaluation (Forbes et al., 2024) and by relying on psychometric evidence in the first stage to provide a grounding for external validity (unlike the DSM).

Strategic Agnosticism and Weak Normativity

One of the most philosophically interesting features of HiTOP's approach is what might be called its strategic agnosticism regarding the normativity inherent in judgements of mental disorder and psychopathology. The core structural model describes patterns of covariation among psychopathological phenomena but does not itself determine whether those patterns are pathological, dysfunctional, disordered, or clinically significant. Considerations of dysfunction, harm, disability, and clinical significance are bracketed away from the core model (Aftab et al., 2026).

This bracketing is philosophically strategic in at least two ways. First, it allows HiTOP to remain compatible with multiple philosophical theories of psychopathology. Whether one adopts Wakefield's (2007) harmful dysfunction analysis, Boorse's (1977) biostatistical theory, DeYoung and Krueger's (2018, 2023) cybernetic theory, or even, in principle, a strong social constructionist account (Glackin, 2019), the core HiTOP model of symptom covariation patterns can be maintained. The threshold between normal variation and psychopathology is left to context-dependent decisions informed by whatever normative theory one adopts, rather than being built into the structural model itself.

Second, this agnosticism reflects a judgment about epistemic priorities. Given that the field lacks a consensus on what constitutes "dysfunction" and "psychopathology," HiTOP's strategy is to set aside this unresolved question and focus on what can be established with reasonable intersubjective agreement: the statistical structure of symptom covariation. This is a recognition that progress on description need not wait for resolution of deep normative questions.

In the terminology of Amoretti and Lalumera (2022), HiTOP's core model can be characterized as weakly normative. Its primary goal—mapping patterns of covariation among domains of psychopathology—is driven by epistemic values (parsimony,

replicability, predictive power), with non-epistemic values playing a secondary role. This stands in contrast to the DSM and ICD, where empirical goals related to reliability and validity are deeply enmeshed with goals related to clinical utility and clinical significance, making them strongly normative systems. HiTOP does not eliminate normativity but relocates it: the core model provides the structural scaffold, and normative judgments enter at the point of clinical application, where dimensional scores are combined with assessments of impairment, clinical risk, and contextual factors to guide treatment decisions (Ruggero et al., 2019).

Values, Objectivity, and Social Epistemology

HiTOP's approach to objectivity also reflects engagement with contemporary debates about the role of values in science. The value-free ideal—the view that science should rely solely on epistemic values such as empirical adequacy, predictive power, and parsimony— has been questioned extensively by philosophers of science (Douglas, 2009; Longino, 1990; Reiss & Sprenger, 2020). On the alternative view, values are an inherent part of scientific practice, and objectivity is achieved not by eliminating values but by making them transparent and subjecting them to communal scrutiny.

HiTOP's position on this question is nuanced. Core consortium publications are clear that HiTOP's primary values are epistemic and that these take precedence in the development of the model (Aftab et al., 2026). But the consortium also acknowledges the role of non-epistemic values. A notable illustration is HiTOP's explicit commitment to ensuring that the model is applicable to diverse, under-represented, and epistemically marginalized populations (Rodriguez-Seijas et al., 2023). This commitment is aligned with a social and methodological view of objectivity: the experiences of marginalized populations may reveal biases and assumptions that are invisible from dominant perspectives.

Consider the example of antagonistic externalizing behaviors. A history of legal problems may function differently across racial groups due to over-policing and racial bias, regardless of an individual's level of antagonistic externalizing traits (Rodriguez-Seijas et al., 2023). Similarly, social withdrawal and suspiciousness among sexual minorities may reflect adaptive responses to discrimination rather than detachment pathology. Such considerations are potential threats to the measurement validity of the instruments on which HiTOP's structural claims depend. Attending to marginalized populations is thus simultaneously an epistemic and an ethical imperative.

This aligns with Longino's (2002) conception of objectivity as a social achievement: a product of knowledge-producing communities that include diverse perspectives and maintain practices of critical scrutiny. It also resonates with standpoint epistemology (Haraway, 1988; Harding, 2015), which argues that perspectives from marginalized groups can offer unique epistemic advantages. HiTOP's pursuit of this through dedicated workgroups and systematic attention to measurement invariance across populations represents an attempt to operationalize these philosophical insights within the constraints of a psychometric research program.

What Kind of Objectivity Does HiTOP Achieve?

It is not the objectivity of the caricature of logical positivism: it does not claim to offer theory-neutral observation or value-free science. It is not the objectivity of naïve realism: it does not claim to have discovered the essential structure of mental disorders as they exist independently of human observation and classification. And it is not the objectivity of eliminativism: it does not sidestep subjectivity by reducing psychopathology to biological processes.

What HiTOP achieves is characterized as psychometric, structural objectivity. This involves the reliable mapping of patterns of covariation among reported experiences and

observable signs across populations, using transparent statistical methods subject to replication and critical scrutiny, within a framework that makes its assumptions explicit and its evidence evaluation systematic. Objectivity, on this conception, is not a property of individual observations or measurements but an achievement of a knowledge-producing community that maintains appropriate practices of transparency, critical evaluation, and openness to revision.

This conception has several appealing features. It takes subjective experience seriously as data without claiming privileged access to the nature of that experience. It produces knowledge that is intersubjectively communicable and applicable across diverse populations. It supports successful prediction (of course, treatment response, familial aggregation) without requiring strong metaphysical commitments about what mental disorders are. And it is reflexively aware of its own limitations, its theory-ladenness, its dependence on particular statistical choices, its historical situatedness.

At the same time, this form of objectivity has clear constraints. It tells us about patterns of covariation but not about causal mechanisms. It tells us that certain experiences tend to cluster together across populations but not why they do. Statistical continuity does not necessarily imply causal continuity, as a statistically homogeneous dimensional distribution may arise from distinct subgroups of etiological mechanisms (Aftab et al., 2026). The aspiration that better description will eventually inform causal understanding (Patrick & Lenzenweger, 2023) remains just that.

HiTOP dimensions can be converted into categories via clinical thresholds, similar to how dimensions like insulin resistance and blood pressure can generate categories like prediabetes and essential hypertension. Philosophers have discussed psychiatric categories in terms of natural kinds and practical kinds (Zachar, 2014). When HiTOP dimensions are used to create categories, they are best understood as practical kinds of a particular sort: their legitimacy derives from their capacity to capture relatively stable

patterns of covariation that support prediction and intervention, not from any claim to have identified natural kinds with discoverable essences. The clinical categories that can be generated by imposing thresholds on HiTOP dimensions are explicitly pragmatic, intended to be flexible and adjusted based on context and practical needs.

Conclusion

The Hierarchical Taxonomy of Psychopathology, read through a philosophical lens, represents a sophisticated negotiation of the tension between the subjective character of psychopathological experience and the intersubjective demands of scientific knowledge. By pursuing psychometric, structural objectivity—reliably mapping experiential patterns through transparent, systematically constrained methods while acknowledging the theory-laden and value-influenced nature of all scientific practice—HiTOP demonstrates that objectivity in psychiatry need not require either the eliminativism of reducing experience to brain states or the strong metaphysical commitments of essentialist disease models. This is not to suggest that HiTOP completely resolves the philosophical problem of objectivity in mental health. The relationship between description and explanation, between statistical structure and causal architecture, between epistemic and non-epistemic values, these remain open philosophical questions. How to aggregate conflicting validator evidence, how to determine when dimensional constructs become pathological, how to ensure measurement instruments adequately capture the experiences of diverse populations, these are areas where philosophical analysis has much to contribute. What HiTOP does offer is an example of how a scientific research program can take philosophical considerations seriously without being paralyzed by them. It operates with epistemic humility about what it claims to know (patterns of covariation, not essences or mechanisms) while maintaining ambition about what that knowledge might enable (better prediction, better treatment, better understanding). In a field that has often oscillated between naïve realism about its diagnostic categories and corrosive skepticism about the possibility of psychiatric knowledge altogether, this kind of philosophically informed

pragmatism deserves careful attention. For philosophers of science, HiTOP provides a contemporary case study in how objectivity can be pursued in domains where the subject matter is irreducibly experiential.

Disclosures: There are no financial conflicts of interest. However, I am a member of the HiTOP Consortium and a member of the HiTOP Revisions Workgroup.

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