biopsychosocial mechanisms that underpin mental disorders. In marked contrast to physical illness, the overall prevalence of mental illness has not changed in the past 30-40 years. Therapies can reduce distress but they cannot cure, and there is a lack of established preventive interventions.

To conclude, the need to flexibly address particular underlying psychological mechanisms in a given patient may be a key factor explaining the loose coupling of fidelity and outcome in evidence-based psychotherapies. Such a flexible approach should ideally be embedded within a coherent, consistent and continuous organizational context.

More research is needed to identify transdiagnostic and transtheoretical mechanisms that are involved in the causation and maintenance of psychopathology. In addition, translational efforts are needed to develop treatments grounded in newly emerging knowledge of these mechanisms.

Finally, training of therapists should incorporate a greater focus on adherence flexibility and tailoring treatment to individual patient features. While this may make training more complex and lengthy, and thus more costly, it may improve effectiveness and reduce treatment costs.

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The Five Factor Model of personality structure: an update

The Five Factor Model (FFM) of general personality structure consists of the five broad domains of neuroticism (or emotional instability vs. stability), extraversion (vs. introversion), openness (or unconventionality), agreeableness (vs. antagonism), and conscientiousness (or constraint vs. disinhibition). Each of these domains includes more specific facets (e.g., gullible vs. cynical, meek vs. aggressive, soft-hearted vs. callous, and selfless vs. exploitative are within the domain of agreeableness vs. antagonism).

The FFM traces its roots to the lexical paradigm, which rests on the compelling premise that what is of most importance, interest or meaning to persons when describing themselves and others will be encoded within the language. Fundamental domains of personality emerge as persons develop more and more words to describe the gradations, variations and nuances of a respective domain. The natural, inherent structure of personality is provided by the empirical relationship among the trait terms, and the structure of the English language has converged well onto the "Big Five". The Big Five have also been replicated within the German, Czech, Dutch, Filipino, Hebrew, Hungarian, Italian, Korean, Polish, Russian, Spanish and Turkish languages, albeit the replication of neuroticism and openness is not as strong as the replication of the domains of agreeableness, extraversion and conscientiousness[1].

Empirical support for the FFM as a structural model of personality is substantial, including multivariate behavior genetics, childhood antecedents, temporal stability across the lifespan, cognitive neuroscience coordination, and cross-cultural replication[1]. The FFM has also been shown across a vast empirical literature to be useful in predicting a substantial number of important life outcomes, both positive and negative[2]. Cuijpers et al[3] compared the economic costs of FFM neuroticism (health service uptake in primary and secondary mental health care, out-of-pocket costs, and production losses) with the costs associated with common mental disorders (e.g., mood, anxiety, substance use, and somatic disorders). The economic costs of neuroticism were approximately 2.5 times higher than those of the common mental disorders.

Given that the Big Five account for virtually every trait term within the language, it is not surprising that the FFM accounts for every maladaptive personality trait, including those that define the personality disorder syndromes of the ICD and the DSM[1]. The dimensional trait models included within the DSM-5 Section III and the ICD-11 are aligned explicitly with the FFM. The FFM also provides the temperament base and personality foundation for the widely cited Hierarchical Taxonomy of Psychopathology[4], a dimensional structural model that covers much of all forms of psychopathology.

The ICD and DSM personality disorders are readily understood as maladaptive variants of the FFM, but this does not suggest that any measure of the FFM will fully account for every personality disorder. Most existing measures of the FFM do not assess for all of its maladaptive variants and therefore will not be able to account for all of the components and correlates of a respective personality disorder. For example, there are maladaptive variants for all ten poles of all five FFM domains, but existing measures typically fail to assess for the maladaptive variants of conscientiousness (e.g., compulsivity), openness (e.g., magical thinking), agreeableness (e.g., subservience), low neuroticism (e.g., fearlessness), and extraversion (e.g., dominance), thereby limiting the ability to cover traits central to the obsessive-compulsive, schizotypal, dependent, and psycho-

pathic personality disorders, respectively. The obsessive-compulsive personality disorder is defined largely by maladaptive conscientiousness (e.g., perfectionism, compulsivity, workaholism, and ruminative deliberation), but most measures of FFM conscientiousness do not assess for these maladaptive variants. Measures to assess maladaptive FFM traits, though, have been developed, including the Five Factor Model Personality Disorder scales[5], the Personality Inventory for DSM-5[6], and the Personality Inventory for ICD-11[7].

There are a number of advantages in conceptualizing the ICD and DSM personality disorders from the perspective of the FFM. Many of the ICD and DSM personality disorder syndromes have limited research interest and inadequate empirical support. The FFM brings to the personality disorders a substantial body of construct validation, including a resolution of such notable controversies as gender bias, excessive diagnostic overlap, and temporal instability. An understanding of the etiology, pathology and treatment of the personality disorders has been hindered substantially by the heterogeneity within and the overlap across the diagnostic categories. The American Psychiatric Association has been publishing treatment guidelines for every disorder within the DSM, but guidelines have been provided for only one of the ten personality disorders (i.e., borderline). The complex heterogeneity of the categorical syndromes complicates considerably the ability to develop an explicit, uniform treatment protocol. The domains of the FFM are considerably more homogeneous and distinct, lending themselves well for more distinct models of etiology, pathology and treatment[8]. Empirically validated treatment protocols have already been developed for FFM neuroticism[9].

A common concern regarding the FFM and any other dimensional trait model is that clinicians will be unfamiliar with this approach and will find it difficult to apply. However, the FFM organization is consistent with the manner in which persons naturally think of personality trait description. Persons who apply the FFM typically find it quite easy to use. There have in fact been a number of studies concerning the clinical utility of the FFM in comparison to the DSM syndromes. A few of these studies have favored the DSM syndromes but, when the methodological limitations of these particular studies were addressed in subsequent studies, the results consistently favored the FFM[8]. Experienced clinicians prefer the FFM and dimensional trait models for the conceptualization of personality disorders[8].

In sum, the FFM is the predominant model of general personality structure and offers the opportunity for a truly integrative understanding of personality structure across the fields of clinical psychiatry and basic personality science. The ICD and DSM models for the classification and diagnosis of personality disorder are shifting toward the FFM because of its empirical validation and clinical utility.

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The network approach to psychopathology: promise versus reality

The network approach to psychopathology has recently generated enthusiasm in the research community. This is likely due in large part to network methods being promoted with the promise of improving clinical prevention and intervention strategies by explicating the dynamic causal architecture of mental illness[1]. As a result, studies using network methods have proliferated with the aim of understanding causal interactions between psychiatric symptoms through empirical data.

As one example, there has been a substantial number of studies on the network structure of post-traumatic stress disorder (PTSD) wherein each network typically includes estimation of centrality indices for 16-20 symptoms, as well as the presence and weight of 120-190 edges. Few guidelines inform how to parse the multitudes of exploratory results in each symptom network. Confirmation bias is consequently hard to avoid, and the validity of a network is easily rationalized by the identification of intuitive findings[2]. By contrast, a variety of *post-hoc* explanations are available to dismiss unintuitive findings.

Estimated edges may represent a direct association between two symptoms (e.g., A→B or A←B), a reciprocal effect (A←→B), the common effect of an unmodelled variable (A←X→B), shared item content or method variance, or simply error (noise) in the data. Absent edges may represent conditional independence of two symptoms, or be the result of the specificity in the regularization method used. Central symptoms may cause other symptoms in the network and represent important targets for clinical intervention, or may be the consequence of those other symptoms and thus not useful targets for clinical intervention. Alternatively, as for estimated edges, high symptom centrality may summarize reciprocal relationships among symptoms, relationships with unmodelled variables, shared item content, method variance, or error. There are no methods for disentangling these different explanations of the focal parameters in cross-sectional symptom networks, which severely limits their utility. In other words, the results are equivocal.

The fundamental reason for this undermining ambiguity