the gold standard of treatment evaluation. However, on their own, they do not provide evidence that a psychological therapy works through the mechanisms that it claims. The effect could result from the expectation of the therapy working (placebo effect), or through simply talking to a professional. Again, if we follow the successful examples of other sciences, such as chemistry, physics and engineering, the most robust test of a theory is to build and assess a working model of a process[9]. This tradition started with Galileo, continued with prototyping in machine design, and today is typically carried out within computer simulations. If the model behaves the same way as the real system under natural conditions, then the theory informing the model must be correct. There is no *a priori* reason why this should not apply as well to human behaviour as it does to the theory of aerodynamics informing airplane design, for example. Our clinical research team uses Method of Levels (MOL) as a transdiagnostic intervention which we disseminate widely[2,8]. This therapy is based on perceptual control theory, a general theory of behaviour drawn from control engineering. Its key principles of control, conflict and reorganization have been assessed through testing computational models against behavioural data[9].

In sum, transdiagnostic psychiatry is well established, but to understand its transformative potential requires adopting the appropriate scientific approach. Future reviews need to evaluate a broad literature including general psychopathology and shared neuropsychological pathways, and to separate the evaluation of treatment and process studies. Treatment research needs to consider the multiple perspectives of different stakeholders when determining how to index evidence for the potential benefits of a transdiagnostic approach. Process research, on the other hand, needs to be theory driven, hypothesis-led, and ideally emulate the model-testing paradigms of other sciences. A transdiagnostic approach of this kind has the potential to generate a genuine, interdisciplinary, paradigm shift in psychiatry and mental health.

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TRANSD recommendations: improving transdiagnostic research in psychiatry

There is no doubt that transdiagnostic research in psychiatry has gained momentum over recent years. However, what is meant by transdiagnostic research, and the impact it has on current psychiatric practice, is much less clear. The adjective "transdiagnostic" itself does not exist in English dictionaries, and even online medical dictionaries recommend searching the words "trans" and "diagnostic" separately. The word "transdiagnostic" is not only a neologism, but it also exclusively applies to psychiatry. While diagnoses are ubiquitous in medical research and practice, there are no consolidated exemplars of transdiagnostic research in other branches of medicine.

To characterize the actual meaning and the clinical impact of transdiagnostic research in psychiatry, a systematic review was recently conducted following state-of-the-art evidence synthesis guidelines[1]. Although, as a matter of fact, the word "transdiagnostic" has been historically introduced by cognitive behavioral theories and treatments for eating disorders[2], in that review[1] there was no restriction on any *a priori* definition of transdiagnostic research. On the contrary, the review focused on articles reporting on any transdiagnostic topics: interventions (45%), cognition and psychological processes (28%), neuroscientific topics (13%), classification (4%) and prediction studies (10%).

To systematically appraise the evidence without superimposing *a priori* conceptual schemata of transdiagnostic research, the review performed an epistemological test and empirically included and interrogated articles that self-proclaimed transdiagnostic by explicitly using the word "transdiagnostic" in their title[1]. High-order conceptual reviews of research initiatives that have implicitly adopted a transdiagnostic approach, such as the Research Domain Criteria (RDoC) project, the Hierarchical Taxonomy of Psychopathology (HiTOP) approach, the p-factor construct (none of which have yet replaced the current classification systems in clinical routine), and the clinical staging model, have been recently presented and fully debated in this[3-5] or other[6] journals, and as such were not the main focus of the systematic review[1].

The core finding of this review was that transdiagnostic designations in psychiatry are applied in a loose and unstandardized way, encompassing several different and often incoherent conceptualizations[1]. For example, one would expect studies that self-proclaim transdiagnostic to somewhat address issues relating to the diagnosis of mental disorders. Paradoxically, some of the studies reviewed were intrinsically incompatible with a transdiagnostic framework because they investigated symptoms and not disorders or, to the extreme, reported no diagnostic information at all[1].

Another illustrative example is the fact that authors themselves disagree on the ultimate aim of transdiagnostic research. Some of them claim that transdiagnostic research is a fundamental pathway to clinical utility for improving psychiatric classification and diagnosis[7], while others argue that the transdiagnostic approach does not primarily target the improvement of psychiatric classification and diagnosis, but rather tests a general theory of psychopathology[8]. A further example is the fact that, until the publication of this systematic review[1], the empirical limitations and reporting quality of transdiagnostic research remained unaddressed: appraising and acknowledging the specific limitations of a certain domain of knowledge is equally, if not more, important as celebrating its successes.

It may well be that some versions of a transdiagnostic approach are going to be necessary to improve psychiatric classification and care[7]. What is certain is that, until studies continue to loosely and incoherently self-proclaim transdiagnostic without acknowledging any diagnostic information, it is unlikely that transdiagnostic research will bear any real-world meaning for clinicians, patients, and medical practice. Similarly, poor reporting on the number and type of (trans)diagnostic spectra prevents the appraisal, refinement, and eventual integration of categorical and dimensional approaches in psychiatric classification.

The systematic review acknowledged that transdiagnostic categorical approaches that respect dimensionality are possible in organic medicine as well as in psychiatry[1], but this requires transparent reporting of the results. For example, the largest transdiagnostic study published to date demonstrated that it is possible to report the diagnostic information for almost all ICD-10 mental disorders[9]. Furthermore, while it is possible that transdiagnostic interventions may display superior efficiency, cost-effectiveness, accessibility, and patient-reported satisfaction compared to specific-diagnostic interventions[8], demonstrating this would require robust comparative analyses specifically conducted to test the non-inferiority or superiority of the transdiagnostic approach. These analyses are infrequent in the current literature[1].

The systematic review leveraged these caveats to put forward six empirical transdiagnostic research recommendations: TRANSD[1]. The TRANSD recommendations are pragmatic and focus on improving the quality of appraising and reporting transdiagnostic constructs. Importantly, they do not provide any *a priori* restrictive definition of the transdiagnostic schemata; as such, they can be applied to different topics and stimulate critical research in the field.

The first recommendation is to have a transparent definition of the gold standard (ICD, DSM, other), including specific diagnostic types, official codes, primary vs. secondary diagnoses, and diagnostic assessment interviews. Second, the primary outcome of the study, the study design, and the definition of the transdiagnostic construct should be reported in the abstract and main text. Third, the conceptual framework of the transdiagnostic approach – across-diagnoses (comparing different ICD/DSM categorical diagnoses against each other), beyond-diagnoses (employing ICD/DSM diagnostic information to go beyond it, testing new diagnostic constructs such as biotypes), other (with an explanation of the conceptual framework) – should be appraised. Fourth, the diagnostic categories, diagnostic spectra, and non-clinical samples in which the transdiagnostic construct is being tested and then validated should be indicated. Fifth, the degree of improvement of the transdiagnostic approach should be shown against the specific diagnostic approach through specific comparative analyses. Sixth, the generalizability of the transdiagnostic construct should be demonstrated through external validation studies.

It is hoped that these recommendations will improve the transparency and consistency of the next generation of transdiagnostic research, overcoming the current limitations of knowledge and benefitting psychiatric care.

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Mental illness among relatives of successful academics: implications for psychopathology-creativity research

The relationship between creativity and psychopathology is a long standing topic of research[1]. Creativity is defined as the ability to produce something novel, original, useful and valued, for instance in the domains of art, science or technology. It is being debated if the nature of creativity is general or domain-specific[1]. The assumed relationship between creativity and psychopathology is depicted as an inverted U curve, i.e. vulnerability to or low levels of psychopathology are believed to be associated with creativity, which declines with increased psychopathology[1].

Kyaga et al[2] coupled register information on psychiatric diagnosis with census information on self-reported occupational status. They found that individuals with bipolar disorder and