Reviewer’s report

Title: A New Conception and Subsequent Taxonomy of Clinical Psychological Problems

Version: 0 Date: 05 Jul 2018

Reviewer: IRINA TROFIMOVA

Reviewer’s report:

Review

Re: A New Conception and Subsequent Taxonomy of Clinical Psychological Problems

By Gary M Bakker

The topic of the paper is important, and the novelty, as well as analytic features of the author's approach should be acknowledged. The logic of the manuscript and of the position of the author, however, raises serious concerns and likely needs a major revision.

Good aspects of this manuscript:

- A sober view on the limitations of current classifications of mental disorders, including the limitations of categorical and dimensionality approaches.

- A concept of functional circles as a unit of analysis, addressing dynamical features of clinical behavioral patterns.

- An attempt to include aspects of an individual's interaction with their environment (unfortunately, mostly social) into the model.

- Good knowledge of the literature discussing the matter of classifications of mental disorders. However, it is a pity that the recent Theme Issue of the Philosophical Transactions of the Royal Society - Biology, N 373(1744) specifically devoted to taxonomies of psychological individual differences (including mental disorders) passed unnoticed by this paper.

- An appreciation of the complexity of the search for biomarkers of mental disorders, and limitations of findings.

- An understanding of the limitations of the neuroanatomy-focused approach to biomarkers of mental disorders employed by RDoC group.

- A suggestion of therapy considerations as a part of taxonomy.
Aspects of this manuscript that raised concerns:

1. What about a need for common language? The idea of a separation between taxonomies used in psychiatry and clinical psychology is questionable.

   a) Both sciences of psychology and psychiatry deal with the same phenomena - clinical and subclinical deviations in human behavior, and behavioral regulation follows universal mechanisms, regardless of whichever science studies them. These sciences should have a compatible language and taxonomies since their subjects, behavioral regulation in normal and clinical populations, are based on the same neurophysiological systems and laws of nature which hold for all people. We can only talk about a continuum in the degree of disbalance of biomarkers between healthy (weak disbalance) and mentally ill people (strong disbalance) but the language describing this continuum should be as universal as possible between these two sciences.

   b) In practice, both of them use psychotherapies based on DSM/ICD-based diagnoses. To ensure efficient collaboration between practitioners in these sciences/practices (i.e. psychiatry and clinical psychology) it makes sense for them to speak the same language, facilitating an exchange of their findings in terms of assessment and therapy approaches. In the practice of psychological treatment, communication between psychiatrists prescribing medications or providing consultation notes and psychotherapists providing psychological therapy is rather common. Both specialties use each other's opinions on diagnosis and occasionally - course of treatment. This is one of the arguments in favour of unifying and not separating psychiatric and psychological taxonomies.

   c) In psychiatry the concept of cycles in the regulation of behavior, as well as the social and functional environment, is as important as in psychology, so there is no reason to separate psychiatric and psychological taxonomies. Capacity and cognitive abilities are commonly assessed in psychiatry without going too deeply into the biology of possible mental illness. Vice versa, the psychology of non-clinical populations often investigates the neurophysiology of psychological phenomena.

   d) The author argues in favour of having a taxonomy in clinical psychology which would be different from psychiatric classifications but he gives examples of decidedly psychiatric illnesses such as depression, anxiety, OCD, addiction, schizophrenia. Moreover, his taxonomy also includes traditional psychiatric disorders. He does not provide a single diagnosis or example related to a "pure psychological" level (if such a level exists) and therefore he did not provide a justification for a separation between CPP and DSM classifications. This contradicts his introductory statement and the main theme of the abstract, and suggests that his taxonomy would like to unify both, psychiatric and psychological individual differences.

   e) He provides a rather cartoon version of what psychiatrists do or clinical psychologists do when assessing clients. In reality only the CBT approach is a rather cookie-maker approach but outside of CBT practice both psychiatrists and psychologists always collect personal, medical and employment history to derive a plan for treatment. An individual-
Based approach in practice and assessment is very common, and often all types of therapies are mixed in the treatment of the same person or the same type of disorders.

2. What about a need for multi-disciplinary approach? Taxonomies in all other sciences were developed as a result of multi-disciplinary analysis, and not just analysis of the phenomena specific to a given discipline. Taxonomies in biology, chemistry, cosmology, medicine, anatomy, particle physics, etc. are based on principles of natural phenomena noticed by boundary sciences (genetic analysis and evolution for taxonomies of biological species; Pauli principles in physics for chemical taxonomies; anatomic and even physiological investigations of healthy people for medical taxonomies, etc). The author states that psychiatry didn't justify its own taxonomy by sets of verified biomarkers, and that RDoC focused on neuroanatomy - implying that the whole approach is therefore wrong. However, psychology and psychiatry are very young sciences, in comparison to these classic disciplines, and it would be a rather ignorant approach for psychology to withdraw from cooperation with psychiatry when it comes to the development of taxonomies of mental disorders, only because they are just at the beginning of their journey. Moreover, the author seems not very knowledgeable in regards to achievements in neuroscience in regards to specific biomarkers. For example, he says nothing about neuro-chemical biomarker research, even though, considering the practice of psychopharmacology, neurochemical biomarkers (neurotransmitters, hormones, neuropeptides, opioid receptors) are likely candidates for consistent individual differences both, in healthy and mentally ill people.

3. For taxonomies we need to know the mechanisms and principles of our phenomena. All other sciences settled upon their taxonomies in this way, and their studies into mechanisms continue, leading to upgrades of their models. The same is applicable to psychological-psychiatric taxonomies. For behavioural mechanisms, however, we must "compare the notes" of multiple sciences, and partitioning into "levels", such as biological vs. social, is not helping us. After all, there are multiple examples of how neurochemical systems (for example, hormonal) respond to social and peer interactions. The author suggests that using neuroscience is a reductionist approach but not using it would be an ignorant approach. A proposed in this paper taxonomy has no grounds in mechanisms of behavioral regulation, whether at the level of neuroscience or at the level of cognitive psychology or research in emotionality, and therefore remains speculative. It seems that the author tries very hard to justify a lack of analysis of the neurophysiology of mental disorders in the development of his model. The arguments often sound like a voice of a CBT practitioner saying "We don't know much of biology, and we don't need to know". Yet, we can't develop classifications without knowledge of mechanisms of behavior, and we can't know mechanisms without consulting with neuroscience as one of the sources of our understanding of human behavior.

However, to base the taxonomy solely on one science, whether biological or social, is a general reductionist approach. Behavior is a highly contextual and its generative processes depend on the "here and now" capacities of an individual plus on situational demands, so for our taxonomies we likely have to derive formalisms describing both the capacities of an individual and a classification of environmental contexts (both, social and biological). For multi-disciplinary analysis, therefore, we have to be informed about the reality of processes that we try
to classify, considering different perspectives, not only biomarkers of specific behavioral deviations but also environmental factors interacting with these biomarkers. The author's own example of differentiation between schizophrenia and dog phobia show the importance of having a taxonomy that differentiates between different degree of bio-chemical factors in hiven disorders, and for that we need to know these factors at the first place.

4. All concepts are social constructs: It can be agreed with the author that mental disorders are psychological constructs but so are all scientific concepts, so it is not a reason to abandon them if there are not yet any better concepts. All sciences start with some "working" concepts and then look for the mechanisms of these phenomena, upgrading their scientific vocabulary. Moreover, despite the criticism of categorical and dimensionality approaches for bringing social constructs, the author also proposes mainly a categorical model based on a rather weak theoretical approach coming from specific type of practices (CBT) and not based on neuroscience.

5. The author clearly treats the CBT justification as a main theory of behavioral regulation, and this approach is not very competent or promising. The author derives specifiers for his model (Table 4) from CBT practices as if CBT was the answer to all treatment or diagnostic considerations. In reality CBT (before it borrowed under its roof almost all possible methods from other types of therapy) is not very efficient in the treatment of most mental disorders and was only moderately efficient for the treatment of OCD and some anxiety disorders. More importantly, it is not a science-based approach but rather a manual from practitioners simplifying psychological science for not psychologically-minded clients. Most behaviour is not driven by cognitions but it is the other way around: a body's state affects cognition and emotions. Embodiment in cognitive phenomena commonly emerges whenever behaviour follows the physical state of the body and habits, and cognition justifies current actions. In Jeffrey Gray's (2001) words, "consciousness comes too late". Those little triangles in the submitted Figures are naive graphs from CBT practitioners, which reflect only some tendencies of regulation between just 3 rather general aspects of behaviour. These graphs, however, miss important subtleties in the regulation of the depicted classes and completely miss other functional aspects of behavioral regulation. The author is too caught up in the CBT paradigm that he sincerely believes is a valid model of behaviour that could substitute knowledge of neuroscience when it comes to work on taxonomies.

6. A suggestion to consider therapy planning when deriving a diagnosis is a good move, especially when discussing PMC, but unfortunately there is no ready therapy "sets" yet that can be considered for such tasks. There is no single therapy that appeared to be efficient, CBT included. "Treatment-reliance" criterion for classifications of mental disorders is still a matter of wishful thinking.

7. The examples on p. 6 meant to show the overlap between diagnosis but they overlap on the criteria of loss of functionality and distress. These are expected overlaps as these are indeed are the main criteria differentiating behaviour in healthy humans from clinical cases. In this sense
there is no surprise that all mental disorders have these universal criteria related to the loss of functionality. However, I don't defend the structure of the DSM and I agree that categories that are currently used for its structure should be revised based on functional aspects of behaviour.

If a revision of the paper is considered, I would suggest to reshape this paper underlying 1) a need for taxonomies to consider cycles of behavior instead of dimensions (but not those trivial cycles, CBT-based that are currently described); 2) a further need for a search of biomarkers but more entangled with environmental (including social) factors; 3) drop the arguments against neuroscience. 4) recognise that the proposed taxonomy uses descriptors of psychiatric disorders and therefore should be a part of a unified taxonomy, which general psychologists, clinical psychologists and psychiatrists should use.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests' below.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal.