Reviewer’s report

Title: Construction and validation of a dimensional scale exploring mood disorders: MAThyS (Multidimensional Assessment of Thymic States)

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Reviewer: Eric A Youngstrom

Reviewer’s report:

General

This paper presents the development and initial psychometric evaluation of a new dimensional scale designed for use with bipolar disorder: The “Multidimensional Assessment of Thymic States,” or MAThyS. The paper has several noteworthy strengths. These include use of a dimensional approach to characterize mood states, consistent with the framework that is being discussed for DSM-V, as well as a strong familiarity with the phenomenology of bipolar disorder. The sample size also is fairly large for a clinical study, and included a range of severity for mood states ranging from normal mood variation within healthy controls, through euthymic and mildly symptomatic patients, into fairly severe mood states.

The paper has several limitations in its current form, some of which are conceptual and some technical. Conceptual issues will be treated first. The conceptual issues include (1) an apparent conflation of “intensity” and “reactivity,” which are different constructs in the emotion literature; (2) failure to put the present model in the context of other major models of emotion structure or of the relationship of depression to anxiety; and (3) not fully considering the possibility of irritable mood being associated with both manic as well as depressive states.

There would be a lot of value in a dimensional scale that assesses mood states broadly. The authors are commended on their efforts to address this need. A revision that clarifies technical details, provides appropriate statements about the limitations of the initial sample and findings, and that connects to extant theories of emotion and pathology, would make a significant contribution to the literature.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

(1) Intensity versus reactivity. “Intensity” is used in a way that suggests either strong activation of a discrete emotion 1, or else perhaps the activation/arousal dimension of a valence & activation two-factor model of emotion 2, 3 (see p. 4 of manuscript). “Reactivity” should connote that either there is a low threshold for activation of an emotion (a “short fuse”) or a tendency to respond with unusual amplitude to a similarly calibrated stimulus (a “bigger bang,” for the same
provocation). The author’s use of the word reactivity is vague, and it is possible that what was intended was “lability,” (either in the “bigger bang” sense, or in the instability/rapidly shifting sense, consistent with Kraepelin’s observations that mixed states are often unstable and evanescent) 4. In short, much more precision could be offered in terms of the language used to describe mood states.

(2) The description of mood states does not consider other important models of emotion or psychopathology. In terms of emotion models, the paper would benefit from explicitly incorporating either the valence-arousal model expounded by Lang or Feldman-Barrett; or else considering the “Positive Affect/Negative Affect” model developed by Tellegen, Watson, & Clark. In terms of psychopathology models, the paper would be much stronger if it considered Gray’s BIS/BAS model 5 – as Johnson and colleagues have done productively in the case of bipolar disorder 6, 7. Another major model that is relevant is the Tripartite Model of Depression and Anxiety 8, 9. According to this model, both depression and anxiety share high levels of Negative Affect as a feature. Anxiety was thought to be uniquely associated with physiological hyperarousal, whereas depression is uniquely associated with low Positive Affect (e.g., anhedonia). The low Positive Affect of the model has been replicated many times across a range of ages 10-13. The statement, “all depressive states are characterized by sadness” is contradicted by evidence that lack of positive affect is more specific to depression than is sadness per se. Similarly, there is such a large body of evidence that the predominant mood in depression can be irritability instead of sadness that the DSM cautions that irritable mood can be sufficient to diagnose depression in youths, and many observers have described “anger attacks” in adult depression.

(3) In a related vein, irritability is assumed to be a component of manic states, but not a contributor to depressed scores on the MAThyS. Ideally, more items would have been written to better capture the range of irritable moods, which can include a low energy, depressed grumpiness, as well as a high energy frustration when the pursuit of goals is blocked (and a variety of gradations in between). While there was exceptional attention to the possibility of rapidly oscillating mixed states (e.g., p. 6), there was no description of “blended” mixed states, as have been described by Kraepelin (1921) as well as Jamison and other observers. This issue also affects the discussion on p. 10.

More technical concerns included:

(a) Inadequate description of the rating process for the mood ratings. How many raters were used? How were they trained? Most importantly, how reliable were they? Significant differences between raters have been demonstrated when evaluating mania in particular 14.

(b) No citation was provided for the MTMM methods. The approach used was neither based on confirmatory factor analysis models, nor formal comparisons among convergent and divergent validity correlations. The correlations presented are almost entirely limited to convergent correlations, and there were no criterion
measures available to help establish divergent validity. The collapse of the items from a proposed five subscales into a two-dimensional solution also did not help strengthen the case that any of the constructs were well-articulated.

(c) There was no reference to the STARD or CONSORT criteria describing where the participants came from or how they might be representative of other patient populations. The level of detail about current mood states, comorbidity, etc. was too cursory to be adequate.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Kaiser’s criterion was misspelled.

PROMAX would be a preferable choice of rotation, as the mood scales would be expected to show at least moderate correlation in this sample.

The reporting of high correlations on p. 10 makes some sense, but the reader was not given an earlier context for why this would be done.

Cronbach was misspelled in the note to Table 4.

Table 5 reports the percentage of variance accounted for, but labels it as “Eigenvalues” in the first row, and then appears to be reporting the rotated percentages in the next row. Please omit the leading zero and the third decimal place in the factor loadings.

There are a variety of typographical errors and misspellings throughout the paper that detract from the clarity of the presentation.

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Discretionary Revisions (which the author can choose to ignore)

References


What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.