Reviewer's report

Title: The Manchester Colour Wheel: Development of a novel way of identifying colour choice and its validation in healthy, anxious and depressed individuals

Version: 1 Date: 24 April 2009

Reviewer: David Simmons

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Summary:
This paper puts forward a new clinical test called the "Manchester Colour Wheel" which it is suggested provides a user friendly way to assess colour associations made by people with some forms of psychiatric disorders. It is suggested that the colour choices made are informative about the current mood state of these individuals in a clinically meaningful way and that the study both provides an initial feasibility test of the colour wheel as a clinical tool and also an interesting study of the link between colour and emotion in its own right.

Major Compulsory Revisions

Whilst the data presented are potentially interesting I have four major problems with the paper as it stands:

1. There are lots of important citations missing. Some of these are crucial to the argument:


I can send you copies of the posters associated with these if you would be interested.

2. It is unclear whether the colour samples were presented to experimental participants consistently (in terms of their colour content) and also whether the colours are well enough specified to provide a reliable clinical test. Were the colours ever measured with some sort of objective measurement device such as a chromameter or spectrophotometer? Were the colours presented on a computer screen or on a printed sheet of paper? Were the lighting conditions controlled to ensure that the colours seen were exactly the same for each
3. There is a lack of statistical sophistication in the analysis which makes the reported results confusing to read. In particular the complicated data on the different "permutations" is hard to interpret. I am no statistical expert, but I think there should be some reliable and objective way in which the optimal permutation could be set, based on the number of samples and the number of presentations. I am also concerned about the number of multiple comparisons going on and what effect this should have on the significance requirements for the results. Probably a consultation with a statistics expert would help on this.

4. There are some problems with the interpretation of the results. In the light of Valdez and Mehrabian (1994) I wonder if a parsimonious explanation for the mood results is that "healthy" individuals tend to choose saturated colours (these correspond to V&M's "pleasure" dimension), the anxious group were largely random (possibly concerned with getting the right answer?) and the depressed group tended to go for desaturated colours.

Discretionary Revisions

5. Study 1: One of the problems with using a broad age range is that the appearance of colours can change with age due to such factors as lens yellowing. Any evidence of this? (see Beke et al (2008), Color Research & Application 33 (5) 381-394.)

6. Study 2: Whilst you do consider gender differences in mood colour, Hurlbert & Ling (2008), Current Biology 17 (16), R623-R625), among others, have reported colour preference differences between males and females, so the unequal numbers in this study may have influenced the results.

7. p. 10: I suggest describing the colours in terms of the more conventional "hue", "saturation" and "brightness" rather than "colour group".

8. p. 15: Whilst it is obviously important to look at those that did not choose a colour, I think it would be best to force them to choose. Results from vision science experiments suggest that whilst people might think they are choosing at random, they are often not. This turns the experiment into a forced choice experiment and makes the data easier to analyse (maybe rephrasing the question as "which colour most matches your mood"?"

9. p. 18/19: Might be better to rate the colours on a continuous positive/negative scale rather than simply class them as positive/negative/neutral. This could be done retroactively, I guess. That way you could plot direct correlations between colour valence and depression/anxiety scores and make the results more quantitative.

10. p. 21: Children may not have built the associations between colour and mood so effectively as adults. Couldn’t one interpretation be that depressed people know that the words “gray” and “blue” are associated with sadness. As they know they are depressed then they give exactly the answer you would expect, rather
than it being a genuine reflection of their emotional state. In other words, it is simply a stereotypical response.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare I have no competing interests.