Reviewer’s report

Title: A new mobile assessment technology for psychosis.

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Reviewer: David Kimhy

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Overall Review:

The authors compared use of mobile devices and traditional assessments of psychotic and other symptoms among individuals with schizophrenia and related disorders. The manuscript focuses on an important and timely topic, namely the emerging use of mobile assessment technology to conduct “real-world” ambulatory assessment of psychotic symptoms in individuals. While the focus of the manuscript on use of wireless technology is exciting, my enthusiasm was somewhat diminished due to the fact that the actual wireless component of the technology was not utilized in this study. Furthermore, even if this component was included in the study, the authors’ failure to provide context from studies that used earlier technologies (i.e., PDAs), makes it difficult to evaluate the potential advantages/disadvantages of their technology. There are a few additional issues that if addressed, would improve the manuscript:

Major Revisions:

1. Page 4, line 4 - The authors stated that compared to previous studies that utilized PDAs, their use of mobile phones to collect ambulatory data is advantageous, as “people are accustomed to carrying and recharging [such devices] … and are often familiar with the technology and interface.” The authors also claim that PDAs “are limited by their short battery life and difficult user-interface.” Can the authors present data indicating that mobile phones have superior battery life compared to PDAs? Likewise, if the ClinTouch software is designed to work on numerous Android-supported phones, and each phone would potentially have a unique battery-life profile, how can such a broad claim be made? Regarding the interface and comfort of use claim, a quick inspection of the ClinTouch interface indicates that it is quite similar to those used in previous studies using PDAs. What are the advantages in comfort of use? The authors need to provide clear data to support these claims.

2. The authors correctly state that PDAs “are offline systems and whilst the data is collected in the real world it cannot be assessed until brought into the laboratory/clinic and downloaded.” The authors suggest that their methodology is therefore advantageous. However, they need to state clearly what are the practical, everyday advantages of having “live” data from participants. Specifically, as data for many analyses (i.e., compliance rates & mean symptom ratings) cannot be computed until the ambulatory assessment is completed, what are the actual advantages of obtaining the data a few hours/days earlier?
3. The authors claim that their use of mobile phones is advantageous compared to PDAs. However, given that the wireless connectivity was not used as part of this study (page 10, line 14), it appears that the present investigation is not much different than previous studies that utilized PDAs, perhaps with a slightly “smarter” Android interface. The utilization of any new technology is often accompanied by technical problems that need to be overcome. Until the authors complete a study in which the wireless component of the their devices runs satisfactorily and problem-free, the authors’ claims of validating a “new” technology appear premature.

4. In the Manuscripts’ title, the authors characterize the technology they are using as “new”. However, this characterization is somewhat misleading as PDAs and similar technologies have been used to study individuals with schizophrenia for at least half a dozen years (See Kimhy et al., 2006, 2010; Granholm et al., 2008, 2112; Ben-Zeev et al., 2011; Swendsen et al., 2011 to mention a few; See Kimhy et al., 2012 for review). Likewise, preliminary reports of using such technologies as part of treatment of individuals at high risk for psychosis have been published as well (Kimhy & Corcoran, 2008). Overall, the manuscript may benefit from incorporating information from previous related studies, which will allow comparison of the advantages, and disadvantages of the presented technology compared to previous ones.

5. Can the authors comment about the relatively lack of paranoid delusions among participants (as listed on page 9) and whether this reflects selective recruitment (i.e., fewer individuals with paranoia agreed to participate and use their personal mobile phones.)

6. The authors state that they do not know how many participants were approached (and refused) to participate in the study. This is a major limitation of the study and should be highlighted in the limitation section of the manuscript. While the authors stated that 82% of participants were compliant, given the unknown (50%?) acceptability of the study and methodology to participants, broad claims that the methodology is feasible and acceptable appear premature (Page 16, line 3). This is also true regarding claims that ClintTouch may one day even replace traditional assessment (Page 20, Line 3). As stated earlier, a better characterization of the sample regarding socioeconomic status, education and/or reading ability would potentially help such claims.

7. The authors describe evaluating compliance as one of the primary aims of the study. However, as stated earlier, they did not review information about compliance in previous studies, which would have allowed comparisons (Kimhy et al., 2012 provided a summary of such findings).

Minor Revisions:

1. Page 2, Line 1 – “Schizophrenia is one of the most prevalent forms of mental illness.” Given that the general prevalence of schizophrenia is about 1%, characterizing schizophrenia as one of the most prevalent mental disorders is an overstatement.

2. Page 4, Line 13 – the “and” appears in error in “The objective of this study was
to and evaluate.”

3. There are discrepancies between the aims as described in the abstract, the aims listed on page 4, and the hypotheses listed on page 5. Please address.

4. The number of participants listed on page 5 is different from the numbers listed in the Abstract, the Results section and Table 1. Please correct.

5. It is unclear what was the minimal completion rate necessary for subject’s data to be included in the analyses (33%, top of page 12 vs. 67% bottom of page 12). Please clarify. Also, how was this standard determined?

6. Can the authors provide information about the socioeconomic status, education and/or reading ability of the participants? As these variables may have an impact on the results, including them may help determine the generalizability of the findings. If such information is not available, this issue should be addressed in the limitations of the manuscript.

7. Many individuals with schizophrenia live on limited incomes. Given that the ClinTouch software is installed on the participants’ personal phone – are participants responsible for paying for the additional communication usage associated with the software?

Discretionary Revisions:

1. Can the authors provide data regarding the participants' response rate over the course of the seven days? Such data may provide information regarding potential declines in the response rate (day 1 vs. day 6) and hint regarding the feasibility of using this system for monitoring symptoms over longer periods of time.

**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, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests