Reviewer's report

Title: Reliability, validity and administrative burden of the community reintegitation of injured service members computer adaptive test (CRIS-CAT)

Version: 5 Date: 8 June 2012

Reviewer: Niels Smits

Reviewer's report:

I still have three major concerns

1) The description of statistical concepts/outcomes still is rather messy. Since this journal has the word `Methodology' in its title, the necessity of a sound description of, and use of statistical terms is even higher than in regular journals. The authors should take the comments very seriously. For example:

a) On p. 14, a formula is given for conditional reliability. I doubt if this formula is correct. Moreover, there is no reference here to check. The reference that is given on p. 17 (28) does not contain any description of conditional reliability. Please remove the formula on p. 14 and just put a right reference there (and remove ref 28). You can choose one of the following two:


p. 165 of http://books.google.nl/books?id=5xty8-rf_XwC&pg=PA165&dq=%22marginal+reliability%22+irt&hl=en&sa=X&ei=9r3QT5rGMIWe0QXOpNjJCw&redir_esc=y#v=onepage&q=%22marginal%20reliability%22%20irt&f=false

b) On p. 14 it says `person score estimators'. An estimator is a rule (http://en.wikipedia.org/wiki/Estimator), and you have standard errors of estimates (which are a result of applying this rule)! So please change estimators into estimates.

c) On p. 16 you provide formulas for SEM and MDC, please remove these, and instead give good references (e.g. the StandardizedSEM.pdf ref). In addition, because these two terms do no stem from an IRT model, explicitly state where these come from. I assume that these were developed under classical test theory? Because you use both modern and classical test theory, for the reader without much statistical knowledge it will be very unclear what all this means.

2) The dealing with missing values is still incomplete. The authors state that they 'like many other researchers, are uncomfortable imputing primary dependent variables'. This feeling is inappropriate. Classical texts on missing data (Rubin, 1987, Little and Rubin, 1987, and Schafer, 1997) show that for properly dealing with missing values, both dependent and independent variables need to be imputed. All incomplete data therefore be imputed, the multiple imputation
inference will show how much uncertainty will originate from the occurrence of
missing values. Again, for a methodological journal analyses should simply follow
the state of the art.

3) The paper is still rather messy in its structure and text, e.g.:

a) In the abstract, what does `reliability of simulated CAT scores mean?
b) In the introduction, many details are given on the CRIS. This is awkward,
please give these details in the methods section, and give a short summary in
the intro.
c) Intro, CAT is described without any reference.
d) In the intro it is stated `This type of information would be useful for monitoring
of Veteran functioning and for targeting treatment to Veterans at risk for adverse
outcomes.' Why use the CRIS CAT if it would be useful? It is NECESSARY for
using it in practice. Your testing goals are obvious, make them more explicit!
e) Sometimes a heading says `Longitudinal cohort study', and sometimes it says
just `Cohort study'.
f) Intro: `measures the latent trait of community reintegration'. Please change.
First something like `aims to measure' seems more appropriate. Please explain
what a latent trait is. Maybe introduce the term when you first discuss CATs or
IRT. (CAT/IRT methodologies aim to measure constructs that are not directly
observable (latent traits))

**Level of interest:** An article whose findings are important to those with closely
related research interests

**Quality of written English:** Acceptable

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