

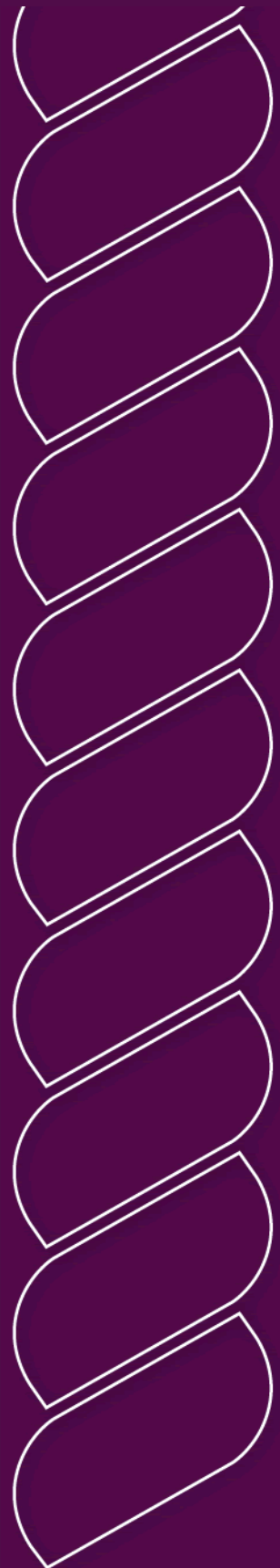
The HoNOS Family of Measures:

A technical review of their
psychometric properties -
Summary

The NATIONAL CENTRE *of* MENTAL HEALTH RESEARCH,
INFORMATION *and* WORKFORCE DEVELOPMENT

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Te Pou
o Te Whakaaro Nui



Acknowledgements

This is a summary document of technical report.

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Citation for the technical report: Te Pou. (2012). *The HoNOS Family of Measures: A technical review of their psychometric properties*. Auckland: Te Pou o Te Whakaaro Nui.

Contents

Acknowledgements.....	2
Contents.....	2
List of tables.....	2
Introduction.....	3
Background.....	3
Previous research.....	3
Methods.....	5
1. Procedure.....	5
Technical Update.....	5
Data Collection	5
Databases	5
2. Psychometric properties – establishing validity and reliability.....	5
Results Summary	6
Discussion.....	7
Conclusion	8
HoNOSCA and the HoNOS 65+.....	8
HoNOS secure and HoNOS LD	8
References.....	9

List of tables

Table 1. <i>Summary table of psychometric properties definitions and tests</i>	6
Table 2. <i>Summary Table of psychometric properties for the HoNOS family of measures</i>	7

Introduction

The Health of the Nation Outcome Scale (HoNOS) measures the symptom severity and social functioning of those experiencing mental health issues across time. The original adult measure has informed the development of the HoNOS family of measures, five of which (as of July 1st 2012) will be mandated for collection in the New Zealand clinical context. The additional four outcome measures were

- HoNOSCA for children and adolescents
- HoNOS 65+ for older adults
- HoNOS - LD for those experiencing learning difficulties
- HoNOS secure for those in a secure setting.

A technical review has been completed by Te Pou to address concerns raised by clinicians and researchers questioning the validity and reliability of the HoNOS family of measures. This is pertinent, in considering the recent mandated collection of measures in New Zealand. This review will be particularly helpful for those involved in implementing the HoNOS family of measures within the New Zealand context.

The technical review

- updates an earlier review of research on the psychometric properties of the HoNOS family of measures by Pirkis et al 2005 (excluding HoNOS-LD and Honos-secure)
- includes research published since 2005 and research on the HoNOS-LD and HoNOS- secure.

This report provides a brief summary of the results presented in the review. For additional information on the results or research review, the reader is referred to the original technical review document.

Background

The HoNOS measure was designed to assess symptom severity and social functioning of those experiencing mental health issues across time. Internationally, various members of the HoNOS family have been used as outcome, survey or as research tools. Within New Zealand, the HoNOS family of measures have been adopted as outcome tools and used to collect information for the New Zealand mental health database (PRIMHD-programme for the integration of mental health data). The utility of the data collected enables clinical outcomes to be measured at various information levels; individually, team, District Health Board (DHB) and nationally, informing service development planning and funding.

In any service delivery or clinical setting the treatment or rehabilitation process begins with an assessment of the service users' interests, abilities, capacities and needs. This information can also be used for further analysis to monitor and develop services. Given the importance of these two goals, standardized, valid and reliable assessment tools must be used. In the case of outcome measurement in mental health, it is important that clinicians understand what the measures are assessing and are consistent in ensuring measurement fidelity. The psychometric properties of outcome measures are used to determine their quality and appropriateness in the required setting.

Previous research

An earlier review conducted by Pirkis et al., (2005) compiled research evidence for the psychometric properties of the HoNOS, HoNOS 65+ and the HoNOSCA. Pirkis et al. (2005) concluded that the three measures had adequate (or better) psychometric properties and can therefore be regarded as appropriate for routinely monitoring consumer outcomes.

However at the time of publication not all of the psychometric properties of the HoNOSCA and HoNOS 65+ had been sufficiently researched and no evidence for the soundness of the HoNOS-LD and HoNOS-secure was considered.

Methods

1. Procedure

Technical Update

The technical report updates the research review published by Pirkis et al., (2005) by qualitatively summarising findings published since 2005 on the HoNOS, HONOSCA, HoNOS 65+, HoNOS-LD and HoNOS-secure. Overall the methodology employed was similar to that of Pirkis et al., (2005) summarising results rather than statistically combining them, using the same criteria to present the evidence for the measures.

Data Collection

The following strategy was used to identify studies on the reliability and validity of the HoNOS family of measures.

The following key words were used to identify relevant work: 'HoNOS family measures', 'HoNOS', 'HoNOSCA', 'HoNOS65+', 'HoNOS-LD' and 'HoNOS-secure' were combined with key search terms relating to reliability and validity such as 'psychometric properties', 'psychometric characteristics', 'reliability', 'validity'.

Databases

The following databases were searched: Google Scholar, Medline, PsychINFO, PsychEXTRA, Pubmed, Scopus, and Cochrane Databases of Systematic Reviews. Exclusion criteria for articles included

- unavailable translation into English
- self-report variations of the HoNOS with the exception of a NZ based article. The rationale for exclusion was based on use of the measures inconsistent with NZ application.

The search produced 20 articles that explicitly assessed psychometric properties of the HoNOS (11), HoNOSCA (2) and HoNOS65+ (4) and all works on the HoNOS-LD (2) and HoNOS-secure (1). Studies were not appraised on their quality but were assumed to have academic rigour as they were published in peer-reviewed journals. This was consistent with the data collection process employed by Pirkis et al., (2005).

2. Psychometric properties - establishing validity and reliability

The psychometric properties of instruments and measures are used to determine their quality and usefulness in the required setting. These properties are split into reliability, validity, sensitivity to therapeutic change and feasibility. To be considered valid or reliable, the properties are demonstrated through various tests and analyses which must meet a set criterion. Brief definitions of the properties and test forms are provided in Table 1, but for detailed information, the reader is referred to the technical report.

Table 1. Summary table of psychometric properties definitions and tests

Psychometric property	Forms of reliability and validity tests
Reliability Reliability refers to the consistency of a set of items or a measure. Reliability is the extent to which the score received on a test is consistent over time and across conditions. It is used to describe how good the test is at eliminating confounding error.	The three forms of reliability tests are <ul style="list-style-type: none"> • inter-rater reliability • test-retest reliability • and internal consistency
Validity Validity refers to whether the test actually measures what it is intended to measure. Validity testing is concerned with what the test measures, and how well it does this.	The three forms of validity tests are <ul style="list-style-type: none"> • construct • content • and criterion validity All three are important but which form is emphasized depends on the type of test.
Sensitivity to change Sensitivity to therapeutic change refers to the ability of an instrument to detect change in the subject or the constructs over time.	
Feasibility Feasibility is the degree to which the measure is acceptable to stakeholders or in this case useful in clinical practice. Feasibility is covered in training for the use of the measures in New Zealand and is not included in the technical review.	

The technical report reviews three of the four psychometric properties (excluding feasibility). Based on literature published since 2005, the report considers the reliability and validity tests as well as the sensitivity to therapeutic change of the five measures: HoNOS, HoNOS 65+, HoNOSCA, HoNOS- secure and HoNOS-LD.

Results Summary

The prevalence of evidence from the technical review suggests, the HoNOS family of measures do have adequate reliability, validity, and sensitivity to therapeutic change to be useful in clinical settings in New Zealand. All the measures have shown some evidence of reliability and validity, and some evidence suggestive of sensitivity to therapeutic change. This supports the adoption of these measures by the NZ mental health services. More research is needed to determine if the HoNOS-secure and the HoNOS-LD have sound psychometric properties.

The following table provides a summary review of the psychometric properties for the HoNOS family of measures.

- ‘Adequate’ means that there is sufficient research evidence to suggest that at least minimal requirements (statistical or otherwise) have been met for that particular psychometric property.
- ‘Good’ means that criteria were met and exceeded.
- insufficient evidence means there is a gap in the research evidence for this psychometric property and more research needs to be done.

There was no evidence to suggest that any psychometric property was violated.

Table 2. Summary Table of Psychometric properties for the HoNOS family of measures

	HoNOS	HoNOS65+	HoNOSCA	HoNOS-LD	HoNOS-Secure
Content Validity	Good	Adequate*	Adequate	Adequate*	Adequate*
Criterion Validity	Good	Adequate	Good	Insufficient evidence	Insufficient evidence
Construct Validity	Good but issues with factor structure	Adequate	Adequate	Adequate*	Insufficient evidence
Test-Retest reliability	Adequate	Insufficient evidence	Adequate	Insufficient evidence	Insufficient evidence
Inter-Rater Reliability	Adequate	Adequate	Good	Adequate*	Adequate*
Internal Consistency	Adequate	Insufficient evidence	Insufficient evidence	Insufficient evidence	Adequate*
Sensitivity to change	Adequate	Adequate	Good	Adequate	Insufficient evidence

*Emerging evidence, based on a small amount of research, more is needed

Discussion

The evidence for content validity of the measures is strengthening. As part of the criterion validity, concurrent validity has shown good correlations with similar measures and the HoNOS has been shown to be able to discriminate between different patient groups. Recently, studies evaluating predictive validity have given evidence further supporting criterion validity of the HoNOS. This is the case for all the five measures, although the HoNOS-secure and the HoNOS-LD only have development research to rely on currently.

The construct validity of the HoNOS has come into question with several researchers examining the original factor structure and proposing variations. The HoNOS may be multi-dimensional rather than simply measuring one underlying construct of 'mental health status'. This conclusion is the same for the other measures and is a characteristic for the whole family of HoNOS measures that have had their factor structure looked at (HoNOS, HoNOSCA, HoNOS65+). Reflecting this, internal consistency was found to be moderate with more research needed. The small amount of research that was conducted on the convergent and divergent validity of the HoNOS gave support for these psychometric properties. These issues with construct validity are to be expected as the underlying construct of mental health and social functioning is complicated and difficult to define and measure.

Test-retest and inter-rater reliability was found to be satisfactory. However there was uncertainty in the literature of whether training was needed to improve inter-rater reliability, with studies showing different results. There was difficulty with interpretation of some items of the HoNOS65+ which could affect inter-rater reliability. According to the evidence, the HoNOS family of measures are sensitive to change.

Conclusion

In conclusion, there has been a slow but valuable accumulation of evidence regarding the psychometric properties of the HoNOS family of measures published since Pirkis et al.'s 2005 review.

HoNOS

This research review supports and extends earlier evidence and findings of the HoNOS outcome measure being a reliable and valid tool that can be used to assess various aspects of mental health status. Additional research is needed, however, to determine the factor structure of the HoNOS and therefore how best to interpret total score or individual item scores.

HoNOSCA and the HoNOS 65+

The HoNOSCA and the HoNOS65+ measures have less research than the HoNOS measure but they have performed well in the majority of the studies, both prior to and following 2005. The factor structure continues to be a concern similar to the HoNOS. However, further research evidence on these measures would be valuable; specifically, the test-retest reliability of the HoNOS65+ and the internal consistency of the HoNOSCA.

HoNOS secure and HoNOS LD

More research is needed to determine if the HoNOS-secure and the HoNOS-LD have sound psychometric properties. The current research is indicative of reasonable reliability and validity, but more evidence, particularly obtained in settings independent of the development processes for these measures would be useful.

Despite limitations in some of the areas, requiring further evaluation of the psychometric properties of these measures, the prevalence of evidence suggests that the HoNOS family of measures do have adequate reliability, validity and sensitivity to therapeutic change to be useful in New Zealand clinical settings. This supports the adoption of these measures by the New Zealand mental health services.

Throughout training with the HoNOS measures, and in many of the studies of the psychometric properties of these measures, the issue of maintaining fidelity to the use of the rating criteria as presented in the Rating Glossaries is frequently emphasised. Irrespective of how good the psychometric properties of the HoNOS family (or any other) measures are, if staff who are using them do not rate according to the established criteria, the validity and utility of the resulting data will not be maintained. It is therefore important to ensure that steps to facilitate fidelity with rating to standard criteria are undertaken. Strategies to facilitate this include training (and refresher training) that emphasises use of the criteria and glossaries, ensuring that glossary information is readily available for review when people are completing the measures, discussion of the results of the measures as part of routine clinical review, and feeding back meaningful analyses of team aggregated data to the clinicians (See From Data to Information, 2009).

To date, very little psychometric evaluation of the HoNOS family of measures has been undertaken in New Zealand. While the international literature gives a solid foundation for accepting the reliability and validity of these measures, it would be valuable to also accumulate local evidence, including evidence regarding the reliability and validity of these measures with Maori, Pacific people, and other ethnic groups common in New Zealand. As a large amount of HoNOS family of measures data is already being collected in New Zealand, there is good scope for conducting this kind of research here. With the introduction of the HoNOS-secure and HoNOS-LD there is a particular opportunity to augment the relatively scant evidence currently available internationally. Services in New Zealand may want to consider establishing projects to undertake such psychometric evaluations.

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