

# RESEARCH NOTE

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## Application of Sen's Capability Approach to Outcome Measurement in Mental Health Research: Psychometric Validation of a Novel Multi-dimensional Instrument (OxCAP-MH)

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Amartya Sen's 'capability' approach is one of the most important and influential theoretical contributions to the understanding of human welfare in the last forty years. *Capabilities* refer to the alternative combination of functionings that an individual has reason to value and is able to achieve, whether they chose to do so or not (Sen, 1993). The value of the capability approach lies in its emphasis on freedom of choice, individual heterogeneity, and the multi-dimensionality of welfare. There is increasing interest in the application of the capability approach in the mental health context where sophisticated, multi-dimensional health and social care outcome measures are particularly relevant.

People with severe mental illnesses are one of the most disabled and disadvantaged groups in society, subject to stigma, discrimination and limited social and economic opportunities and freedom of choice.

Assessment of disability and health outcomes remains dominated by utilitarian welfarism, the underlying theoretical approach to quality-adjusted-life-years (QALY) and cost-utility analyses (Lorgelly et al., 2010). However, the utilitarian approach has been criticised for its inability to capture non-health benefits and broader welfare inequalities as well as its lack of sensitivity when applied to mental health populations (Brazier, 2010). Health economists and social scientists increasingly agree that the capability framework offers the potential for a richer, more nuanced theoretical evaluative space when compared with the standard QALY approach (Francis and Byford, 2011, Lorgelly et al., 2010, Verkerk et al., 2001). This consensus is reflected in the recent development of a range of health outcome measures employing the capability approach (Al-Janabi et al., 2012, Coast et al., 2008, Lorgelly et al., 2008),

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though application in the mental health context remains limited.

The OxCAP-MH is the first multi-dimensional capability instrument developed and operationalised for outcome assessment in mental health research (Simon et al., 2013). It is a 16-item index completed either independently by patients or together with a clinician/researcher. Items in the index are rated on a 1 to 5 Likert scale (e.g. strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) with higher scores indicating better capabilities. The initial index score ranges from 16 to 80 and is converted into a standardised 0 to 100 final score. The capability domains covered by the instrument are: health disability, meeting socially with friends, losing sleep over worry, enjoying recreational activities, having suitable accommodation, feeling safe, likelihood of discrimination, likelihood of assault (including sexual and domestic), ability to influence local decisions, freedom to express personal views, appreciation of nature, respecting and valuing people, enjoying friendship and support, self-determination, freedom of artistic expression and access to interesting activities or employment. A more thorough discussion of the development of the instrument, including item selection, can be found elsewhere (Simon et al., 2013).

The OxCAP-MH was piloted between 2008 and 2012 as part of the Oxford Community Treatment Order Evaluation Trial (OCTET), a randomised controlled trial of community treatment orders for ‘revolving door’ psychosis patients (Burns et al., 2013). The study was approved by the Staffordshire NHS Research Ethics Committee (Ref. 08/H1204/131) and all participants gave informed consent prior to interview. Data were collected through face-to-face interviews with 336 patients randomised prior to discharge from involuntary

hospitalisation. Complete OxCAP-MH data were available for 172 patients (response rates were strongly affected by the order in which the questions appeared within the broader OCTET baseline interview, rather than the questions themselves). The characteristics of these patients did not differ significantly from the full cohort in terms of age, gender and diagnosis. All statistical analyses were carried out on this sample. Initial testing of the OxCAP-MH indicated both the feasibility and validity of directly measuring capabilities in patients with severe mental illness (Simon et al., 2013). However, further work is required to establish the instruments’ broader psychometric properties.

Psychometrics is the field of study concerned with the measurement of psychological states, traits and abilities, including the development and validation of instruments to assess these properties. Psychometric properties are determined statistically and fall into two broad categories, ‘reliability’ and ‘validity’. *Reliability* is the ability of the instrument to measure the construct of interest consistently (e.g. at different time points) and is most commonly assessed in terms ‘test-retest’ reliability and internal consistency. Reliability is necessary, but not sufficient, for validity. *Validity* is the ability of the instrument to measure the construct that it purports to measure. The most important type of validity is construct validity (Schotte et al., 1997) which is made up of two subtypes of validity: convergent and discriminant validity. Convergent validity describes the degree to which two measures of constructs that theoretically should be related, are in fact related. In contrast, discriminant validity assesses whether concepts or measurements that should be unrelated are, in fact, unrelated (Campbell, 1959). A further important property for psychometric validation is long-term sensitivity to change, that is, the degree to

which the instrument is sensitive to changes in the construct of interest over time.

The initial work on the psychometric properties of the OxCAP-MH indicates that the instrument has good internal consistency as measured by Cronbach's alpha (0.78). The instrument's convergent validity is evidenced by the strong Pearson's correlation between patients' overall capability scores and the EQ-5D-3L utility ( $r = .415, p < .001, n = 168$ ) and EQ-5D visual analogue scores ( $r = .514, p < .001, n = 168$ ) (Glick, 1999) – the current gold standard for measuring health related quality of life – whilst the modest association with the Global Assessment of Functioning (GAF) ( $r = .249, p < .001, n = 168$ ) (Hall, 1995) a measure of overall functioning – is indicative of the instrument's discriminant validity. These associations would be expected given the theoretical relationship between the instruments. The EQ-5D has the closest conceptual relationship with the OxCAP-MH, capturing a patient's health-related quality of life through their subjective appraisal of their own health, while the GAF represents a patient's overall functioning as perceived by the clinician/researcher.

Further work is required to establish the test-retest reliability and long-term sensitivity of the instrument to change. Test-retest reliability data have been collected via postal questionnaires, completed one week apart, and are currently being analysed; an intra-class correlation coefficient will be used to assess the strength of association between test 1 and test 2. Long-term sensitivity to change will be established by assessing changes in OxCAP-MH scores between baseline and 48-months and comparing this with the degree of change observed in instruments known to assess related constructs. This work is ongoing.

In summary, the OxCAP-MH instrument has good feasibility, patient acceptability and demonstrable construct validity and appears to be a promising multi-dimensional alternative to current measures of patient wellbeing and health outcomes in mental health research.

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## References

- Al-Janabi, H., Flynn T.N. & Coast, J. (2012). Development of a self-report measure of capability wellbeing for adults: the ICECAP-A. *Qual Life Res*, 21, 167-76.
- Brazier, J. (2010). Is the EQ-5D fit for purpose in mental health? *The British Journal of Psychiatry*, 197, 348-349.
- Burns, T., Rugkasa, J., Molodynski, A., Dawson, J., Yeeles, K., Vazquez-Montes, M. ... & Priebe, S. (2013). Community treatment orders for patients with psychosis (OCTET): a randomised controlled trial. *The Lancet*, 381, 1627-1633.
- Campbell, D. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin* 56, 81-105.
- Coast, J., Smith, R. & Lorgelly, P. (2008). Should the capability approach be applied in Health Economics? *Health Economics*, 17, 667-670.
- Francis, J. & Byford, S. (2011). *SCIE's approach to economic evaluation in social care*, London, SCIE.
- Glick, H.A., Polsky, D., Willke, R.J. & Schulman, K.A. (1999). A comparison of preference assessment instruments used in a clinical

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- trial: Responses to the visual analogue scale from the EuroQol, EQ-5D and the Health Utility Index. *Medical Decision Making*, 19, 265-275.
- Hall, R.C.W. (1995). Global Assessment of Functioning: A Modified Scale. *Psychosomatics*, 36, 267-275.
- Lorgelly, P.K., Lawson, K.D., Fenwick, E.A.L. & Briggs, A.H. (2010). Outcome Measurement in Economic Evaluations of Public Health Interventions: a Role for the Capability Approach? *International Journal of Environmental Research and Public Health*, 7, 2274-2289.
- Lorgelly, P.K., Lorimer, K., Fenwick, E.A.L. & Briggs, A.H. (2008). *The capability approach: developing an instrument for evaluating public health interventions (Final report)*. , Glasgow, University of Glasgow.
- Schotte, C.K.W., Maes, M., Cluydts, R., De Doncker, D. & Cosyns, P. (1997). Construct validity of the Beck Depression Inventory in a depressive population. *Journal of Affective Disorders*, 46, 115-125.
- Sen, A. (1993). Capability and well-being. In: NUSSBAUM, M. C. (ed.) *The quality of life*. Oxford: Clarendon Press.
- Simon, J., Anand, P., Gray, A., Rugkasa, J., Yeeles, K. & Burnst, T. (2013). Operationalising the capability approach for outcome measurement in mental health research. *Social Science & Medicine*, 98, 187-196.
- Verkerk, M.A., Busschbach, J.J. & Karssing, E.D. (2001). Health-related quality of life research and the capability approach of Amartya Sen. *Qual Life Res*, 10, 49-55; discussion 57-8.