

# **A Review of Questionnaires Designed to Measure Mental Wellbeing**

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## **Introduction – Mental wellbeing and mental illness**

Mental wellbeing has been increasingly recognised as important component of health(1). It is more than the lack of mental illness and has been defined in terms of both feelings (hedonic or emotions such as feeling happy, calm, satisfied) and psychological functioning (confidence, optimism, self-acceptance, agency, autonomy good personal relationships). Mental wellbeing is regarded as synonymous with positive mental health.

Mental illness encompasses a variety of disorders and diseases including the severe and enduring mental illnesses like schizophrenia and bipolar disorder, the common mental illnesses - depression and anxiety, and disorders of functioning like personality disorder, autism and, in old, age dementia. These problems represent a significant disease burden in the community and make up about 20-25% consultations in General Practice. The severity of mental illness fluctuates in time and many people with, even, severe mental illness, lead productive and satisfying lives, experiencing high levels of mental wellbeing some of the time.

There is debate as to whether mental illness and mental wellbeing form two ends of a single spectrum or whether the dual continuum model operates. All studies have shown mental wellbeing and mental illness to be correlated to various degrees, some to a high degree, but there is also evidence that the social correlates of mental wellbeing are different from those for mental illness (2) and that for example neighbourhood environment is associated with higher wellbeing but not mental illness (3).

Lack of mental wellbeing is a risk factor for mental illness and improvements in mental wellbeing confer resilience to the stressful life events which can be a cause of mental illness in adult life. Mental wellbeing is also associated with better physical health and longevity(4) so improvement of mental wellbeing is a valuable goal in its own right.

A range of interventions have now been shown to increase mental wellbeing, (see “Better Mental Health for all” UK Faculty of Public Health website(5)). These include interventions to improve healthy lifestyles, and resilience. They also include a range of family and school based interventions which can tackle the childhood origins of mental health.

Improving mental wellbeing has now become a goal of local and national government and so it is important to be able to measure mental wellbeing with valid and reliable instruments.

## Aims and Objectives of the Study

This review aimed to identify and critically appraise available measures of mental wellbeing for use in the UK both for population level surveys and for the evaluation of interventions to improve wellbeing. Since population level measures of mental illness have been used in some studies as a proxy for mental wellbeing and as these measures correlate with mental wellbeing we have included in the review the most common population level mental illness measures.

## Methods

### Searches

1. **Internet searches for systematic reviews of measures of mental wellbeing/positive mental health and reviews which were likely to include measures of mental wellbeing** – Athens and Google Scholar
2. **Internet search for recent articles describing measures of mental wellbeing or their validation**– Athens and Google Scholar
3. **Search of relevant journals** e.g. Journal of Health and Quality of Life Outcomes, British Journal of Psychiatry for both reviews and articles and relevant government funded organisations such as the New Economics Foundation.
4. **Other internet searches for articles depending on findings of 1-3 above.**

### Identification of measures and data extraction

Reviews were scrutinised for appropriate measures and primary studies relating to instrument validation were sought for measures that met the inclusion criteria.

Attributes of each questionnaire were summarised under relevant headings and listed in three separate tables.

### Inclusion and Exclusion Criteria

#### *Included:*

Validated scales to measure mental wellbeing or positive mental health. Some well-known and well used mental illness scales designed for use in the general population were included for completeness.

#### *Excluded:*

Workplace questionnaires, illness oriented questionnaires with exception of the above, non-validated questionnaires, measures of only some aspects of mental wellbeing e.g. life satisfaction, happiness were also excluded from this review.

## Results

Two recent systematic reviews and two other reviews of tools to measure wellbeing were identified from an Athens search and a number of other tools were identified from searches for recent articles other sources such as reference lists from other articles.

Where the same tool had been validated among different population groups all these were reported separately so as to review the appropriateness of the tool for the different groups.

### Reviews:

Systematic Reviews in peer review journals:

1. Speight J Review of scales of positive mental health validated for use with adults in the UK: Technical report commissioned and edited by Jane Parkinson NHS Health Scotland. 2007(6) This is a comprehensive review including 49 scales all validated for use among adults in the UK. The 49 scales were extracted and classified into 8 groups: those measuring Emotional well-being, Life Satisfaction, Optimism and Hope, Self-esteem, Resilience and Coping, Spirituality, social functioning and emotional intelligence. Publications were restricted to 1995 to 2005.
2. Hunter J Leeder S. Patient Questionnaires for use in the integrative medicine primary care setting - A systematic literature review. European Journal of Integrative Medicine. 2013;5:194-216.(7)

This review was included because the recognised outcomes of integrative medicine include mental wellbeing. The review covered all outcomes including quality of life and holistic health, physical health, pain, mental health, diet and physical activity. Non systematic reviews in the grey literature:

3. Abdallah S SN, Marks N, Page N. Well-Being Evaluation Tools. New Economics Foundation Centre for Wellbeing. 2008(8) This describes tools to measure physical activity, healthy eating and mental wellbeing also including life satisfaction.

### Included measures

Eleven mental wellbeing measures met the inclusion criteria. Included in the wellbeing measures is the measure of wellbeing and life satisfaction used by the Office for National Statistics (ONS) in national surveys which is not a scale with item responses summed to get an overall score but consists of four structured questions analysed separately. In addition to the mental wellbeing questionnaires we selected eight questionnaires which are frequently used to measure mental health/ill health in the general population.

Characteristics of these questionnaires are presented in Tables 1-3. The table format allows readers to compare the different scales according to various criteria.

Table 1 summarises usage, age range and how to access the measure, giving the reference for administration instructions and access including cost. Table 2 gives details of how the measure has

been validated and includes validation references. Table 3 summarises advantages, disadvantages and comments on the usage of the scales.

While the tables summarise the attributes of the selected questionnaires the discussion below has been structured according to the main ways in which the questionnaires are likely to be used in Public Health. In this way this review has been tailored for the needs of Public Health researchers.

### *Surveys*

Population surveys are used both to describe a population and establish normative data and also to monitor a population over time to record changes. Individuals are not followed over time but a different sample from the same population is selected for each survey.

The role of wellbeing questionnaires is to provide an outcome measure of the mental wellbeing of the population that can be described in terms of age, gender, income, socioeconomic status and so on. The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) has shown itself to be suitable for this and has already been used in National surveys in the UK and in other countries. The short version of the WEMWBS (SWEMWBS) and the WHO-5 have also been used in this way. Positive wording makes the scales acceptable to the general population. The WHO-5 has been translated into 31 languages and is thus suitable for international comparisons. A large scale investment such as a national survey requires that the questionnaire has been tried and tested in the general population as these have.

### *Cohort studies*

Cohort studies collect data on the same individuals at more than one period of time. The quality of cohort studies is very dependent on response rates, so it is important to base these studies on measures that are acceptable in the general population. Cohort studies can examine change over time in individuals and relate this to other things that are happening in their lives. They can also look at developmental trajectories. The components on mental wellbeing, feeling and functioning, may have different trajectories over the life course with functioning following a gradual developmental pathway and feeling fluctuating to a greater extent from one time to another in relation to life events.

### *Intervention studies to improve mental wellbeing*

These are studies in which a group of people are selected in a structured way and they are included in a programme designed to improve wellbeing or another outcome such as health behaviour which may be expected to be of benefit to wellbeing. Questionnaires used for this type of study need to be sensitive to change. Evaluation at group level will produce statistics that change has occurred. Comparison with a control group who get a different kind of intervention or none at all will provide evidence that the intervention was or was not effective. The outcome is a comparison of the before and after score. Several scales have shown this. The WEMWBS is the best validated in this way. A scale with positive wording increases acceptability and helps to orientate participants to assets rather than deficits.

### *The evaluation of psychological interventions for those experiencing difficulties*

The methods for these interventions are essentially the same as those to improve mental wellbeing above. Wellbeing measures sensitive to change in this group can be valuable alongside measures of

mental illness, for example the HADS measure or the EFQ for studies in which participants are selected because of anxiety or the CES-D if participants are selected because of depression.

### *The evaluation of change at the individual level*

This may be desirable both in 'clinical populations' i.e. people who have a recognised illness and in normal populations. To fulfil this function, the measure needs to be sensitive to change in one person alone, rather than a group so it needs to be more precise. Generally there is a margin of error for "significant" improvement. In a large group "random" changes will tend to cancel each other out and the margin of random error can be evaluated by statistics and statistical significance can be established, whereas when the measure is used to monitor change at the level of the individual both random changes and changes due to other factors in that person's life are likely to be important in evaluating the causes of change.

### *Screening for mental illness*

Measures of mental illness can be applied to identify people with mental illness. This may be for the purposes of a survey or for clinical purposes. The aim of such measures is to capture all or as many as possible of the defined population with a view to identifying those at risk of depression or more rarely suicide whilst not capturing as many as possible of those who do not have the problem. The statistics - sensitivity and specificity need to be calculated to evaluate screening measures. A cut off point needs to be established as defined by a clinical evaluation. Sensitivity or the percentage of depressed people wrongly assigned as non-depressed, and specificity the percentage of non-depressed people wrongly assigned to the depressed group need to be defined. Generally scales designed to measure depression are not normally distributed and have a "cliff edge" (or skewed distribution) with most people at the top of the cliff and fewer people scoring in the depression range. For example few people would answer "yes" to a question about suicidal thoughts. For screening for depression at population level the GHQ-12 or the CES-D are the most reliable although at a clinical level a consultation with the use of more clinically oriented questionnaires would be better is always necessary to confirm the diagnosis of illness.

Positively worded wellbeing questionnaires such as the WHO-5 and the WEMWBS are not designed to screen for mental illness although a very low score on either of these questionnaires may indicate a need for follow up with another questionnaire which is a good screening measure or a clinical consultation.

### **Conclusion**

This summary of both commonly used and newer measures of mental wellbeing and discussion of the type of questionnaire needed for different kinds of enquiry has hopefully shed some light on this complex area. We also hope to have highlighted the scales most useful for the purposes of Public Health both in population and intervention studies. Broadly speaking the WEMWBS and the WHO-5 are the most useful for population studies with WEMWBS 14 item best for intervention studies. Some newer scales may be useful but have not as yet been sufficiently tested. It is important to understand the limitations of both of these scales in identifying people with mental illness.

## Tables

**Table 1 Brief description and Access**

<b>Mental Wellbeing Measures</b>				
<b>Name of Instrument</b>	<b>Administration instructions</b>	<b>What it measures</b>	<b>Age range</b>	<b>Usage</b>
WHO-5:	Free of charge and available to download in 31 languages. Home page by developers of the scale giving translations into other languages: <a href="http://www.psykiatri-regionh.dk/who5/menu/">http://www.psykiatri-regionh.dk/who5/menu/</a>	Positive feelings, happy emotions, energy. All items positive.	Adults	Widely used to measure mental wellbeing particularly in large international surveys. Brief instructions are given for scoring, interpretation and monitoring change. It is recommended to administer the Major Depression (ICD-10) Inventory if the raw score is below 13 or if respondents have answered 0 to 1 to any of the five items.
Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)	Free of charge Available in several languages. Can be downloaded from the developers' website: <a href="http://www2.warwick.ac.uk/fac/med/research/platform/wemwbs/researchers/userguide/">http://www2.warwick.ac.uk/fac/med/research/platform/wemwbs/researchers/userguide/</a> . Use needs registering for copyright purposes on the website.	Positive emotions and psychological functioning including: happiness, relaxed, confidence, agency, autonomy, energy, optimism and positive relationships All items positive.	13 and over	Widely used especially in the UK as an outcome of services and impact of policies. Included in large publicly available government surveys and cohort studies. Validated in both clinical and non-clinical populations. Instructions for scoring and administering on the website. Strongly correlated with depression scales and cut points available to indicate possible clinical problems. However not recommended for screening.

Short Warwick-Edinburgh Mental Wellbeing Scale SWEMWBS	Free of charge. Use needs registering as for WEMWBS Available and validated in several languages <a href="http://www2.warwick.ac.uk/fac/med/research/platform/wemwbs/researchers/userguide/">http://www2.warwick.ac.uk/fac/med/research/platform/wemwbs/researchers/userguide/</a>	A subset of items from WEMWBS emphasising psychological functioning. All items positive.	13 and over	Popular because of shorter length. Used in population surveys and interventions that have the improvement of mental wellbeing as an outcome. The scale needs to be transformed. Instructions and table for this are on the website.
BBC Subjective wellbeing scale	It does not seem to be available yet for others to use. New scale not yet used to evaluate interventions to improve mental wellbeing.	Mental wellbeing defined as aspects of psychological functioning including: the ability to develop your potential; work productively and creatively; build strong and positive relationships with others; and contribute to your community.	18 to 85	Developed by Peter Kinderman, a psychologist at Liverpool University author of "The new laws of psychology". The scale has to date been used for theoretical research about the nature of wellbeing. It was validated online among the UK population by the BBC. It is currently being evaluated by various NHS Trusts.
Oxford Happiness Questionnaire	<a href="http://www.meaningandhappiness.com/oxford-happiness-questionnaire/214/">http://www.meaningandhappiness.com/oxford-happiness-questionnaire/214/</a>  Online form for self-completion and scoring.  Free of charge	Measures happiness positive feelings, enjoyment and creativity. Based on personality theory relating to motivation and success and the factors that contribute to it. Equal number of positive and negative items.	Adults	Advice given to the individual on how to improve wellbeing and reduce negativity from website. Publication gives access to the questionnaire (in the appendix, Hills and Argyle 2002).

<p>PANAS -Positive Affect, negative affect</p>	<p>Available free access:  <a href="http://booksite.elsevier.com/9780123745170/Chapter%203/Chapter_3_Worksheet_3.1.pdf">http://booksite.elsevier.com/9780123745170/Chapter%203/Chapter_3_Worksheet_3.1.pdf</a></p> <p>for manual:  <a href="http://www2.psychology.uiowa.edu/faculty/clark/panas-x.pdf">http://www2.psychology.uiowa.edu/faculty/clark/panas-x.pdf</a></p>	<p>Anxiety: characterised by high arousal and Depression: by low arousal and emotional distress. The scale has been the focus of debate about the tripartite model of anxiety and depression. The positive affect scale is based on positive items and the negative affect scale on negative items.</p>	<p>Adults. Recently some studies among adolescents.</p>	<p>Widely used among adults in recovery from physical illness and in measuring correlates of recovery. Another focus of research appears to be on the taxonomic understanding of mental illness and classification of symptoms. Not widely used to evaluate interventions to improve mental wellbeing.</p>
<p>Satisfaction with life questionnaire</p>	<p><a href="http://internal.psychology.illinois.edu/~ediener/SWLS.html">http://internal.psychology.illinois.edu/~ediener/SWLS.html</a></p>	<p>Subjective satisfaction with life. Designed for disaster settings. Life satisfaction relates to the environment.</p>	<p>Adults</p>	<p>Specific use for disaster situations for measurement of before and after changes.</p>
<p>Questionnaire for Eudaimonic Wellbeing</p>	<p>Free open access:  <a href="http://www.tandfonline.com/page/terms-and-conditions">http://www.tandfonline.com/page/terms-and-conditions</a></p>	<p>Focuses on psychological wellbeing including: - Self-discovery, perceived development of one's best potentials, a sense of purpose and meaning in life, intense involvement in activities.</p>	<p>Adults.</p>	<p>To measure eudaimonic (psychological) wellbeing. Mainly used so far among students.</p>

<p>The Everyday Feeling Questionnaire:</p>	<p>Free to use without charge by individuals or non-profit organizations provided they are not making any charge to the individuals being assessed. Available to download in 8 European languages No to be translated, modified or incorporated into other measures without permission. : <a href="http://youthinmind.info/EFQ/">http://youthinmind.info/EFQ/</a></p>	<p>Psychological well-being and distress. There is a balance of positive and negative items.</p>	<p>Adults.</p>	<p>Designed to measure susceptibility to common mental disorders, this is a new questionnaire and has not been widely used as yet. The partner-report version is designed to facilitate the collection of data on multiple household members or on the same individual from two or more sources.</p>
<p>Mental Health Continuum Short form MHC-SF</p>	<p>Permission not necessary. Website gives information about scoring and other information: <a href="http://calmhsa.org/wp-content/uploads/2013/06/MHC-SFEnglish.pdf">http://calmhsa.org/wp-content/uploads/2013/06/MHC-SFEnglish.pdf</a> Contact for other language versions: Dr. Keyes (ckeyes@emory.edu)</p>	<p>Psychological, social and emotional wellbeing. All items positively worded</p>	<p>12 to 84</p>	<p>Can be used as a continuous measure in the general population. Used mainly in the US and Canada.</p>

Office of National Statistics Wellbeing Measure	<a href="http://www.ons.gov.uk/ons/dcp171766_310300.pdf">http://www.ons.gov.uk/ons/dcp171766_310300.pdf</a>	Four questions which are analysed separately covering satisfaction with life, purpose in life, happiness and anxiety. Three positive items and one negative.	Adults	General population in National Surveys. Data available at small area level in UK. Not validated for measuring change.
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<b>Mental Illness Measures used as proxies for wellbeing</b>				
<b>Name</b>	<b>Administration instructions ref</b>	<b>What it measures</b>	<b>Age range</b>	<b>Usage</b>
The CES-D scale. A self-report depression scale for use with the general population. Applied Psychological Measurement, 1: 385-401.	In the public domain. Free to use free of charge. Available to use online: <a href="http://cesd-r.com/">http://cesd-r.com/</a>	<b>Depression symptoms</b> eg: Sadness, loss of Interest, appetite, sleep, thinking / concentration, : guilt(worthlessness), fatigue, agitation, suicidal ideation:	Adults	Has been widely used in America in epidemiological surveys and studies to measure depression since its first use in the 1970s. Since there are questions about suicidal ideation it may be less acceptable to some people in general population surveys but could be used in a clinical setting.
General Health Questionnaire 12 items (GHQ-12)	Available from website but there is a charge for use. Short version of a longer questionnaire developed to identify probable mental illness in population samples. Contact owners with details of what you wish to do via: <a href="mailto:permissions@gl-assessment.co.uk">permissions@gl-assessment.co.uk</a> .	Designed to pick up common (non-psychotic) mental illness. 4 subscales: Somatic Symptoms, Anxiety and Insomnia, Social Dysfunction and Severe Depression. Predominantly negative items.	Adults	Widely used in health research to measure prevalence and determinants of probable mental illness. Also used for evaluation in intervention studies.

SF-36 standard form	Need to gain permission Information about charge is not given on the website but there is probably still a charge for use. Address for enquiries given on website. <a href="http://www.sf-36.org/tools/sf36.shtml">http://www.sf-36.org/tools/sf36.shtml</a>	Health related quality of life 36 questions that give an eight scale profile of health and wellbeing and two summary measures of mental and physical health respectively. The eight scales are: Physical functioning, Role physical (limitations to activities because of physical problems), Bodily pain, General health (perceptions about health now and expectation for future), Vitality, Social functioning (extent to which health interferes with functioning), Role emotional (limitations due to emotional problems), Mental health (happiness anxiety depression).	Adults 18 yrs and over. Used in teenagers aged 14 yrs + but validation data for this group not yet available.	Widely used in health research to measure impact of burden of disease on physical and mental function and wellbeing and to measure change in quality of life in intervention studies.
Hospital Anxiety and Depression Score (HADS)	Freely available from website: <a href="http://www.palliativecares.co.uk/Regional/LondonMiddlesex/Hospital%20Anxiety%20and%20Depression%20">http://www.palliativecares.co.uk/Regional/LondonMiddlesex/Hospital%20Anxiety%20and%20Depression%20</a>	Symptoms of anxiety and depression but not somatic symptoms of physical illness such as fatigue.	adults	Developed in 1983 to measure anxiety and depression in a clinical setting. Well used in the past.

	<p><a href="#">OScore.pdf</a></p> <p>Scoring:  <a href="http://www.kytinnitustreatment.com/docs/HADS%202014.pdf">http://www.kytinnitustreatment.com/docs/HADS%202014.pdf</a></p>			
PHQ-9	<p>Available from the website free of charge.  <a href="http://www.patient.co.uk/doctor/patient-health-questionnaire-phq-9">http://www.patient.co.uk/doctor/patient-health-questionnaire-phq-9</a></p>	<p>Self-report section of the PRIME-MD measure and is designed to measure depression. Negative items only.</p>	Adults	<p>Validated for use in primary care and extensively used among patients to monitor the effectiveness of primary care services in the UK.</p>
GAD-7	<p>Copies of the PHQ family of measures, including the GAD-7, are available at the website:  <a href="http://www.phqscreeners.com">www.phqscreeners.com</a>  Also, translations, a bibliography, an instruction manual, and other information are provided on this website. No permission is required to reproduce, translate, display or distribute.</p>	<p>Generalised Anxiety Disorder. Has good sensitivity and specificity for panic, social anxiety and post-traumatic stress disorder as well as for general anxiety. Negative items only.</p>	Adults.	<p>Validated for use in primary care and extensively used among patients to monitor the effectiveness of primary care services in the UK.</p>

<p>Mental Health subscale of Quality of wellbeing scale self-administered version QWB-SA</p>	<p>Access codes and passwords providing access to the web-based QWB-SA are available to researchers through the UCSD Health Services Research Centre. A copyright form needs to be completed although free of charge access is available. Charges may be made for access to support.  <a href="https://hoap.ucsd.edu/qwb-info/#">https://hoap.ucsd.edu/qwb-info/#</a></p> <p>So far mental health subscale is not available to download independently.</p>	<p>The mental health subscale has 10 items taken from the QWB-SA by an expert panel, is descriptive and validated psychometrically. The QWB-SA itself is a preference based measure of health related quality of life (to allow calculation of QALYs) where 1=optimum function and 0=death. It was developed by asking people to rate items measuring limitations in physical activities, social activities, mobility, and presence of symptom/problem complexes.</p>	<p>18 to 85</p>	<p>The mental wellbeing subscale has 10 items. The QWB-SA is intended for monitoring progress in patients recovering from illness and has 71 items.</p>
<p>Psychological General Wellbeing index</p>	<p>Free of charge. Available from website:  <a href="http://www.opapc.com/uploads/documents/PGWBI.pdf">http://www.opapc.com/uploads/documents/PGWBI.pdf</a></p>	<p>This instrument is intended to measure stress, burnout and stress related health problems.</p>	<p>15 and over adults</p>	<p>Designed for general population use but also for groups of patients who may be experiencing mental distress due to physical illness.</p>

**Table 2 Validation**

<b>Mental Wellbeing questionnaires</b>					
<b>Name</b>	<b>Number of items</b>	<b>Score range</b>	<b>Validation Reference</b>	<b>Factor structure</b>	<b>Sensitivity to change demonstrated</b>
WHO-5:	5	5 to 25	<p>The scale has been validated in a population sample in Denmark. Ref: Bech P, Olsen RL, Kjoller M, Rasmussen NK. WHO-5 Measuring well-being rather than the absence of distress symptoms: a comparison of the SF-36 Mental Health subscale and the WHO-Five Well-Being Scale. International Journal of Methods in Psychiatric Research. 12(2):85-91, 2003.(9)</p> <p>It has also been validated among elderly relatives of people with psychiatric disorders. Heun R, Bonsignore M, Barkow K, Jessen F. Validity of the five-item WHO Well-Being Index (WHO-5) in an elderly population. Eur Arch Psychiatry Clin Neurosci. 2001;251(2):27-31.(10)</p>	One factor structure was confirmed by CFA in adolescents with diabetes in the Netherlands(11)	Yes, among people with affective or neurotic primary diagnoses (12)and also in a workplace physical activity programme in Australia (13)

Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)	14	14 to 70	Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., ... & Stewart-Brown, S. (2007a). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. <i>Health and Quality of Life Outcomes</i> , 5(1), 63.(14)	Yes. Although some studies have suggested additional factor in translated version on of other factors scree plot confirms one dominant factor.	Yes (15)
Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS)	7	7 to 35	Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J. & Weich, S. (2009) Internal Construct Validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): A Rasch analysis using data from the Scottish Health Education Population Survey. <i>Health and quality of life outcomes</i> , 7:15. (16)	Yes (16)	Not yet confirmed. Although SWEMWBS has been used in evaluation studies, sensitivity to change at group or individual level has not yet been reported in a peer reviewed journal.  Likely, due to smaller number of items, to be less sensitive to change than WEMWBS.
BBC Subjective wellbeing scale	24	24 to 120 (Initially used as a 4 point scale designed to measure subjective well-being - now validated as a five	Pontin et al. <i>Health and Quality of Life Outcomes</i> 2013, 11:150 <a href="http://www.hqlo.com/content/pdf/1477-7525-11-150.pdf">www.hqlo.com/content/pdf/1477-7525-11-150.pdf</a> (17)	Three latent highly correlated factors identified, 'psychological wellbeing', 'physical health and wellbeing' and 'relationships'.	New scale - no published studies of sensitivity to change identified.

		point likert scale.)			
Oxford Happiness Questionnaire	29 (full scale) 8 (short version).	Score range is 1-6. See website for method of calculation.	Hills, P., & Argyle, M. (2002). The Oxford Happiness Questionnaire: a compact scale for the measurement of psychological well-being. <i>Personality and Individual Differences</i> , 33, 1073–1082. Cruise, S. M. & Lewis, C. A. (2006). Internal consistency, reliability, and temporal stability of the Oxford Happiness Questionnaire Short-Form. <i>Social Behaviour and Personality</i> , 34, 123-126.(18)	Factor analysis showed several factors with Eigen values greater than one for both the long and short versions. For the short version satisfaction with personal achievements, enjoyment and fun in life, and vigour and good health appeared to be the main factors.	No studies found
PANAS -Positive Affect, negative affect	20	10 to 50	Crawford JR and Henry JD The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample <i>British Journal of Clinical Psychology</i> (2004), 43, 245–265 <a href="http://homepages.abdn.ac.uk/j.crawford/pages/dept/pdfs/BJCP_2004_PANAS.pdf">http://homepages.abdn.ac.uk/j.crawford/pages/dept/pdfs/BJCP_2004_PANAS.pdf</a> (19) and Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation	Positive and Negative Affect are relatively independent, but correlated dimensions. Both are highly internally consistent.	Yes. Has been found to be sensitive to change(21).

			of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, 54(6), 1063-1070.(20)		
Satisfaction with life questionnaire	5	7 to 35	Diener, E., Emmons, R.A. , Larson, R.J., & Griffin , S. (1985). The satisfaction with life scale. Journal of Personality Assessment, 49, 71-75. Summary of questionnaire: <a href="http://www.fetzer.org/sites/default/files/images/stories/pdf/selfmeasures/SATISFACTION-SatisfactionWithLife.pdf">http://www.fetzer.org/sites/default/files/images/stories/pdf/selfmeasures/SATISFACTION-SatisfactionWithLife.pdf</a> (22)  Report on Construct validity: <a href="http://www.cbs.nl/NR/rdonlyres/84165CCE-857C-4F65-8CF6-98CE2D66C7B5/0/201209x10pub.pdf">http://www.cbs.nl/NR/rdonlyres/84165CCE-857C-4F65-8CF6-98CE2D66C7B5/0/201209x10pub.pdf</a>	The scale only has five items which all measure life satisfaction. It has been shown to have satisfactory construct validity - a one factor structure and Cronbach's alpha above 8.	Yes. Pavot, W. and Diener, E. (1993). Review of the Satisfaction with Life Scale. Psychological Assessment, <a href="http://www.ksbe.edu/assets/spi/pdfs/survey_toolkit/other_samples/pavot_diener.pdf">http://www.ksbe.edu/assets/spi/pdfs/survey_toolkit/other_samples/pavot_diener.pdf</a>

Questionnaire for Eudaimonic wellbeing	21	0 to 84	Waterman, AS, Schwartz, SJ, Zamboanga, BL, Ravert, RD, Williams, MK, Agocha, MB, & Donnellan, VB. (2010) The Questionnaire for Eudaimonic Well-Being: Psychometric properties, demographic comparisons, and evidence of validity. <i>The Journal of Positive Psychology</i> , 5(1), 41–61. doi:10.1080/17439760903435208. (23) Schutte et al. <i>Psychology of Well-Being: Theory, Research and Practice</i> <b>2013</b> , 3:3 <a href="http://www.psywb.com/content/pdf/2211-1522-3-3.pdf">http://www.psywb.com/content/pdf/2211-1522-3-3.pdf</a>	Debated. Either a one factor structure or four highly correlated factors.	Not tested yet.
The Everyday Feeling Questionnaire:	10	Not known	Uther and Goodman The Everyday Feeling Questionnaire <b>2010</b> : the structure and validation of a measure of general psychological well-being and distress <i>Journal of Social Psychiatry and psychiatric epidemiology</i> (24).	Single factor for both self-report and partner version.	Not known as yet.

Mental Health Continuum Short form MHC-SF	14	0-70 or a categorical diagnosis in 3 categories	Lamers, Sanne M. A., Westerhof, Gerben J., Bohlmeijer, Ernst T. ten Klooster, Peter M. Keyes, Corey L. M. Evaluating the psychometric properties of the mental health Continuum-Short Form (MHC-SF) <i>Journal of Clinical Psychology</i> 67(1) pages 99-110. (25)	3 factors structure best fit in student sample and one factor structure in the adult sample (Gallagher 2009). The authors concluded that the three factor model fitted best.	Yes (Langland 2013)(26). However the scale has so far been used mainly in large population surveys to investigate the nature of mental wellbeing.
Office of National Statistics Well being Measure	Four questions	Each of four questions scored 0 to 10	Four domains: Evaluation (overall, how satisfied are you with your life?), experience (overall, how happy did you feel yesterday?) and eudemonia (overall, how much purpose does your life have; and overall, how valuable and worthwhile are the things you do in your life?). There is no psychometric evaluation because each answer is taken at face value and cut offs determine high and low scores. <a href="http://www.ons.gov.uk/ons/dcp171766_377786.pdf">http://www.ons.gov.uk/ons/dcp171766_377786.pdf</a>	No factor analysis. Each question is analysed separately.	Since the questions are used in large cross sectional surveys measuring change in individuals or a group of individuals is not possible. Change in mean scores in populations from surveys taken at different times can be compared as separate samples and statistics applied accordingly.

Mental Illness Measures used as proxies for wellbeing					
Name	Number of items	Score range	Validation Reference and date	One factor structure	Sensitive to change
The CES-D scale A self-report depression scale for use with the general population. Applied Psychological Measurement, 1: 385-401.	20	0 to 80	Radlof LS (1997) The CES-D scale A self-report depression scale for use with the general population. Applied Psychological Measurement, 1: 385-401.(27)	Yes. (Radloff 1977).	Yes. Sensitivity to change related to life events was reported in Radloff(27)
General Health Questionnaire 12 items (GHQ-12)	12	0-12 for items scored dichotomously (0,0,1,1) or 0-36 for items scored continuously (0,1,2,3)	First developed as 60 item scale in 1970 and the 12 item version has been validated in several different languages and age groups. Goldberg DP, Williams P: A User's Guide to the General Health Questionnaire. Windsor: nfer Nelson 1988. <a href="http://www.statisticssolutions.com/general-health-questionnaire-ghq/">http://www.statisticssolutions.com/general-health-questionnaire-ghq/</a>  Salama-Younes M Montazeri A, Ismail A, Roncin C. Factor structure and internal consistency of the 12-item General	One factor structure has been debated because two factors have emerged for negative and positive items respectively. A recent article has attributed this effect to response bias for negative items. They suggest this derives from the “ambiguity of the	Yes, sensitivity to change reported. e.g. Quek KF, Low WY, Razack AH, Loh CS: Reliability and validity of the General Health Questionnaire (GHQ-12) among urological patients: A Malaysian study. <i>Psychiatry Clin Neurosci</i> 2001, 55:509-513.

			Health Questionnaire (GHQ-12) and the Subjective Vitality Scale (VS), and the relationship between them: a study from France Health and Quality of Life Outcomes. 2009;7(22)(28)  <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2653033/pdf/1477-7525-7-22.pdf">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2653033/pdf/1477-7525-7-22.pdf</a>	response options for the absence of negative mood states”(29).	
SF-36 standard form	36	Complex scoring needs to be transformed so that each of eight scales score 0-100	A comprehensive psychometric evaluation available in the manual. A recent update is on the website: <a href="http://www.sf-36.org/tools/sf36.shtml">http://www.sf-36.org/tools/sf36.shtml</a>	No. 8 factors for full measure and 2 factors for summary scales.	Yes. Sample size estimates for detecting differences have been established. <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1060322/pdf/jepicomh00184-0095.pdf">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1060322/pdf/jepicomh00184-0095.pdf</a>
Hospital Anxiety and Depression Scale (HADS	14  two scales 7 items each	0-21 for each anxiety (HADS A) and depression (HADS B) scales	Zigmond, AS; Snaith, RP (1983). "The hospital anxiety and depression scale". Acta Psychiatrica Scandinavica 67 (6): 361–370. doi:10.1111/j.1600-0447.1983.tb09716.x. PMID 6880820 (30)  Bjelland, I; et al. (2002). "The validity of	Factor structure has been evaluated in several studies and although most suggest a one factor structure for each subscale (anxiety and depression respectively) some	Yes.  Hinz et al. 2009 <a href="http://www.ncbi.nlm.nih.gov/pubmed/18988141">http://www.ncbi.nlm.nih.gov/pubmed/18988141</a>

			the Hospital Anxiety and Depression Scale. An updated literature review". Journal of Psychosomatic Research 52 (2): 69–77. doi:10.1016/s0022-3999	suggest analysis as one scale to give a single measure of psychological distress.	
PHQ-9	9	0-27	The validation of this scale is available online: <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495268/pdf/jgi_01114.pdf">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495268/pdf/jgi_01114.pdf</a>  There is a systematic review of the Patient Health Questionnaire (PHQ)-9 depression, generalized anxiety disorder (GAD)-7 anxiety and PHQ-15 somatic symptom scales by Kroenke et al 2009.(31)	Probably. The PHQ-8 was tested for factor structure and all items loaded on one factor for depression when tested among the GAD-7 (see below)	Yes. A five-point decline represents a clinically significant improvement.  Lowe B, Unutzer J, Callahan CM, Perkins AJ, Kroenke K. Monitoring depression treatment outcomes with the patient health questionnaire-9. Med Care 2004;42:1194–201.
GAD-7	7	0-21	Kroenke K, Spitzer RL, Williams JBW, Monahan PO, Löwe B. Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. Ann Intern Med 2007;146:317-325. [validation data on GAD-7 and GAD-2 in detecting 4 common anxiety disorders]] (31)	Yes. In factor analysis of GAD-7 items together with the PHQ-8 depression items there were two dimensions, with all the GAD-7 items loading on a single factor (factor loadings range 0.69–0.81).	The GAD-7 has demonstrated change as a secondary anxiety outcome in several depression trials, but has not yet been studied as a primary outcome in anxiety trials. Since diagnosis of anxiety is split it may be necessary to use other scales as well for anxiety.

Mental Health subscale of Quality of wellbeing scale self-administered version QWB-SA	10	0 to 30 for ten items in subscale	Sarkin A, Groessl E, Carlson J, Tally S, Kaplan R, Sieber W, et al. Development and validation of a mental health subscale from the Quality of Well-Being Self-Administered. Quality of Life Research. 2013;22(7):1685-96. (32)	Mental health subscale items selected by expert opinion and psychometrically validated in three samples, general, psychiatric and non-psychiatric medical populations. High internal consistency Cronbach's alpha= 0.8. Correlation with other wellbeing scales such as SF-36 (r=0.72 and EQ5D (r=0.61) but not with measures of physical health.	No published studies found as yet.
Psychological General Wellbeing index	22	0 - 110 or 22 - 132	Grossi E, Groth N, Mosconi P, Cerutti R, Pace F, Compare A, et al. Development and validation of the short version of the Psychological General Well-Being Index (PGWB-S). Health and Quality of Life Outcomes. 2006;4(1):88.  (33)	Although designed in separate subscales CFA supported the one factor model. Total scores need to be transformed.	Yes among patients with stress related exhaustion.

**Table 3 Uses and Comment**

<b>Mental Wellbeing Questionnaires</b>				
<b>Name</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Useful for Screening for mental illness</b>	<b>Comment</b>
WHO-5	Positive items, very short, simple to score, does not require permission.	Does not measure psychological function or relationships	Normally distributed in general population so no clear cut off points but found to be useful in screening for depression in elderly people. It also correlated well with the PHQ-9 (designed to measure depression) among people with type 2 diabetes in Bangladesh.	Positively worded and short. It is easy to use, sensitive to change, unlikely to cause offence and a good measure for positive emotions or "feeling good" and energy but it does not measure psychological function.
Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)	Positively worded. Proven sensitivity to change.  Free to use Well accepted by participants.	Not RASCH compatible, but RASCH scaling depends on a hierarchy of difficulty in item response which is not an appropriate test for this measure	No. Although people with depression tend to have low scores there is no clear cut off point for depression and there will be a significant number of false positives and false negatives wherever the cut-off point is put.	Useful for measuring mental wellbeing in general and clinical populations. It is positively worded so that participants are happy to complete it. It measures psychological function as well as emotional wellbeing or feeling good. Appears to be very sensitive to change.

Short Warwick-Edinburgh Mental Wellbeing Scale SWEMWBS 7 item	Short, positive. RASCH compatible which means it has greater internal consistency than the WEMWBS	Scores need to be transformed. Focused more on psychological wellbeing than emotions	As above.	Has all attributes above except that there are fewer of the emotion questions so that it mostly measures psychological wellbeing. Early studies suggest it is likely to be sensitive to change although no publications yet.
BBC Subjective wellbeing scale	Validated as an online measure. Measures both psychological wellbeing and feelings.	New scale so limited points of reference in published peer reviewed studies.	Not validated for this.	New scale which may be useful in the future if it becomes available for general use. .
Oxford Happiness Questionnaire	The short form is quick and easy to complete	Negative wording for half the items.	Not validated for this.	The concept of "flow" and clear goal setting and motivation as being central to wellbeing is not universally accepted. The scale seems to be developed for use in students and young people among whom the concept of "success" is universally accepted as central to wellbeing.

PANAS -Positive Affect, Negative Affect	Widely used. Normative data available.	Negative items and focus on mental illness rather than wellbeing.	May be useful for this since it correlates well with measures of depression, for example HADS.	There is a large literature on theory about anxiety and depression associated with this questionnaire. The positive scale does correlate well with other wellbeing scales.
Satisfaction with life questionnaire	Available in many languages.	Limited usage for extreme environmental situations.	No. Not designed to measure this.	There is no psychological component - questions do not specify what is meant by "satisfaction". Designed to measure satisfaction caused by environmental change.
Questionnaire for Eudaimonic wellbeing	Well validated among students.	Very new scale. May be revised.	Probably not. Most questions relate to personal development.	Validated in college students. Seems to emphasise ambition and work ethic. Despite the name this does not appear to be a comprehensive measure of psychological function or mental wellbeing

<p>The Everyday Feeling Questionnaire</p>	<p>Measures optimism, interest, relaxed and enjoyment as well as negative aspects such as stress and worry. Designed to measure distress as well as wellbeing in non-clinical settings.</p>	<p>New scale. Not been extensively used.</p>	<p>Has not been validated to screen for mental illness but has been validated in a population with mental illness.</p>	<p>The validation in three populations (normal, mental illness and medical but not mental health problems) indicated a single underlying factor for wellbeing and psychological distress. An unusual aspect of this scale was that it included partner report. The findings regarding the usefulness of partner report are preliminary but in principle may be useful for reporting family mental health and evaluating family interventions.</p>
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<p>Mental Health Continuum Short form MHC-SF</p>	<p>Positively worded. Based on a psychological model to measure perceived psychological function and emotional wellbeing although it also includes a social aspect. Useful for general population.</p>	<p>The inclusion of perceived social function introduces an environmental component which may depend on things other than the person's mental state. eg. answers to "the way that society works makes sense to you" may depend on where you live.</p>	<p>The MHC-SF mental illness subscale showed high factor loadings (0.81) with the depression subscale of the BSI inventory in people in South Africa (Keyes 2008). However sensitivity and specificity may not be high.</p>	<p>Classification of the 14 items (questions) into three categories of wellbeing as described is approximate since the questions overlap categories. The CFA results in the papers support conclusions about either one two or three factor structures.</p>
<p>Office of National Statistics Wellbeing Measure</p>	<p>Short questions already used in large population surveys. Data available at small area level in the UK.</p>	<p>Not a psychometrically validated scale of mental wellbeing.</p>	<p>Not designed to screen for mental illness.</p>	<p>The data on the four ONS questions is available at National population level in the UK and findings can be related to other socio-economic factors evaluated in the surveys.</p>

<b>Mental Illness Measures used as proxies for wellbeing</b>				
<b>Name</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Useful for Screening for mental illness</b>	<b>Comment</b>
The CES-D scale	Found to be reliable across ethnic groups (mainly in the USA) and also validated extensively in older adults. A ten item, seven item and five item version have been used. A recent study concluded that the scale could be reduced to three culture specific scales for use in older Puerto Rican and African American	Mostly negatively worded items may upset some participants. Only measures depression, not psychological function or wellbeing.	Yes. It is a screening tool for depression. And as such is not normally distributed in the population.	Not useful as a measure of wellbeing in the general population since it measures depression and is not normally distributed. Most people would have very low scores.

	people (Coman et al 2012).			
General Health Questionnaire 12 items (GHQ-12)	Equal number of Positive and negative items	Cost to use	Yes. It has been used to identify depression and non-psychotic psychiatric morbidity.	The GHQ-12 measures depression and as such has been useful in measuring depression associated with physical illness and also in the general population. Although half the items are positive some of these have negative connotations e.g. "been able to face problems" or "been feeling reasonably happy". There are no questions about relationships with others.
SF-36 standard form	Has been extensively used in health research. Measures both physical and mental function.	Health related quality of life measure covering mental physical and social health. It does not measure psychological wellbeing	Yes. The five item mental health inventory (MHI) part of the SF-36 has been validated for screening for depression. Using the Becks Depression inventory $\geq 16$ to define presence of depressive symptoms MHI-5 $\leq 70$ had 77 sensitivity, 72 specificity, 44 positive predicting value and 91% negative predicting value among patients undergoing dialysis.	The SF-36 measures mainly limitations to physical activity, regular daily activity and social activity. This scale has a negative focus and the focus is on health related quality of life. The MHI subscale does capture the continuum of mental health quite well.

Hospital Anxiety and Depression Score (HADS)	Validated in psychiatric and in general practice patients and in general population.	Negative wording of most questions may make it less acceptable to the general population than some other scales.	Yes tested against other measures of anxiety and depression and found to have adequate sensitivity and specificity for screening.	The HADS has mostly questions relating to anxiety including physical symptoms and some questions relating to depression. Positively worded questions are fewer than negative ones and the selection of answers seems to imply an expectation of negative response.
PHQ-9	Extensively validated among patients with a variety of medical conditions.	Used mainly in patients and negatively worded.	Yes. Scores of 5, 10, 15, and 20 represent cut points for mild, moderate, moderately severe and severe depression, respectively.	Depression could be seen as low wellbeing but the PHQ-9 does not directly measure positive aspects such as interest in new things and agency.
GAD-7	Validated among patients.	Negatively worded. Only measures anxiety. Does not measure psychological function although anxiety is likely to be related to psychological function and mental wellbeing.	Yes. Scores of 5, 10, and 15 represent cut points for mild, moderate, and severe anxiety, respectively. When screening for anxiety disorders, a recommended cut point for further evaluation is a score of 10 or greater.	Although related to wellbeing anxiety or the lack of it is not the only criteria for mental wellbeing.

<p>Mental Health subscale of Quality of wellbeing scale self-administered version QWB-SA</p>	<p>Designed for use among patients in recovery and for disability among older adults. The disability section enables association of particular disability with wellbeing to be made with indications for interventions.</p>	<p>Total (71 item) questionnaire takes 20 minutes to complete and measures mainly symptoms. All 10 items in the mental health subscale also have negative wording. Several questions about symptoms of anxiety and only one about relationships with others.</p>	<p>Not validated for this.</p>	<p>New scale. Hopes are to use it in re- analysis of studies which have already used the QWB-SA to see impact of illness and interventions on mental health related quality of life. (The QWB-SA measures physical activity, social activity and mobility and confinement). Does not address mental wellbeing very well but can be translated into quality-adjusted life years for policy analysis purposes.</p>
<p>Psychological General Wellbeing index</p>	<p>Reliability sufficient for individual use.</p>	<p>Needs to be transformed. Negative wording.</p>	<p>Has not been tested for this but has been used mainly in intervention studies among people experiencing difficulties.</p>	<p>Negative wording may make it less useful for mental wellbeing measurement in the general population. However it has been shown to be sensitive to change in patient groups.</p>

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