Measuring mental health outcomes in built environment research:

Choosing the right screening assessment tools

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CONTENTS

INTRODUCTION

Measuring mental health has often been regarded as more difficult than measuring other types of health. This is due in part to psychiatry's limited availability of objective biological tests and variable diagnostic guidelines, alongside intercultural differences in the mental health experience and complex social and psychological confounders. However, it is possible – and desirable – to measure mental health outcomes in built environment research. This is how the mental health impact of urban planning and design can be demonstrated and understood.

OPTIONS FOR 'MEASURING' MENTAL HEALTH

Gathering existing data:
Many outcomes in mental health research do not necessarily need tools for assessment. Increasingly big data, and data linked to hospital records or social media mean other indicators of mental health including diagnosis, demographic details, health history, prescription information, referrals, psychologist attendance, or police records can be used, and may be useful for location specific studies. Furthermore participant self-reporting of any of their own psychiatric diagnoses or psychiatric medications is used regularly instead of specific assessment tools. It is important to assess whether the information one needs already exists, or the effort and thought which goes into collecting fresh data is essential.

Biological measurements:
While some 'biological' tests are available and used quite often in psychiatric research, most notably EEG brainwave monitoring, or salivary cortisol as proxy measures of stress levels, there are less useful for studying most mental health conditions.

Diagnostic interview:
The gold standard, diagnostic, definitive assessment of a person's mental health status comes from rigorous psychiatric interview by trained clinicians, in most countries, a psychiatrist or clinical psychologist. These diagnostic interviews may take up to a couple of hours to complete and involve multiple layers of questioning and testing for wide-ranging symptoms of mental health. Urban design research however lends itself in the most part to examining the effects of environmental exposures on sizeable populations. It is therefore probably unfeasible that any study could employ psychiatrists or psychologists to assess very many people in this manner.

Screening assessment tools:
In light of the challenges such as scale, time and resources associated with conducting rigorous psychiatric interviews for large populations, screening tools have

been developed with the aim of much more efficiently assessing specific components of people's mental health with nearly just as much accuracy as diagnostic interviews. These often take the form of much shorter interviews, which can be competently delivered by anybody after just a few sessions of dedicated training. Indeed increasingly, self-complete questionnaires are also delivered to individuals in a target geographical area, or of a demographic of interest, and returned to interviewers by post, or are collected. These tools can also helpfully generate a continuous variable instead of discrete clinical diagnoses.

This document collates a number of widely used and validated psychiatric screening tools, grouped by type of outcome. These measures have been specifically selected for:

- Potential applicability to scalable population-level mental health research
- How commonly they are used within current psychiatric literature
- Suitability for producing translatable results between populations.

Following this document, a few case studies are provided that describe the measurement of mental health outcomes in built environment exposures, for applied context.

WHERE TO START IN MEASURING MENTAL HEALTH OUTCOMES

1. Identify the outcomes you need to measure to prove your hypothesis

Identifying the most appropriate outcome for a hypothesis is essential, and should always precede selection of an associated assessment tool. The intended outcome of interest may be clinical: cases of depression, anxiety, schizophrenia in an area. It may also be a social phenomenon: do people living in greener neighbourhoods report greater social support?

2. Use international standards to define mental illnesses

Mental health conditions are complex concepts to measure. However two international standards for guiding the diagnosis of mental illnesses have been established: by WHO, the International Classification of Disease version 10 (ICD-10), and separately by the APA, the Diagnostic Statistical Manual version 5 (DSM-V). To take depression as an example, both systems invariably focus on similar symptoms: low mood, lack of interest, appetite, sleep or behavior changes among others. But greater emphasis on some features, or subtle differences between symptoms in these systems demonstrate the difficulty with measuring mental health, there is mild discordance between what constitutes mental illness, because psychological and behavioral features are difficult to conceptualise and measure.

3. Commit to using a pre-existing screening tool

Significant work goes into the design of a single mental health assessment tool. Extensive rigour must be employed when creating a tool which aims to replicate psychiatric assessment as closely as possible. It is always easier to use a pre-existing and validated assessment tool than to design one’s own, and it enables comparisons of outcomes and thus the comparative impact of different projects. This knowledge summary provides a list of widely used tools which have been extensively validated in varying contexts, and which may reasonably be used within research for assessing mental health and its associated factors against built environmental factors. This is not a definitive list of tools by any means: some are being updated, new tools are developed to meet the most current research trends and others are adapted or are becoming validated for a new purposed.

Note: a number of these tools are copyrighted and it is essential that in these cases one contacts the tool designers before their use. Often copyright fees are waived at the designer's discretion.

While more subtle differences exist between each assessment tool, this brief guide aims only to steer researchers toward the right area for further self-directed investigation of these assessment tools, and to highlight some appropriate questions one should ask themselves before choosing the appropriate measure for their work.

Challenges in designing screening tools

There is often a temptation to design screening tools to fit individual projects.This was certainly the case with social isolation. In 2017 a systematic review identified 109 different measurement tools for social isolation used in the health literature (Cordier, 2017). The greatest variation between these measures was what the designers of each considered a constituent part of social isolation. Factors such as participation, connectedness, and citizenship may reasonably all be assessed within an assessment of social isolation, but designers of different tools may ask questions in different ways, or skip factors, according to their particular interpretation of how to measure social isolation. We can therefore see how differing measures may come up with variable - albeit relatively similar in the broad sense - assessments of a psychosocial construct. To a reasonable extent this is the case for mental health too, although most countries and institutions now acknowledge only a limited suite of diagnostic standards.

The difficulty of designing a useful screening tool is in getting as close as possible to a diagnosis, by identifying symptoms and distilling away other diagnoses, in the fewest questions in the most easily administrable way, with the least ethical implications, for the most demographically or culturally varied audience as possible. Different tools manage to do all these things to different degrees and herein, along with practical and administrative implications lie the strengths of some tools over others. Williams and colleagues reviewed the 16 most common depression identification tools for primary care practices in their 2002 paper, highlighting variation in the questionnaires between 1 and 30 questions, and administrations times lasting for mere seconds up to 10 minutes.

SELECTING A TOOL TO MEASURE OUTCOME OF CHOICE

Selecting an appropriate tool for a particular situation can be a complicated process. While on the surface it may appear that each are quite similar they each have much more subtle strengths and weaknesses inherently and when applied to varying situations. Below is a compiled list of the most commonly used screening tools along with a few simple considerations. This resource is not intended to be complete, nor go into the specific detailed psychometric strengths and weaknesses of one measure over another, although further reading and references have been given to aid this.

Ask yourself:

What are you trying to measure?

The GHQ-9 tool for example, which captures 'psychological distress' will be sensitive to a participant with depression, but a more specific depression screening tool may provide greater specificity, reliability and validity. Are you intending to identify cases, screen for those at risk of developing the condition, or monitor the progress of a known case? Diagnostic tools assess clinical symptoms and are usually used by clinicians to make a diagnosis. Screening tools on the other hand cannot be used to identify a case from non-case but by identifying proxy indicators of the mental health condition create a continuous variable for the likelihood or severity of a mental health disorder. Finally, severity assessments are often used to track change in an illness, or response to treatment once a diagnosis has been made.

Why are you trying to measure this?

If the aim of the study is to provide comparison between cases or across time, then using the same tool may clearly be worthwhile. Similarly, poor homogeneity between measurement tools is a problem for meta-analysis in the field, selecting a tool which has previously been used in similar studies could be of benefit.

What resources do you have?

What skills can you call upon, what funding do you have to administer interviews, mail surveys, pay for a tool's copyright, transcribe interviews or digitalize surveys, and train tool administrators.

Population

Studying populations of thousands spread across multiple sites may lend itself more conveniently to a screening tool which uses self-complete postal questionnaires. In reverse, qualitative work with a small sub-population may lend itself to in-depth

interviews. Intercultural variations in psychiatry are also important: what language does your population speak and what are their mental health beliefs? Such methods have methodological pros and cons; response rates of postal surveys for example often do not surpass 10%, and the population who do complete these surveys are likely to represent the least vulnerable and more highly educated in society disproportionately. Many of the tools to follow may appear very similar – a key reason to pick one over another would be if the tool, and any score cut offs it might recommend have been validated in your study population. Has the tool been validated in that language and for this culture, has it been shown to be biased towards cultural specific leanings in symptomatology?

Ethical considerations

Some measures require collateral history from a relative, others might ask questions which may be upsetting to particular participants, requiring the recalling of upsetting events.

Practical challenges

Does your population have cognitive impairment, or other mental or physical co-morbidity which would limit the practicability of one data collection method over another? Is there somewhere private to conduct interviews? Does your study require blinding the person administering the tool?

References

Cordier R. (2017). A systematic review evaluating the psychometric properties of measures of social inclusion. PLoS One, 9;12(6).

Williams JW, Pignone M, Ramirez G, Perez Stellato C. (2002). Identifying depression in primary care: a literature synthesis of case-finding instruments. Gen Hosp Psych, 24(4)225-37.

ASSESSMENT TOOLS FOR THE MEASUREMENT OF MENTAL HEALTH OUTCOMES

ABBREVIATED, NON-SPECIFIC PSYCHIATRIC ASSESSMENTS

Main assessments: CIS-R, GHQ, SRQ20, MINI, Kessler, SF.

CIS-R The revised Clinical Interview Schedule	
At one point the CIS-R was the most widely used abbreviated assessment tool in psychiatry and was developed from a full psychiatric assessment interview. This revised tool is flexible in that it can be administered in a variety of ways. While initially a screening tool, algorithms have been developed to allow the lay-administrators to follow sections of the ICD-10 to can be used to diagnose specific common mental health problems. Similarly, akin to the other measures in this group the CIS-R be used to "screen for psychiatric morbidity" on a scale with a validated cut-off points to identify cases with a non-specific 'common mental health disorder' (CMD).	
Measures	This tool can be used as a diagnostic assessment for specific common mental health disorders (depression, GAD, phobias, panic disorders, OCDs and CMD-NOS), or can screen for mental illness generating a continuous variable of psychiatric morbidity.
Delivered	By trained interviewer, self-administered questionnaire or computer guided. Administration time varies by delivery method and algorithm.
Copyrighted?	No
Population	Validated in several minority and ethnically diverse populations.
References	Lewis G, Pelosi AJ, Araya R, Dunn G. (1992). Measuring psychiatric disorder in the community: a standardized assessment for use by lay-health workers. Psychological Medicine, 22, 465-86. Jordanova V, et al. (2004). Validation of two survey diagnostic interviews among primary care attendees: a comparison of CIS-R and CIDI with SCAN ICD-10 diagnostic categories. Psychol Med, 34(6):1013-24. Head J, Stansfeld SA, Ebmeier KP, Geddes JR, Allan CL, Lewis G et al. (2013). Use of self-administered instruments to assess psychiatric disorders in older people: validity of the General Health Questionnaire, the Center for epidemiological studies Depression Scale and the self-completion version of the revised Clinical Interview Schedule. Psychological Medicine, 43(12), 2649-2656

GHQ General Health Questionnaire	
Has now overtaken the CIS-R as the most widely used self-completed questionnaire psychiatric screening tool, available with 12, 28, 30 or the full 60 questions correspondingly called GHQ-12, GHQ-28 *etc*. Each aims to give a reliable measure of psychological distress and general mental wellbeing. The designers describe the test's focuses as assessing a participant's "...inability to carry out normal functions" and "the appearance of new and distressing phenomena". GHQ is often used in research to generate a value on a continuous scale for the severity of psychological distress of a person or population. Validated cut off scores may be applied to group data by clinical severity and identify likely common mental health conditions. This questionnaire is copyrighted.	
Measures	A continuous variable of non-specific 'psychological distress'. Several cut off scores have been validated to discern case of CMD from severe case or non-case.
Delivered	Self-complete questionnaire, paper or computerized.
Copyrighted?	Yes. Researchers should contact info@gl-assessment.co.uk for more information.
Population	Not validated in children
References	Goldberg DP, Gater R, Sartorius N, Ustun TB et al. (1997). The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychological medicine* 27,191-7. Makowska Z. (2002). The validity of general health questionnaires, GHQ-12 and GHQ-28, in mental health studies of working people. Int J Occup Med Environ Health. 15(4):353-62.

SRQ-20 The Self-Report Questionnaire 20	
Is another abbreviated tool completed by individuals themselves over 20 questions, taking around 5 - 10 minutes, and which is similar to the GHQ in its content and focus. Perhaps the greatest benefit of SRQ-20 over the other measures is that it has been developed by the WHO and is therefore free from copyright fees. This tool has been widely shown to be valid in cross-cultural settings and in varying sociodemographic groupings, especially in post-conflict settings.	
Measures	A continuous variable of non-specific 'psychological distress'.
Delivered	Self-complete questionnaire
Copyrighted?	No
Population	Validated extensively in cross-cultural populations, and in children and the elderly.
References	Santos KO, Carvalho FM, de Araújo TM. (2016). Internal consistency of the self-reporting questionnaire-20 in occupational groups. Rev Saude Publica, 50:6. Husain N, et al. (2016). Validation of the self-reporting questionnaire (SRQ 20) in British Pakistani and White European population in the United Kingdom. J Affect Disord. 1;189:392-6.

MINI

The Mini International Neuropsychiatric Interview is an abbreviated structured diagnostic interview, developed to generate both DSM-IV and ICD-10 diagnoses. Taking approximately 15 minutes to deliver by specifically trained health workers, it was designed "to meet the need for a short but accurate structured psychiatric interview for multicenter clinical trials and epidemiology studies and to be used as a first step in outcome tracking in non-research clinical settings." The MINI has been validated for use in various populations.

Measures	Diagnosis of ICD-10 mental health or DSM-IV/V categories
Delivered	Trained lay health worker delivered interview.
Copyrighted?	Yes, although no charge per use. Contact http://www.mosws.kattare.com/dev/mini.html
Population	Varying cross-cultural populations, and in children.
References	Sheehan DV et al. (1998). The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. J Clin Psychiatry. 59 Suppl 20:22-33. Sheehan DV, et al. (2010). Reliability and validity of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID). J Clin Psychiatry. 71(3):313-26.

SF-36 The 36 item Short Form survey	
Used mostly in the US for service development and quality monitoring purposes, and notably by Medicare assessments, the SF-36 is a patient self-complete questionnaire which covers eight domains related to overall health status including social functioning, emotions, pain, health perceptions and physical health *i.a.* The SF is available in its common form the 36 item SF-36 or the even more abbreviated SF-12. In some studies authors have chosen to select only the mental health domain of the survey as the outcome of interest, in others multiple domains are combined or the whole SF-36 used.	
Measures	Survey produces a score /100. From these one converts score to Z values and compares against a population average.
Delivered	Self-complete questionnaire
Copyrighted?	Yes
Population	Validated studies in a few US and Australian minority groups, and notably in a wide range of co-morbidity sub-populations: orthopedic, cardiology patients *etc.*
References	McHorney, C. A., Ware, J. E.,&Raczek, A. E. (1993). The MOS 36-Item Short-Form Health Survey (SF-36): II. Psychometric and clinical tests of validity in measuring physical and mental health constructs. Medical Care, 3l, 247-263. Mishra GD, Hockey R, Dobson AJ. (2014). A comparison of SF-36 summary measures of physical and mental health for women across the life course. Qual Life Res, Jun;23(5):1515-21.

K6 and K10

Kessler Psychological Distress Scales

Available as the 6 item K6 and the K10, Kessler's scale is increasingly used in epidemiology delivered purportedly in under 2 minutes. The tool has good psychometric properties, given its brevity, for eliciting non-specific psychological distress in a participant within the past 4 weeks, in addition with validated cut offs elucidating DSM-V serious mental illnesses in a population. There have been some concerns about sensitivity of the tool, especially K6, in missing some cases, and there is yet to be consensus on drawing a score cut-off for identifying moderate psychological distress accurately.

Measures	Nonspecific psychological distress as a proxy for case or non-case of *serious* DSM-V mental illnesses.
Delivered	Self-complete questionnaire, or interviewer guided.
Copyrighted?	No(?) Available at https://www.hcp.med.harvard.edu/ncs/k6_scales.php
Population	Validated in several ethnic minority groups, and in 21 languages.
References	Prochaska JJ, Sung H, Max W, Shi Y, Ong M. (2012). Validity Study of the K6 Scale as a Measure of Moderate Mental Distress based on Mental Health Treatment Need and Utilization. Int J Methods Psychiatr Res. 2012 Jun; 21(2): 88–97. Kessler RC, Andrews G, Colpe, et al (2002) Short screening scales to monitor population prevalence and trends in non-specific psychological distress. Psychological Medicine, 32, 959-956. Min JW, Lee SH. (2015). Validation of the K6/K10 Scales of Psychological Distress and Their Optimal Cutoff Scores for Older Koreans. Int J Aging Hum Dev. 2015 Mar;80(3):264-82. doi: 10.1177/0091415015590316.

DEPRESSION

Main assessments: CES-D, PHQ, GDS.

CES-D Centre for Epidemiological Studies – Depression tool	
Is a very common tool for depression specific screening assessment in population mental health research. Without copyright this 20 item instrument takes around 5 minutes to complete. Cut off scales have been validated to differentiate severe, from non-severe and no/low depressive symptomatology. Again, this tool has been validated in a number of settings with different patient groups. An abbreviated 10 item scale is also currently being investigated so far with evidence that it can be used as an indicator of symptom severity not but is solely diagnostic.	
Measures	Provides a score which correlates with DSM-V major depressive disorder diagnosis and severity.
Delivered	Self-complete questionnaire, telephone interview
Copyrighted?	No
Population	Validated extensively among cultures and demographics
References	Radloff LS. (1977) The CES-D scale: A self-report depression scale for research in the general population. Applied psychological measurements, 1, 385-401. Costelloe S, et al. (2015). Impact of anxiety and depressive symptoms on perceptions of stigma in persons living with HIV disease in rural versus urban North Carolina. AIDS Care, 27(12):1425-8. Olagunju AT et al. (2013). Screening for depression with Centre for Epidemiological Studies Depression Scale Revised and its implication for consultation-liaison psychiatry practice among cancer subjects: a perspective from a developing country. Psycho-oncology. 22(8):1901-6.

PHQ

Patient Health Questionnaire

The Patient Health Questionnaire, is an increasingly and already highly common abbreviated screening assessment tool for depression defined by DSM-IV used frequently in hospital settings. Available with 9 items, and recently in a 2 question form (PHQ-2). Meta-analysis has demonstrated that the PHQ-9 can be used to diagnose major depressive disorder. Often it's main application will be in the monitoring of the severity of symptoms in response to treatment. Significant work has gone into validating the PHQ-9 and ensuring its diagnostic accuracy in a range of populations and contexts. It may be delivered by interviewer, including over the telephone, but most commonly exists as a self-report questionnaire, with the PHQ-9 or PHQ-2 often tacked onto the end of other exposure and demographic survey questions.

Measures	Score of depressive symptomatology.
Delivered	Self-complete questionnaire.
Copyrighted?	Copyright enforced by Pfizer
Population	In several co-morbid sub-populations and demographic subpopulations
References	Manea L, et al. (2014). A diagnostic meta-analysis of the Patient Health Questionnaire-9 (PHQ-9) algorithm scoring method as a screen for depression. Gen Hosp Psychiatry. 37(1):67-75. Moriarty AS, et al. (2015). Screening and case finding for major depressive disorder using the Patient Health Questionnaire (PHQ-9): a meta-analysis. Gen Hosp Psychiatry. 37(6):567-76.

GDS Geriatric Depression Scale	
Is a screening tool specifically for screening for risk of depression in elderly populations, available in a short form 15 questions and long form 30 items. Answers are kept to a simple 'yes' or 'no' response, so that it may be used in individuals with mild or moderate cognitive impairment. Results cannot diagnose depression, only inform later clinical assessment. There does not exist a definitive age grouping which makes this measurement test most appropriate, although most validation studies have been conducted in people over 65.	
Measures	A 15 or 30-point score with cut offs to identify severity of depressive symptoms. Can be used to monitor severity of depression once form diagnosis established.
Delivered	By a trained interviewer, or self-completed.
Copyrighted?	No
Population	Eponymously, only validated in elderly populations in community or hospital settings, across a good number of cultural groups.
References	Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M. (1982). Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1982-1983;17(1):37-49. https://www.ncbi.nlm.nih.gov/pubmed/7183759 Guerra M, Ferri C, Llibre J, Prina AM, Prince M. (2015). Psychometric properties of EURO-D, a geriatric depression scale: a cross-cultural validation study. BMC Psychiatry, Feb 5;15:12. https://www.ncbi.nlm.nih.gov/pubmed/25652111

ANXIETY

Main assessment: GAD-7

GAD-7 General anxiety disorder questionnaire	
While CIS-R and some screening tests can be used to identify GAD, and anxiety symptomatology respectively, the GAD-7 tool is GAD specific, should not be used alone to diagnose GAD, but as a tool in screening for severity of anxiety symptomatology, and monitoring severity progress after diagnosis. The tool is also available in a short form GAD-2 item questionnaire which is often added onto the end of other longer surveys.	
Measures	Score of anxiety symptomatology
Delivered	Self-complete questionnaire
Copyrighted?	Copyright enforced by Pfizer
Population	Validated in populations with co-morbid physical disability especially neurology patients, and in populations of a few major countries.
References	Spitzer RL, Kroenke K, Williams JB, et al; A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006 May 22 166(10):1092-7.

COGNITIVE FUNCTION

Main assessments: CSI-D, MOCA

CSI-D The Community Screening Instrument for Dementia	
The Community Screening Instrument for Dementia, had been developed for use in primary care settings for reasonably accurate first-line rapid assessment of cognitive deficit. Delivered by a trained interviewer some time is spent with both the participant and an additional informant, perhaps carer or relative. Delivered in around 5 minutes, with wide validation in cross-cultural settings, and avoiding some of the cultural and educational-level biases of other dementia-related cognitive assessment tools, CSI-D may be best placed for application upon large populations across countries.	
Measures	A screening tool, with a score representing severity of cognitive impairment and dementia symptoms.
Delivered	By a trained interviewer. There is the option for an informant interview to provide significantly improved validity and reliability of the assessment.
Copyrighted?	No
Population	Only widely validated in the elderly (65 years) population, but has significant work used in cross-cultural settings.
References	Liu SI, Prince M, et al. (2005). Validity and reliability of a Taiwan Chinese version of the community screening instrument for dementia. Am J Geriatr Psychiatry.n 13(7):581-8. Prince M, Acosta D, et al. (2011). A brief dementia screener suitable for use by non-specialists in resource poor settings--the cross-cultural derivation and validation of the brief Community Screening Instrument for Dementia. Int J Geriatr Psychiatry, 26(9):899-907.

MoCA **Montreal Cognitive Assessment**	
An increasingly widely used cognitive screening and severity assessment tool validated for use in psychiatric and neurology patients. Consisting of tests of several cognitive domains, an informant collateral history is not required. A short form (SF-MoCA) is also available but less widely validated, although it seems to be able to boast reasonable results comparable to the full form. There is significant overlap in usefulness between the MoCA and another tool, the Mini Mental State Examination (MMSE), both of which are screening and severity assessment tools for cognitive impairment. Both should be considered by researchers, however the MMSE is less widely used given its enforced copyright status. This copyright has progressively stifled research into validation of the tool and MoCA has arguably over taken it as being validated in the most number of settings and patient groups.	
Measures	Score out of 30 of cognitive function
Delivered	By a minimally trained interviewer
Copyrighted?	No
Population	Validated among psychiatry and neurology patients for cognitive function, across many cross-cultural populations, demographics and ages.
References	Horton DK, Hynan LS, Lacritz LH, Rossetti HC, Weiner MF, Cullum CM. (2015). An Abbreviated Montreal Cognitive Assessment (MoCA) for Dementia Screening. Clin Neuropsychol. 2015;29(4):413-25. Musso MW, Cohen AS, Auster TL, McGovern JE. (2014) Investigation of the Montreal Cognitive Assessment (MoCA) as a cognitive screener in severe mental illness. Psychiatry Res. 2014 Dec 15;220(1-2):664-8.

BRIEF MEASUREMENT TOOLS FOR FACTORS ASSOCIATED WITH MENTAL HEALTH

MENTAL WELLBEING

Main assessment: WHO-5

WHO-5 The WHO-5 Wellbeing Index	
Is a widely used brief screening assessment of mental wellbeing developed in 1998 to assess inter-cultural comparable values of mental wellbeing across populations, self-administered in less than 2 minutes. Thus far validation studies have shown good consistency between WHO-5 and severity of depression symptomatology. The WHO provide extensive support in the use of this measurement tool on their website. Furthermore, the questions are widely added onto the end of other health related questionnaires to assess an emotional wellbeing component of a range of co-morbid physical and mental conditions.	
Measures	Participants are presented with 5 statements, to which they response on a 5-point Likert scale. Scores are multiplied by 4 to make a score against a perfect wellbeing score of 100. Cut off scores below 28 is strongly suggestive of depression and further assessment should be made at this point.
Delivered	Self-report questionnaire
Copyrighted?	No
Population	Exists in translations for over 30 languages. Validated in, and can be administered to, people over the age of 9.
References	Topp CW, Østergaard SD, Søndergaard S, Bech P. (2015). The WHO-5 Well-Being Index: a systematic review of the literature. Psychother Psychosom. 2015;84(3):167-76. WHO. (1998). Wellbeing Measures in Primary Health Care/The Depcare Project. WHO Regional Office for Europe: Copenhagen.

SOCIAL SUPPORT

Main assessment: SSQ

SSQ The Social Support Questionnaire	
The Social Problems Questionnaire designed in 1981 has been used widely to assess the social support or individuals with mental health concerns. The questionnaire asks the interviewee to identify up to nine people in their lives they could count on to aid them in a variety of difference presented scenarios including being made redundant. This tool continues, to then assess aspects of social support, housing situation and other social factors independently associated with clinical mental health outcomes. SPQ scores have been shown to be correlated to scores given on psychiatric morbidity assessments.	
Measures	27 items assessed on a 6 point Likert scale.
Delivered	Self or interviewer administered in around 10 minutes.
Copyrighted?	No
Population	Has not been validated to the same extent as previously described tools, but has been so in only a couple of cross-cultural examples.
References	Sarason, I.G., Levine, H.M., Basham, R.B., et al. (1983). Assessing social support: The Social Support Questionnaire. Journal of Personality and Social Psychology, 44, 127- 139. Nosratabadi M, Halvaiepour Z. (2016). A Structural Equation Modeling of the Relationships between Depression, Drug Abuse and Social Support with Suicidal Ideation among Soldiers in Iran in 2015. J Res Health Sci. 2016 fall;16(4):212-216.

QUALITY OF LIFE

Main assessment: WHOQOL

WHOQOL The World Health Organisation Quality of Life Questionnaire	
The WHO Quality of Life Questionnaire was developed by the Department of Mental Health and Substance Dependence. The initial aim of this measure from the WHO was for a culturally universal measure of quality of life, assessing an individual's thoughts on their situation from within the context of their culture and belief system, "their personal goals, standards and concerns." The WHOQOL features 120 questions which broadly cover the interviewee's "physical health, psychological health, social relationships, and environment. Specifically items relating to pain, energy levels, social connections, home environment, work life etc. The WHOQOL-BREF is a shorter version of this original instrument that may be more convenient for use in large research studies or clinical trials." There is no copyright charge for using this tool, but the WHO asks that researchers contact them to seek permission for its use.	
Measures	Mixed domain assessment of quality of life
Delivered	Self report, or administered by researcher.
Copyrighted?	No, contact WHO before use: WHOQOL@who.int
Population	There exist many stipulations on the use of this survey although it has been translated in many languages and validated in a spectrum of cultural contexts. Researchers should review the user's guidance and contact WHO for advice.
References	World Health Organisation. (1997). Measuring quality of life. The World Health Organization Quality of life instruments. WHO Geneva. WHOQOL: http://apps.who.int/iris/bitstream/10665/77774/1/WHO_MSD_MER_Rev.2012.01_eng.pdf?ua=1

CASE STUDIES

CES-D: Green space and depression

In Lithuania, Reklaitiene et al. in 2014 showed a significant (p=0.0024) difference in rates of CES-D(10) assessed depressive symptoms between two cohorts both living <300m away from a green space but in which one group reported >4 hours use of green space each week (16.4%) versus those who did not use their local green space (23.5%). Spatial geo-mapping of the houses whose residents self-completed a postal CES-D10 paper questionnaire demonstrated how close individuals lived from green space. Within the same questionnaire were questions on demographics, general health, other potential confounders and other variables of interest within the study. Response rate was 62% in men and 67% in women.

Reference

Reklaitiene R, Grazuleviciene R, Dedele A, Virviciute D, Vensloviene J, Tamosiunas A*, et al. (2014). The relationship of green space, depressive symptoms and perceived general health in urban population. Scand J Public Health. 42(7):669-76.*

MINI: The relation between the external built residential environment and mental health conditions in Kenya

Using MINI, likely diagnoses of various clinical mental health conditions including a number of anxiety disorders, depression, and bipolar disorder were assessed in a population from rural Kenya. Notable associations between certain features of the built residential environment and mental health conditions were noted. For example, external wall materials may be related to feelings of (in)security, draft within the property and therefore perhaps, authors hypothesize, sleep quality. Interviewers assessed a range of aspects of the residential environment and interviewed randomly selected occupants, from low, middle and high income neighbourhoods in the same municipality.

Reference

Ochodo C *et al.* (2014). External built residential environment characteristics that affect mental health of adults. J Urban Health. 91(5):908-27. doi: 10.1007/s11524-013-9852-5.

GHQ and built environment in the south of Wales

A cross-sectional study looking at self reported mental health as measured by GHQ-12, in relation to social factors and built environment. A response rate of 66% of adults surveyed (73% of households contacted with these postal surveys). GHQ outcome scores were analysed against environmental quality, social cohesion etc. as first a binary variable (cut off applied, identifying a GHQ case of ‘psychiatric distress’) and second as a continuous variable. For example, a change of 1 standard deviation in self-reported neighborhood quality resulted in a nearly half a point drop in GHQ score. Similarly those reporting quality neighborhoods had an adjusted 0.78 (0.60 - 1.01) odds of GHQ ‘caseness’ as those reporting poor neighborhood quality.

Araya R *et al.* (2006). Perceptions of social capital and the built environment and mental health. Soc Sci Med. 62(12):3072-83.

FURTHER READINGS

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SIMILAR RESOURCES

Green space: Assessment measures in mental health and green space study.
https://www.grnspace.com/static/documents/list_assessments.pdf