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# MEASURING PSYCHOLOGICAL WELLBEING & MENTAL HEALTH

in university student cohorts



The Student  
Mental Health  
Research Network

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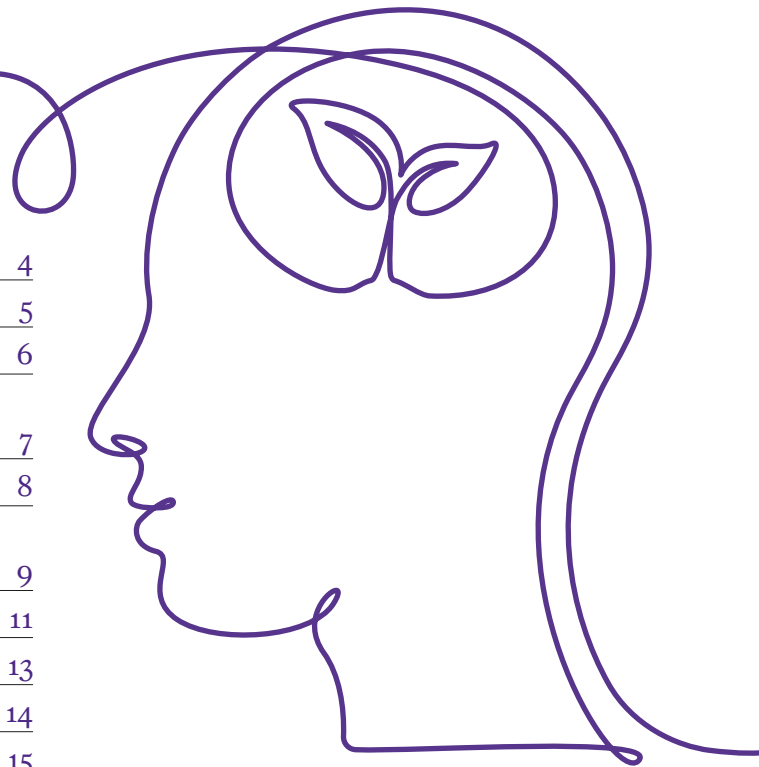
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## Our report at a glance

- We ran cross-sector consensus groups to provide guidance on the setup of longitudinal student cohorts.
- Consensus was reached that a core set of areas should be measured, including: general psychological symptoms, general wellbeing symptoms, anxiety symptoms, and depressive symptoms.
- Consensus groups also recommended a wider set of topics that commonly affect students which can be measured; for example, functioning, loneliness, and sleep difficulties.
- Multiple candidate measures for each topic are reported so that researchers can select the most appropriate measure for their particular study.
- To help researchers make selections, each candidate measure has been evaluated against 10 core principles, such as psychometric properties, and acceptability to students.

## Contents

<b>Background</b>	4
<b>Measure evaluation criteria</b>	5
<b>Identification of measures</b>	6
<b>Evaluation of core candidate measures</b>	7
<b>Core measures matrix table</b>	8
<b>Evaluation of optional candidate measures</b>	9
<b>Optional measures matrix table</b>	11
<b>Summary</b>	13
<b>References</b>	14
<b>Appendix</b>	15
<b>Acknowledgements</b>	18



# Background

A series of consensus groups were conducted to provide guidance on the set up and running of student wellbeing cohorts. The aim of the groups were to reach consensus on a range of issues; this document covers measurement. Attendees included student representatives, academics, clinicians and clinical academics with experience. One of the recommendations of the consensus group was that any statements about which measures to use should be based on a set of explicit criteria with candidate measures judged against these. As part of the consensus meetings, we agreed broad areas that should be measured and also agreed criteria by which to judge candidate measures. Although not explicitly agreed as a criterion in the consensus group, there is a clear need to ensure that any recommendations are made in the context of what is already measured within existing student cohorts and any wider recommendations on measurement that are likely to affect the sector. This will be referred to throughout the document. This document summarises the results of that exercise. Broad statements of agreement from the consensus group are first given, including criteria by which to judge candidate measures. Commonly used candidate measures are then assessed against these criteria for each of the agreed areas of measurement.

## **There was agreement that there is value in recommending a core set of areas to measure**

Areas considered comprised:

- General psychological symptoms
- General psychological wellbeing
- Anxiety symptoms
- Depressive symptoms.

It was agreed that as part of the core measures, there should be some measurement of psychological wellbeing, not just psychological symptoms. Measures of symptoms could be a general measure or anxiety and depression, with anxiety and depression selected because they are common difficulties experienced by students.

## **There was agreement that there is value in making recommendations about a wider set of areas**

This should reflect areas of mental health that are commonly experienced by students.

The areas identified were:

- Eating concerns
- Functioning
- Loneliness
- Sleep difficulties
- Substance use (alcohol)
- Substance use (drugs).

There was no suggestion that all of these should be measured; instead, if those running a student cohort wanted to measure one of these areas, there could be some overview of possible measures and an assessment against the criteria.

## **There was agreement about the criteria used to judge candidate measures for a particular area**

Ten criteria were identified.

- 1. Psychometric properties** There should be details available on the standard indicators of reliability and validity for a measure. While ideally these data should be population specific (eg data on reliability and validity established in students), looser criteria were applied here because of the recognition that such data were unlikely to be available for most measures. This was assessed through the identification of original papers reporting on the psychometric properties of a measure or reviews summarising primary studies of psychometric properties.
- 2. Sensitivity to change** One of the aims of a student cohort is to detect changes in psychological wellbeing and/or mental health symptoms. A measure should therefore be capable of detecting change when change occurs. Evidence of sensitivity to change could come from the original psychometric reports or the subsequent reviews of psychometric properties mentioned above. If data were not reported on sensitivity to change in those documents, relevant Cochrane reviews were consulted to examine whether the measure had been used to detect change in randomised trials and whether change had been detected.
- 3. Acceptable to students** This required qualitative or quantitative data reporting on the acceptability of the measure to students in higher education. If a candidate measure had been used in a student population, even if widely used, that was not sufficient.
- 4. Acceptable to other key stakeholders** This used the same approach as the previous criterion, but required evidence of acceptability by those members of a university with a responsibility for student wellbeing.
- 5. Designed for students** This required that a measure had been developed specifically for use in the student population. It was expected that this would not be met for the majority of measures.
- 6. Designed for non-clinical populations** Some measures of psychological symptoms were designed specifically for use in healthcare and psychiatric settings; others were designed to be used in non-clinical or general populations. Measures for use in the general population are to be preferred given the cohort would be for all students at an institution.
- 7. Comparability with NHS data** If a measure was also used widely in routine NHS datasets, this would allow comparison across university and the NHS. 'NHS Talking Therapies for Anxiety and Depression (previously known as Improving Access to Psychological Therapies) have well established routine measurement systems. This data set was seen as the main NHS comparator.
- 8. Comparability with university counselling and wellbeing services datasets** Similarly, if a measure is widely used in university services, this would allow comparison of cohort data with other routine datasets within a university. Many university counselling services use routine measures as do some wellbeing services.
- 9. Free to use** Some measures require a license for their use, which in turn requires some form of payment, such as a one-off cost or cost per use. Measures that are, in contrast, free to use may be preferable, to minimise the cost of running a cohort. A search was conducted for measures to identify those that were under license.
- 10. Brief** Brief measures help minimise participant burden and may increase completion and response rates. To assess this, the number of items for a measure were identified. Where a measure had different versions, the number of items of each is reported.

### Identification of candidate measures

These 10 criteria were used to assess the appropriateness of candidate measures for the different measurement areas. The list of potential measures for each area was compiled by examining systematic reviews of measurement methods for a particular construct, where such reviews could be located. In the absence of such reviews, papers discussing the psychometric properties of a particular instrument that also listed alternative measures of the same construct were used. Citations used to identify candidate measures were:

- General psychological symptoms (Dodd et al., 2021)
- General psychological wellbeing (Dodd et al., 2021)
- Anxiety symptoms (Dennis, Boddington, & Funnell, 2007; Julian, 2011; Wall & Lee, 2022)
- Depressive symptoms (Cuijpers, Li, Hofmann, & Andersson, 2010)
- Eating concerns (Túry, Güleç, & Kohls, 2010)
- Functioning (Mundt, Marks, Shear, & Greist, 2002; Wells, Russell, Haraoui, Bissonnette, & Ware, 2011)
- Loneliness (Maes, Qualter, Lodder, & Mund, 2022)
- Sleep difficulties (Buysse, Ancoli-Israel, Edinger, Lichstein, & Morin, 2006; Devine, Hakim & Green, 2005)
- Substance use (alcohol) (Bloomfield, Hope, & Kraus, 2013)
- Substance use (drugs) (Hildebrand, 2015; Yudko, Lozhkina, & Fouts, 2007).

Candidate measures were limited to those that could be used in a self-report format and designed for use in adult populations (18+ years). Measures specifically designed for use in older adult populations (eg The Geriatric Depression Scale) were not considered, as were measures for use in specific adult populations (eg Edinburgh Postnatal Depression Scale). One exception to this was the Hospital and Anxiety and Depression Scale. Although designed originally for use in hospital settings or for people with physical health problems, it has been used more generally outside of these settings, so was included for consideration.





For some areas, additional criteria were used to narrow the pool of potential measures for review. While there are a wide range of measures of wellbeing, many focus entirely or in part on physical wellbeing. For wellbeing, only those focusing exclusively on psychological wellbeing were considered. For anxiety measures, these were limited to measures of anxiety symptoms in general, rather than measure relating to a specific anxiety disorder. An exception here was the Generalised Anxiety Disorder – 7 item (GAD-7), which though designed to measure General Anxiety Disorder (GAD) symptoms, is now widely used as a measure of anxiety in general, so was included as a candidate measure. Measures of specific components of anxiety, such as worry were not included. Measures of specific types of eating disorders (eg bulimia nervosa), were not included as candidate measures.

Where there were a large number of candidate measures (eg anxiety and depression), Google Scholar searches were conducted to identify those measures that were more frequently used in the last decade; these were prioritised.

### **Evaluation of candidate measures: core areas**

Tables 1 to 4 summarise the results of the evaluation of the identified candidate measures for the core areas against the ten criteria. A tick indicates that the candidate measure meets the criterion, a cross that it does not, and a question mark indicates uncertainty. (See appendix 1 for a list of references for each of the measures that are evaluated.)

For the measure of general psychological symptoms, the Clinical Outcomes in Routine Evaluation (CORE) measures have been used in routine NHS and university counselling settings. In addition, it is, unlike the Brief Symptom Inventory (BSI) and General Health Questionnaire (GHQ), free to use. The General Population version of the CORE is designed for use in non-clinical populations, so may be the most appropriate version of the CORE suite of measures. Of the psychological wellbeing measures, two had clear indications that they were sensitive to change – Satisfaction With Life Scale (SWLS), and Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS). WEMWBS has also been used in some university wellbeing services and in the NHS Health Survey for England. For anxiety and depression measures, the Patient Health Questionnaire – 9 item (PHQ-9) and GAD-7 are used widely in NHS Talking Therapies for Anxiety and Depression services and there is also some, though limited, use in university counselling services. The depression subscale of the Counseling Centre Assessment of Psychological Symptoms (CCAPS) offers a number of advantages relative to other instruments; in particular, it was designed specifically for use in a student population. However, there is a cost attached to the use of the CCAPS, which may make it unsuitable for use in student cohorts.

Work by the SMaRteN team has identified that of existing cohorts some use the PHQ-9 and GAD-7, whereas others use the CORE. There may be value, therefore, in a core set of measures consisting of these three measures along with the WEMWBS. This would allow comparability across datasets. It would also ensure the link through to NHS and university counselling datasets, given that the PHQ-9 and GAD-7 are more widely used in the NHS than the CORE, but the CORE is more widely used in university counselling settings. In addition, measures designed for a clinical population, such as the PHQ-9 and GAD-7, may lack the ability to detect variations in symptoms in the non-clinical range. The addition of the General Population of the CORE (GP-CORE) would protect against this.

The final item of the PHQ-9 asks about suicidality ('thoughts that you would be better off dead, or of hurting yourself in some way'). If this is used, appropriate details of sources of help will be needed. An alternative is to use the PHQ-8, which does not include this question. There are sufficient data to indicate that the PHQ-8 can be used in the place of the PHQ-9.

**Table 1** General measures of psychological symptoms

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
BSI	✓	✓	?	?	X	✓	X	X	X	18 & 53
CORE-OM, CORE-10, GP-CORE	✓	✓	?	?	X	✓	✓	✓	✓	10, 14 & 34
GHQ	✓	✓	?	?	X	✓	X	X	X	12, 28, 30 & 60

**Abbreviations:** BSI: Brief Symptom Inventory; CORE: Clinical Outcomes in Routine Evaluation; GP-CORE General Population version of Clinical Outcomes in Routine Evaluation; CORE-OM: Outcome Measure version of Clinical Outcomes in Routine Evaluation; GHQ: General Health Questionnaire

**Table 2** General measures of psychological wellbeing

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
ONS-4	✓	?	?	?	X	✓	X	X	✓	4
SPWB	✓	?	?	?	X	✓	X	✓	✓	18, 42
SWLS	✓	✓	?	?	X	✓	X	X	✓	5
WEMWBS	✓	✓	?	?	X	✓	X	✓	✓	14 & 7

**Abbreviations:** ONS-4: Office for National Statistics Personal Wellbeing Questions; SPWB: Scales of Psychological Wellbeing; SWLS: Satisfaction with Life Scale; WEMWBS: Warwick-Edinburgh Mental Wellbeing Scale

**Table 3** Anxiety measures

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
BAI	✓	✓	?	?	X	X	X	?	X	21
DASS (anxiety)	✓	✓	?	?	X	X	X	?	✓	14 & 7
GAD-7	✓	✓	?	?	X	X	✓	✓	✓	7
HADS (anxiety)	✓	✓	?	?	X	X	✓	?	X	7
STAI-S	✓	✓	?	?	X	✓	X	?	✓	20

**Abbreviations:** BAI: Beck Anxiety Inventory; DASS (anxiety): Anxiety scale from the Depression Anxiety Stress Scales; HADS (anxiety): Anxiety scale from the Hospital Anxiety and Depression Scale; State scale from State Trait Anxiety Scale

**Table 4** Depression measures

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
BDI-II	✓	✓	?	?	X	X	X	?	X	21
CCAPS (depression)	✓	✓	?	?	✓	X	X	✓	X	14 & 6
CES-D	✓	✓	?	?	X	✓	X	?	✓	20 & 10
DASS (depression)	✓	✓	?	?	X	X	X	?	✓	14 & 7
HADS (depression)	✓	✓	?	?	X	X	✓	?	X	7
MADRS-S	✓	✓	?	?	X	X	X	?	✓	10
PHQ-9	✓	✓	?	?	X	X	✓	✓	✓	9

**Abbreviations:** BDI-II: Beck Depression Inventory-II; CCAPS (depression): Depression subscale from the Counselling Centre Assessment of Psychological Symptoms; Center for Epidemiology Studies Depression Scale; DASS (depression): Depression scale from the Depression Anxiety Stress Scales; HADS (depression): Depression scale from the Hospital Anxiety and Depression Scale; MADRS-S: Montgomery and Åsberg Depression Rating Scale – Self Report; PHQ-9: Patient Health Questionnaire-9



### Evaluation of candidate measures: other areas

Tables 5 to 10 summarise the results of the evaluation of the identified candidate measures for the additional areas against the ten criteria.

#### Eating concerns

The eating concerns subscale of the CCAPS has a number of advantages relative to the other measures, but there is a cost attached to the use of the CCAPS, which is likely to rule it out of consideration for most student cohorts. Of the remaining measures, while most performed comparably against the majority of the criteria, the Eating Disorder Inventory – 3 item (EDI-3) may lack suitability because of its length (91 items) and goes beyond measuring symptoms to measuring putative underlying mechanisms (Table 5). The Eating Disorder Examination Questionnaire (EDE-Q) and Screen for Early Eating Disorder Signs (SEEDS) are sensitive to change, so may be the preferred measures. Both other brief versions (12 and 15 items), though the EDE-Q may have the advantage of being more widely used. As is clear from all of the tables, there is little evidence on suitability for a student population. This may be particularly important for many of the measures in this area, because many asked questions (eg weight, binging) that may not be seen as acceptable to some students. In the absence of this information, it may not be appropriate currently to recommend the use of an eating concern measure.

#### Functioning

Of the measures of functioning that focus on the impact of mental wellbeing on functioning (Table 6), the Mental Health Component score from the Short Form measures is widely used in research, though the Work and Social Adjustment Scale (WSAS) would allow comparability with routine NHS data, because of its use in NHS Talking Therapies for Anxiety and Depression services. The brevity of the WSAS (5 items) may also be advantageous given that the briefest version has a cost attached for its use.

#### Loneliness

Some concerns have been raised about the criterion validity of the Differential Loneliness Scale (DLS) and Social and Emotional Loneliness Scale for Adults (SELSA) in that some items do not appear to measure to construct of loneliness as typically defined (Table 7). In addition, the DLS has 60 items, which may limit its suitability for student cohorts unless loneliness was a main focus. It does though have a version developed specifically for use in student populations, though it is unclear extent to which it has been used. No concerns about criterion validity have been raised about the De Jong Gierveld Loneliness Scale (DJGLS) or the Revised University of California, Los Angeles Loneliness Scale

(R-UCLA) and there is also clear evidence of sensitivity to change. Both are comparable in other respects (eg brevity), though the R-UCLA may be preferred because it is already used within some existing student cohorts. The UCLA is now recommended for use in the Office for National Statistics (ONS) survey.

### Sleep

There are a range of sleep measures available with most performing comparably across the majority of criteria (Table 8). Despite this comparability, the Insomnia Severity Index (ISI) may be the measure of choice. Along with the Leeds Sleep Evaluation Questionnaire (LSEQ) and the Pittsburgh Sleep Quality Index (PSQI), there is evidence it is sensitive to change. It has also been used in non-clinical settings. Both the ISI and PSQI are recommended as part of standard research assessments of sleep disorders (Buysse et al., 2006). The PSQI, however, is unlikely to be suitable for use in a design in which there is a single respondent, because the measure has a number of items that are completed by the bed partner of the respondent.

### Substance use (alcohol)

Of the alcohol measures, the Alcohol Use Disorders Identification Test (AUDIT) may be the most appropriate. There is clear evidence of sensitivity to change, it has been widely used in non-clinical populations, and there is some use of it in NHS settings. There was broad comparability among the other measures on the criteria, though it should be noted that the UNCOPE Substance Use Dependence Screen (UNCOPE) asks about lifetime use so will not be sensitive to change. The 34 item version of that the Alcohol subscale from the Counselling Centre Assessment of Psychological Symptoms (CCAPS alcohol) has a 4-item measure of alcohol use. As stated above, despite the advantages of the CCAPS it is unlikely to be suitable given its cost. (The longer 62-item version of the CCAPS has a 6-item scale covering both alcohol, and drug use; the same issue applies.)

### Substance use (drugs)

The candidate measures are broadly comparable, though the Drug Use Disorder Identification test (DUDIT) and Drug Abuse Screening Test (DAST) have been designed for use in non-clinical populations. The DUDIT is a comparison measure to the AUDIT measure, so would offer some consistency in measurement across drug and alcohol use where the AUDIT to be used in a cohort.



**Table 5** Eating concerns

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
CCAPS (eating)	✓	✓	?	?	✓	X	X	✓	X	4
EAT/EAT-26	✓	?	?	?	X	X	X	X	✓	40 & 26
EDE-Q	✓	✓	?	?	X	✓	X	X	✓	28 & 12
EDI-3	✓	?	?	?	X	X	X	X	✓	91
SEEDS	✓	✓	?	?	X	X	X	X	✓	15

**Abbreviations:** CCAPS (eating): Eating concerns subscale from the Counselling Centre Assessment of Psychological Symptoms; Alcohol subscale from the Counselling Centre Assessment of Psychological Symptoms of the Eating Attitude Test and Eating Attitude Test (26 items); EDE-Q: Eating Disorder Examination Questionnaire; EDI-3: Eating Disorders Inventory-3; SEEDS: Short Evaluation of Eating Disorders

**Table 6** Functioning

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
SF-12 / 20 / 36 (MHC)	✓	✓	?	?	X	?	?	X	12 X 20 & 36 ✓	12, 20 & 36
WSAS	✓	?	?	?	X	?	✓	X	✓	5

**Abbreviations:** SF-12 / 20 / 36 (MHC): Mental Health Component scale of the Short Form Health Survey 12 items, 20 items and 36 items; WSAS: Work and Social Adjustment Scale

**Table 7** Loneliness

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
DLS	?	?	?	?	✓	✓	X	X	X	60
DJGLS	✓	✓	?	?	X	✓	X	X	X	6 & 11
R-UCLA	✓	✓	?	?	X	✓	X	X	X	20 & 3
SELSA	?	?	?	?	X	✓	X	X	X	37 & 15

**Abbreviations:** DLS: Differential Loneliness Scale; DJGLS: de Jong Gierveld Loneliness Scale (also known as the Rasch-Type Loneliness Scale); R-UCLA: Revised University of California, Los Angeles Loneliness Scale; SELSA: Social & Emotional Loneliness Scale for Adults

**Table 8** Sleep

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
ISI	✓	✓	?	?	X	?	X	X	✓	7
LSEQ	✓	✓	?	?	X	X	X	X	✓	10
PSQI	✓	✓	?	?	X	X	X	X	✓	19+5
SDQ	✓	?	?	?	X	X	X	X	✓	30
SRSQ	✓	?	?	?	X	✓	X	X	✓	12

**Abbreviations:** ISI: Insomnia Severity Index; LSEQ: Leeds Sleep Evaluation Questionnaire; PSQI: Pittsburgh Sleep Quality Index; SDQ: Sleep Dissatisfaction Questionnaire; SRSQ: Self-Rated Sleep Questionnaire

**Table 9** Substance use (alcohol)

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
ASSIST (alcohol)	✓	?	?	?	X	X	X	X	✓	7
AUDIT-C / AUDIT	✓	✓	?	?	X	?	✓	X	✓	3 & 10
CAGE	✓	?	?	?	X	X	✓	X	✓	4
CCAPS (alcohol)	✓	✓	?	?	✓	X	X	✓	X	4
FAST	✓	?	?	?	X	X	X	X	✓	4
RAPS-4	✓	?	?	?	X	X	X	X	✓	4
UNCOPE	✓	X	?	?	X	X	X	X	✓	6

**Abbreviations:** ASSIST (alcohol): Alcohol section of Alcohol, Smoking, Substance Involvement Severity Test; AUDIT: Alcohol Use Disorders Identification Test; AUDIT-C: Three item version of the Alcohol Use Disorder Identification Test; CAGE: CAGE questionnaire; CCAPS (alcohol): Alcohol subscale from the Counselling Centre Assessment of Psychological Symptoms; FAST: Fast Alcohol Screening Test; RAPS-4: Rapid Alcohol Problems Screen – 4 item; UNCOPE: UNCOPE Substance Use Dependence Screen

**Table 10** Substance use (drugs)

Measure	Psychometric properties	Sensitivity to change	Acceptable to students	Acceptable to other key stakeholders	Designed for students	Designed for non-clinical	Comparability with NHS	Comparability with university counselling	Free to use	Brief
ASSIST (drugs)	✓	?	?	?	X	X	X	X	✓	7
DAST	✓	?	?	?	X	✓	X	X	✓	10, 20 & 28
DUDIT	✓	?	?	?	X	✓	X	X	✓	10
UNCOPE	✓	X	?	?	X	X	X	X	✓	6

**Abbreviations:** ASSIST (drug): Drug section of Alcohol, Smoking, Substance Involvement Severity Test; DAST: Drug Abuse Screening Test; DUDIT: Drug Use Disorders Identification Test; UNCOPE: UNCOPE Substance Use Dependence Screen

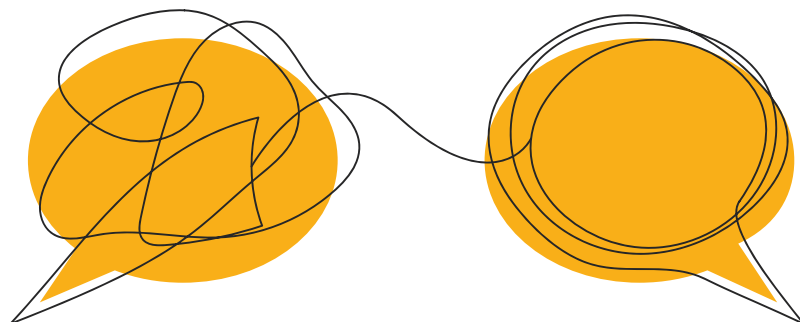
## Summary & discussion

Of the core areas, four measures may be appropriate to be used as a core battery: GP-CORE, WEMWBS, PHQ-9 & GAD-7. For other areas, some broad recommendations could be made: WSAS (functioning), R-UCLA (loneliness), ISI (sleep), AUDIT (alcohol use) & DUDIT (drug use). The EDE-Q may be of value for measuring eating concerns, though there may be a need to establish the acceptability specifically for some of its items in a student population before adopting it. More generally, there is very little evidence of acceptability of measures to students or other university key stakeholders. There may be value in further work to evaluate acceptability. There may also be value in applying the same approach to the identification and evaluation of candidate measures for other constructs ahead of their use in student cohorts.



## References

- Bloomfield, K., Hope, A., & Kraus, L. (2013). Alcohol survey measures for Europe: A literature review. *Drugs: Education, Prevention & Policy*, 20, 348-360.
- Buysse, D. J., Ancoli-Israel, S., Edinger, J. D., Lichstein, K. L., & Morin, C. M. (2006). Recommendations for a standard research assessment of insomnia. *Sleep*, 29(9), 1155-1173.
- Cuijpers, P., Li, J., Hofmann, S. G., & Andersson, G. (2010). Self-reported versus clinician-rated symptoms of depression as outcome measures in psychotherapy research on depression: a meta-analysis. *Clinical Psychology Review*, 30, 768-778.
- Dennis, R. E., Boddington, S. J. A., & Funnell, N. J. (2007). Self-report measures of anxiety: are they suitable for older adults? *Aging & Mental Health*, 11, 668-677.
- Devine, E. B., Hakim, Z., & Green, J. (2005). A systematic review of patient-reported outcome instruments measuring sleep dysfunction in adults. *Pharmacoeconomics*, 23, 889-912.
- Dodd, A. L., Priestley, M., Tyrrell, K., Cygan, S., Newell, C., & Byrom, N. C. (2021). University student well-being in the United Kingdom: A scoping review of its conceptualisation & measurement. *Journal of Mental Health*, 30, 375-387.
- Hildebrandt, M. (2015). The psychometric properties of the Drug Use Disorders Identification Test (DUDIT): A review of recent research. *Journal of Substance Abuse Treatment*, 53, 52-59.
- Julian, L. J. (2011). Measures of anxiety. *Arthritis care & research*, 63 (Suppl 11), S467-472.
- Maes, M., Qualter, P., Lodder, G. M., & Mundt, M. (2022). How (not) to measure loneliness: A review of the eight most commonly used scales. *International Journal of Environmental Research & Public Health*, 19, 10816. [doi.org/10.3390/ijerph191710816](https://doi.org/10.3390/ijerph191710816)
- Mundt, J. C., Marks, I. M., Shear, M. K., & Greist, J. M. (2002). The Work & Social Adjustment Scale: a simple measure of impairment in functioning. *The British Journal of Psychiatry*, 180(5), 461-464.
- Túry, F., Güleç, H., & Kohls, E. (2010). Assessment methods for eating disorders & body image disorders. *Journal of Psychosomatic Research*, 69, 601-611.
- Wall, A. D., & Lee, E. B. (2022). What do anxiety scales really measure? An item content analysis of self-report measures of anxiety. *Journal of Psychopathology & Behavioral Assessment*, 1-10.
- Wells, G. A., Russell, A. S., Haraoui, B., Bissonnette, R., & Ware, C. F. (2011). Validity of quality of life measurement tools: From generic to disease-specific. *The Journal of Rheumatology Supplement*, 88, 2-6.
- Yudko, E., Lozhkina, O., & Fouts, A. (2007). A comprehensive review of the psychometric properties of the Drug Abuse Screening Test. *Journal of substance abuse treatment*, 32(2), 189-198.





# Appendix 1

## References for measures

### General measures of psychological symptoms

Brief Symptom Inventory (BSI): Derogatis, L. R., & Melisaratos, N. (1983). The Brief Symptom Inventory: An introductory report. *Psychological Medicine*, 13(3), 595-605.

Clinical Outcomes in Routine Evaluation / General Population version of Clinical Outcomes in Routine Evaluation (CORE / GP-CORE): Evans, C., Connell, J., Barkham, M., Margison, F., McGRATH, G., Mellor-Clark, J., & Audin, K. (2002). Towards a standardised brief outcome measure: Psychometric properties and utility of the CORE-OM. *The British Journal of Psychiatry*, 180(1), 51-60.

Evans, C., Connell, J., Audin, K., Sinclair, A., & Barkham, M. (2005). Rationale and development of a general population well-being measure: Psychometric status of the GP-CORE in a student sample. *British Journal of Guidance & Counselling*, 33(2), 153-173.

General Health Questionnaire (GHQ): Goldberg, D. P., & Hillier, V. F. (1979). A scaled version of the General Health Questionnaire. *Psychological Medicine*, 9(1), 139-145.

### General measures of psychological wellbeing

Office for National Statistics Personal Wellbeing Questions (ONS-4): Dolan, P., & Metcalfe, R. (2012). Measuring subjective wellbeing: Recommendations on measures for use by national governments. *Journal of Social Policy*, 41(2), 409-427.

Scales of Psychological Wellbeing (SPWB): Ryff, C. D. (1989). Happiness is everything, or is

it? Explorations on the meaning of psychological well-being. *Journal of Personality & Social Psychology*, 57(6), 1069-1081.

Satisfaction with Life Scale (SWLS): Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1), 71-75.

Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS): Tennant, R., Hillier, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, 5(1), 1-13.

### Anxiety measures

Beck Anxiety Inventory (BAI): Beck, A. T., Epstein, N., Brown, G., & Steer, R. (1993). Beck Anxiety Inventory. *Journal of Consulting & Clinical Psychology*, 56(6), 893-897.

Anxiety scale from the Depression Anxiety Stress Scales (DASS (anxiety)): Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales*, (2nd ed.). Sydney, Australia: Psychology Foundation of Australia.

Anxiety scale from the Hospital Anxiety and Depression Scale (HADS (anxiety)): Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361-370.

State scale from the State Trait Anxiety Scale (STAI-S): Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *STAI: Manual for the State-Trait Anxiety Inventory*. Palo Alto: Consulting Psychologists.

### Depression measures

Beck Depression Inventory-II (BDI-II): Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, Texas: Psychological Corporation.

Depression subscale from the Counselling Centre Assessment of Psychological Symptoms (CCAPS (depression)): Locke, B. D., Buzolitz, J. S., Lei, P. W., Boswell, J. F., McAleavey, A. A., Sevig, T. D., Dowis, J. D., & Hayes, J. A. (2011). Development of the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62). *Journal of Counseling Psychology*, 58(1), 97-109.

Center for Epidemiological Studies Depression Scale (CES-D): Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1(3), 385-401.

Depression scale from the Depression Anxiety Stress Scales (DASS (depression)): Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales*, (2nd ed.). Sydney, Australia: Psychology Foundation of Australia.

Depression scale from the Hospital Anxiety and Depression Scale (HADS (depression)): Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361-370.

Montgomery and Åsberg Depression Rating Scale – Self Report (MADRS-S): Svanborg, P., & Åsberg, M. (2001). A comparison between the Beck Depression Inventory (BDI) and the self-rating version of the

Montgomery Åsberg Depression Rating Scale (MADRS). *Journal of Affective Disorders*, 64(2-3), 203-216.

Patient Health Questionnaire-9 (PHQ-9): Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606-613.

### Eating concerns

Eating concerns subscale from the Counselling Centre Assessment of Psychological Symptoms (CCAPS (eating)): Locke, B. D., Buzolitz, J. S., Lei, P. W., Boswell, J. F., McAleavey, A. A., Sevig, T. D., Dowis, J. D., & Hayes, J. A. (2011). Development of the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62). *Journal of Counseling Psychology*, 58(1), 97-109.

Eating Attitude Test and Eating Attitude Test-26 (EAT/EAT-26): Garner, D. M., & Garfinkel, P. E. (1979). The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. *Psychological Medicine*, 9(2), 273-279.

Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitudes Test: psychometric features and clinical correlates. *Psychological Medicine*, 12(4), 871-878.

Eating Disorder Examination Questionnaire (EDE-Q): Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004). Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour Research and Therapy*, 42(5), 551-567.

Eating Disorders Inventory-3 (EDI-3): Clausen, L., Rosenvinge,

J. H., Friborg, O., & Røkkedal, K. (2011). Validating the Eating Disorder Inventory-3 (EDI-3): A comparison between 561 female eating disorders patients and 878 females from the general population. *Journal of Psychopathology and Behavioral Assessment*, 33, 101-110.

Short Evaluation of Eating Disorders (SEED): Bauer, S., Winn, S., Schmidt, U., & Kordy, H. (2005). Construction, scoring and validation of the Short Evaluation of Eating Disorders (SEED). *European Eating Disorders Review*, 13(3), 191-200.

### Functioning

Mental Health Component scale of the Short Form Health Survey 12 items, 20 items and 36 items (SF-12 / 20 / 36 (MHC)): Jenkinson, C., Layte, R., Jenkinson, D., Lawrence, K., Petersen, S., Paice, C., & Stradling, J. (1997). A shorter form health survey: Can the SF-12 replicate results from the SF-36 in longitudinal studies? *Journal of Public Health*, 19(2), 179-186.

Stewart, A. L., Hays, R. D., & Ware Jr, J. E. (1988). The MOS short-form general health survey: Reliability and validity in a patient population. *Medical Care*, 26(7), 724-735.

Jenkinson, C., Layte, R., Wright, L., & Coulter, A. (1996). *Manual and interpretation guide for the UK SF-36*. Oxford: Health Services Research Unit.

Work and Social Adjustment Scale (WASA): Mundt, J. C., Marks, I. M., Shear, M. K., & Greist, J. M. (2002). The Work and Social Adjustment Scale: A simple measure of impairment in functioning. *The British Journal of Psychiatry*, 180(5), 461-464.

### Loneliness

Differential Loneliness Scale (DLS): Schmidt, N., & Serfaty, V. (1983). Measuring loneliness in different relationships. *Journal of Personality and Social Psychology*, 44(5), 1038-1047.

de Jong Gierveld Loneliness Scale (also known as the Rasch-Type Loneliness Scale) (DJGLS): de Jong-Gierveld, J., & Kamphuis, F. (1985). The development of a Rasch-type loneliness scale. *Applied Psychological Measurement*, 9(3), 289-299.

Revised University of California, Los Angeles Loneliness Scale (R-UCLA): Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence. *Journal of Personality & Social Psychology*, 39(3), 472-480.

Social & Emotional Loneliness Scale for Adults (SELSA) DiTommaso, E., & Spinner, B. (1993). The development and initial validation of the Social and Emotional Loneliness Scale for Adults (SELSA). *Personality and Individual Differences*, 14(1), 127-134.

### Sleep

Insomnia Severity Index (ISI): Bastien, C. H., Vallières, A., & Morin, C. M. (2001). Validation of the Insomnia Severity Index as an outcome measure for insomnia research. *Sleep medicine*, 2(4), 297-307.

Leeds Sleep Evaluation Questionnaire (LSEA): Parrott, A. C., & Hindmarch, I. (1978). Factor analysis of a sleep evaluation questionnaire. *Psychological Medicine*, 8(2), 325-329.

Pittsburgh Sleep Quality Index (PSQI): Buysse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research*, 28(2), 193-213.

Sleep Dissatisfaction Questionnaire (SDQ): Coyle, K., & Watts, F. N. (1991). The factorial structure of sleep dissatisfaction. *Behaviour Research and Therapy*, 29(6), 513-520.

Self-Rated Sleep Questionnaire (SRSQ): Morriss, R., Sharpe, M., Sharpley, A. L., Cowen, P. J., Hawton, K., & Morris, J. (1993). Abnormalities of sleep in patients with the chronic fatigue syndrome. *British Medical Journal*, 306(6886), 1161-1164.

### Substance use (alcohol)

Alcohol section of Alcohol, Smoking, Substance Involvement Severity Test (ASSIST (alcohol)): Newcombe, D. A., Humeniuk, R. E., & Ali, R. (2005). Validation of the world health organization alcohol, smoking and substance involvement screening test (ASSIST): Report of results from the Australian site. *Drug and Alcohol Review*, 24(3), 217-226.

Alcohol Use Disorders Identification Test (AUDIT): Saunders, J. B., Aasland, O. G., Babor, T. F., De la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, 88(6), 791-804.

Three item version of the Alcohol Use Disorder

Identification Test (AUDIT-C): Bush, K., Kivlahan, D. R., McDonell, M. B., Fihn, S. D., Bradley, K. A., & Ambulatory Care Quality Improvement Project (ACQUIP). (1998). The AUDIT alcohol consumption questions (AUDIT-C): An effective brief screening test for problem drinking. *Archives of Internal Medicine*, 158(16), 1789-1795.

CAGE questionnaire (CAGE): Ewing, J. A. (1984). Detecting alcoholism: The CAGE questionnaire. *JAMA*, 252(14), 1905-1907.

Alcohol subscale from the Counselling Centre Assessment of Psychological Symptoms (CCAPS (alcohol)): Locke, B. D., Buzolitz, J. S., Lei, P. W., Boswell, J. F., McAleavey, A. A., Sevig, T. D., Dowis, J. D., & Hayes, J. A. (2011). Development of the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62). *Journal of Counseling Psychology*, 58(1), 97-109.

Fast Alcohol Screening Test (FAST): Hodgson, R., Alwyn, T., John, B., Thom, B., & Smith, A. (2002). The FAST alcohol screening test. *Alcohol and Alcoholism*, 37(1), 61-66.

Rapid Alcohol Problems Screen – 4 item (RAPS-4): Cherpitel, C. J. (2000). A brief screening instrument for problem drinking in the emergency room: The RAPS4. Rapid Alcohol Problems Screen. *Journal of Studies on Alcohol*, 61(3), 447-449.

UNCOPE Substance Use Dependence Screen (UNCOPE): Hoffmann, N. G., Hunt, D. E., Rhodes, W. M., & Riley, K. J. (2003). UNCOPE: A brief substance dependence screen for use with arrestees. *Journal of Drug Issues*, 33(1), 29-44.

### Substance use (drugs)

Drug section of Alcohol, Smoking, Substance Involvement Severity Test (ASSIST (drugs)): Newcombe, D. A., Humeniuk, R. E., & Ali, R. (2005). Validation of the world health organization alcohol, smoking and substance involvement screening test (ASSIST): Report of results from the Australian site. *Drug and Alcohol Review*, 24(3), 217-226.

Drug Abuse Screening Test (DAST): Skinner, H. A. (1982). The Drug Abuse Screening Test. *Addictive Behaviors*, 7(4), 363-371.

Drug Use Disorders Identification Test (DUDIT): Bergman, A. H., Bergman, H., Palmstierna, T., & Schlyter, F. (2003). *DUDIT: The Drug Use Disorders Identification Test: Manual*. Karolinska Institute, Stockholm.

UNCOPE Substance Use Dependence Screen (UNCOPE): Hoffmann, N. G., Hunt, D. E., Rhodes, W. M., & Riley, K. J. (2003). UNCOPE: A brief substance dependence screen for use with arrestees. *Journal of Drug Issues*, 33(1), 29-44.

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## ABOUT SMaRteN

**SMaRteN** is a national research network funded by UK Research and Innovation, led by King's College London, focusing on student mental health in higher education. Working with researchers with a range of expertise and key stakeholders across the higher education sector, we aim to improve the understanding of student mental health.

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