

University student well-being in the United Kingdom: A scoping review of its conceptualisation and measurement

Alyson L. Dodd^{1*}, Michael Priestley², Katie Tyrrell³, Sebastien Cygan⁴, Catherine Newell⁵ & Nicola C. Byrom⁶

1. Department of Psychology, Faculty of Health & Life Sciences, Northumbria University, Newcastle Upon Tyne, UK. alyson.dodd@northumbria.ac.uk
2. School of Education, Durham University, Durham, UK
3. Suffolk Institute for Social and Economic Research, University of Suffolk, UK
4. School of Computing, Newcastle University, Newcastle Upon Tyne, UK
5. School of Languages and Cultures, University of Sheffield, Sheffield, UK
6. Department of Psychology, Institute of Psychiatry, Psychology and Neurosciences, Kings College London, UK

*Corresponding author

Word Count: 4516 words (excluding the abstract, reference list, tables and figures)

Data availability statement: As a conceptual scoping review, there is no data attached to this manuscript.

Disclosure statement: There are no conflicts of interest.

Acknowledgements: This work was supported by a mental health network grant (SMaRteN) funded by UKRI, awarded to Dr Nicola Byrom & Dr Alyson Dodd; ES/S00324X/1. The authors would like to acknowledge the SMaRteN leadership team, Professor Miranda Wolpert (University College London and Wellcome Trust), and Nancy Hey and colleagues at What Works Wellbeing for advice and guidance on this review.

University student well-being in the United Kingdom: A scoping review of its conceptualisation and measurement

Abstract

Background: Well-being is a multifaceted construct, and measuring well-being, both within particular groups and at a national level, is a priority for policy and practice. This national agenda on measuring well-being is mirrored in the Higher Education sector. This is the first conceptual review of how well-being is measured among university students in the UK. Aims: The aims of the review were to identify i) the definitions or conceptualisations of well-being guiding the selection of well-being indicators for research within this population and ii) measures of well-being used in university students in the UK. Methods: A scoping review method was used. Results: Twenty-eight validated indicators used to measure well-being in UK students were identified. While many were direct measures of (primarily mental or psychological) well-being, indirect 'proxy' indicators, including measures of mental health symptoms, were identified. Conclusions: This review has highlighted that there are inconsistencies in defining and measuring university student well-being, and the measures that have been used in this population are focused on subjective experience. These findings are in line with reviews of well-being measures in the general population. Implications for further research are discussed.

Keywords: Well-being; Higher Education; University student; Scoping review; Measurement

Introduction

Well-being has become a priority for Higher Education policy. In 2018, the United Kingdom's (UK) Minister of State for Universities, Science, Research and Innovation urged all universities to prioritise the mental health and well-being of students (Gyimah, 2018). This led to the development of the University Mental Health Charter to outline, recognise and reward institutions demonstrating good practice across the whole university (Hughes & Spanner, 2019). This call was in line with previous moves to measure and integrate well-being into public policy. For instance, in 2010, the UK Prime Minister tasked the Office of National Statistics with measuring 'national well-being' as part of an agenda for improving well-being through health and education policy.

To support a policy focus on well-being, clear definitions and consistent measures are necessary (Dodge, Daly, Huyton & Sanders, 2012; Dolan & Metcalfe, 2012). The UK Government's Foresight Report (2008) defined mental well-being as 'a dynamic state, in which the individual is able to develop their potential, work productively and creatively, build strong and positive relationships... and contribute to their community.' However, defining well-being is complex, and there are multiple theoretical frameworks in the literature. These theories often distinguish hedonic well-being (e.g., happiness and life satisfaction) from eudaemonic well-being (e.g., functioning and living life to the full). This distinction is supported by general population data (Weich et al., 2011). In the hedonic tradition, Diener's (1984) theory of subjective well-being argues that cognitive facets of well-being (e.g., life satisfaction) are distinct, but complementary, to affective well-being. Ryff's (1989) seminal model of psychological well-being took an eudaemonic approach that emphasised 'positive psychological functioning', arguing that subjective ratings of how we are feeling and our life satisfaction are insufficient. Ryff (1989) proposed six domains of psychological well-being; autonomy, mastery, self-acceptance, relationships, life purpose and personal growth. Deci and Ryan's (2000) self-determination theory further develops the eudaemonic tradition, focusing on self-actualisation via the satisfaction of three basic psychological needs: autonomy, relatedness and

competency. Integrating the hedonic and the eudemonic approaches, the PERMA model in positive psychology conceptualises well-being as positive emotion, engagement, relationships, meaning and purpose and accomplishment (Seligman, 2011). In summary, hedonic perspectives focus on a persons' evaluations of their affect and life satisfaction, whereas eudaemonic approaches focus on development and achieving potential. Together, these theories define *mental* well-being, sharing an emphasis on 'mental state accounts' (Dolan & Metcalfe, 2012) and individuals' subjective perceptions of 'feeling good and functioning well' (Faculty of Public Health & Mental Health Foundation, 2016).

In addition to different conceptualisations of mental well-being, the distinction between well-being and mental health has been extensively debated (e.g. Huppert et al., 2014). Relating the two constructs, the World Health Organisation (2005) declared positive mental health to be the 'foundation for well-being.' Research with large general population samples suggests that well-being and mental health are related but independent constructs (Weich et al., 2011; Patalay & Fitzsimons, 2016), adding weight to the argument that measures of well-being should be differentiated from measures of mental health.

While debate has largely focused on mental well-being, it is important to remember the breadth of the well-being construct. For example, when looking at national well-being in the UK, the Office of National Statistics (2011) emphasises the importance of objective population or community-level indicators, such as economic and environmental indicators, alongside subjective experience. Social well-being may capture domains such as social capital, equality and trust (Faculty of Public Health & Mental Health Foundation, 2016).

The challenge of defining well-being has substantive implications for measurement (Linton, Dieppe & Medina-Lara, 2016). A variety of measures exist, and the constructs they assess vary depending on the framework informing the indicator. There is also recognition that measurement of well-being must be relevant for specific groups (e.g., age, health condition) as well as the level of interest (individual, community, population; for example, Huppert, 2017).

However, broader variation in measurement approach has the potential to be problematic as the Chief Medical Officer stated ‘...we need a reproducible psychometric evidence base, not one divided by use of any particular instrument’ (Davies, 2014).

As the Higher Education sector increasingly looks for policy and practice initiatives to protect and improve student well-being, agreement around a measurement approach is crucial. The sector needs to have confidence that measures used to evaluate interventions and policy changes accurately capture well-being. Instruments must be reliable and valid, as well as meaningful to the lived experience of the student body. A consistent approach to measuring well-being would enable findings to be compared across research studies (and universities), in order to better identify trends, evaluate interventions, and share best practice. As such, there may be real benefits in a drive for standardisation, analogous with approaches used in clinical research (Prinsen et al., 2016). For example, a combination of consultation and literature review have informed guidance and recommendations on suitable well-being measures and their properties for use in children and adolescents (Bentley, Hartley & Bucci, 2019; Deighton et al., 2016) and in adults in the general population (Linton et al., 2016).

To date, there are no reviews of well-being measures in UK university students. Considering the need for measures that are suitable for the situation and population, understanding how to measure student well-being is essential. Students are not children or adolescents; unless they are mature students, they are transitioning to adulthood. For many, these years are a period of new independence and few responsibilities or stable relationships to shape the rhythm of their day-to-day life. Compared to their peers not in education, students are postponing the transition into full-time work and the sense of identity, role and purpose that can accompany this. This liminality is likely to influence well-being (Laidlaw, McLellan & Ozakinci, 2015). The uniqueness of the student experience suggests that the factors that are important for the well-being of students may differ from other population groups.

This scoping review considered how student well-being is conceptualised and measured across research and practice in UK Higher Education. Scoping reviews are a form of knowledge synthesis that can be used to, among other objectives, examine what evidence is available on a given topic, and find out how key constructs are being defined in this literature (Colquhoun et al., 2014; Munn et al., 2018). This approach was chosen to ensure that equal attention was given to use of measures reported in academic and non-academic literature.

While much literature and policy focuses on mental well-being, determining what other dimensions of student well-being have been explored, and how they are defined and measured, is important to facilitate a holistic, and potentially multi-disciplinary, perspective. Given this, the current review was designed to capture what both researchers and key stakeholders are using to assess student well-being broadly, rather than structuring around a pre-determined definition.

The aims of the review were to identify i) the definitions or conceptualisations of well-being guiding the selection of well-being indicators for research within this population and ii) measures of well-being used in university students in the UK.

Method

Search strategy

The scoping review framework summarised by Colquhoun et al (2014) informed the protocol for identifying and selecting studies, and determining what data to extract. Three academic databases (SCOPUS, PsycArticles, and Web of Science) were used to search for relevant articles published since 2008 up to the date of the search (February 2019), in order to capture a full decade (2008-2018) of the most up-to-date research. Search strings captured the population

and setting (Higher Education students studying in the UK), terms for measurement (e.g., assessment, measure, questionnaire), and construct of interest (well-being). In order to capture the definitions of well-being used by researchers and stakeholders, this review did not adopt a pre-specified framework for well-being. Search terms for “well-being” were informed by existing reviews (e.g., Bagnall et al., 2017; see Appendix).

In addition to searching the academic literature, a list of relevant organisations was compiled. Inclusion of organisations was determined via prior knowledge of the research team (e.g., organisations that the team knew had published research or guidance on student mental health and well-being, such as *Student Minds* and *Universities UK*). Mission statements published on websites, and publicly available online documents and resources, were also examined. Individual university websites were not included in this search. In total, 39 organisations were identified as directly working with, or having produced reports or projects relevant to, UK student well-being. Websites of these organisations were searched to identify relevant publications (MP and CN). The list was updated during screening as further organisations were identified (see Figure 1).

Eligibility

This review aimed to identify what indicators of student well-being have been used in research and by stakeholders, and the theoretical framework or definition of well-being that informed the selection of that measure. Outputs were relevant for inclusion if they i) used a measure of well-being, ii) among Higher Education students studying in the U.K. (undergraduate or postgraduate) and iii) adopted a quantitative design. As the principal aim of this review was to identify well-being indicators rather than synthesise research findings regarding these measures, a heterogeneous range of research questions and methodologies were eligible. However, qualitative research was excluded as while this could address conceptualisations and definitions of student well-being (e.g., Laidlaw et al., 2015), the review aimed to identify specific well-being measures.

Screening and data extraction

Figure 1 outlines the search and screening procedure. Results from the academic database searches were merged, and duplicates were removed. To establish a consistent approach to using the eligibility criteria, 10% of articles from both the academic and non-academic searches were screened by the two authors who would ultimately undertake the screening (KT and SC for academic databases, MP and CN for non-academic reports). This procedure was discussed before proceeding to screening. Titles and abstracts from the academic database search were screened, and remaining articles were read in full. Across both types of literature, articles were retained if they met the eligibility criteria. Reference lists of articles included in this review were screened to identify further eligible studies (AD).

The following information was extracted from all included outputs: population (national/local, undergraduate/postgraduate, specific student group (if applicable), sample size); well-being indicator used; and the definition/framework of well-being (including domains measured).

Results

Study Characteristics

The 44 academic studies and stakeholder reports that met eligibility criteria used a range of research designs e.g., evaluations of interventions, cross-sectional and prospective studies, and investigations of potential correlates of student well-being. Two studies recruited student participants as an analogue for a non-clinical general population (Carey et al., 2016; Grealish et al., 2018). All others were interested in the student experience more specifically.

Table 1 provides an overview of all included studies, including the definition of well-being used by the authors (if applicable), and the well-being indicator used. More than half of the eligible studies did not specify a rationale for their choice of measure *or* provide a definition of well-being.

[INSERT TABLES HERE]

Aim 1: Conceptualisation and definition of well-being guiding measure selection

Table 1 shows the terms that authors used for well-being (e.g., mental well-being), and (where applicable), the theoretical framework or definition of well-being that authors explicitly stated. Two studies (Jones, Samra & Lucassen, 2019; Priesack & Alcock, 2015) acknowledged the complexity of defining and measuring well-being. Sixteen studies referred to the term ‘mental well-being’, thirteen to ‘psychological well-being’, and seven to ‘subjective well-being’. Additional terms were general, personal, and psychosocial well-being – or, simply, well-being. These terms were often used interchangeably within and across studies.

Where established theoretical frameworks of well-being were cited as guiding the research (seven studies), these were from the social sciences; Diener’s (1984) subjective well-being, Ryan and Deci’s (2000) self-determination theory, and Ryff’s (1989) psychological well-being. For example, four studies adopted a theory-based combination of cognitive (e.g., life satisfaction) and affective measures of subjective well-being as per Diener (Boon et al., 2017; Collard, Avny & Boniwell, 2013; Denovan & Macaskill, 2017; Montasem, Brown & Harris, 2013).

Where a theory of well-being was not cited, some authors did explicitly state how they defined well-being (see Table 1). The WHO definition was cited three times (Hawker, 2012; Jones, Samra & Lucassen, 2019; Roulston et al., 2018). One defined mental well-being as synonymous with positive mental health

(Gorczyński, Sims-Schouten, Hill & Wilson, 2017), and three used “(mental) health and well-being” as a collective term (El Ansari & Stock, 2010; El Ansari et al., 2011; NUS-USI, 2017). Eleven studies defined well-being by low levels of distress or mental health symptoms (mainly anxiety and depression).

There were also pragmatic reasons given for selecting a particular measure or set of measures, such as: constructs deemed pertinent to the student experience (Carr et al., 2013; Collings et al., 2014; El Ansari & Stock, 2010; National Union of Students - Union of Students Ireland, 2014; Topham & Moller, 2011); comparisons with the general population (e.g., Advance HE and HEPI, 2018; Knipe et al., 2018); a non-clinical outcome measure (e.g., Byrom, 2018); and prior use within relevant literature (Collard et al, 2008). However, many studies did not use an extant theoretical framework, give a definition of well-being, or justify their selection of measure in some other way.

Aim 2: Overview of well-being measures used

Nineteen studies combined multiple well-being indicators (see Table 1). In total, 28 validated self-report measures of well-being were identified. Table 2 gives an overview of all of these measures, including the conceptual framework they were derived from, and the dimensions of well-being that they measure.

Several of the measures used relate to specific theoretical frameworks of well-being. For example, the the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) and Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988), assess the evaluative (cognitive domain) and experiential (affective domain) of hedonic well-being, respectively. From a eudaemonic framework, the most direct measure of psychological well-being identified as having been used to measure well-being of UK students was the Scales of Psychological Well-being (SPWB; Ryff, 1989).

Several broad, or 'pan-theoretical', measures of well-being were identified; the Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007), the ONS Personal Well-being questions (ONS4; Office for National Statistics, 2011), BBC Well-being Scale (Kinderman, Schwannaeur, Pontin & Tai, 2011), and Flourishing Scale (Diener et al., 2010). The GP-CORE (Evans et al., 2005) and WHO-5 Well-being scale (WHO, 1998) were designed to measure well-being, based on positively-worded items from clinical measures (e.g., Clinical Outcomes in Routine Evaluation Outcome Measure, CORE-OM; Evans et al., 2000), without alignment to a specific theoretical framework.

The above measures are considered 'direct' measures of well-being. Further measures could be considered to be more 'indirect' measures. For example, the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) was used multiple times (Collings, Swanson & Watkins, 2014; Hawker, 2012; Topham & Moller, 2011). Further constructs used to measure well-being were rooted in the positive psychology discipline, such as hope and resilience (Boon et al., 2017; Harris, Wilson, Hughes, Knevel & Radford, 2018; Povah, 2016). Social support, loneliness, and social integration (Carr et al., 2013; Collings, Swanson & Watkins, 2014; Topham & Moller, 2014) were all used as proxy indicators alongside, or instead of, direct well-being measures.

Finally, in line with the conceptualisation of well-being as synonymous with mental health, a number of the instruments selected by authors measured mental health symptoms, such as the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1938) and General Health Questionnaire (GHQ; Goldberg, 1972). The Perceived Stress Scale (PSS; Cohen, Karmack & Mermelstein, 1983) was also used to measure student well-being.

Of all the validated measures identified in this review, only the GP-CORE was developed specifically for use in students (alongside the general population; Evans et al., 2005). However, the WEMWBS has also been validated in a UK student population (Tennant et al., 2007). All other measures were either developed for use in the general population or in clinical settings (see Table 2). Twelve articles reported psychometric properties of their selected well-being

indicator in their student sample (in all cases, Cronbach's alpha), and one validated their chosen measure (the BBC Well-being scale) among nursing students (Priesack & Alcock, 2015).

Not all of the included studies used a validated measure of well-being. In several studies, existing measures were modified to either make them relevant to the student experience (Carr, Colthurst, Coyle, & Elliott, 2013) or to shorten them (e.g., El Ansari, Dibba & Stock, 2014). Seven articles (Carey et al., 2016; Collings, Swanson & Watkins, 2016; El Ansari & Stock, 2010; El Ansari et al., 2011; El Ansari, Dibba & Stock, 2014; National Union of Students – Union of Student Ireland, 2014, 2017) created their own surveys for measuring well-being. These often comprised a broad range of constructs capturing 'student well-being', such as anxiety, depression, homesickness and loneliness (Collings et al., 2016), feelings and support (NUS-USI, 2017), 'health and well-being' (e.g., nutrition and diet, physical health, income sufficiency, social support, quality of life; El Ansari & Stock, 2010; El Ansari et al., 2014), and financial well-being (NUS-USI, 2014).

Discussion

This scoping review identified 28 distinct self-report questionnaires used to assess student well-being in UK Higher Education, and a further seven outputs that created their own well-being measures. Despite the vast literature on well-being and its measurement, most of the eligible articles did not provide an explicit conceptualisation or definition of well-being to justify their selection of indicator. Variation in approach to defining well-being highlights the need for clear consensus in defining well-being. If well-being was rigorously defined, then inclusion of this information would not be needed within papers, and there would not be uncertainty about conceptualisations where definitions are not explicitly stated. Further, there is a lack of clarity around what distinction there is, if any, between common terms such as mental, psychological, subjective, and personal well-being. Indeed, the ONS (2011) specified that they use 'personal

well-being' for the ONS-4 instead of 'subjective well-being', as the former was easier for the general population to understand. This highlights the ambiguity regarding the distinction among different terms for well-being. It is perhaps unsurprising then that these terms were often used interchangeably and that a wide range of constructs are being measured under the umbrella of 'well-being', without reference to a rationale or framework. These multiple terms, definitions and models are in line with observations of research in the general population (Linton et al., 2016), and this heterogeneity can be challenging for research and practice (Goodman, Disaboto, Kashman & Kauffman, 2018).

While many studies used 'direct' measures of well-being (measures designed for this purpose), many measures ostensibly used to assess well-being were initially developed for use in clinical settings and measure mental health difficulties or psychological distress. Further, there were many examples of conflating concepts by defining poor 'mental' or 'psychological' well-being as synonymous with greater distress or mental health symptoms. This is not surprising, based on existing reviews of well-being measures in the general population (Linton et al., 2016) and in doctoral students (with a worldwide focus; Scott & Takarangi, 2019), and the WHO (2005) definition of mental health as "a state of well-being". However, it is important to distinguish between well-being and mental health for several reasons, especially where 'mental health' is construed as 'mental health *problems*.' Firstly, there is evidence that students conceptualise mental health and well-being as separate constructs, with the former seen as more 'clinical' or 'psychiatric' and the latter relating to everyday experience (Laidlaw et al., 2015). Secondly, straightforward language with consistent definitions and differentiation, distinguishing between mental health problems (experienced by a smaller subset of students with greater needs) and well-being (a 'population-level' term that applies to all students), improves our understanding of what the evidence is telling us (Hughes & Spanner, 2019). This in turn can ensure resources are directed appropriately (Barkham et al., 2019). Conflation of mental health and well-being may give a false sense of confidence around interventions to improve well-being; the evidence-base for these lags behind that of interventions to address mental health problems (Davies, 2014). When the evidence talks about rates of poor well-being and poor

mental health, or determinants of these outcomes, it is important to know what this means to identify policy priorities and tailor support to specific needs. Appropriate measurement of these independent constructs is necessary to provide consistency and clarity in future research.

Some of the measures were not developed to assess mental health *or* well-being. For instance, measures of hope, resilience, loneliness, self-esteem, and social support are being used as a proxy for assessment of well-being. These could be considered *determinants* of well-being i.e., factors that influence, or indeed are influenced by, someone's well-being. In line with the Linton et al (2016) review, authors did not differentiate these as determinants but included them as measures of well-being in their own right. There was inconsistency regarding whether these were viewed as measures *of* well-being or measures *linked to* well-being. For example, while hope, resilience, coping, social support and self-esteem were included as well-being measures in some studies (e.g., Collings, Swanson & Watkins, 2014; El Ansari & Stock, 2010; Harris et al., 2018; Povah, 2016; Topham & Moller, 2011), these constructs were all investigated as correlates of well-being in others (Collins, Coffey & Morris, 2008; Denovan & Macaskill, 2017b; Grealish et al., 2017; Montasem et al., 2013). **Greater clarity about why these more *indirect* measures of well-being were selected, with a definition of well-being to support this, would be beneficial, given they were not originally developed to measure well-being.**

Adding to the problem of inconsistency, several studies constructed their own unstandardised measures, or adapted existing measures, prohibiting ability to make comparisons. In addition, some studies included single-item measures, which can be problematic (Barkham et al., 2019). The inconsistencies in conceptualising and measuring well-being identified in this review have also been highlighted as problematic at a national level, impeding key criteria for accounts of well-being that can inform policy; theoretical and empirical rigour, and policy-relevant (Dolan & Metcalfe, 2012).

The 'direct' measures of well-being identified in this review all come from the social sciences, as do many of the 'indirect' measures. Primarily, these are based on theories of hedonic well-being (e.g., asking people how they are feeling and their life satisfaction), eudaemonic well-being (e.g., relationships, functioning, and self-realisation and fulfilment), or a combination of both. Some direct measures of well-being do not align themselves to a particular theoretical framework, integrating multiple domains of well-being (e.g., the BBC Well-being Scale; Kinderman et al., 2011). All of these theories, and the measures derived from them, share a focus on the subjective account of the individual. Although both student self-reported (i.e., of their own subjective experience) and university-level measures (i.e., data collected by institutions) might have been captured within this review, the measures identified do not capture broader, multidisciplinary definitions of well-being, such as social capital, or environmental and economic indicators (Dolan & Metcalfe, 2012; Faculty of Public Health & Mental Health Foundation, 2016), or any university-level indicators; all studies employed self-report measures of individuals' perceptions and experiences. A university-level indicator of well-being would be analogous to 'whole area indicators' of community well-being, such as social capital and environment (for a review of community well-being indicators in the general population, see Bagnall et al., 2017). Integrating subjective (individual) measures and objective (university-level) measures may allow for the development, or adoption, of measures that represent priorities across different disciplines.

Most of the studies focused on students as a specific population, with specific needs. However, the only measures developed for use in students were the WEMWBS and GP-CORE, and both of these were also designed for use in the general population. As such, the measures identified may not capture the specific experience of students (there is considerable overlap with the measures identified in the general population; Linton et al., 2016). This is a double-edged sword; using general population measures is vital for comparison, yet they may not capture all relevant and important domains of *student* well-being. Most university students are 'emerging adults', and while they are more independent than adolescents, they often do not have established roles in terms of relationships, and employment, which generic measures often ask about (Chen et al., 2014). This sets them apart from peers who have gone straight into

employment from secondary education, and in this regard mature students differ from non-university attending peers, and may not have the same concerns.

A similar issue arises from the need to account for multiple developmental transitions during time at university (Barkham et al., 2019), meaning measures should also be appropriate to compare *within* individuals both before they begin university and as they progress throughout their studies.

While this review aimed to identify how well-being was being defined and measured in UK university students across a heterogeneous range of literature, rather than a critical review of research on student well-being, it is also important to note a number of limitations with the studies themselves. Sample sizes were generally small. Some studies focused on specific student groups (e.g., nursing or psychology students), and many recruited students from a single university. Psychometric properties were sparsely reported (as in a review of measures used in doctoral students; Smith & Takarangi, 2019). These caveats limit the data available on these measures in our population of interest.

Since the search was completed, further research on UK student well-being has of course been published. The WEMWBS continues to be a popular choice of outcome measure (e.g., Ponzo et al., 2020; Poots & Cassidy, 2020). This measure is also subsumed into the Student Well-being Process Questionnaire (Smith & Firman, 2020), a theory-driven measure validated in students. This measure captures determinants of well-being (generic and student-specific), positive well-being outcomes (from a primarily hedonic perspective), and negative well-being outcomes. The latter is defined as anxiety, stress and depression. The findings of a recently published review of doctoral student well-being, which goes beyond the UK (Smith & Firman, 2019), have many parallels to the current findings. This suggests that the challenges identified in the included literature endure, and are seen internationally in the conceptualisation and measurement of student well-being.

Taking these points together, in order to ensure consistency, capture stakeholder priorities and multidisciplinary perspectives, and allow for comparisons over time within individuals as well as with other groups, a 'core set' of well-being measures is recommended. These should be validated in students, acceptable to them, and aligned with a definition of student well-being (which may capture multiple domains).

Limitations & Future Directions

This scoping review focused on how student well-being is being measured in academic and non-academic research in the UK. As the #StepChange framework from Universities UK (2018; 2020) advocates Whole University approaches and the University Mental Health Charter (Spanner & Hughes, 2019) enters its pilot phase, university-level well-being indicators will be important for this sector. The review did not consult with or search the websites or **policy documents** of universities to gather information about whether they and their counselling services measure student well-being and, if so, how they **define and** measure this at an individual or university level. In addition, there is a question of whether existing measures, often not designed with students in mind, actually make sense to the specific experience and context of different student populations. Understanding more about what constructs are most important for determining student well-being, with multidisciplinary input from stakeholders, is necessary to foster a more robust approach to measuring well-being at both the individual and the institutional level.

This scoping review is part of a wider measurement project undertaken by SMaRteN, a multidisciplinary network focused on understanding student mental health and well-being. The network will combine findings from this scoping review with extensive stakeholder consultation, to provide guidance on how existing well-being measures map on to the priorities of students and those working in Higher Education.

Further, the aim here was to complete a scoping exercise of well-being measurement in UK Higher Education, not to methodically appraise the properties of individual well-being indicators. A mapping exercise of constructs prioritised by stakeholders, and those captured by existing measures, will identify overlap and gaps between stakeholder priorities for measurement, and the student well-being measures that are already being used. This can inform focused reviews of specific well-being indicators that measure constructs identified by stakeholders (e.g., using the COSMIN checklist; Mokkink et al., 2012).

As a final point, this review found that measures of mental health *symptoms* are being used as a proxy to indicate poor well-being. While this is problematic, as outlined above, it is indicative of a wider lack of consensus around measurement approaches. The sector needs to reach a consensus about whether clinical measures are appropriate as public mental health measures, and if not, how best student mental health may be measured. However, mental health should be distinguished from well-being, and as such, standardisation of measurement of mental health is a separate issue, both within university support services, and at a population (all student) level (see Barkham et al., 2019, for a call to action from the SCoRE consortium).

Conclusions

This review gives an overview of which measures have been used to measure well-being in UK students, finding that a range of indicators have been used. What guided selection of specific measures is not always clear. Where reported, these include pragmatic decisions such as generalisability beyond students, and psychometric strengths, or specific interest in a particular theoretical framework of well-being. The interest in student well-being at both research and policy-level demonstrates that it is a priority across Higher Education in the UK. However, what this means, and how it should be measured, is still a topic for further investigation and clarification, in order to establish consistency across the sector for understanding student well-being and evaluating initiatives to support them.

References

- Aceijas, C., Waldhäusl, S., Lambert, N., Cassar, S., & Bello-Corassa, R. (2017). Determinants of health-related lifestyles among university students. *Perspectives in Public Health, 137*(4), 227-236.
- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology, 34*, 2045–2068.
- Barkham, M., Broglia, E., Dufour, G., Fudge, M., Knowles, L., Percy, A., ... & SCORE Consortium. (2019). Towards an evidence-base for student wellbeing and mental health: Definitions, developmental transitions and data sets. *Counselling and Psychotherapy Research, 19*(4), 351-357.
- Beaumont, E., Durkin, M., Hollins Martin, C. J., & Carson, J. (2016). Compassion for others, self-compassion, quality of life and mental well-being measures and their association with compassion fatigue and burnout in student midwives: A quantitative survey. *Midwifery, 34*, 239-244.
- Bentley, N., Hartley, S., & Bucci, S. (2019). Systematic review of self-report measures of general mental health and wellbeing in adolescent mental health. *Clinical Child and Family Psychology Review, 22*(2), 225-252.
- Bewick, B. M., Gill, J., Mulhearn, B., Barkham, M., & Hill, A. J. (2008). Using electronic surveying to assess psychological distress within the UK student population: a multi-site pilot investigation. *E-Journal of Applied Psychology, 4*(2), 1-5
- Bewick, B., Koutsopoulou, G., Miles, J., Slaa, E., & Barkham, M. (2010). Changes in undergraduate students' psychological well-being as they progress through university. *Studies in Higher Education, 35*(6), 633-645.

- Boon, H. J., Kimhi, S., Sapountzaki, K., Parmak, M., Groh, A., & Ryan, S. (2017). Preliminary findings from an international study of subjective wellbeing in tertiary students. *International Journal of Innovation, Creativity and Change*, 3(3), 26-42.
- British Universities & Colleges Sport (2018). *British Active Students Survey: 2017/2018 report*. Retrieved from <https://www.precor.com/sites/default/files/BASS%20report%20FINAL.pdf>
- Byrom, N. (2018). An evaluation of a peer support intervention for student mental health. *Journal of Mental Health*, 27(3), 240-246.
- Cameron D. PM speech on Wellbeing. 2010; Available from: www.gov.uk/government/speeches/pm-speechon-wellbeing.
- Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The Quality of American Life: Perceptions, evaluations, and satisfactions*. Russell Sage Foundation.
- Carey, T. A., Haviland, J., Tai, S. J., Vanags, T., & Mansell, W. (2016). MindSurf: a pilot study to assess the usability and acceptability of a smartphone app designed to promote contentment, wellbeing, and goal achievement. *BMC Psychiatry*, 16(1), 442.
- Carr, S., Colthurst, K., Coyle, M., & Elliott, D. (2013). Attachment dimensions as predictors of mental health and psychosocial well-being in the transition to university. *European Journal of Psychology of Education*, 28(2), 157-172.
- Chen, H., Cohen, P., Kasen, S., Gordan, K., Dufur, R., & Smailes, E. (2004). Construction and validation of a quality of life instrument for young adults. *Quality of Life Research*, 13(4), 747-759.
- Cohen, S. & Hoberman, H. (1983). Interpersonal support evaluation list (ISEL). *Journal of Applied Social Psychology*, 58, 304-9.

- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 385-396.
- Collard, P., Avny, N., & Boniwell, I. (2008). Teaching mindfulness based cognitive therapy (MBCT) to students: The effects of MBCT on the levels of mindfulness and subjective well-being. *Counselling Psychology Quarterly*, 21(4), 323-336.
- Collings, R., Swanson, V., & Watkins, R. (2014). The impact of peer mentoring on levels of student wellbeing, integration and retention: a controlled comparative evaluation of residential students in UK higher education. *Higher Education*, 68(6), 927-942
- Collins, S., Coffey, M., & Morris, L. (2010). Social work students: Stress, support and well-being. *British Journal of Social Work*, 40(3), 963-982.
- Colquhoun, H. L., Levac, D., O'Brien, K. K., Straus, S., Tricco, A. C., Perrier, L., ... & Moher, D. (2014). Scoping reviews: time for clarity in definition, methods, and reporting. *Journal of Clinical Epidemiology*, 67(12), 1291-1294.
- Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and Anxiety*, 18(2), 76-82.
- Davies, S.C. (2014). *Annual Report of the Chief Medical Officer 2013, Public Mental Health Priorities: Investing in the Evidence*. Department of Health.
<https://mrc.ukri.org/documents/pdf/chief-medical-officer-annual-report-2013/>

- Deci, E. L., & Ryan, R. M. (2000). The " what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227-268.
- Denovan, A., & Macaskill, A. (2017a). Stress and subjective well-being among first year UK undergraduate students. *Journal of Happiness Studies, 18*(2), 505-525.
- Denovan, A., & Macaskill, A. (2017b). Stress, resilience and leisure coping among university students: applying the broaden-and-build theory. *Leisure Studies, 36*(6), 852-865.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 542-575.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49*, 71-75.
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D. W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research, 97*(2), 143-156.
- Dodge R, Daly AP, Huyton J, Sanders LD (2012). The challenge of defining wellbeing. *International Journal of Wellbeing, 2*(3), 222-235
- Dolan, P., & Metcalfe, R. (2012). Measuring subjective wellbeing: Recommendations on measures for use by national governments. *Journal of Social Policy, 41*(2), 409-427.

- Durkin, M., Beaumont, E., Hollins Martin, C. J., & Carson, J. (2016). A pilot study exploring the relationship between self-compassion, self-judgement, self-kindness, compassion, professional quality of life and wellbeing among UK community nurses. *Nurse Education Today*, 46, 109-114.
- El Ansari, W., & Stock, C. (2010). Is the health and wellbeing of university students associated with their academic performance? Cross sectional findings from the United Kingdom. *International Journal of Environmental Research and Public Health*, 7(2), 509-527.
- El Ansari, W., Dibba, E., & Stock, C. (2014). Body image concerns: Levels, correlates and gender differences among students in the United Kingdom. *Central European Journal of Public Health*, 22(2), 106-117.
- El Ansari, W., Stock, C., Hu, X., Parke, S., Davies, S., John, J., ... & Mabhala, A. (2011). Feeling healthy? A survey of physical and psychological wellbeing of students from seven universities in the UK. *International Journal of Environmental Research and Public Health*, 8(5), 1308-1323.
- Evans, C. E. Mellor-Clark, J. Margison, F. *et al* (2000) Clinical Outcomes in Routine Evaluation: the CORE Outcome Measure (CORE-OM). *Journal of Mental Health*, 9, 247–255
- Faculty of Public Health and Mental Health Foundation (2016). *Better Mental Health for All: A Public Health Approach to Mental Health Improvement*. <https://www.mentalhealth.org.uk/publications/better-mental-health-all-public-health-approach-mental-health-improvement>
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. (1986). The dynamics of a stressful encounter: Cognitive appraisal, coping and encounter outcomes. *Journal of Personality and Social Psychology*, 50, 992-1003.
- Foresight Mental Capital and Wellbeing Project (2008). *Final Project report – Executive summary*. The Government Office for Science, London.

- Galante, J., Dufour, G., Vainre, M., Wagner, A. P., Stochl, J., Benton, A., ... & Jones, P. B. (2018). A mindfulness-based intervention to increase resilience to stress in university students (the Mindful Student Study): a pragmatic randomised controlled trial. *The Lancet Public Health*, 3(2), e72-e81.
- Gibson, A. M., Shaw, J., Hewitt, A., Easton, C., Robertson, S., & Gibson, N. (2018). A longitudinal examination of students' health behaviours during their first year at university. *Journal of Further and Higher Education*, 42(1), 36-45.
- Goldberg, D.P. (1972). *The detection of psychiatric illness by questionnaire*. London, Oxford University Press
- Goodman, F. R., Disabato, D. J., Kashdan, T. B., & Kauffman, S. B. (2018). Measuring well-being: A comparison of subjective well-being and PERMA. *The Journal of Positive Psychology*, 13(4), 321-332.
- Gorczynski, P., Sims-Schouten, W., Hill, D., & Wilson, J. C. (2017). Examining mental health literacy, help seeking behaviours, and mental health outcomes in UK university students. *The Journal of Mental Health Training, Education and Practice*, 12 (2), 111-120
- Grajfoner, D., Harte, E., Potter, L. M., & McGuigan, N. (2017). The effect of dog-assisted intervention on student well-being, mood, and anxiety. *International Journal of Environmental Research and Public Health*, 14(5), 483.
- Grealish, A., Tai, S., Hunter, A., Emsley, R., Murrells, T., & Morrison, A. P. (2017). Does empowerment mediate the effects of psychological factors on mental health, well-being, and recovery in young people?. *Psychology and Psychotherapy: Theory, Research and Practice*, 90(3), 314-335.
- Gyimah, S. (2018). Minister Gyimah: Universities must ensure their mental health services are fit for purpose [Blog post]. Retrieved from <https://dfemedia.blog.gov.uk/2018/09/16/minister-gyimah-universities-must-ensure-their-mental-health-services-are-fit-for-purpose/>

- Harris, M., Wilson, J. C., Hughes, S., Knevel, R. J. M., & Radford, D. R. (2018). Perceived stress and well-being in UK and Australian dental hygiene and dental therapy students. *European Journal of Dental Education*, 22(3), e602-e611.
- Hawker, C. L. (2012). Physical activity and mental well-being in student nurses. *Nurse Education Today*, 32(3), 325-331.
- Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 44, 227–239.
- Hixenbaugh, P., Dewart, H., & Towell, T. (2012). What enables students to succeed? An investigation of socio-demographic, health and student experience variables. *Psychodynamic Practice*, 18(3), 285-301.
- Huppert, F. A. (2014). The state of wellbeing science: Concepts, measures, interventions, and policies. *Wellbeing: A complete reference guide*, 1-49.
- Huppert, F.A. (2017). *Measurement really matters*. Measuring wellbeing series; discussion paper 2: What Works Centre for Wellbeing.
- Jones, E., Samra, R., & Lucassen, M. (2019). The world at their fingertips? The mental wellbeing of online distance-based law students. *The Law Teacher*, 53(1), 49-69.
- Kannagara, C. S., Allen, R. E., Waugh, G., Nahar, N., Khan, S. Z. N., Rogerson, S., & Carson, J. (2018). All that glitters is not grit: three studies of grit in university students. *Frontiers in Psychology*, 9, 1539.

- Kimhi, S., & Eshel, Y. (2009). Individual and public resilience and coping with long-term outcomes of war. *Journal of Applied Biobehavioral Research*, 14, 70-89.
- Kinderman, P., Schwannauer, M., Pontin, E., & Tai, S. (2011). The development and validation of a general measure of well-being: the BBC well-being scale. *Quality of Life Research*, 20(7), 1035-1042.
- Knipe, D., Maughan, C., Gilbert, J., Dymock, D., Moran, P., & Gunnell, D. (2018). Mental health in medical, dentistry and veterinary students: cross-sectional online survey. *BJPsych Open*, 4(6), 441-446.
- Laidlaw, A., McLellan, J., & Ozakinci, G. (2016). Understanding undergraduate student perceptions of mental health, mental well-being and help-seeking behaviour. *Studies in Higher Education*, 41(12), 2156-2168.
- Liebowitz, M.R. (1987). Liebowitz Social Phobia Scale. *Modern Problems of Pharmacopsychiatry*, 22, 143-171
- Linton, M. J., Dieppe, P., & Medina-Lara, A. (2016). Review of 99 self-report measures for assessing well-being in adults: exploring dimensions of well-being and developments over time. *BMJ Open*, 6(7), e010641.
- Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales*. (2nd. Ed.) Sydney: Psychology Foundation.
- Margrove, K. L. (2015). Promoting the wellbeing and social inclusion of students through visual art at university: an Open Arts pilot project. *Journal of Further and Higher Education*, 39(2), 147-162.

- Mokkink, L. B., Terwee, C. B., Patrick, D. L., Alonso, J., Stratford, P. W., Knol, D. L., ... & De Vet, H. C. (2010). The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: an international Delphi study. *Quality of Life Research, 19*(4), 539-549.
- Montasem, A., Brown, S. L., & Harris, R. (2013). Do core self-evaluations and trait emotional intelligence predict subjective well-being in dental students?. *Journal of Applied Social Psychology, 43*(5), 1097-1103.
- Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology, 18*(1), 143.
- National Union of Students - Union of Students Ireland (2014). *Pound in Your Pocket: Financial wellbeing of further and higher education students in Northern Ireland*. <https://www.nus.org.uk/Global/NUS-USI-Pound-in-Your-Pocket-summary-report.pdf>
- National Union of Students - Union of Students Ireland (2017). *NUS-USI Student Wellbeing Research Report 2017*. <https://www.nusconnect.org.uk/resources/nus-usi-student-wellbeing-research-report-2017>
- Neves, J., & Hillman, N. (2019). Student academic experience survey. *Higher Education Policy Institute and Advance HE*.
- Office for National Statistics. *Measuring What Matters: National Statistician's Reflections on the National Debate on Measuring National Wellbeing*. ONS; 2011.

- Papadatou-Pastou, M., Campbell-Thompson, L., Barley, E., Haddad, M., Lafarge, C., McKeown, E., ... & Tzotzoli, P. (2019). Exploring the feasibility and acceptability of the contents, design, and functionalities of an online intervention promoting mental health, wellbeing, and study skills in Higher Education students. *International Journal of Mental Health Systems*, 13(1), 51.
- Pascarella, E., & Terenzini, P. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education*, 51, 60–75.
- Patalay P, Fitzsimons E. (2016) Correlates of Mental Illness and Wellbeing in Children: Are They the Same? Results From the UK Millennium Cohort Study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 55(9), 771–783.
- Ponzo, S., Morelli, D., Kawadler, J. M., Hemmings, N. R., Bird, G., & Plans, D. (2020). Efficacy of the Digital Therapeutic Mobile App BioBase to Reduce Stress and Improve Mental Well-Being Among University Students: Randomized Controlled Trial. *JMIR mHealth and uHealth*, 8(4), e17767.
- Poots, A., & Cassidy, T. (2020). Academic expectation, self-compassion, psychological capital, social support and student wellbeing. *International Journal of Educational Research*, 99, 101506.
- Por, J., Barriball, L., Fitzpatrick, J., & Roberts, J. (2011). Emotional intelligence: Its relationship to stress, coping, well-being and professional performance in nursing students. *Nurse Education Today*, 31(8), 855-860.
- Povah, C. (2016). *The impact of mindfulness on enhancing student resilience*. AMOSSHE Insight Report

- Priesack, A., & Alcock, J. (2015). Well-being and self-efficacy in a sample of undergraduate nurse students: A small survey study. *Nurse Education Today*, 35(5), e16-e20.
- Prinsen, C. A., Vohra, S., Rose, M. R., Boers, M., Tugwell, P., Clarke, M., ... & Terwee, C. B. (2016). How to select outcome measurement instruments for outcomes included in a “Core Outcome Set”—a practical guideline. *Trials*, 17(1), 449.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Roulston, A., Montgomery, L., Campbell, A., & Davidson, G. (2018). Exploring the impact of mindfulness on mental wellbeing, stress and resilience of undergraduate social work students. *Social Work Education*, 37(2), 157-172.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069.
- Scott, H., & Takarangi, M. K. (2019). Measuring PhD Student’s Psychological Well-being: Are we seeing the whole picture? *Student Success*, 10(3), 14.
- Seligman, M. E. P. (2011). *Flourish*. New York, NY: Simon & Schuster.
- Smith, A., & Firman, K. (2020). The microstructure of the student wellbeing process questionnaire. *Journal of Education, Society and Behavioral Science*, 33(1), 76-83.

- Smout, M., Davies, M., Burns, N., & Christie, A. (2014). Development of the Valuing Questionnaire (VQ). *Journal of Contextual Behavioral Science*, 3(3), 164-172.
- Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., et al.(1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, 60, 570-585.
- Stamp, E., Crust, L., Swann, C., Perry, J., Clough, P., & Marchant, D. (2015). Relationships between mental toughness and psychological wellbeing in undergraduate students. *Personality and Individual Differences*, 75, 170-174.
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., ... & Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of Life Outcomes*, 5(1), 63.
- Topham, P., & Moller, N. (2011). New students' psychological well-being and its relation to first year academic performance in a UK university. *Counselling and Psychotherapy Research*, 11(3), 196-203.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063.
- Weich, S., Brugha, T., King, M., McManus, S., Bebbington, P., Jenkins, R., ... & Stewart-Brown, S. (2011). Mental well-being and mental illness: findings from the Adult Psychiatric Morbidity Survey for England 2007. *The British Journal of Psychiatry*, 199(1), 23-28.
- World Health Organisation (1998). *Wellbeing Measures in Primary Health Care/The Depcare Project*. WHO Regional Office for Europe: Copenhagen.

World Health Organization. (2005). *Promoting mental health: concepts, emerging evidence, practice: a report of the World Health Organization*. Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne.

Wright, F., Bewick, B. M., Barkham, M., House, A. O., & Hill, A. J. (2009). Co-occurrence of self-reported disordered eating and self-harm in UK university students. *British Journal of Clinical Psychology, 48*(4), 397-410.

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

Search strategy for academic databases

For our population: (student\$ OR "higher education student\$" OR "university student\$" OR undergraduate\$ OR postgraduate\$ OR "undergraduate student\$" OR "postgraduate student\$")

For our setting: (university OR "higher education")

For our construct of interest: (well-being OR "well-being" OR resilien* OR flourish* OR happiness)

For measures: (measur* or questionnaire\$ OR indicator\$ OR evaluat* OR outcome OR assessment OR framework OR index OR instrument)

(student\$ OR "higher education student\$" OR "university student\$" OR undergraduate\$ OR postgraduate\$ OR "undergraduate student\$" OR "postgraduate student\$") AND (university OR "higher education") AND (well-being OR "well-being" OR resilien* OR flourish* OR happiness) AND (measur* or questionnaire\$ OR indicator\$ OR evaluat* OR outcome OR assessment OR framework OR index OR instrument) AND ("united kingdom" OR UK or britain or british OR English OR england OR Scottish OR Scotland OR wales OR welsh OR "northern Ireland")

Figure 1: Flow chart of screening process

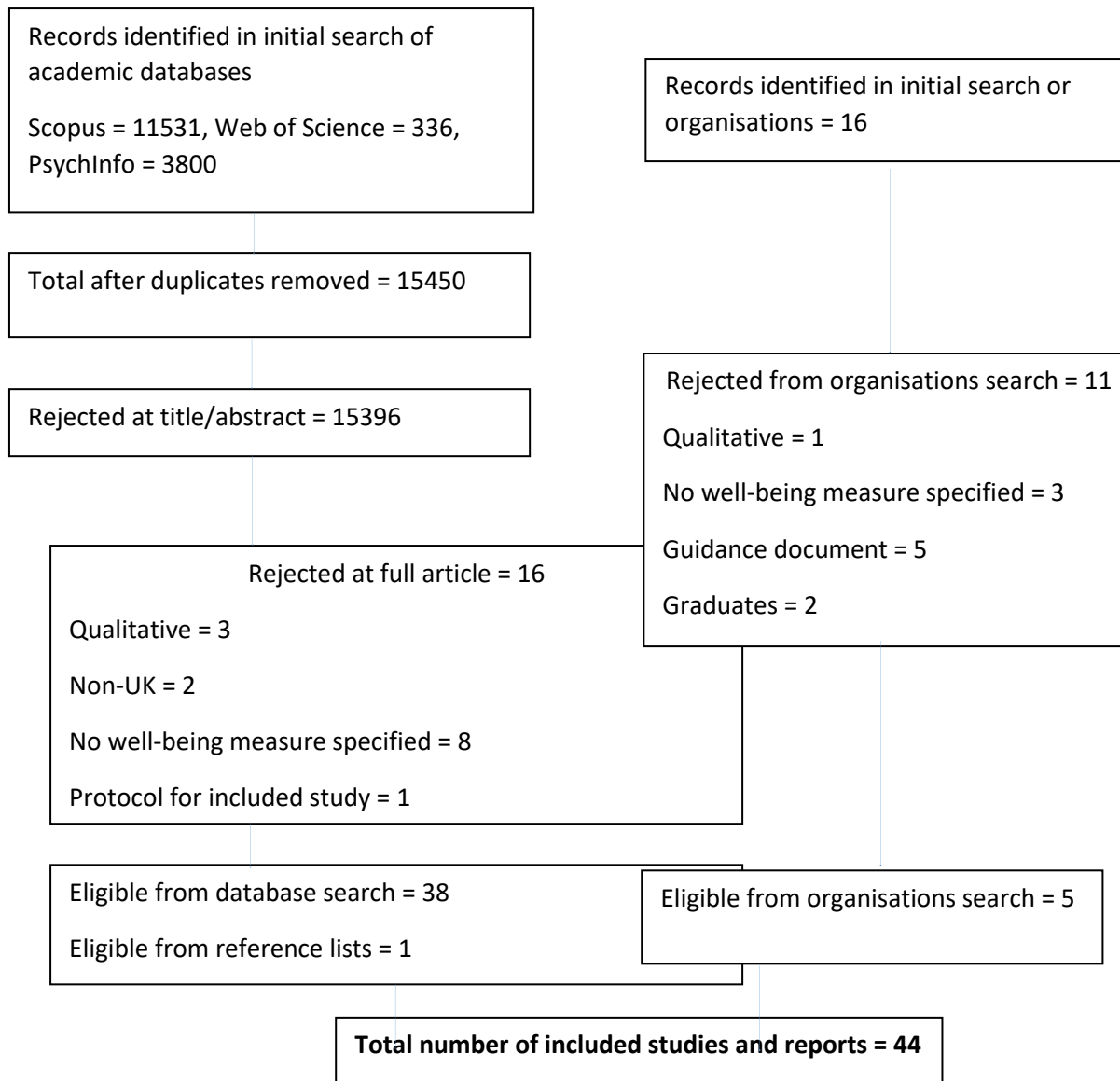


Table 1: Overview of eligible studies measuring student well-being

Source	Population	Author term used for well-being and/or definition of well-being	Wellbeing indicator(s)	Context
Aceijas, Waldhäusl, Lambert, Cassar & Bello-Corassa (2017)	468 students (one university)	Mental well-being	WEMWBS	Academic research – relationship with finance and nutrition
Beaumont, Durkin, Martin & Carson (2016a)	103 student midwives (one university)	Mental and personal well-being	WEMWBS	Academic research – relationship with self-judgments
Beaumont, Durkin, Hollins Martin & Carson (2016b)	54 final-year student counsellors and cognitive behavioural therapists (one university)	Mental and general well-being	SWEMWBS	Academic research - relationships with self-kindness, self-compassion, and self-judgements
Bewick, Gill, Mulhern, Barkham & Hill (2008)	1,129 students (four universities)	Psychological well-being - low psychological distress	CORE-10	Academic research - level of distress
Bewick, Koutsopoulou, Miles, Slaa & Barkham (2010)	16,460 undergraduates (one university)	Psychological well-being	GP-CORE	Academic research – tracking psychological well-being before and during university
Boon, Kimhi, Sapountzaki, Parmak, Groh & Ryan (2017)	134 UK students, international (one UK university)	Subjective well-being – “positive state of mind that involves the whole life experience” (p. 27), with Diener’s (1984) affective (distress) and cognitive (quality of life and resilience) domains	Quality of Life; Brief Symptom Inventory; CD-RISC	Academic research - comparing across countries
British Universities & Colleges Sport (2018)	6,891 students (104 universities)	Mental and personal well-being	SWEMWBS; ONS4	Stakeholder report - benefits of sport for student wellbeing
Byrom (2018)	65 students (eight universities)	Mental well-being	SWEMWBS	Academic research – evaluation of peer support
Carey, Haviland, Tai, Vanags & Mansell (2016)	23 students (one university)	Perceived/subjective well-being	Single item Likert scale	Academic research – evaluation of cognitive therapy app

Carr, Colthurst, Coyle, & Elliott (2013)	131 1 st year students (one university)	Psychosocial well-being proxy indicators informed by self-determination theory (Deci & Ryan, 2000)	Revised UCLA Loneliness Scale; Basic Needs Scale; Institutional Integration Scale; Revised <i>Ways of Coping</i>	Academic research - relationships with attachment styles
Collard, Avny & Boniwell (2008)	16 postgraduate counselling students (one university)	SWB as above	SWLS; PANAS	Academic research – evaluation of mindfulness-based cognitive therapy
Collings, Swanson & Watkins (2014)	109 Psychology undergraduate students (two universities)	Student well-being	RSE; ISEL; Negative Affect from the Index of General Affect	Academic research - comparing universities with/without a peer mentor system
Collings, Swanson & Watkins (2016)	124 first year social science students (one university)	Well-being	Student Well-being Scale	Academic research – relationships with mentoring and support
Collins, Coffey & Morris (2008)	76 social work students (two universities)	Psychological well-being - lower mental distress	GHQ	Academic research – relationships with social support and social work experience
Denovan & Macaskill (2017a)	192 first year Psychology undergraduates (one university)	Subjective well-being (SWB) – Diener’s (1984) cognitive (life satisfaction) and affective domains (positive and negative affect)	SWLS; PANAS	Academic research - relationships between stress exposure, psychological strengths, and SWB
Denovan & Macaskill (2017b)	183 social science undergraduates (one university)	Psychological well-being – lower stress and higher flourishing, defined as “optimal functioning, consisting of growth, generativity, purpose and engagement” (p. 855)	FS; PSS	Academic research - relationships with positive affect, leisure beliefs and resilience
Durkin, Beaumont, Hollins Martin & Carson (2016)	37 postgraduate student nurses (one university)	Well-being	SWEMWBS	Academic research - relationships with burnout and compassion satisfaction

El Ansari & Stock (2010)	380 students (one university)	Health and well-being – collective term	Health and Well-being questionnaire	Academic research - relationship with academic performance
El Ansari et al. (2011)	3,706 undergraduate students (seven universities)	Health and well-being - collective term	Health and well-being questionnaire	Academic research – gender and university comparisons
El Ansari, Dibba & Stock (2014)	3,706 undergraduate students (seven universities)	Mental well-being	Student health questionnaire, including PSS and BDI	Academic research - relationships with body image
Galante et al (2018)	616 students (one university)	Well-being	WEMWBS	Academic research – evaluation of mindfulness
Gibson, Shaw, Hewitt, Easton, Robertson & Gibson (2018)	48 students (two universities)	Mental/psychological well-being - lower depression and anxiety	HADS	Academic research - relationship with physical activity
Gorczynski, Sims-Schouten, Hill & Wilson (2017)	379 students (one university)	Mental well-being - positive mental health	WEMWBS	Academic research – relationship with gender, sexuality, year of study, and past mental health problems
Grajfoner, Hart, Potter & McGuigan (2017)	132 students (one university)	Well-being	WEMWBS	Academic research – evaluation of dog-assisted intervention
Grealish, Tai, Hunter, Emsley, Murrells & Morrison (2017)	423 students (four universities)	Mental well-being - mental health/psychiatric caseness, general well-being measured separately	GHQ; BBC Well-being Scale	Academic research - relationships with psychological factors and empowerment
Harris, Wilson, Hughes, Knevel & Radford (2018)	42 students (one university)	Psychological well-being	SPWB; VQ; AHS	Academic research - level of PWB
Hawker (2012)	215 student nurses (on university)	Mental well-being – WHO definition	SWLS; HADS; RSE	Academic research - relationship with physical activity
Hixenbaugh, Dewart & Towell (2012)	429 1 st year students (one UK university)	Psychological/general well-being – mental health	GHQ	Academic research - comparing genders
Jones, Samra & Lucassen (2019)	344 final year law students (one university, distance learning)	Subjective mental well-being – WHO definition “‘mental-state’ account of wellbeing which	WHO-5; DASS-21	Academic research - comparing with general population

		explores an individual's psychological state" (p.57)		
Kannangara et al (2018)	Two studies - 440 and 340 students (one university)	Personal and mental well-being - "state of wellbeing in which one realizes his or her own potential, cope with normal life stressors and productivity"	WEMWEBS; ONS4	Academic research - relationship with grit
Knipe et al (2018)	1,139 students (one university)	Mental well-being	WEMWBS	Academic research - comparing students to general population well-being norms
Margrove (2015)	15 students (one university)	Mental and psychological well-being	WEMWBS	Academic research – evaluation of arts-based intervention
Montasem, Brown & Harris (2013)	218 dentistry undergraduates (one university)	SWB as above	SWLS; PANAS	Academic research - relationships with emotional intelligence, neuroticism, and self-evaluations
National Union of Students - Union of Students Ireland [NUS-USI] (2017)	3,680 students (multiple Further Education colleges and HEIs)	Mental health and well-being - collective term	National survey	Stakeholder research report – student well-being in Northern Ireland
Neves & Hillman (2019)	14072 undergraduate students (across whole UK)	Personal well-being	ONS4	Stakeholder report on Student Academic Experience Survey - Advance HE and Higher Education Policy Institute
NUS-USI (2014)	3,245 students (multiple FE colleges/HEIs)	Financial well-being	Likert scales - worries about finances and concentration on studies as key well-being indicators	Stakeholder research report - impact of tuition fees on student well-being
Papadatou-Pastou et al (2019)	13 students (one university)	Mental well-being	WEMWBS	Academic research – evaluation of online intervention

Por, Barriball, Fitzpatrick & Roberts (2011)	130 nursing students (one university)	SWB but doesn't cite theoretical framework	SWLS	Academic research - relationship with emotional intelligence
Povah (2016)	236 students (one university)	Psychological well-being - separable from mental health problems	CD-RISC-25	Stakeholder report from AMOSSHE – evaluation of mindfulness and resilience course
Priesack & Alcock (2015)	108 nursing students (one university)	Well-being	BBC Well-being Scale	Academic research – comparison with general population and relationship with self-efficacy
Roulston, Montgomery, Campbell & Davidson (2018)	30 social work students (one university)	Mental well-being - WHO definition	WEMWBS	Academic research – evaluation of mindfulness
Stamp, Crust, Swann, Perry, Clough & Marchant (2015)	168 undergraduate students (five universities)	Psychological well-being – Ryff's (1989) definition	SPWB	Academic research - relationships with mental toughness and demographics
Topham & Moller (2011)	117 1 st year undergraduates (one university)	Psychological well-being	GP-CORE; RSE; LSAS	Academic research – relationships between well-being and grades
Wright, Bewick, Barkham, House & Hill (2009)	Two studies - 5,045 & 805 undergraduates (one university)	Psychological well-being	CORE-5	Academic research - relationship between eating problems, eating disorder caseness and psychological well-being

WEMWBS – Warwick Edinburgh Mental Well-being Scale; SWEMWBS; Short WEMWBS; ONS-4 – Office for National Statistics Personal Well-being questions; CORE = Clinical Outcomes for Routine Evaluation (CORE-10 – 10 item version; CORE-5 – 5 item version; GP-CORE – General Population version); RSE = Rosenberg Self-Esteem Scale; LSAS – Liebowitz Social Anxiety Scale; ISEL – Interpersonal Support Evaluation List; SWLS – Satisfaction with Life Scale; PANAS – Positive and Negative Affect Schedule; HADS – Hospital Anxiety and Depression Scale; GHQ – General Health Questionnaire; SPWB - Scales for Psychological Well-being; VQ – Valuing Questionnaire; AHS – Adult Hope Scale; CD-RISC – Connor Davidson Resilience Scale; FS – Flourishing Scale; PSS – Perceived Stress Scale; WHO-5 – World Health Organisation Well-being Index; DASS – Depression Anxiety and Stress Scales

Table 2: List of indicators identified as used to measure well-being in UK students

Measure	Conceptual framework and domains of well-being
Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS; Tennant et al., 2007) [†]	Positive mental health with eudaemonic & hedonic domains: Positive affect, Interpersonal relationships, Functioning. Unidimensional.
General Population – Clinical Outcomes in Routine Evaluation-Outcome Measure (GP-CORE; Evans et al., 2005) [†]	General psychological well-being derived from non-clinical items of the transtheoretical and transdiagnostic parent measure Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-OM). Its domains are Subjective well-being, Problems (anxiety, depression and physical), Functioning. Unidimensional.
Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM; short forms) [‡]	Psychological distress. CORE-5 covers domains of Symptoms (anxiety, depression, trauma) and Functioning (day-to-day, relationships). CORE-10 further covers Physical problems and Risk to self. Unidimensional.
Satisfaction with Life Scale (SWLS; Diener et al., 1985)	Subjective well-being, cognitive-evaluative component from global judgements of own life satisfaction. Unidimensional.
Positive & Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 1988)	Subjective well-being, affective component. Two dimensions: Positive Affect; Negative Affect.
Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) [§]	Self-esteem as evaluations of own worth and value. Unidimensional.
Scales of Psychological Well-being (PWB; Ryff, 1989)	Ryff's (1989) six-factor model of psychological well-being: Self-acceptance; Autonomy; Positive relations with others; Environmental mastery; Personal growth; Purpose in life.
Office for National Statistics Personal Well-being questions (ONS-4; Dolan & Metcalfe, 2012)	Subjective well-being: Evaluative, eudaemonic and affective experience. Four single-item questions used individually: Life satisfaction; Life worthwhile; Happiness; Anxiety.
BBC Well-being Scale (Kinderman et al., 2011)	Designed to measure general well-being in a broad sense, based on WHO quality of life measure (physical, social and environmental domains), Ryff's (1989) PWB, and negative self-beliefs from Beck's (1967) cognitive model of emotional disorders. Three subscales: Psychological well-being; Physical health and well-being; Relationships.
Connor Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) [¶]	Resilience ('thriving in the face of adversity'). 17 personal qualities. Total score plus five factors: Personal competence, high standards, and tenacity; Trust in one's instincts, tolerance of negative affect, and strengthening effects of stress; Positive acceptance of change and secure relationships; Control; Spiritual influences.
Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983)	Perceived stress defined as appraisals of life situations as unpredictable and uncontrollable. Unidimensional.

Hospital Anxiety & Depression Scale (HADS; Zigmond & Snaith, 1983) ‡	To measure symptoms emotional disorders that are separable from somatic/physical symptoms in hospital patients. Two subscales: anxiety; depression.
General Health Questionnaire (GHQ; Goldberg, 1972)	Screening tool for common mental health disorders measuring functioning and distressing symptoms. Unidimensional.
WHO-5 Well-being Index (WHO-5; WHO, 1998) ‡	Mental well-being, developed as transdiagnostic screening tool for chronic health problems, with only positively worded items. Unidimensional.
Interpersonal Support Evaluation List (ISEL; Cohen & Hoberman, 1983)	Based on the buffering hypothesis (Cohen & Wills, 1985), developed to measure perceived availability of functions of social support. Total score and three factors: Appraisal; Belonging; Tangible.
Index of General Affect (Campbell, Converse & Rodgers, 1976)	The affective domain of an overall model where a “sense of well-being” is captured by peoples’ experiences, across affective and cognitive (life satisfaction) domains. Unidimensional (but can be used in combination with Index of Life Satisfaction to form an overall Index of Well-being; Campbell, Converse & Rodgers, 1976)
Flourishing Scale (FS; Diener et al., 2010)	Psychological well-being as “social–psychological prosperity”. Trans-theoretical, including Ryff (1989), Deci & Ryan (2000), and Seligman (2002): Relationships, Meaning and purpose, Optimism, Being respected, Contribute to others’ well-being, Competency, Engaged and interested, Self-acceptance. Unidimensional.
Beck Depression Inventory (BDI) ‡¶	The extent to which someone is experiencing symptoms of depression. Unidimensional.
Valuing Questionnaire (VQ; Smout et al., 2014) ‡	Valued living is a treatment goal of Acceptance and Commitment Therapy. Developed to measure valuing across life domains rather than within one context. Unidimensional.
Adult Hope Scale (AHS; Snyder et al., 1991)	Goal-setting framework focusing on two cognitive domains of hope: Agency (goal-directed determination); Pathways (goal-directed planning). Multidimensional.
Liebowitz Social Anxiety Scale (Liebowitz, 1987) ‡	Social Phobia covering fears in social interactions and performance. Can be divided into five subscales: Total fear, total avoidance, fear of social interaction, fear of social performance, avoidance of social interaction, avoidance of social performance. Multidimensional.
Quality of life scale (Kimhi & Eshel, 2009)	Developed to measure post-traumatic recovery after being exposed to war conditions by rating individual strengths across life domains: Work, health, recreation, social contacts, achievement, family relations, daily functioning, relationships, and general quality of life. Unidimensional.
Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983) ‡	General psychological distress, covering depression, anxiety and somatic symptoms. Multidimensional.
Basic Needs Scale (Baard, Deci & Ryan, 2004) †	Self-determination theory (Ryan & Deci, 2000) with three domains of psychological needs: Competency, autonomy, and relatedness. Multidimensional.
Revised UCLA Loneliness Scale (Hughes, Waite, Hawkey & Cacioppo, 2004)	Subjective appraisals of relationships, where loneliness is a socioemotional construct arising from the following needs not being met: companionship, feeling left out, and feeling isolated. Unidimensional.

Revised - Ways of Coping Checklist (Folkman et al., 1986) ¶	Lazarus & Folkman's (1984) transactional model of stress and coping. Coping strategies are cognitive or behavioural, and emotion-focused or problem-focused. Multidimensional.
Institutional Integration Scale (Pascarella & Terenzini, 1980) ¶	Tinto's (1975) model of student retention. Domains of academic and social integration at university. Multidimensional.
Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995)	Designed to measure core symptoms of depression, anxiety and stress without overlap between the constructs. Multidimensional.

†validated in UK students ‡ developed for use in a clinical setting § initially developed for use in high school students, but widely used in general and student population ¶ A modified version was used - the table displays the number of items in the published, validated versions.