

Research Article

Prevalence And Variation In Depression, Anxiety And Poor Mental Wellbeing Among University Students In The United Kingdom: A Systematic Review And Meta-Analysis



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ABSTRACT

Background: Mental-health difficulties are widely reported among university students, but prevalence estimates vary considerably according to the outcome measured, assessment instrument, student population and study context. UK-specific evidence remains fragmented, and combining conceptually distinct outcomes can obscure meaningful variation in the underlying burden.

Methods: A systematic review and meta-analysis were conducted using studies published between January 2012 and August 2022. PubMed, MEDLINE, CINAHL and PsycINFO were searched for peer-reviewed quantitative studies involving students enrolled in UK higher-education institutions. Eligible studies used validated measures of depression, anxiety, poor mental wellbeing or psychiatric caseness and provided sufficient data to derive prevalence estimates. Study quality was assessed using an adapted Newcastle-Ottawa Scale. Outcome-

specific random-effects meta-analyses were conducted in R, with heterogeneity assessed using Cochran's Q and I² statistics.

Results: Eight eligible studies contributed 10 independent samples or survey waves representing 12,799 participant observations. The pooled prevalence of depressive symptoms was 37.3% (95% CI 28.1% to 46.4%), anxiety symptoms 43.6% (95% CI 35.5% to

51.7%), and poor mental wellbeing 41.9% (95% CI 33.9% to 49.8%). Psychiatric caseness was reported in one eligible study at 17.3% and was not pooled. Considerable heterogeneity was observed across the outcome-specific analyses, with I² values exceeding 98%. Variation was evident across measurement instruments, student populations, academic contexts and survey periods.

Conclusion: Depression, anxiety and poor mental wellbeing are common among university students in the UK, although prevalence estimates vary substantially between studies. The findings support outcome-specific interpretation rather than use of a single composite estimate of student mental ill-health. Greater consistency in measurement, sampling and timing of assessment is required to improve comparability and strengthen mental-health surveillance across UK higher education.

Keywords: Anxiety; depression; higher education; mental health; mental wellbeing; meta-analysis; prevalence; systematic review; university students; United Kingdom

INTRODUCTION

Mental health has become an increasingly important concern within higher education, not only because psychological difficulties are common among university students, but also because university attendance coincides with a developmental period during which many mental disorders first emerge. A large-scale meta-analysis of 192 epidemiological studies found that 48.4% of people who eventually develop a mental disorder experience onset before the age of 18, while 62.5% experience onset before the age of 25 (Solmi et al., 2022). University populations therefore occupy a particularly important position within the life-course distribution of mental ill-health. For some students, higher education coincides with the continuation or recurrence of previously established psychological difficulties. For others, clinically relevant symptoms may become apparent during university years as academic demands, greater personal autonomy and changes in social circumstances occur alongside the transition into adulthood.

The implications extend beyond the presence of psychological symptoms. Mental ill-health can affect students' engagement with learning, academic performance and continuation in higher education. A recent systematic review and meta-analysis of 67 studies found that depression and psychological stress were associated with a greater likelihood of university non-continuation, while the prevalence of reported mental-health concerns varied from 2.2% to 83.6% across the included evidence (Leow et al., 2025). Anxiety has also been negatively associated with academic performance, although effect sizes differ between settings and populations (Tang & He, 2023). Student mental health is consequently relevant to both public health and the educational purposes of universities. Reliable prevalence estimates are needed if institutions are to understand the scale of psychological need, anticipate service demand and evaluate whether particular student populations are being adequately represented in mental-health planning.

Large international syntheses consistently indicate that depression and anxiety are common within university populations, but the reported magnitude varies considerably. The most comprehensive recent umbrella review incorporated 62 meta-analyses, 1,655 primary studies and more than 8.7 million participants. Mild-or-greater depressive symptoms were estimated at 35.41%, while mild-or-greater anxiety symptoms were estimated at 40.21% (Paiva et al., 2025). An earlier umbrella review concentrating specifically on anxiety identified 25 systematic reviews and meta-analyses and found a median prevalence of 32%, with estimates ranging from 7.4% to 55% (Tan et al., 2023). Such variation has also been observed in country-specific syntheses. In Germany, for example, a meta-analysis of 60 studies estimated depressive symptoms among higher-education students at 21.1%, with substantial differences according to gender, assessment setting and

whether data were collected before or during the COVID-19 pandemic (Heumann et al., 2024). These findings make clear that the burden is substantial, but they also demonstrate that student mental-health prevalence cannot be represented adequately through a single universal figure.

Differences in measurement are central to this problem. Prevalence depends partly on what is being measured, the instrument selected, the threshold used to classify cases and whether the outcome reflects symptoms, psychological distress, wellbeing or a clinically diagnosed disorder. Ahmed et al. (2023), in a meta-analysis of 89 studies of undergraduate anxiety, estimated non-specific anxiety at 39.65% across questionnaire-based studies but found markedly lower 12-month prevalence estimates, ranging from 0.3% to 20.8%, in studies using diagnostic interviews. The same review showed that prevalence varied according to the measurement instrument, programme of study and geographical location. More recently, Baik et al. (2026) reviewed approaches to assessing student mental health and wellbeing across higher-education research and identified considerable conceptual and methodological inconsistency. Clinical symptom instruments such as the PHQ-9, GAD-7 and DASS-21 dominated the literature, while positive wellbeing measures and instruments designed specifically around higher-education experiences were used much less frequently. Measurement choice therefore influences not merely how student mental health is described, but also which dimensions of psychological functioning become visible in prevalence research.

The distinction is particularly important when depression, anxiety and mental wellbeing are discussed within the same evidence base. Depression and anxiety screening instruments measure symptom clusters associated with particular forms of psychological distress. Wellbeing instruments, in contrast, assess broader dimensions of positive psychological functioning and perceived mental health. Low wellbeing cannot therefore be treated automatically as another diagnostic category, just as elevated questionnaire scores cannot be assumed to represent confirmed psychiatric disorders. Baik et al. (2026) found that higher-education research frequently shifts between psychological distress and positive wellbeing without consistent conceptual framing. The result is a literature in which apparently comparable prevalence estimates may, in fact, refer to substantially different psychological constructs.

Variation in student populations presents a further difficulty. University students do not constitute a clinically or educationally homogeneous population. General undergraduate samples, postgraduate researchers, nursing students, medical students and students enrolled in other professional programmes experience different educational structures and are often studied using different instruments. Discipline-specific meta-analyses illustrate the scale of this variation. Lin et al. (2024), analysing 130 studies involving 132,068 medical students, estimated anxiety at 45% and depression at 48% during the COVID-19 period, but reported I^2 values exceeding 99%. Eight different screening tools were identified for anxiety and six for depression. Very high heterogeneity persisted despite restricting the population to medical students, showing that seemingly narrow student categories do not necessarily yield comparable prevalence estimates. Similar methodological variation across broader university populations makes indiscriminate pooling even more difficult.

The UK evidence reflects many of these problems. A multi-university study of 1,408 students recruited from five UK universities found substantial levels of anxiety, depression and several other forms of psychological difficulty using established validated measures (Akram et al., 2023). Its breadth of psychiatric assessment demonstrated that clinically relevant symptoms coexist within student populations rather than falling neatly into isolated diagnostic categories. At the same time, the study illustrates an important limitation of individual prevalence surveys. Even relatively large multi-institutional samples remain dependent on recruitment procedures, participating universities, student characteristics and the thresholds chosen for classification. A single survey can therefore provide detailed evidence about its sample without establishing the prevalence expected across the UK higher-education sector.

Systematic evidence from the UK has also remained difficult to integrate quantitatively. Campbell et al. (2022) reviewed 31 observational studies of university and college students in the UK and reported extensive diversity in mental-health outcomes, associated factors and measurement approaches. The heterogeneity was sufficiently pronounced that quantitative synthesis of the identified factors was not considered appropriate. Although that review provided an important account of influences on student mental health, its analytical purpose was not to establish outcome-specific pooled prevalence estimates for depression, anxiety and poor mental wellbeing. This distinction matters. Questions concerning which factors are associated with psychological difficulties are analytically different from questions concerning how common particular outcomes are and why prevalence estimates vary between studies.

The problem has become more important rather than less important as the evidence base has expanded. Paiva et al. (2025) found that 65% of the meta-analyses included in their umbrella review were rated as critically low methodological quality and the remaining 35% as low quality. The difficulty is therefore not simply that individual prevalence figures differ.

Substantial variation exists in how studies define outcomes, select samples, establish thresholds and combine evidence. Tan et al. (2023) similarly reported that anxiety prevalence differed according to educational level, geographical region and assessment context. Heumann et al. (2024) demonstrated that even within one national higher-education system, prevalence changed according to instrument and period of data collection. These findings strengthen the case for context-specific synthesis that preserves distinctions between psychological constructs and treats heterogeneity as an empirical finding requiring examination rather than an inconvenience to be averaged away.

The COVID-19 period adds another layer of complexity. It generated exceptional changes in teaching, assessment, social interaction and access to university facilities, while the timing and severity of restrictions varied. Studies conducted during this period cannot therefore be assumed to estimate the same underlying prevalence as studies undertaken under more typical university conditions. The medical-student meta-analysis conducted by Lin et al. (2024) found that survey timing was associated with prevalence during the pandemic, while Heumann et al. (2024) reported higher pooled depression prevalence during the pandemic than before it. Publication year is an imperfect substitute for the period in which students were actually assessed, however, because publication may occur months or years after data collection. Interpretation of temporal differences therefore requires attention to the underlying survey period rather than a simple chronological ordering of publications.

These methodological and conceptual difficulties have direct implications for the synthesis of UK evidence. Combining depression, anxiety, poor mental wellbeing and psychiatric caseness into one undifferentiated category of "mental-health problems" may produce a statistically convenient estimate while obscuring differences in what the constituent studies actually measured. Treating several outcomes obtained from the same participants as independent studies can create an additional statistical problem because the resulting effect estimates are correlated. A more defensible approach is to retain the distinctions between outcomes, identify the independent samples contributing to each synthesis and examine the extent of between-study variability within each construct.

Against this background, the present systematic review and meta-analysis examines the prevalence and variation of depression, anxiety, poor mental wellbeing and psychiatric caseness among university students in the United Kingdom using studies published between 2012 and August 2022. The analysis does not seek to generate a single composite prevalence of "mental ill-health". Instead, the principal outcomes are synthesised separately so that estimates retain their conceptual meaning. The paper has three objectives: to estimate outcome-specific prevalence among UK university students; to quantify the extent of heterogeneity within the available evidence; and to examine how differences in measurement, student populations and study context may contribute to the wide variation in reported prevalence. This approach provides a more analytically coherent assessment of student mental health while recognising that the meaning of a prevalence estimate depends on the construct, instrument, population and context from which it was derived.

METHODS

Study design and reporting framework

A systematic review and meta-analysis was undertaken to estimate the prevalence of depression, anxiety, poor mental wellbeing and psychiatric caseness among university students in the United Kingdom. The review was conducted and reported with reference to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 statement (PRISMA 2020), which provides a structured framework for transparent reporting of evidence identification, selection, appraisal and synthesis (Page et al., 2021).

The review question was structured using the Population, Exposure and Outcome framework. The population comprised students enrolled in higher-education institutions in the UK. University attendance constituted the exposure context, while the outcomes were validated measures of depression, anxiety, poor mental wellbeing or psychiatric caseness. These outcomes were analysed separately because they represent related but distinct constructs and cannot reasonably be assumed to provide interchangeable estimates of a single mental-health state.

Eligibility criteria

Peer-reviewed quantitative studies were eligible when they were published in English between January 2012 and August 2022, used a cross-sectional or repeated cross-sectional design, recruited students studying in UK higher-education institutions, assessed at least one eligible mental-health outcome using a validated measurement instrument, and provided sufficient information to derive a prevalence estimate.

Eligible participants included undergraduate and postgraduate students studying in England, Scotland, Wales or Northern Ireland. Students enrolled in specialised higher-education settings, including nursing and medical schools, were eligible where they met the wider definition of higher-education students.

Studies were excluded if they were conducted outside the UK, recruited mixed populations from which student-specific data could not be separated, used non-validated measures, did not report prevalence data, or employed qualitative or intervention designs. Studies concerned exclusively with substance use, eating disorders, sleep quality, suicide or self-harm were excluded from the prevalence synthesis. Suicidal ideation was not treated as an independent mental-health disorder for the purposes of the primary meta-analysis. This criterion was applied consistently during the reconstruction of the analytical dataset.

Information sources and search strategy

Systematic searches were conducted in PubMed, MEDLINE, CINAHL and PsycINFO in August 2022. Supplementary searching included Google Scholar, general web searching and examination of the reference lists of potentially eligible articles. The database strategy combined terms relating to mental health, the university population, geographical setting and study design.

The principal search concepts included terms such as *anxiety, stress, depression, trauma* and *burnout; university students, college students, undergraduate students* and *graduate students*; and geographical terms including *UK, United Kingdom, Britain, England, Wales, Scotland* and *Northern Ireland*. Cross-sectional design terms were also incorporated. Boolean operators were used to combine synonymous terms with OR and separate concepts with AND.

Study selection

Search results were imported into Rayyan, which was used to support duplicate identification and study screening (Ouzzani et al., 2016). Records remaining after de-duplication were screened against the eligibility criteria at title and abstract level. Full texts were obtained for records that appeared potentially eligible and were assessed again against the predefined criteria.

Screening was undertaken by a single reviewer. Reasons for exclusion at full-text stage were documented to maintain transparency. Particular attention was paid during the final eligibility check to the population studied, study design, outcome definition, measurement instrument and availability of data from which prevalence could be determined.

For the present analysis, studies whose principal eligible contribution concerned suicide or suicidal ideation without an eligible prevalence estimate for depression, anxiety, poor mental wellbeing or psychiatric caseness were not retained in the quantitative dataset. This ensured consistency between the stated eligibility criteria and the evidence entering the meta-analysis.

Data extraction

A structured extraction form was used to record author, year of publication, study setting, student population, sample size, level of study, gender distribution, mental-health outcome, measurement instrument, threshold used to define the outcome and reported prevalence. Numerators and denominators were extracted where available to permit calculation or verification of prevalence estimates.

Repeated cross-sectional survey waves were treated as separate samples when participants were independently recruited at each wave. Likewise, non-overlapping groups within a study could contribute separate estimates where the underlying denominators were clearly identifiable. Multiple mental-health outcomes measured in the same participants were not treated as separate independent studies. They were retained only within the relevant outcome-specific analysis. This distinction between primary studies, independent samples and outcome-specific effect estimates was maintained throughout the synthesis.

Where conflicting sample sizes or prevalence values appeared in different parts of the extracted record, the relevant primary publication was checked and the value corresponding specifically to the eligible student population was retained.

Methodological quality assessment

Methodological quality was assessed using the Newcastle-Ottawa Scale adapted for cross-sectional studies (Modesti et al., 2016). The adapted instrument evaluates three domains: selection, comparability and outcome assessment. Selection can contribute up to five stars, comparability up to two stars and outcome assessment up to three stars, producing a maximum score of 10.

Assessment considered the representativeness of the sample, justification of sample size, reporting of non-response, validity of measurement, control of relevant confounding factors, method of outcome assessment and appropriateness of statistical analysis. Quality appraisal was used to inform interpretation of the evidence rather than as an automatic threshold for statistical exclusion.

Statistical analysis

Prevalence estimates were synthesised separately for depression, anxiety, poor mental wellbeing and psychiatric caseness. A single composite estimate combining these conceptually different outcomes was not calculated. This approach avoided treating different screening constructs as though they measured the same condition and reduced the risk of statistical dependence arising when several outcomes had been reported in the same participant sample.

Meta-analysis was conducted in R using the *meta* package (Balduzzi et al., 2019). Pooled prevalence estimates were reported with 95% confidence intervals. Given the expected clinical and methodological variation between student populations, instruments and diagnostic thresholds, random-effects models were used for the principal outcome-specific analyses.

Statistical heterogeneity was assessed using Cochran's Q and the I^2 statistic. I^2 values were interpreted as indicators of the proportion of observed variation attributable to between-study heterogeneity rather than sampling error. Considerable heterogeneity was expected because the included studies differed in student populations, mental-health constructs, measurement tools, threshold definitions and academic contexts.

Forest plots were used to display study-specific and pooled prevalence estimates. Funnel plots were not used to make definitive claims concerning publication bias where an outcome contained fewer than 10 estimates, since tests and visual judgements of funnel-plot asymmetry are unreliable when the number of contributing studies is small. Findings from subgroup comparisons were interpreted cautiously where individual categories contained only a small number of independent studies.

Ethical considerations

The review involved analysis of aggregate data reported in previously published studies and did not involve recruitment of participants, collection of identifiable information or access to individual-level clinical records. Separate research ethics approval was therefore not required.

RESULTS

Study selection

The search yielded 792 records before duplicate removal. After 201 duplicates were removed, 591 titles and abstracts were screened, of which 566 were excluded. Twenty-five full-text reports were assessed for eligibility. Seventeen reports were excluded at this stage, leaving eight studies for the systematic review. These studies comprised 10 survey samples or waves and 12,799 participant observations. The selection sequence is presented in Figure 1.

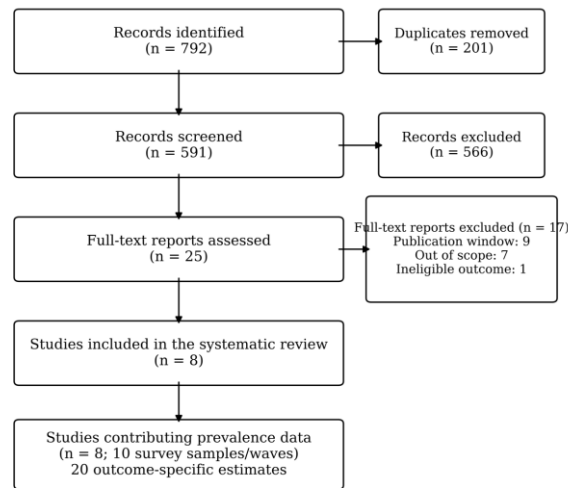


Figure 1: PRISMA flow of study identification, screening and inclusion

Note. The final eligibility decision excludes a suicide-focused study because suicide-only outcomes were outside the specified primary outcome criteria.

Characteristics of included studies

The eight studies were published between 2013 and 2022 and were cross-sectional or repeated cross-sectional in design. Samples covered general university populations, nursing students, veterinary undergraduates, doctoral researchers and final-year medical students. Sample sizes ranged from 82 to 3,693 per survey wave. Depression was assessed with the PHQ-9, HADS or Zagazig Depression Scale; anxiety was measured with the GAD-7 or HADS; and wellbeing was assessed with the WEMWBS or SWEMWBS. Table 1 summarises the study-level evidence entering the review.

Table 1: Characteristics and prevalence estimates of included UK student studies

Study	Population/setting	N	Measure	Prevalence or principal descriptive estimate
Cilar et al. (2019)	Northern Ireland nursing students	109	WEMWBS	Low/below-average wellbeing: 26.6% (3.7% very low; 22.9% below average)
Byrom et al. (2020)	UK doctoral researchers	431	SWEMWBS; PSS-4	Poor mental wellbeing: 25.0%
Thiemann et al. (2020)	Final-year medical students, 6 UK medical schools	446	HADS-D; HADS-A	Depression: 30.5% imminent exams; 10.6% not imminent. Anxiety: 74.4% imminent; 48.2% not imminent
Ibrahim et al. (2013)	UK undergraduate students	923	Zagazig Depression Scale	Depressive symptoms: 58.6%
Cardwell et al. (2013)	UK veterinary undergraduates	509	WEMWBS; GHQ-12	Lifetime mental ill-health: 54.3%; wellbeing significantly below general-population reference values
Johns et al. (2022)	UK final-year medical-student subgroup	82	PHQ-9; GAD-7	Depression: 26.9%; anxiety: 32.9%

Study	Population/setting	N	Measure	Prevalence or principal descriptive estimate
Bennett et al. (2022)	UK university students, repeated cross-sectional waves	2,637 / 3,693 / 2,772	PHQ-9; GAD-7; SWEMWBS	2019/2020/2021: depression 46.2%/37.8%/48.1%; anxiety 35.9%/28.8%/42.7%; low wellbeing 48.9%/49.0%/56.3%
Macaskill (2013)	UK nursing-school undergraduates	1,197	GHQ-28	Psychiatric caseness: 17.3%

Note. N denotes the eligible student sample or survey-wave sample. Bennett et al. (2022) contributed three repeated cross-sectional waves. Cardwell et al. (2013) is retained descriptively, but its 54.3% estimate refers to lifetime mental ill-health and was not pooled as a low-wellbeing threshold estimate. WEMWBS = Warwick-Edinburgh Mental Wellbeing Scale; SWEMWBS = Short Warwick-Edinburgh Mental Wellbeing Scale; HADS = Hospital Anxiety and Depression Scale; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalised Anxiety Disorder-7; GHQ = General Health Questionnaire.

Methodological quality

Quality scores ranged from 4 to 5 on the 10-point adapted Newcastle-Ottawa Scale. Four studies scored 5 and four scored 4. The recurrent appraisal findings were convenience sampling, self-reported outcomes and limited control of confounding. Response-rate and sample-size reporting varied between studies. Study-level ratings are shown in Table 2.

Table 2: Methodological quality of included studies

Study	NOS score / 10	Selection and reporting	Outcome and comparability
Cilar et al. (2019)	5	Convenience sampling; sample-size justification and response reporting present	Self-report outcome; confounding not addressed
Byrom et al. (2020)	4	Convenience sampling; sample-size determination and response rate not reported	Self-report outcome; confounding not addressed
Thiemann et al. (2020)	4	Convenience sampling; sample-size determination and response rate not reported in the appraisal record	Self-report outcome; confounding not addressed
Ibrahim et al. (2013)	5	Convenience sampling; sample-size justification and response reporting present	Self-report outcome; confounding not addressed
Cardwell et al. (2013)	4	Convenience sampling; sample-size determination not reported; response rate reported	Self-report outcome; confounding not addressed
Johns et al. (2022)	5	Convenience sampling; sample-size justification present; response reporting limited	Self-report outcome; confounding not addressed
Bennett et al. (2022)	5	Convenience sampling; large sample; response rate not reported in the appraisal record	Self-report outcome; confounding not addressed
Macaskill (2013)	4	Convenience sampling; sample-size determination not reported; response rate reported	Self-report outcome; confounding not addressed

Note. NOS = Newcastle-Ottawa Scale adapted for cross-sectional studies. Scores reproduce the recorded domain judgements using the 10-point scale specified in the review methods. Quality ratings were used for interpretation and were not applied as statistical exclusion thresholds.

Outcome-specific prevalence and heterogeneity

Depressive symptoms were represented by seven estimates comprising 10,553 participant observations. Individual prevalence values ranged from 10.6% to 58.6%. The random-effects pooled prevalence was 37.3% (95% CI 28.1%-46.4%). Heterogeneity was substantial ($Q(6) = 504.92$, $p < .001$; $I^2 = 98.8\%$). Figure 2 presents the study-specific estimates and confidence intervals.

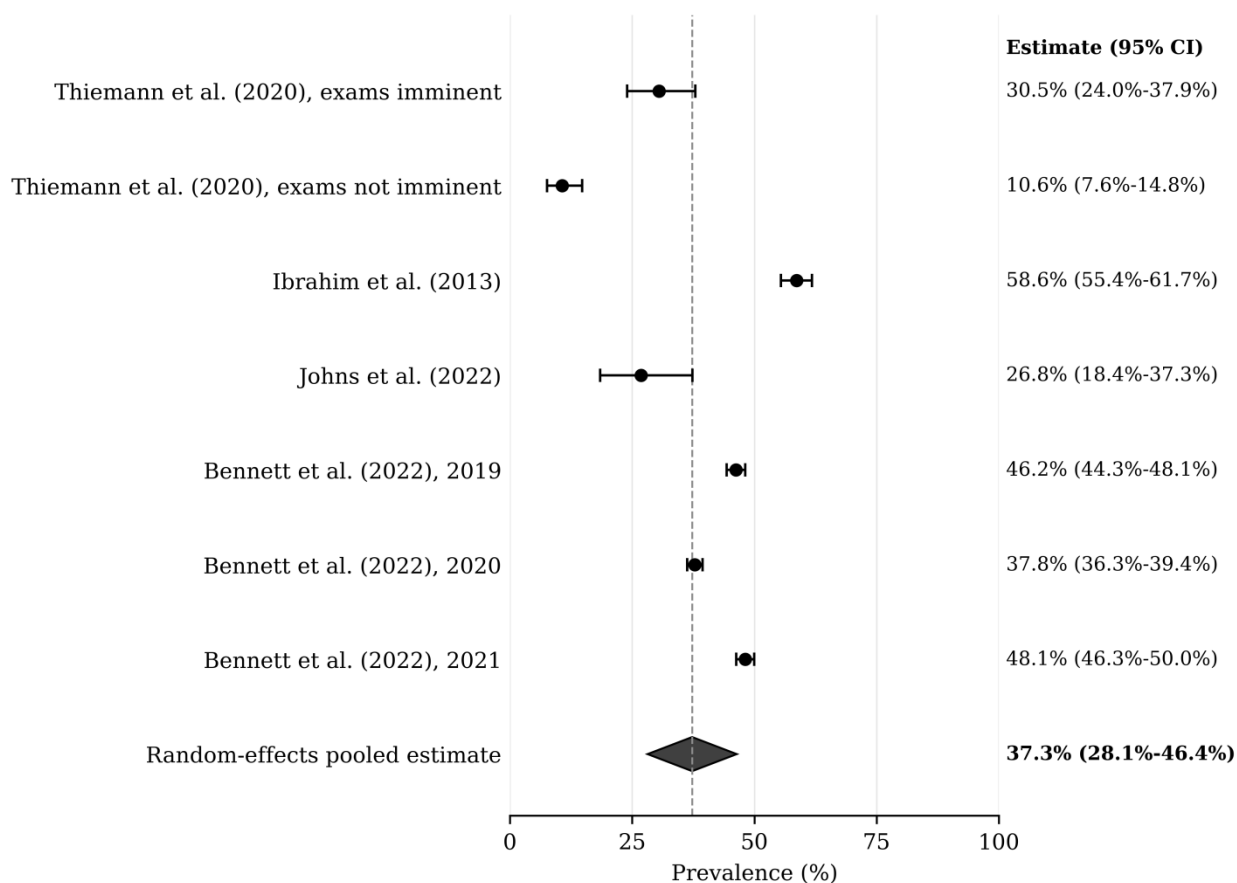


Figure 2: Forest plot of depressive symptoms among UK university students

Note. Seven non-overlapping outcome estimates; $N = 10,553$ participant observations. Squares/circles indicate study-specific prevalence estimates, horizontal lines show 95% CIs, and the diamond shows the random-effects pooled estimate.

Anxiety was represented by six estimates with 9,630 participant observations. Prevalence ranged from 28.8% to 74.4%, with a pooled estimate of 43.6% (95% CI 35.5%-51.7%). Between-estimate variation remained high ($Q(5) = 288.22$, $p < .001$; $I^2 = 98.3\%$). The distribution of anxiety estimates is shown in Figure 3.

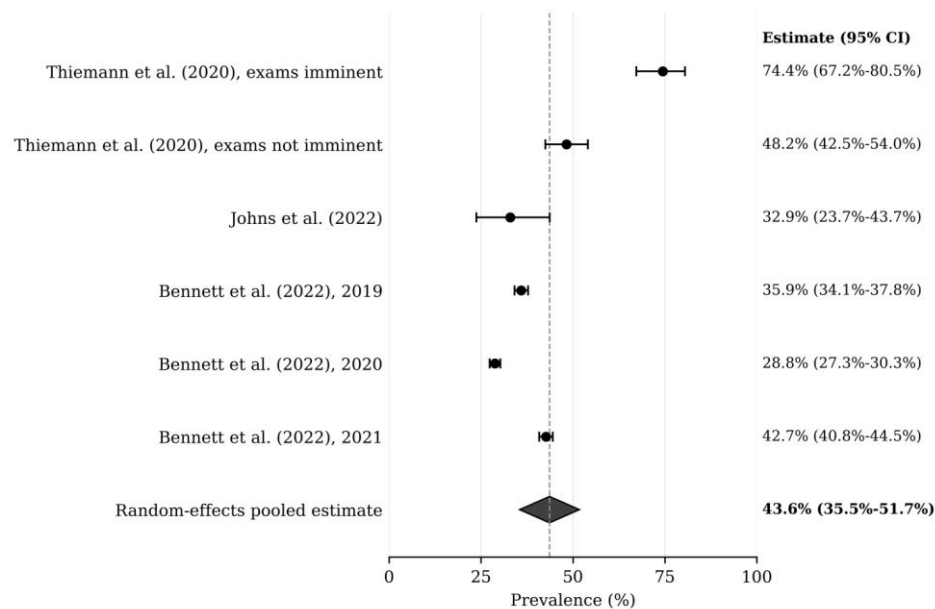


Figure 3: Forest plot of anxiety symptoms among UK university students

Note. Six non-overlapping outcome estimates; N = 9,630 participant observations. Thiemann et al. examination groups were treated as separate non-overlapping samples.

Five threshold-based low-wellbeing estimates contributed 9,642 participant observations. Reported prevalence ranged from 25.0% to 56.3%. The pooled prevalence was 41.9% (95% CI 33.9%-49.8%), with significant heterogeneity ($Q(4) = 218.71$, $p < .001$; $I^2 = 98.2\%$). These estimates are displayed in Figure 4. Psychiatric caseness was reported in one study of 1,197 nursing students at 17.3% (95% CI 15.3%-19.5%) and was therefore not pooled. The outcome-level synthesis is summarised in Table 3.

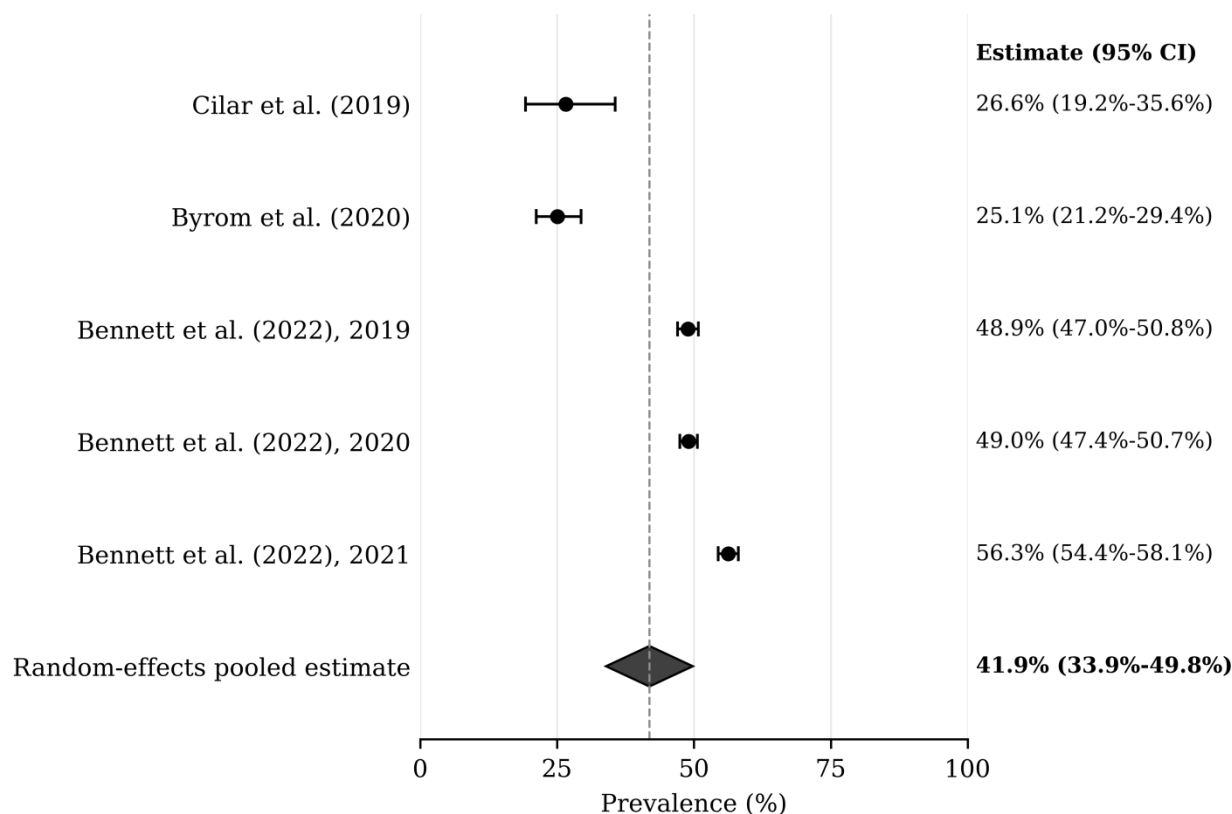


Figure 4: Forest plot of low mental wellbeing among UK university students

Note. Five threshold-based estimates; N = 9,642 participant observations. Cardwell et al. (2013) was not included in this

pooled estimate because its reported prevalence concerned lifetime mental ill-health rather than a low-wellbeing threshold.

Table 3: Random-effects prevalence estimates and statistical heterogeneity

Outcome	k	N	Pooled prevalence (95% CI)	Q (df)	I ²
Depressive symptoms	7	10,553	37.3% (28.1%-46.4%)	504.92 (6)	98.8%
Anxiety symptoms	6	9,630	43.6% (35.5%-51.7%)	288.22 (5)	98.3%
Low mental wellbeing	5	9,642	41.9% (33.9%-49.8%)	218.71 (4)	98.2%
Psychiatric caseness	1	1,197	17.3% (15.3%-19.5%)	Not estimable	Not estimable

Note. k = number of non-overlapping outcome estimates; N = outcome-specific participant observations and should not be summed across outcomes because the same samples contributed to more than one construct. Random-effects estimates were recalculated from the reconciled study-level prevalence data. Heterogeneity tests for all pooled outcomes were significant at $p < .001$. The single psychiatric-caseness estimate is presented with a Wilson 95% CI and was not meta-analysed.

DISCUSSION

Principal findings

The findings indicate a substantial burden of depressive symptoms, anxiety symptoms and poor mental wellbeing among university students in the United Kingdom. Random-effects estimates placed the prevalence of depressive symptoms at 37.3% (95% CI 28.1% to 46.4%), anxiety symptoms at 43.6% (95% CI 35.5% to 51.7%) and low mental wellbeing at 41.9% (95% CI 33.9% to 49.8%). Psychiatric caseness was reported in a single study at 17.3% and was therefore not pooled. Considerable between-study variation was evident across each meta-analysis, with I² estimates exceeding 98%. The magnitude of this heterogeneity is central to the interpretation of the findings because it indicates that the pooled estimates represent averages across markedly different student populations, measurement approaches and academic circumstances rather than uniform prevalence levels across UK higher education.

The estimates are broadly consistent with more recent international evidence, although direct comparison requires caution because study populations, instruments and thresholds differ. Paiva et al. (2025), in an umbrella review encompassing 62 meta-analyses and more than 8.7 million university students, estimated mild-or-greater depressive symptoms at 35.41% and anxiety symptoms at 40.21%. The UK estimates reported here are slightly higher, particularly for anxiety, but fall within the broad range observed internationally. More recent post-pandemic evidence also suggests that substantial psychological morbidity has persisted rather than returning uniformly to lower pre-pandemic levels. Antón-Ruiz et al. (2026) synthesised 63 studies involving more than 255,000 university students and reported prevalence estimates of 45.1% for depression and 43.6% for anxiety. The anxiety estimate is identical to that obtained in the present UK synthesis, although differences in search period, geographical coverage and symptom thresholds prevent a direct equivalence between the two analyses.

Variation between mental-health constructs

An important finding is that prevalence differed according to the construct being measured. Anxiety produced the highest pooled estimate, followed by low mental wellbeing and depressive symptoms. These outcomes are related, but they should not be interpreted as interchangeable manifestations of a single condition. Poor mental wellbeing captures positive and negative dimensions of psychological functioning, whereas depression and anxiety screening instruments are designed to detect symptom severity associated with more specific clinical syndromes. The decision to analyse these outcomes separately therefore provides a more defensible account of student mental health than a composite prevalence estimate that combines distinct constructs.

Recent research reinforces the need for this distinction. Hews-Girard et al. (2026) compared PHQ-9 and GAD-7 screening results with structured diagnostic assessment among undergraduate students and found that the PHQ-9 showed strong classification performance for depression, whereas the GAD-7 demonstrated more moderate accuracy for generalised anxiety disorder. A substantial proportion of students with elevated GAD-7 scores did not meet diagnostic criteria for generalised anxiety disorder, suggesting that the instrument may also capture broader psychological stress within student

populations. Symptom-screening prevalence should therefore not be interpreted as equivalent to the prevalence of clinically diagnosed disorders (Hews-Girard et al., 2026).

This distinction is especially relevant to the present findings because the included studies used several instruments, including the PHQ-9, HADS, GAD-7, Zagazig Depression Scale, WEMWBS, SWEMWBS and GHQ. Differences in item content, cut-off scores, recall periods and the underlying constructs assessed are likely to contribute to the wide range of prevalence estimates. The resulting heterogeneity is therefore not simply statistical noise. It reflects substantive variation in how student mental health has been conceptualised and operationalised across the UK evidence base.

Interpreting the high level of heterogeneity

The consistently high I^2 values require the pooled estimates to be interpreted as summary indicators rather than precise population parameters. Depression prevalence ranged from 10.6% to 58.6%, anxiety from 28.8% to 74.4%, and low mental wellbeing from 25.0% to 56.3%. Such ranges are too wide to be explained plausibly by sampling error alone.

International meta-analytic research has encountered similar problems. Zhu et al. (2021), drawing on 176 studies involving approximately 1.7 million post-secondary students during the COVID-19 period, reported substantial variation in clinically elevated depression and anxiety and identified the timing of data collection and geographical location as significant moderators. Their findings demonstrate that student mental-health prevalence is sensitive to the period in which measurement occurs and to the setting from which participants are recruited. Paiva et al. (2025) similarly identified variation associated with the pandemic period and academic field in their umbrella review. These findings support an interpretation of prevalence as context-dependent rather than fixed.

The composition of the UK evidence contributes further variation. The included samples covered general university populations, nursing students, veterinary students, doctoral researchers and final-year medical students. Academic demands, programme structures and student characteristics are unlikely to be equivalent across these groups. Sample sizes also ranged substantially, from 82 students in the smallest eligible sample to 3,693 participants in the largest survey wave. Consequently, the pooled estimates should not be interpreted as evidence that approximately the same proportion of students in every UK university or programme experiences a given mental-health outcome.

Temporal context and the COVID-19 period

Several included samples were collected around the COVID-19 pandemic, but the available evidence does not support a simple assumption that student mental health worsened uniformly throughout this period. UK longitudinal studies show a more variable pattern.

Evans et al. (2021) followed UK undergraduate students from autumn 2019 into the first national lockdown and reported a marked increase in depressive symptoms alongside reduced wellbeing. More than one-third of participants met the study threshold for depression during lockdown compared with 15% before the pandemic. This provides direct within-person evidence that the initial disruption was associated with deteriorating mental health in that sample.

Later phases of the pandemic were less consistent. Tang et al. (2022) found high levels of anxiety and depression among UK university students after the first lockdown, but both outcomes declined among participants reassessed approximately 6 months later. Similarly, Lemyre et al. (2024) observed significant improvement in mental wellbeing among higher-education students in England between spring and autumn 2021 as restrictions eased. A two-year longitudinal analysis conducted by Allen et al. (2024) also found that psychological distress peaked during the pandemic before declining, although anxiety and distress remained elevated relative to pre-pandemic norms. These longitudinal patterns indicate that pandemic-related mental-health changes were dynamic rather than unidirectional (Tang et al., 2022; Allen et al., 2024; Lemyre et al., 2024).

This temporal variability also cautions against using publication year as a proxy for when psychological distress occurred. Publication dates may lag considerably behind data collection, and studies published in the same year may represent very different phases of the academic calendar or pandemic. Prevalence comparisons are therefore more informative when based on the actual period of data collection and the circumstances under which students were assessed.

Mental wellbeing as a distinct outcome

The pooled prevalence of low mental wellbeing was 41.9%, but this result warrants particular care because wellbeing is conceptually broader than psychiatric symptomatology. WEMWBS and SWEMWBS assess positive psychological functioning rather than diagnostic symptoms, and lower scores cannot be interpreted directly as evidence of mental disorder. The estimate is nonetheless important because diminished wellbeing may capture a wider group of students whose psychological functioning is compromised even where criteria for depression or anxiety are not met.

Recent UK evidence illustrates the sensitivity of wellbeing to changing circumstances. Lemyre et al. (2024) found that mental wellbeing improved significantly over a 6-month period as pandemic restrictions eased, while Bennett et al. (2024), using repeated student surveys at a large UK university, found reductions in low wellbeing and anxiety following the introduction of additional non-clinical wellbeing services, although depression did not show the same pattern. These findings demonstrate that depression, anxiety and wellbeing can move differently within the same institutional population and support their treatment as separate outcomes in prevalence research (Bennett et al., 2024; Lemyre et al., 2024).

Methodological quality and interpretation of prevalence

The methodological appraisal identified recurrent limitations across the included studies. Quality scores ranged from 4 to 5 on the adapted 10-point Newcastle-Ottawa Scale, with convenience sampling, self-reported outcomes and limited adjustment for confounding appearing repeatedly. These limitations constrain population-level inference. Convenience samples may disproportionately attract students who are particularly interested in mental health or who have current psychological difficulties, while online surveys can produce substantial differences between respondents and non-respondents.

The predominance of self-report screening also requires careful interpretation. Screening measures are valuable for identifying elevated symptoms, but they do not provide the same evidential basis as diagnostic interviews. The recent diagnostic-accuracy findings reported by Hews-Girard et al. (2026) are particularly relevant in this respect because they demonstrate that commonly used student screening thresholds can identify considerably more elevated symptomatology than would be confirmed through structured diagnostic assessment. The prevalence estimates in this review should therefore be understood as estimates of clinically relevant symptoms or reduced wellbeing according to validated screening criteria, not estimates of confirmed psychiatric diagnoses.

Concerns about methodological quality extend beyond the UK evidence. Paiva et al. (2025) found that 65% of the meta-analyses included in their international umbrella review were rated as critically low quality and the remaining 35% as low quality. Antón-Ruiz et al. (2026) also identified extensive reliance on cross-sectional designs and self-report measures in the contemporary post-COVID-19 literature. The methodological limitations observed in the UK studies therefore reflect a broader problem in university mental-health epidemiology rather than an isolated weakness of one national literature.

Strengths and Limitations

A principal strength of the analysis is the separation of depression, anxiety, low mental wellbeing and psychiatric caseness rather than combining them into a single prevalence estimate. This preserves conceptual distinctions between outcomes and avoids counting several measurements obtained from the same participants as though they represented independent studies. Repeated cross-sectional survey waves were also distinguished from primary studies, allowing the analytical denominator to reflect independent samples more accurately.

Several limitations remain. Only eight eligible studies were available, and some outcome-specific analyses contained five to seven estimates. The evidence base was dominated by cross-sectional designs, selected institutions and specialised student populations. Statistical heterogeneity was exceptionally high across all pooled outcomes, which limits the precision with which any single summary estimate can characterise UK university students as a whole. Differences in measurement instruments and thresholds also reduced comparability. Psychiatric caseness could not be meta-analysed because only one eligible estimate was available.

The search period ended in August 2022, meaning that the pooled estimates principally describe evidence generated before and during the major phases of the COVID-19 pandemic. More recent studies indicate that student mental health has continued to change since that period rather than settling at a stable post-pandemic level (Allen et al., 2024; Antón-Ruiz et al., 2026). The estimates reported here should consequently be understood as a synthesis of the UK evidence available within the specified review period rather than a current surveillance estimate for 2026.

The principal message is therefore not that a single proportion defines the mental-health status of UK university students. The evidence instead demonstrates consistently high levels of depressive symptoms, anxiety and poor mental wellbeing alongside pronounced variation between studies. That combination of substantial prevalence and substantial heterogeneity is critical. It indicates that student mental health constitutes a significant population-level concern while also showing that prevalence is strongly shaped by the outcome measured, the instrument used, the population sampled and the context in which assessment occurs.

IMPLICATIONS FOR POLICY, PRACTICE AND RESEARCH

University Policy and Service Planning

The substantial prevalence of depressive symptoms, anxiety and poor mental wellbeing identified across UK university populations supports a tiered approach to student mental-health provision. Reliance on specialist counselling or clinical services alone is unlikely to address the range of needs represented within the student population. Provision should therefore combine population-level mental-health promotion, accessible early support, targeted psychological interventions and clearly defined referral pathways for students requiring specialist assessment or treatment.

Service planning should also reflect variation between institutions, disciplines and student groups. The marked heterogeneity observed across the included studies indicates that a single sector-wide prevalence estimate should not be used as a substitute for local assessment of need. Universities should combine national evidence with institution-specific information on patterns of distress, service demand and student engagement. This would permit resources to be directed towards areas of greatest need without assuming that the same level or type of provision is appropriate across all settings.

Academic timing should also inform service delivery. Mental-health difficulties may become more pronounced during periods of heightened academic pressure, particularly around examinations and major assessment deadlines. Universities may therefore benefit from increasing the visibility and availability of support during predictable high-demand periods rather than maintaining an entirely uniform service model throughout the academic year.

Measurement and Monitoring

Institutional monitoring would be strengthened through greater consistency in the measurement of student mental health. Depression, anxiety and poor mental wellbeing should be assessed as distinct constructs rather than combined under a broad category of mental ill-health. Validated instruments such as the PHQ-9, GAD-7, WEMWBS and SWEMWBS should be used with clearly reported thresholds and appropriate interpretation.

Screening scores should also be distinguished from clinical diagnoses. Elevated scores on symptom measures indicate possible psychological difficulty but do not necessarily establish the presence of a psychiatric disorder. Similarly, low wellbeing should not be interpreted as equivalent to psychiatric morbidity. Clear reporting of these distinctions would improve the accuracy of institutional surveillance and reduce the risk of overstating or misclassifying student mental-health burden.

Monitoring should be undertaken at comparable points across the academic year because one-off surveys may reflect temporary academic pressures rather than more persistent patterns of difficulty. Repeated assessment would provide a more reliable account of change over time and would allow universities to identify periods when demand for support is likely to increase.

Data collection should also permit examination of variation within the student population. Information on level of study, programme type, age, gender and other relevant demographic characteristics should be recorded consistently where appropriate. Such stratification would support more informed identification of groups experiencing disproportionately high levels of psychological distress.

Comparisons between institutions should be undertaken cautiously. Differences in prevalence may arise from variation in instruments, cut-off scores, recruitment procedures or survey timing rather than genuine differences in student mental health. Meaningful benchmarking therefore requires greater consistency in outcome definitions, measurement protocols and reporting practices.

Research Priorities

Future research should place greater emphasis on longitudinal and repeated-measures designs. The present evidence base remains dominated by cross-sectional surveys, which are useful for estimating prevalence at a particular point but cannot establish whether psychological difficulties are transient, persistent, recurrent or newly emerging. Longitudinal research would provide a stronger basis for examining changes across the academic year and progression through university.

Larger multi-institutional studies with clearly defined sampling frames are also required. Convenience sampling was common among the included studies and may limit representativeness. Future research should report recruitment procedures, response rates and potential non-response bias more systematically so that the extent to which findings represent the wider student population can be judged more confidently.

The evidence base also requires updating beyond August 2022. A substantial proportion of the included evidence was generated before or during the COVID-19 pandemic, a period associated with major disruption to university teaching, assessment and social interaction. More recent studies using comparable measures are needed to establish whether the high levels of depression, anxiety and poor mental wellbeing observed during the review period have persisted, declined or changed.

Some outcomes remain insufficiently represented. Psychiatric caseness, for example, was supported by only one eligible estimate and could not be pooled. Additional research using clearly defined and comparable outcome measures would strengthen future synthesis in areas where the available evidence remains sparse.

Future reviews should also maintain a clear distinction between prevalence research and research concerned with determinants of poor mental health. Estimating how common psychological difficulties are requires a different analytical framework from examining the factors associated with those difficulties. Keeping these questions separate would improve methodological clarity and reduce unnecessary mixing of heterogeneous outcomes, exposures and effect measures.

CONCLUSION

Mental-health difficulties are common among university students in the United Kingdom, but their prevalence cannot be represented adequately by a single undifferentiated estimate. The evidence synthesised in this review indicates substantial levels of depressive symptoms, anxiety and poor mental wellbeing, with pooled prevalence estimates of 37.3%, 43.6% and 41.9%, respectively. These findings point to a considerable mental-health burden within UK higher education while also demonstrating that the size of that burden varies markedly according to the psychological construct assessed, the measurement instrument used, the threshold applied and the characteristics of the student population.

The very high levels of statistical heterogeneity are therefore an important finding in their own right. They show that prevalence estimates drawn from university populations are highly context-sensitive and should not be interpreted as fixed population parameters. Differences between general university samples, professional programmes, postgraduate populations and students assessed at different stages of the academic calendar can materially affect reported prevalence. The use of several validated instruments across studies further complicates direct comparison because depression, anxiety, psychological distress and mental wellbeing represent distinct constructs with different measurement properties.

These findings also underline the importance of methodological discipline in future student mental-health research. Greater consistency in outcome definition, sampling procedures, reporting standards and assessment timing would improve comparability across studies and strengthen the evidence available for institutional planning. Longitudinal and repeated-measures designs are especially needed to distinguish temporary increases in psychological distress from persistent mental-health difficulties and to identify how student wellbeing changes across different stages of university education.

For universities and policymakers, the findings support sustained investment in mental-health promotion, early identification and accessible support, while cautioning against assuming that one service model or prevalence estimate will apply equally across institutions and student groups. Mental-health surveillance should therefore be sufficiently standardised to permit comparison, but sufficiently sensitive to institutional and population differences to remain meaningful.

A more precise understanding of student mental health requires attention not only to how many students report psychological difficulties, but also to what is being measured, how it is measured and under which academic and social conditions those difficulties are observed. Preserving these distinctions provides a stronger basis for research, service planning and policy aimed at improving mental health within UK higher education.

AUTHOR CONTRIBUTION

All authors played a substantive role in shaping this study and developing the manuscript. O.D.I. conceptualised the work and designed the overall study framework. Data analysis, interpretation of data and validation of findings were carried out collaboratively, with each author contributing to the discussions that informed the final results. G.M.Y. and K.O.O. prepared the initial manuscript draft, covering the introduction, methods, results and discussion. Co-authors strengthened the analysis, offered detailed revisions and enhanced the clarity and coherence of the final document. Every author reviewed the complete manuscript, approved the final version and accepted responsibility for the integrity of the work.

COMPETING INTEREST

The authors declare no competing interests.

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