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# Stress, Anxiety and Depression among Nursing Students: A Systematic Review of Prevalence, Associated Factors and Academic Consequences

**Rajesh Kumar Gaur[1], Dr. Aditya Pareek[2]**

[1]Ph.D. Scholar (Nursing), Department of Nursing, Jaipur National University, Jaipur, Rajasthan, India
Corresponding Author Email: *rajeshgaur52[at]gmail.com*

[2]Associate Professor, Department of Nursing, Jaipur National University, Jaipur, Rajasthan, India
Email: *yash.sharma500[at]gmail.com*

**Abstract:** ***Background: Nursing students face demanding coursework and supervised clinical practice at the same time, which exposes them to stress, anxiety and depression. Published prevalence estimates vary widely, and the academic consequences of distress are seldom examined together with prevalence, particularly in India. Objective: To synthesize published evidence on (1) the prevalence of stress, anxiety and depression among nursing students, (2) the factors associated with these conditions, and (3) their academic and professional consequences. Methods: This systematic review was reported according to PRISMA 2020. PubMed/MEDLINE, CINAHL, Scopus, PsycINFO, Web of Science and Google Scholar were searched for studies published between January 2010 and October 2026, without geographic restriction. Review-level evidence (systematic reviews, meta-analyses and umbrella reviews) and primary studies that used validated screening tools were included. Because primary studies overlap across reviews, prevalence estimates from reviews were tabulated as reported and not re-pooled; comparable Indian primary studies were pooled with a random-effects model. Results: Thirty sources were included (18 review-level and 12 primary studies, seven of them Indian). Pooled estimates in meta-analyses were about 29% to 38% for depression, 29% to 34% for anxiety and 27% to 52% for stress, with very high heterogeneity, and they were highest during the COVID-19 pandemic and varied with instrument and cut-off. In three comparable Indian studies using the DASS (n = 642), pooled prevalence was 43.2% (95% CI 31.9–54.9) for depression, 55.2% (95% CI 47.0–63.2) for anxiety and 35.1% (95% CI 27.9–42.7) for stress. Academic workload, clinical placement demands, financial difficulty and poor sleep were the main risk factors, and resilience, social support and effective coping were protective. Consequences included lower perceived academic achievement, burnout and intention to leave, whereas associations with grade point average were inconsistent. Mindfulness-based interventions showed benefit, but the evidence is of limited quality. Conclusions: Stress, anxiety and depression are common among nursing students in the included evidence and are linked to reduced engagement and burnout. Nursing colleges should provide routine validated screening, accessible counselling and supportive clinical placements, and future research, especially in India, should use standardised instruments, longitudinal designs and well-designed trials.***

**Keywords:** nursing students; stress; anxiety; depression; mental health; academic performance; prevalence; systematic review

## 1. Introduction

Student mental health is a global public health concern. In the World Health Organization World Mental Health Surveys International College Student Project, roughly one in three first-year college students screened positive for at least one common mental disorder (Auerbach et al., 2018), and an umbrella review confirmed a high pooled prevalence of mental disorder symptoms in university students (Paiva et al., 2025). Nursing students carry a double load: the academic demands of a professional degree and the emotional, physical and organisational demands of supervised clinical practice, which begins early and exposes them to assessment by staff, acutely ill or dying patients and long hours. Their main sources of stress are academic (examinations, workload, assignments) and clinical (fear of making mistakes with patients, unfamiliar situations, relationships with staff) (Labrague, 2024; Pulido-Martos et al., 2012), and depression, anxiety and stress often co-occur (Cheung et al., 2016; Nair & Ahmed, 2023). Meta-analyses place the prevalence of depression among nursing students at about one-third (Tung et al., 2018), and an umbrella review of 25 meta-analyses estimated the overall prevalence of mental health problems at 27% (Efstathiou et al., 2025). In India, which has one of the largest nursing education systems in the world, cross-sectional studies report a high burden of stress, anxiety and depression among nursing students (Nebhinani et al., 2020; Nair & Ahmed, 2023; Singh et al., 2025), against a national background of a large burden of mental disorders and a wide gap between need and treatment (National Institute of Mental Health and Neuro Sciences [NIMHANS], 2016).

Several gaps remain. Globally, earlier reviews have addressed single conditions or single outcomes: depression (Tung et al., 2018), stress and anxiety (Nurse Educator review, 2023), stress and coping (Labrague, 2024), pandemic-related distress (Badillo-Sánchez et al., 2025; García Rivas et al., 2024; Quesada-Puga et al., 2024) and suicidal thoughts and behaviours (Groves et al., 2023). Pooled estimates differ widely because studies use different screening instruments, cut-offs and time points, and most prevalence meta-analyses in student populations have been judged to be of low or critically low methodological quality (Paiva et al., 2025). The consequences of distress for learning and professional development are rarely examined together with prevalence, and the link with academic performance is inconsistent (Njim et al., 2020). In India, the evidence is still mostly limited to single-institution cross-sectional studies that use different instruments and cut-offs, and no review in the literature examined here brings these studies together or compares them with the international

evidence. No pooled estimate from comparable Indian data is available.

This systematic review therefore aimed to place stress, anxiety and depression side by side among nursing students, to explain why estimates differ, to identify associated factors in a form usable by educators, and to link distress to academic and professional consequences. It adds to the literature by combining global review-level evidence with primary studies, by providing a dedicated synthesis of Indian studies that includes a pooled estimate for comparable studies, and by updating the evidence to 2026. The objectives were (1) to estimate the prevalence of stress, anxiety and depression among nursing students and examine how it varies by instrument, region, year of study and time period; (2) to identify the personal, academic, clinical, social and health-related factors associated with these conditions, and the protective factors; and (3) to describe their academic and professional consequences and the interventions evaluated to reduce them.

## 2. Methods

### 2.1 Design and reporting

This systematic review was reported according to the PRISMA 2020 statement (Page et al., 2021). Because many primary studies on this topic have already been pooled in recent meta-analyses, the review combined (a) review-level evidence (systematic reviews, meta-analyses and umbrella reviews) with (b) primary studies that illustrate regional variation, associated factors and consequences and, for India, prevalence. The review had a global scope, with a dedicated synthesis of studies from India. Ethical approval was not required because only published data were used.

### 2.2 Eligibility criteria

Eligibility was defined using a Population–Condition–Outcome framework (Table 1).

**Table 1:** Eligibility criteria

| Domain | Inclusion criteria |
|---|---|
| Population | Undergraduate, diploma or pre-licensure nursing students (practising nurses and mixed student samples without separate nursing data excluded) |
| Conditions | Stress, anxiety and/or depression (including depressive symptoms), measured with validated self-report instruments such as DASS-21/42, PSS, PHQ-9, GAD-7 or BDI |
| Outcomes | Prevalence; associated or protective factors; academic or professional consequences (grades, perceived achievement, absenteeism, clinical performance, burnout, attrition, self-harm or suicidal ideation); intervention effects |
| Designs | Systematic reviews, meta-analyses, umbrella reviews, integrative or scoping reviews with explicit search methods; cross-sectional, cohort and trial studies for context |
| Limits | English language; published January 2010 to October 2026 (earlier landmark papers included for definitions and instruments); studies from any country were eligible (global scope), and Indian studies were additionally searched for and synthesised separately |

In this review, *stress* is understood through the transactional model of Lazarus and Folkman (1984): stress arises when a person appraises environmental demands as exceeding available coping resources. *Anxiety* refers to persistent worry, tension and physiological arousal, and *depression* to persistent low mood, loss of interest and related cognitive and somatic symptoms. Most nursing-student studies measure these constructs with self-report screening scales such as the Depression Anxiety Stress Scales (DASS-21 or DASS-42), the Perceived Stress Scale, the Patient Health Questionnaire-9 and the Generalized Anxiety Disorder-7 scale (Cohen et al., 1983; Kroenke et al., 2001; Lovibond & Lovibond, 1995; Spitzer et al., 2006). These tools identify symptom burden at a point in time and do not establish a clinical diagnosis, which matters when prevalence figures are compared.

### 2.3 Search Strategy

The search covered studies published from 1 January 2010 to October 2026, and the last search was run in October 2026. PubMed/MEDLINE, CINAHL, Scopus, PsycINFO, Web of Science and Google Scholar were searched, supplemented by publisher platforms and the reference lists of included reviews. Indian studies were additionally sought through Google Scholar, the DOAJ and Indian journals using the same terms combined with "India" and state names. The same Boolean structure was used in every database: synonyms within each of three concept blocks (population; condition; outcome or evidence type) were joined with OR, and the blocks were joined with AND. Only field tags, truncation symbols and controlled vocabulary were adapted to the syntax of each database. The PubMed string is given as an example: ("nursing students" OR "student nurses" OR "nursing undergraduates") AND (stress OR "psychological distress" OR anxiety OR depression OR "depressive symptoms") AND (prevalence OR "risk factors" OR "academic performance" OR "academic achievement" OR attrition OR burnout) AND ("systematic review" OR "meta-analysis" OR "umbrella review" OR "cross-sectional").

### 2.4 Study Selection

Records were screened by title and abstract and then by full text against the eligibility criteria. The selection process is summarised in a PRISMA 2020 flow diagram (Figure 1).

### 2.5 Data Extraction

For each included source the following were extracted: authors, year, country or scope, design, number of studies or participants, instruments and cut-offs, prevalence or effect estimates with confidence intervals, associated factors and reported consequences.

### 2.6 Quality Appraisal

The methodological quality of reviews was considered with reference to AMSTAR-2 criteria, which several included umbrella reviews applied (Efstathiou et al., 2025; Paiva et al., 2025). Primary studies were appraised narratively for sampling, instrument validity, response rate and risk of bias.

### 2.7 Data Synthesis

Synthesis was carried out at three levels. First, for review-level evidence, prevalence estimates were extracted as published and tabulated by condition, instrument, setting and period. They were not re-pooled, because primary studies overlap extensively between reviews and summing or averaging the estimates would count the same students more than once; this follows the approach of the umbrella reviews included here (Efstathiou et al., 2025; Paiva et al., 2025), which report the estimate of each meta-analysis separately. Second, for primary studies, prevalence was pooled when at least three studies used the same instrument with comparable thresholds. Proportions were transformed with the Freeman–Tukey double arcsine transformation and combined with a DerSimonian–Laird random-effects model, and results were back-transformed and reported with 95% confidence intervals. Where studies reported percentages only, the number of cases was reconstructed from the percentage and the analysed sample size. Heterogeneity was assessed with Cochran's Q and the $I^2$ statistic.

## 3. Results

### 3.1 Study selection

The selection process is shown in the PRISMA 2020 flow diagram (Figure 1). Thirty sources were included: 18 review-level sources and 12 primary studies. The review-level sources covered 2012 to 2026 and included meta-analyses of prevalence, three umbrella reviews, reviews of sources of stress, a review of suicidal thoughts and behaviours, and reviews of interventions. The 12 primary studies comprised seven Indian studies (Table 3) and five studies from Hong Kong, Cameroon, Saudi Arabia, Greece and North America, which were used to illustrate regional differences, associated factors and consequences.

**Figure 1:** PRISMA 2020 flow diagram of study selection.

### 3.2 Quality of the evidence

An umbrella review of mental disorder symptoms in university students judged most of the underlying meta-analyses to be of low or critically low methodological quality (Paiva et al., 2025). Almost all primary studies were cross-sectional and based on self-report screening tools, and many used convenience or single-institution samples. The quality of the Indian studies is described in Section 3.4.

### 3.3 Prevalence of stress, anxiety and depression

Review-level estimates are summarised in Table 2 and described below by condition. As in earlier umbrella reviews (Efstathiou et al., 2025; Paiva et al., 2025), the estimate of each meta-analysis is presented as reported and was not re-pooled, because the same primary studies appear in several reviews.

**Overall burden:** The most comprehensive synthesis to date, an umbrella review of 25 meta-analyses covering 375 primary studies and 171,828 nursing students, estimated the overall prevalence of mental health problems at 27% (95% CI 25–30%). Sleep disturbances, anxiety, depression and burnout were the most common problems (Efstathiou et al., 2025). Anxiety had a pooled prevalence of 29% (95% CI 17–40%) and stress 27% (95% CI 17–37%), with significant heterogeneity in both. Lower prevalence was found for suicidal ideation and attempts, eating disorders, smoking and post-traumatic stress disorder.

**Depression:** The earliest widely cited meta-analysis reported a pooled prevalence of depression of 34.0% among nursing students, with the highest figure in Asia (43.0%) (Tung et al., 2018). During the COVID-19 pandemic, pooled estimates were 32% (95% CI 22–42%) in 4,479 students (Quesada-Puga et al., 2024) and 37.92% across 36 studies (Badillo-Sánchez et al., 2025). In Pakistan, 11 studies with 2,253 students gave a pooled estimate of 37% (95% CI 25–50%) with $I^2$ above 95% (Ebrahimi et al., 2026).

**Anxiety:** Anxiety prevalence was 29% in the umbrella review (Efstathiou et al., 2025) and 33.6% in the pandemic meta-analysis of Badillo-Sánchez et al. (2025). A separate review of 24 studies (20 pooled) found that about 35% of students had elevated anxiety during the pandemic and that anxiety scores were higher than before it (García Rivas et al., 2024). In the large Nurse Educator meta-analysis of 121 studies, most students reported mild-to-moderate anxiety (19.4–25.1%) (Nurse Educator review, 2023).

**Stress:** Most students experience moderate stress (42.1%) according to the Nurse Educator review (2023), and severe stress was nearly twice as common in the third and fourth years as in the first two (29.0% versus 15.1%). A 2026 meta-analysis of 42 studies (19,655 students, 21 countries) showed that the estimate depends on the instrument: 74.37% of students were classified as stressed with the Perceived Stress Scale but 30.46% with the DASS stress subscale (Fatima et al., 2026). The pandemic estimate was 52.46% (Badillo-Sánchez et al., 2025).

**Table 2:** Pooled prevalence estimates from review-level evidence

| Review | Scope | Key prevalence findings |
|---|---|---|
| Tung et al. (2018) | Depression, nursing students worldwide | Pooled 34.0%; Asia 43.0% |
| Nurse Educator review (2023) | Stress and anxiety; 121 studies | Moderate stress 42.1%; mild–moderate anxiety 19.4–25.1%; severe stress 29.0% (years 3–4) vs 15.1% (years 1–2) |
| Efstathiou et al. (2025) | Umbrella review; 25 meta-analyses, 375 studies, 171,828 students | Any problem 27%; anxiety 29%; stress 27%; depression 29%; burnout 32%; sleep disturbance 50% |
| Fatima et al. (2026) | Stress; 42 studies, 19,655 students, 21 countries | PSS 74.37%; DASS stress subscale 30.46% |
| Badillo-Sánchez et al. (2025) | COVID-19 period; 36 studies | Anxiety 33.6%; depression 37.92%; stress 52.46% |
| García Rivas et al. (2024) | Anxiety, COVID-19 period; 24 studies (20 pooled) | About 35% elevated anxiety |
| Ebrahimi et al. (2026) | Depression, Pakistan; 11 studies, 2,253 students | 37% (95% CI 25–50%); $I^2 > 95\%$ |

**Pandemic trajectory:** Badillo-Sánchez et al. (2025) found that distress rose with each wave of infections and that negative psychological effects declined from the onset in 2020 to the end of 2022. This suggests that part of the elevated post-2020 prevalence was time-limited, although baseline distress remained high.

**Primary studies:** Individual studies show how widely estimates vary. In Hong Kong, 661 baccalaureate students completed the DASS-21 and many reported depression, anxiety and stress symptoms (Cheung et al., 2016). In Cameroon, 69.57% of 447 students scored above the PHQ-9 threshold for depression, but only 26.40% met the threshold for major depressive disorder (Njim et al., 2020). In a tertiary hospital college in Karnataka, India, 200 students completed the DASS-21; 13% reported severe or extremely severe stress and 39% severe or extremely severe anxiety (Nair & Ahmed, 2023).

**Why estimates differ:** Three features of the evidence explain most of the variation. First, instruments and cut-offs: the Cameroon data show that the same students can be 70% or 26% "depressed" depending on the threshold, and Fatima et al. (2026) show a more than twofold difference in stress prevalence across scales. Second, timing: students are surveyed at different points in the year, in different years of study, and in or out of clinical placement. Third, setting: curriculum design, clinical environment, culture, stigma and help-seeking differ widely between countries. High heterogeneity ($I^2$ above 90% in many pooled analyses) should therefore be treated as a substantive finding, not only a statistical nuisance. Pooled values are best read as indicative ranges.

### 3.4 Evidence from Indian nursing students

Seven Indian cross-sectional studies published between 2020 and 2025 were included (Table 3). They came from Madhya Pradesh, Assam, Karnataka, Uttar Pradesh and Rajasthan, were conducted in single institutions or small groups of institutions, and had sample sizes from 164 to 264 students. Four reported DASS-based prevalence, one used the Student Nurse Stress Index with the Brief COPE, one used the PHQ-9 with the Brief COPE, and one used an anxiety scale and a stress questionnaire.

**Table 3:** Indian cross-sectional studies of stress, anxiety and depression among nursing students.

| Study | Setting and period | Sample and tool | Main findings |
|---|---|---|---|
| Chouhan et al. (2021) | Two institutions in Bhopal, Madhya Pradesh; web survey, June–September 2020 (early COVID-19 period) | 223 female B.Sc. nursing students; DASS-42 | Prevalence above normal: depression 36.77%, anxiety 49.33%, stress 34.98%; scores highest in the fourth year; subscales strongly correlated (r about 0.58–0.65) |
| Baruah et al. (2022) | B.Sc. Nursing college, Dibrugarh, Assam; web survey, May 2021 | 214 students; DASS-21; convenience sample | Depression 55.1%, anxiety 63.1%, stress 29.9% |
| Nair & Ahmed (2023) | Tertiary teaching hospital college, Mysuru, Karnataka; March–August 2022 | 200 undergraduate students; DASS-21 | 13% severe or extremely severe stress; 39% severe or extremely severe anxiety; stress associated with year of study, lack of leisure time, family financial crisis and internet addiction |
| Chauhan et al. (2023) | Rural nursing institution, Uttar Pradesh; after second COVID-19 wave | 164 students; PHQ-9 and Brief COPE | Mean PHQ-9 score 6.43; 43.9% mild depression; substance use as a coping strategy had the largest association with depression; maladaptive coping mainly among male students |
| Subhashini et al. (2023) | Nursing colleges, Karnataka; online survey during the pandemic | 264 students; anxiety scale and stress questionnaire | Anxiety and stress were common, with most anxiety in the mild-to-moderate range and a minority severe; students reported dissatisfaction with digital learning, poor internet connectivity and disrupted routines |
| Singh et al. (2025) | Nursing college of a tertiary hospital, Lucknow; November 2023–August 2024 | 205 analysed (of 240 enrolled); DASS-21 | Depression 38.0%, anxiety 53.2%, stress 41.0%; depression and stress highest in third year (48% and 62%), anxiety highest in fourth year (61.4%) |

**Prevalence:** Three DASS-based studies used comparable thresholds and were pooled (Chouhan et al., 2021; Baruah et al., 2022; Singh et al., 2025; n = 642). The pooled prevalence was 43.2% (95% CI 31.9–54.9; $I^2$ = 56%) for depression, 55.2% (95% CI 47.0–63.2; $I^2$ = 10%) for anxiety and 35.1% (95% CI 27.9–42.7; $I^2$ = 0%) for stress (Figure 2). The Mysuru study was not pooled because it reported only severe and extremely severe categories (13% for stress

and 39% for anxiety; Nair & Ahmed, 2023). The pooled anxiety estimate is above the upper end of the international range summarised in Table 2, and the pooled depression estimate is within or above it, but the studies used different cut-offs (mild and above in some, moderate and above in others) and web-based or convenience samples, so the pooled values are indicative only. The study from Western Rajasthan used a nursing-specific stress instrument that is not comparable with the DASS and was therefore not pooled; 82.4% of its 221 undergraduate students reported moderate stress, with interface worries and academic load as the highest-scoring domains (Nebhinani et al., 2020). Taken together, the DASS-based studies suggest that anxiety is the commonest of the three conditions.

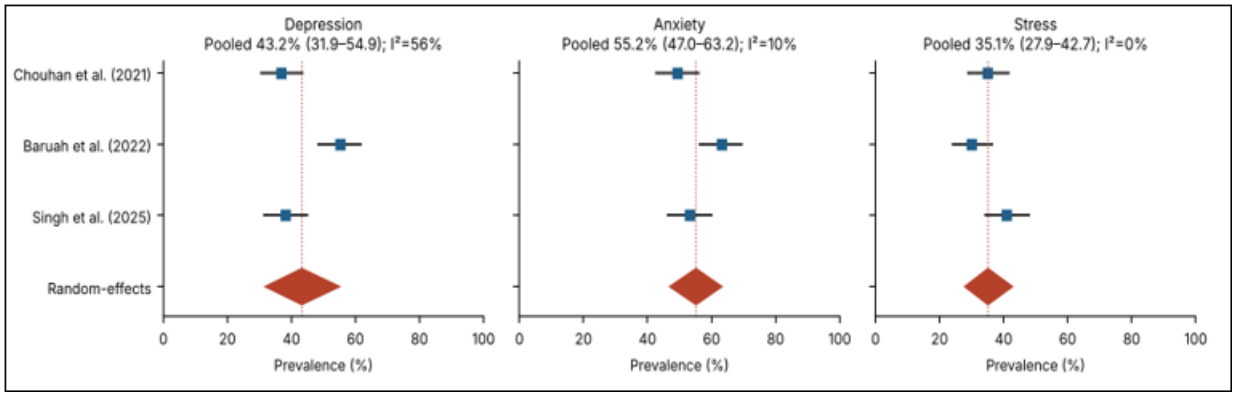



**Figure 2:** Random-effects pooled prevalence of depression, anxiety and stress in three Indian DASS-based studies (n = 642). Squares show study prevalence with 95% Wilson confidence intervals; diamonds show the pooled estimate.

**Year of study:** Findings by year of study are not uniform. Third- and fourth-year students had the highest scores in Lucknow and Bhopal (Chouhan et al., 2021; Singh et al., 2025), and year of study was associated with stress in Mysuru (Nair & Ahmed, 2023), consistent with the international observation that severe stress is more common in the later years of study. This differs from the Cameroon study cited above, where depressed students were in earlier years (Njim et al., 2020), and suggests that the pattern depends on curriculum structure and when intensive clinical work begins.

**Associated factors, coping and quality of the evidence:** Indian studies point to factors that overlap with those in Table 4 and to some that reflect local conditions: lack of leisure time, family financial crisis and internet addiction (Nair & Ahmed, 2023); academic load, fear of examinations, interest in nursing and the way nursing is regarded by other professions (Nebhinani et al., 2020); substance use as a coping strategy and maladaptive coping among male students (Chauhan et al., 2023); and, during the pandemic, dissatisfaction with digital learning, poor connectivity and loss of routine and social contact (Subhashini et al., 2023). Two studies assessed coping with the Brief COPE: active coping was the most common approach in Western Rajasthan (Nebhinani et al., 2020), and adaptive strategies were more common than maladaptive ones in Uttar Pradesh, although substance use as coping was associated with depression (Chauhan et al., 2023). The Indian evidence has several weaknesses: cross-sectional design, convenience or single-institution samples, web-based surveys with response rates that were not always high (for example, 57.6% in Bhopal), different instruments and cut-offs, and, in places, inconsistencies in reporting that readers should check against the original papers. No Indian study examined academic outcomes objectively or tested an intervention.

### 3.5 Factors associated with stress, anxiety and depression

The included evidence points to risk and protective factors in six domains, summarised in Table 4 and discussed below. Most data are cross-sectional, so these are associations rather than established causes.

**Table 4:** Factors associated with stress, anxiety and depression in nursing students

| Domain | Risk factors | Protective factors | Main sources |
|---|---|---|---|
| Academic | Heavy workload, examinations, assignments, academic stress | – | Labrague (2024); Pulido-Martos et al. (2012); Andargeery (2024) |
| Clinical | Fear of mistakes with patients, unfamiliar situations, placement in general medicine, interactions with staff | – | Pulido-Martos et al. (2012); Cheung et al. (2016); Labrague (2024) |
| Demographic | Female sex, younger age, later years of study (stress), having children | – | García Rivas et al. (2024); Quesada-Puga et al. (2024); Nurse Educator review (2023) |
| Lifestyle and health | Poor sleep, physical inactivity, imbalanced diet, no leisure time, no time alone, social-media addiction | Sleep, leisure activity and time alone (inverse of risk factors) | Cheung et al. (2016); García Rivas et al. (2024); Efstathiou et al. (2025) |
| Financial and social | Financial difficulty, family crisis, urban living or living with family | – | Cheung et al. (2016); García Rivas et al. (2024) |
| Psychological and contextual | Burnout, fear of infection and social isolation during COVID-19 | Resilience, spiritual support, happiness, problem-solving coping, optimism | García Rivas et al. (2024); Quesada-Puga et al. (2024); Labrague (2024); Njim et al. (2020) |

**Academic and clinical demands:** Systematic reviews consistently identify academic sources, such as examinations, workload and problems of study, as the most common stressors, followed by clinical sources, including fear of unfamiliar situations, fear of mistakes with patients and handling technical equipment (Pulido-Martos et al., 2012). An umbrella review of 12 reviews (189 studies) found moderate-to-high stress during nurse education, driven by academic demands, patient-care responsibilities and interactions with nursing staff and faculty (Labrague, 2024). In Saudi Arabia, every academic stress subscale was positively associated with depressive symptoms among 237 female nursing students (Andargeery, 2024). In Hong Kong, working in general medicine, financial difficulty, sleep problems and lack of leisure activity were significant correlates of depression, anxiety and stress (Cheung et al., 2016).

**Demographic characteristics:** Female and younger students were at higher risk of depression during the pandemic (Quesada-Puga et al., 2024), and age, sex and having children were among risk factors for anxiety (García Rivas et al., 2024). The role of year of study is mixed. The Nurse Educator meta-analysis found more severe stress in the third and fourth years (Nurse Educator review, 2023), and year of study correlated with depression in Hong Kong (Cheung et al., 2016). In contrast, a systematic review found that suicidal ideation did not differ by course year (Groves et al., 2023), and some studies cited by Andargeery (2024) reported higher depression among first-year students. Distress may peak at transition points (entry to the programme and entry to intensive clinical placements) rather than rise linearly.

**Lifestyle and health behaviours:** Sleep disturbance is among the most prevalent problems in nursing students (about 50% in the umbrella review; Efstathiou et al., 2025) and is consistently linked to distress. Physical inactivity and lack of leisure were associated with depression in Hong Kong, imbalanced diets with anxiety, and lack of alone time with stress (Cheung et al., 2016). Addiction to social networks was a risk factor for anxiety during the pandemic (García Rivas et al., 2024).

**Financial, family and social context:** Financial difficulty and family crisis in the previous year were associated with depression and distress (Cheung et al., 2016). Living in urban areas or with family appeared among anxiety risk factors during the pandemic (García Rivas et al., 2024). In a Cameroonian sample, students with depression were on average in earlier years of study and had higher burnout scores than students without depression (Njim et al., 2020).

**Pandemic-related factors:** Fear of becoming infected was a risk factor for anxiety (García Rivas et al., 2024), and social isolation was proposed as a driver of depression, particularly among female students (Quesada-Puga et al., 2024). Distress rose and fell with the waves of the pandemic (Badillo-Sánchez et al., 2025). Pandemic effects declined over time, but they highlight how quickly external shocks can alter student wellbeing.

**Protective factors:** Resilience, spiritual support and feelings of happiness protected students against high anxiety (García Rivas et al., 2024). Frequently used coping skills include problem-solving, transference and maintaining an optimistic outlook (Labrague, 2024). These findings are consistent with the transactional model: factors that increase students' appraised coping resources reduce the impact of the same demands (Lazarus & Folkman, 1984).

### 3.6 Academic and professional consequences and interventions

**Learning and academic performance:** There is broad agreement that stress, anxiety and depression can interfere with learning, academic performance and clinical practice performance (Chernomas & Shapiro, 2013; Pitt et al., 2012). Depression is also linked to higher absenteeism from lectures and lower cumulative grade point average (GPA) in prior work summarised by Andargeery (2024). The primary data, however, are less consistent than this narrative suggests. In the Cameroon cohort, the authors concluded that depression had a considerable negative effect on academic performance, yet the univariable difference in cumulative GPA between students with and without depression was small and not statistically significant (mean 2.76 versus 2.86, $p = 0.20$) (Njim et al., 2020). In a small Greek study of 90 students, depression correlated negatively with subjective academic achievement ($r = -0.20$) but only weakly and not meaningfully with GPA ($r = 0.10$) (Efstathiou et al., 2026, conference abstract). Taken together, distress appears to affect how students *perceive* their academic performance, as well as their motivation, concentration and attendance, more reliably than it affects recorded grades. Grades are also a coarse outcome that is measured differently across institutions, which makes comparison difficult.

**Clinical learning and patient care:** Undergraduate nursing students with high stress, anxiety or depression are described as being at risk of poorer communication with patients during clinical placement, with possible implications for the quality and safety of care (Aloufi et al., 2021). Evidence on actual patient outcomes is scarce, and this link should be regarded as plausible but not demonstrated.

**Burnout, attrition and intention to leave:** Burnout was among the four most prevalent problems in the umbrella review, with a pooled prevalence of about 32% (Efstathiou et al., 2025). Stress and anxiety are described as inhibiting learning and increasing attrition (Turner & McCarthy, 2017), and attrition from nursing programmes is influenced by academic, personal, programme and clinical factors (Pitt et al., 2012). A systematic review of 21 interventions to improve the mental health of student and novice nurses found a statistically significant effect on dropout-related outcomes in only five studies, with an overall high risk of bias (Bakker et al., 2020). Whether distress leads to dropout therefore remains an open empirical question; the relationship may be indirect, through burnout, loss of engagement and reduced satisfaction with the programme.

**Self-harm and suicidal ideation:** A systematic review of 46 studies, mostly of moderate to low quality, found an increased risk of suicide among Swedish female nursing

students and an increased risk of self-harm in nursing students of both sexes (Groves et al., 2023). Suicidal ideation did not appear to differ by course year or between nursing students and students in other programmes. Psychiatric conditions, particularly depression, were associated with ideation, and integration of wellness initiatives into curricula and peer support were preferred interventions among students and staff. Pooled prevalence of suicidal ideation and attempts was lower than for other conditions in the umbrella review (Efstathiou et al., 2025), but any prevalence in this group carries high consequence.

**Sleep and physical health:** Sleep disturbance was the most prevalent problem in the umbrella review (Efstathiou et al., 2025) and was associated with distress in primary studies (Cheung et al., 2016). Prospective data are needed to show whether poor sleep precedes or follows depression and anxiety in this group.

**Direction of effect:** Most included primary studies were cross-sectional, so the relationship between distress and academic outcomes is likely bidirectional: distress may impair performance, and poor performance or repeated failure may increase distress. The Cameroon analysis, for example, treated depression as an outcome while also reporting that it affects academic performance, which illustrates how the direction of effect depends on the analytic framing (Njim et al., 2020).

**Interventions:** A systematic review of 22 experimental studies (published 2008–2018) found that 18 reported statistically significant reductions in stress, anxiety or depressed mood after intervention; mindfulness-based approaches had the largest samples and highest levels of evidence across all three outcomes (Aloufi et al., 2021). An earlier review of 26 intervention studies found some support for curriculum-based reduction of stressors and for coping-skills training, but limited by design and sample size (Turner & McCarthy, 2017). Overall the intervention evidence base is encouraging but methodologically limited, with small samples, short follow-up and few randomised trials.

## 4. Discussion

This systematic review brought together global review-level evidence and primary studies on stress, anxiety and depression among nursing students. Its principal findings are fourfold. First, across reviews published between 2012 and 2026, roughly three in ten nursing students screened positive for depression or anxiety, and a similar or larger share reported moderate or higher stress; estimates were highest in Asia (Tung et al., 2018), during the COVID-19 pandemic (Badillo-Sánchez et al., 2025) and when stress was measured with perceived-stress scales (Fatima et al., 2026). Second, in three comparable Indian studies the pooled prevalence was 43.2% for depression, 55.2% for anxiety and 35.1% for stress, with anxiety above the international range. Third, risk was concentrated where academic workload, clinical placement demands, financial strain and poor sleep coincide, and it was lowered by resilience, social and spiritual support and effective coping. Fourth, the consequences extended beyond wellbeing to perceived achievement, engagement, burnout, retention and, in a minority, self-harm, whereas recorded grades were an inconsistent marker. Nursing students are one of several student groups with a high burden, and these figures should be read alongside the wider student literature (Auerbach et al., 2018; Paiva et al., 2025).

The wide variation between estimates is informative in itself. Very high $I^2$ values in prevalence meta-analyses (for example, above 95% in Pakistan; Ebrahimi et al., 2026) mean that a single pooled figure hides real differences between settings, and the Cameroon data show that the choice of threshold can change the headline prevalence from 26% to 70% (Njim et al., 2020). Stress is also not one construct: the Perceived Stress Scale captures how overloaded a person feels, whereas the DASS stress subscale captures tension and irritability, and Fatima et al. (2026) show that these produce very different prevalence figures. Users of these estimates, such as curriculum committees or ministries, should therefore ask which instrument, cut-off and period were used before comparing institutions, and policies that treat stress as a single quantity risk misclassifying need.

The pattern of risk and protective factors fits the stress–appraisal–coping model (Lazarus & Folkman, 1984). Demands arise from the curriculum and clinical environment; appraisal is shaped by sex, previous experience and financial and family circumstances; and coping resources, such as resilience, social support and problem-solving, determine whether demands become distress. Both the demands (workload, assessment design, placement allocation) and the resources (mentoring, counselling, peer support) are modifiable. The most consistent academic effects were on perceived achievement, motivation, attendance and engagement rather than recorded grade point average (Efstathiou et al., 2026; Njim et al., 2020), and cross-sectional designs make the direction of effect uncertain.

The Indian studies add three points to the international picture. First, symptom burden is high and consistent across states (Madhya Pradesh, Assam, Karnataka, Uttar Pradesh and Rajasthan), although the figures come from screening tools, convenience samples and mild-and-above cut-offs and should not be read as clinical prevalence. Second, the stressors named by Indian students are partly the familiar academic and clinical ones and partly local: shortage of leisure time, family financial strain, internet use and the attitudes of other professionals towards nursing (Nair & Ahmed, 2023; Nebhinani et al., 2020). The last of these suggests that professional status and the interprofessional climate in training hospitals may be a source of distress, and not only workload. Third, coping appears to matter: substance use as a coping strategy was associated with depression in Uttar Pradesh (Chauhan et al., 2023), and digital learning and connectivity problems added to distress during the pandemic (Subhashini et al., 2023). Hostel life, language of instruction and family expectations have been proposed as relevant but were not examined directly in the included studies.

Intervention evidence is limited but supportive. Mindfulness-based approaches have the strongest evidence across stress, anxiety and depressed mood (Aloufi et al.,

2021), and review authors have called for adequately powered trials with follow-up (Turner & McCarthy, 2017). Interventions to improve mental health in student and novice nurses had inconsistent effects on dropout-related outcomes and a high risk of bias (Bakker et al., 2020), and students and staff favoured wellness initiatives integrated into the curriculum and peer support (Groves et al., 2023). Because the greatest stressors are academic and clinical (Labrague, 2024; Pulido-Martos et al., 2012), interventions that only teach students to cope, without addressing workload, assessment and the placement environment, are unlikely to be sufficient.

These findings have implications for nursing education, practice and policy. Colleges should embed brief, evidence-based stress management and mindfulness content before first clinical placements and in the final years, avoid clustering of examinations and clinical demands, provide accessible and confidential counselling with clear referral pathways, and train faculty and clinical mentors to recognise and respond to distress. In India, regulators and colleges could introduce periodic screening with a validated, locally appropriate tool (for example DASS-21, or PHQ-9 with GAD-7) linked to a counsellor or psychiatrist, appoint a student counsellor or mentor in each college, include coping skills and substance-use awareness in the curriculum, support students facing financial hardship, orient hospital staff towards a respectful interprofessional culture, and ensure reliable digital-learning support. Because burnout and intention to leave are already evident in students (Efstathiou et al., 2025), investing in student wellbeing is also an investment in retention and in the quality and safety of future care.

The strengths of this review are its global scope with a dedicated synthesis of Indian evidence, an explicit eligibility framework, a search described in all major databases, and a transparent separation between estimates reported by reviews and estimates pooled from primary studies. Several limitations should be considered. Much of the evidence is review-level and reviews overlap in their primary studies, which we did not quantify formally, so figures from different reviews should not be added or averaged. The methodological quality of prevalence meta-analyses in student populations has been judged low or critically low in a large proportion of cases (Paiva et al., 2025). Almost all primary data are cross-sectional and based on self-report screening tools, so they show symptom burden rather than diagnosis and cannot establish causation. The search was limited to English-language sources, which may under-represent evidence from some regions. A few sources were available only as abstracts (for example, Efstathiou et al., 2026), and the full results of two recent reviews (Loh et al., 2026; Xu et al., 2026) could not be integrated into the numerical comparisons. The pooled Indian estimates rest on three studies with differing cut-offs, used case numbers reconstructed from reported percentages, and could not be tested for publication bias, so they are indicative only. Other Indian studies, particularly in regional-language or non-indexed journals, may have been missed.

Future research should use multi-centre designs with standardised instruments (DASS-21, PHQ-9 and GAD-7), probability sampling and linked academic and attendance records; longitudinal cohorts that follow students from admission through internship to clarify the direction of effect; objective academic and clinical outcomes such as progression, repeated units and clinical assessment scores rather than a single cumulative grade point average; and randomised or cluster-randomised trials in Indian nursing colleges to show which interventions work under local conditions, including hostel living, language of instruction, fee burden and family expectations. Registering protocols and reporting cut-offs, timing and outcomes consistently would make future meta-analysis more reliable.

## 5. Conclusion

Stress, anxiety and depression are common among nursing students. Meta-analyses report about 27% to 38% for most conditions, with higher figures in Asia, during the COVID-19 pandemic and when stress is measured with perceived-stress scales, and comparable Indian studies gave pooled prevalences of 43.2% for depression, 55.2% for anxiety and 35.1% for stress. The burden follows from the combination of academic and clinical demands, financial and social strain and poor sleep, and it is reduced by resilience, social support and effective coping. Consequences include reduced engagement and perceived achievement, burnout and, for some students, self-harm, whereas recorded grades are a weak marker of this burden.

For policy and practice, nursing councils and colleges should make periodic screening with a validated, locally appropriate tool a routine part of nursing programmes, with confidential results and a defined referral pathway; appoint a student counsellor or mentor in every college; schedule examinations, internal assessments and clinical postings so that they do not cluster; embed stress management, coping skills and substance-use awareness in the curriculum; and support students with financial hardship and reliable digital learning. For research, multi-centre studies with standardised instruments and probability samples, longitudinal cohorts from admission to internship, objective academic and clinical outcomes, and randomised trials of interventions in Indian nursing colleges are the priorities.

## Declarations

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**Data availability:** All data were extracted from the published sources cited in the reference list.

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