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# Enhancing Adjustment at the Undergraduate Level: A Scoping Review

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## ABSTRACT

Undergraduate students frequently face significant adjustment challenges due to academic demands, social transitions, and psychological stressors, particularly in the Indian higher education context. Although coping strategies have been widely studied, the extent to which structured interventions address multidimensional adjustment remains unclear. This scoping review aims to map and evaluate existing intervention-based studies focusing on coping and adjustment among undergraduate students. A comprehensive literature search was conducted across major databases, including PubMed and Scopus, supplemented by additional sources. A total of 250 records were identified, of which 17 studies met the inclusion criteria after systematic screening in accordance with PRISMA-ScR guidelines. Data were extracted and analyzed using a thematic synthesis approach. The findings indicate that interventions such as mindfulness-based programs, cognitive behavioural therapy (CBT), stress management training, and digital interventions are effective in reducing stress and improving coping strategies. However, most studies predominantly focus on emotional and psychological outcomes, with limited attention to broader adjustment domains, including social, educational, home, and health aspects. Furthermore, the Indian evidence base remains limited, with a lack of rigorous experimental designs and underrepresentation of non-medical student populations. The review highlights critical gaps, including the absence of holistic, multi-domain intervention models and the need for context-specific research in India. These findings underscore the importance of developing integrated and evidence-based interventions to support comprehensive student adjustment.

Keyword -Adjustment; Coping strategies; Undergraduate students; Intervention; India

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## 1. Introduction

The transition to undergraduate education is a critical developmental stage that involves profound academic, social, and psychological transformations. A student entering higher education usually faces several stressors, such as academic pressure, family separation, financial pressures, and the need to form new social networks. These issues often cause problems with adjustment, which is an individual's ability to adapt to new environmental, social, and personal needs successfully (Baker and Siryk, 1984). Adjustment as a construct in the context of higher education is multidimensional, which has been categorised into emotional, social, educational, home and health dimensions, all of which play a role in the overall well-being of the student and their academic success.

There is a large amount of literature that reveals the presence of high levels of stress, anxiety, and depression in undergraduate students, which are regularly higher than those found in the general population (Auerbach et al., 2016; Ibrahim et al., 2013; Rotenstein et al., 2016). Research has continuously indicated that academic stress, lack of knowledge regarding future professions, and social issues have a tremendous effect on the mental well-being and adjustment of students (Beiter et al., 2015; Hunt and Eisenberg, 2010). These difficulties have been further enhanced by the COVID-19 pandemic, which increased the levels of stress and adversely impacted the psychological well-being of students (Son et al., 2020).

To deal with these stressors, students use different coping strategies, which are described as thoughts and actions that are taken to handle internal and external demands that are perceived as stressful (Carver, 1997; Folkman and Moskowitz, 2004). Coping strategies may be adaptive, which include problem-solving and seeking social support, and maladaptive, which include avoidance and denial (Skinner et al., 2003). Coping is important as it is a key factor in promoting successful adjustment, and poor coping strategies result in poor academic performance and mental health (Friedlander et al., 2007).

These issues are especially acute in the Indian

higher education sector because of the high level of academic rivalry, expectations of society, and the lack of mental health support in institutions (Chakraborty & Thakurata, 2013; Venkatarao et al., 2015). Research has also emphasized the prevalence of stress and psychological distress among Indian undergraduate students, in particular in professional courses, including medicine and engineering (Jayaweera et al., 2016). Although the problems have increasingly been identified, there are few systematic and organized methods to deal with adjustment and coping in the Indian context.

Despite the increased attention of researchers to the topic of mental health and coping among undergraduate students, the number of intervention-based studies has been low, especially in the Indian higher education system. The available literature is more inclined to describe or present observational studies of stress levels and coping patterns, but not to assess structured interventions aimed at enhancing adjustment outcomes.

Moreover, research in the field is significantly present, with most studies focusing on medical students, while engineering and other undergraduate students remain underrepresented. The current literature lacks rigorous experimental designs, including randomised controlled trials, which are necessary to demonstrate the effectiveness of interventions (Regehr et al., 2013).

The absence of a multi-dimensional study of adjustment is another important limitation. The majority of the literature includes individual psychological outcomes (stress or anxiety), but does not take into account the entire continuum of adjustment areas. Consequently, the impact of interventions on students' overall adaptation across various aspects of life is poorly understood.

A multidimensional conceptualisation informs this paper of adjustment based on five main domains: home, social, educational, emotional, and health. These areas are a reflection of various issues undergraduate students have to contend with, and offer a holistic conceptualisation of the issues surrounding student adaptation in higher learning institutions (Baker and Siryk, 1984).

In this context, coping strategies can be regarded as mediating processes that help students to react to stressors and adjust to academic and interpersonal conditions. Interventions aimed at improving coping skills should thus positively affect adjustment outcomes in these domains. Nevertheless, it is unclear how current interventions are integrated to cover all five domains; thus, there is a need to conduct a systematic mapping of the literature.

Although the importance of student mental health issues has increasingly been acknowledged, there are still several gaps in the literature. To begin with, the current literature is seldom focused on all areas of adjustment, which, at the same time, leads to piecemeal and incomplete intervention strategies. Secondly, coping strategies have been extensively researched but have not been included in systematic intervention programs, which restricts their applicability in practice.

Moreover, research on specific indigenous contexts is highly lacking in India, particularly studies of a variety of undergraduate populations other than medical students. Existing intervention-based and experimentally rigorous studies are limited; this further constrains the development of evidence-based practices. These gaps highlight the importance of a detailed synthesis of the available research to inform subsequent interventions and policy-making processes.

This study seeks to map and appraise the available intervention-based studies that are based on adjustment and coping strategies among undergraduate students in India. The study aims to answer the following research questions:

1. What are some of the intervention-based strategies for enhancing adjustment and coping among undergraduate students?
2. What areas of adaptation do these interventions address? What are the outcomes of these interventions?
3. Are there gaps in the existing literature, especially in underrepresented groups, including engineering students and the combination of multi-domain adjustment strategies?

## 2. Methodology

### 2.1 Study Design

In this research, the scoping review design was used to map and synthesise the available literature on intervention-based strategies for adjustment and coping in undergraduate students. The scoping review methodology was chosen because it is appropriate for exploring a wide and heterogeneous group of literature, especially in new areas of research where evidence is dispersed. The review was carried out based on the guidelines of Preferred Reporting Items of Systematic Reviews and Meta-Analyses Extension to Scoping Reviews (PRISMA-ScR). Moreover, the methodological framework further adapted by Levac et al. facilitated the overall review process, as it provides a systematic and comprehensive approach to the process of identification, selection, and synthesis of relevant research.

### 2.2 Research Objectives

The main aim of the scoping review was to determine and map the already existing literature on intervention-based approaches to coping and adjustment among undergraduate students. The aim of the study was also to look into the kind of interventions applied, their delivery methods and the results in the literature. Moreover, the review aimed to evaluate the extent to which various spheres of adjustment are covered in these interventions, contrast Indian and international evidence, and detect gaps that are crucial in the current research, especially within the Indian system of higher education.

### 2.3 Eligibility Criteria

Relevance and consistency were ensured by using predefined inclusion and exclusion criteria to select studies. The inclusion criteria were that the studies must have targeted a population of undergraduate students and involved interventions of some kind in terms of coping and/or adjustment. The studies had to be eligible and measurable and have outcomes such as stress reduction, coping enhancement, resilience or indicators associated with adjustment. Articles were only considered when they were published in peer-reviewed journals, in English and within the past ten years.

Rejected studies were those that were not interventions, not targeted at undergraduate populations and did not report on the relevant outcomes. Further, protocol-only studies that lacked outcome data, publication duplicates, and studies that lacked sufficient methodological data were omitted from the review. These criteria helped to guarantee that the studies included were in line with the goals of the review and that they provided meaningful evidence to the synthesis.

#### *2.4 Information Sources and Search Strategy*

Relevant studies were identified in a thorough literature search that was carried out in various electronic databases, among them PubMed and Scopus. Additional sources like Google Scholar and reference lists of chosen articles were also studied to make sure that the literature is well covered. The search strategy was formulated by a combination of words based on the main ideas of the research, such as adjustment, coping strategies, intervention, undergraduate students, mental health, and India. Refining the search and increasing the accuracy of the retrieved information were done using Boolean operators like 'AND' and 'OR'. This multi-source and multi-database strategy enabled the discovery of a wide range of studies applicable to the research aim.

#### *2.5 Study Selection Process*

The choice of the study selection was performed in several steps in line with PRISMA-ScR guidelines. Firstly, the database searches and other sources identified 250 records. After the elimination of duplicates, 210 unique studies were further screened. These studies were screened on the basis of their titles, and irrelevant studies were filtered out for not aligning with the research objectives. This was followed by the retention of 70 studies to undergo abstract screening, and then 40 more studies were excluded, failing to meet the inclusion criteria.

After this, 30 full-text articles were evaluated in terms of eligibility. Among these, 13 articles were eliminated because of the absence of an intervention focus, irrelevance to undergraduate populations, unsuitable study setting, protocol-only design, lack of data, or redundancy. Finally, 17 studies were selected that met all the eligibility criteria and were incorporated in the final scoping

review. The selection process for studies, in detail, is shown in Figure 1.

#### *2.6 Data Charting and Extraction*

A systematic extraction of data in the included studies was done through a structured data charting framework to fit the purpose of the review. The major details that were gathered in each of the studies included the details of the authors, the year in which the study was done, the country where the study was done, the characteristics of the population, the study design, the type of intervention, how it was done, the outcomes and significant results. The systematic extraction facilitated comparisons and syntheses of studies made consistently. The obtained data are summarized and explained in Table 1, which gives a complete picture of the nature of the included studies.

#### *2.7 Data Analysis and Synthesis*

The extracted data were subjected to thematic synthesis to identify patterns and classify the types of interventions and outcomes. The interventions were categorized into thematic categories, including mindfulness-based interventions, cognitive behavioural therapy (CBT)-based interventions, stress management programs, digital and online interventions, social support-based interventions, and institutional-level interventions. Table 2 presents these thematic classifications.

Along with thematic categorization, it included an analysis of the outcomes of interventions, revealing frequently reported effects such as stress reduction, coping, and resilience. Also, the studies were examined based on how various spheres of adjustment were covered, including emotional, educational, social, home and health. Indian and global evidence were also compared to find differences in the scope of the research, methodology, and intervention design. The general synthesis is further demonstrated by a conceptual model visually represented in Figure 2 that combines the intervention types, coping strategies, domains of adjustments, and outcomes.

#### *2.8 Quality Appraisal*

As per the methodological principles of scoping reviews, a formal quality appraisal of included studies was not done. The main purpose of this

review was to chart the scope, breadth and content of the available literature and not to evaluate the quality of the methodology used by particular studies. This methodology aligns with PRISMA-ScR principles and enables the incorporation of a variety of different study designs to give a clear picture of the evidence base.

### 2.9 Reporting

The results of this scoping review are provided as per the PRISMA-ScR, which implies transparency, clarity, and reproducibility of the research process. The systematic display of the study selection, characteristics, thematic findings, and gaps identified makes the review more rigorous and credible and contributes to the current body of knowledge on intervention-based methods of coping and adjustment in undergraduate students as well.

## 3. Results

### 3.1 Study Selection

The extensive literature search was undertaken in various electronic databases, including PubMed, Scopus, and other sources. We were able to find

250 records, including 240 records obtained using database searching and 10 records obtained by other means, including Google Scholar and reference lists.

After eliminating the duplicate records, 210 distinct studies were left to go through with further screening. These sources were screened based on their titles, where 140 were eliminated because they were irrelevant to the study objectives. The rest of the 70 studies were screened on abstracts, and 40 studies were thus excluded as they failed to meet the inclusion criteria.

Afterwards, 30 full-text articles were evaluated regarding their eligibility. Nine of these were eliminated because they didn't focus on interventions, did not involve undergraduates, were irrelevant to the context, were protocol-only studies, had inadequate data, or had duplication in publication.

Finally, 17 studies were selected based on the eligibility criteria and included in the final scoping. Figure 1 shows the step-by-step procedure of study selection.

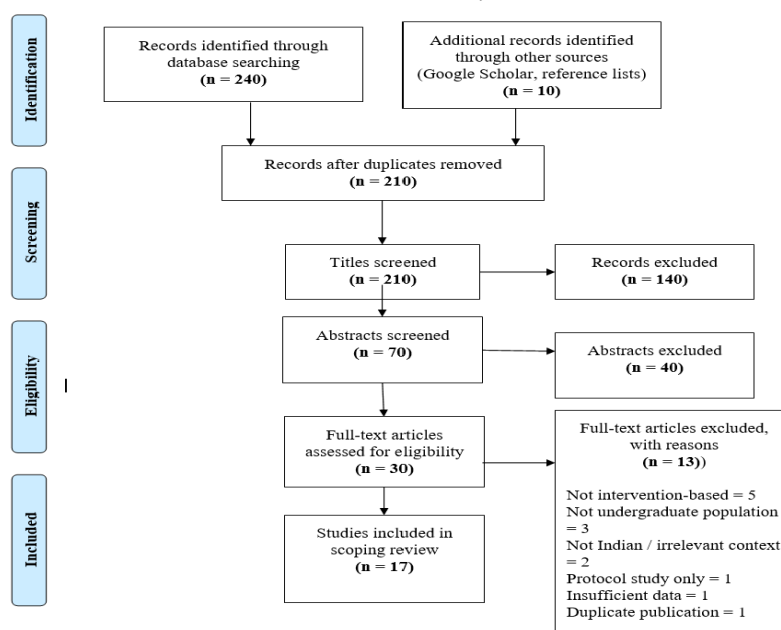


Figure 1. PRISMA flow diagram

### 3.2 Characteristics of Included Studies

Table 1 shows the characteristics of the included studies. This scoping review included 17 studies after duplicate records were eliminated and eligibility criteria were applied. These experiments were undertaken in both the Indian and global

settings, which provided a broader scope for intervention-based methods of coping and adjustment among undergraduate learners.

Most of the studies included were on university and medical students, with a significant number of studies being in the field of medical education in

India. A huge gap in the literature is that very few studies were conducted on undergraduate populations other than that of medicine, especially on engineering students.

Regarding the study design, the studies included were characterised by a variety of methodologies. The large share was occupied by randomised controlled trials (RCTs) that assessed the efficacy of structured interventions such as mindfulness-based programs, cognitive behavioural therapy (CBT), and stress management training. Moreover, some studies utilised non-randomised intervention designs and feasibility studies, especially in the Indian context. Very few studies employed both quantitative and qualitative methodologies to examine participants' experiences. Moreover, a limited number of studies selected cross-sectional designs, with the main purpose of determining coping strategies but not interventions.

The identified interventions were of different types and modes of delivery, such as mindfulness-based interventions, CBT-based group treatments, digital/web-based interventions, stress

management training, and institutional mental health programs. These were offline, online and blended interventions, from short-term programs to long-term follow-up.

One important finding of these studies is that intervention-based research in the Indian undergraduate setting is underrepresented, especially beyond the arena of medical education. Although global studies exhibit a broader assortment of structured and rigorously evaluated interventions, Indian studies frequently have small sample sizes, shorter duration, and limited experimental designs. Additionally, there is a lack of interventions targeting multiple areas of adjustment at the same time, as most studies focus on emotional and psychological outcomes.

As a whole, the results suggest that despite the growing popularity of intervention-based approaches to coping and adjustment, context-specific, comprehensive, and discipline-focused interventions in the context of the Indian higher education system are still in great demand.

**Table 1. Characteristics of included studies examining intervention-based approaches to adjustment and coping among undergraduate students**

| Author (Year)               | Country | Population          | Study Design  | Intervention Type                 | Mode    | Outcomes Measured     | Key Findings                                           |
|-----------------------------|---------|---------------------|---------------|-----------------------------------|---------|-----------------------|--------------------------------------------------------|
| Antony & Neelakantan (2025) | India   | College students    | Experimental  | Mindfulness-based intervention    | Offline | Stress, coping        | Significant improvement in coping and stress reduction |
| Conley et al. (2015)        | USA     | University students | Meta-analysis | Mental health prevention programs | Mixed   | Mental health, coping | Universal programs improve psychological adjustment    |
| Frazier et al. (2015)       | USA     | College students    | RCT           | Web-based stress management       | Online  | Stress, coping        | Effective in reducing stress and improving coping      |
| Galante et al. (2018)       | UK      | University students | RCT           | Mindfulness training              | Offline | Resilience, stress    | Improved resilience and reduced stress                 |
| Galante et                  | UK      | University          | RCT (follow-  | Mindfulness                       | Offline | Stress,               | Sustained long-                                        |

| al. (2021)                   |          | students            | up)             | intervention                         |         | wellbeing                   | term benefits                                      |
|------------------------------|----------|---------------------|-----------------|--------------------------------------|---------|-----------------------------|----------------------------------------------------|
| Jaisoorya et al. (2023)      | India    | College students    | Program study   | State-wide mental health program     | Mixed   | Mental health, adjustment   | Institutional support improves student wellbeing   |
| Kanuri et al. (2015)         | India    | University students | RCT (protocol ) | Internet-based CBT                   | Online  | Anxiety, coping             | High feasibility and acceptability                 |
| Karthik Rajan (2025)         | India    | Students            | Mixed-method    | Social support-based coping          | Mixed   | Coping, stress              | Social support buffers stress effectively          |
| Kim et al. (2016)            | Korea    | Students            | RCT             | Integrated stress management program | Offline | Stress, coping              | Significant reduction in stress levels             |
| Nebhinani et al. (2024)      | India    | Medical students    | Experimental    | Stress management training           | Offline | Stress, coping              | Effective skill-based improvement                  |
| Pai et al. (2023)            | India    | Medical students    | Cross-sectional | Coping strategies (observational)    | —       | Stress, coping              | Identifies dominant coping patterns                |
| Priyadharshini et al. (2021) | India    | Medical students    | Non-RCT         | Intervention program                 | Offline | Stress, resilience          | Improved coping and resilience                     |
| Rentalal et al. (2019)       | India    | Students            | RCT             | Holistic stress management           | Offline | Stress, wellbeing           | Significant reduction in stress                    |
| Ritvo et al. (2021)          | Canada   | Students            | RCT             | Mindfulness-based intervention       | Online  | Depression, anxiety, stress | Strong improvement across mental health indicators |
| Samantaray et al. (2021)     | India    | Medical students    | RCT             | CBT group therapy                    | Offline | Anxiety, coping             | Effective for social anxiety                       |
| Singh & Samantaray (2022)    | India    | University students | RCT             | CBT + exposure therapy               | Offline | Anxiety                     | Effective intervention outcomes                    |
| Tariq et al. (2022)          | Pakistan | Medical students    | Cross-sectional | Coping strategies                    | —       | Stress, coping              | Identifies coping patterns                         |

### 3.3 Types of Interventions Identified

The studies included were reviewed to find the scope and the nature of the interventions applied

to the coping and adjustment of undergraduate students. The interventions were grouped into six broad themes based on thematic analysis as summarized in Table 2.

### 3.3.1 Mindfulness-Based Interventions

One of the most commonly used interventions throughout the included studies was mindfulness-based interventions. The main aim of these interventions was to improve the awareness, emotional regulation, and stress resilience of students. The research conducted by Antony and Neelakantan (2025), Galante et al. (2018, 2021), and Ritvo et al. (2021) revealed that mindfulness-based interventions made a considerable contribution in decreasing stress levels, improving emotion regulation, and enhancing the psychological resilience of undergraduates. These interventions tended to be organized and take place in several sessions, suggesting that they might have a long-term effect.

### 3.3.2 Cognitive Behavioral Therapy (CBT)-Based Interventions

Another notable category of interventions was CBT-based interventions. The work by Samantaray et al. (2021) and Singh and Samantaray (2022) applied structured cognitive and behavioral interventions to deal with psychological distress in students. Such interventions proved to be especially effective in coping with anxiety-related problems, which led to a decrease in anxiety levels and strengthening of coping mechanisms. The results indicate that CBT-based interventions are very effective in addressing specific mental health issues in populations of undergraduates.

### 3.3.3 Stress Management Programs

Some studies were centered on structured stress management programs geared towards enhancing the capacity of students in managing academic and psychological stressors. The interventions mentioned by Nebhinani et al. (2024), Priyadharshini et al. (2021), and Rentala et al. (2019) showed positive results, such as decreased academic stress levels, enhanced resilience, and more positive results of the adjustment process.

The programs usually incorporated a blend of relaxation skills, psychoeducation, and training on coping skills.

### 3.3.4 Digital and Online Interventions

Online and digital interventions were found to be a new and accessible method of helping students with mental health. Investigations of the web-based and internet-delivered interventions were conducted by Frazier et al. (2015) and Kanuri et al. (2015). These interventions demonstrated greater access and convenience among the students, though their effectiveness was reported to be moderate compared to the face-to-face interventions. However, they have great scalability potential within the higher education setting.

### 3.3.5 Social Support-Based Interventions

The interventions based on social support placed special attention on interpersonal relationships for coping with stress. The article by Kathik Rajan (2025) emphasized the stress-buffering power of social support and showed that both peer and family support significantly boost the coping skills of students. These interventions support the significance of social networks in enhancing the psychological well-being of undergraduates.

### 3.3.6 Institutional and Program-Level Interventions

Interventions at the institutional level were also identified, which aimed at systematic interventions on student mental health. A state-wide mental health program described in the study by Jaisoorya et al. (2023) was designed to enhance access to psychological services among college students. These interventions help to increase access to mental health services. They are indicative of the increased significance of institutional responsibility in adopting the well-being of students on a larger scale.

On the whole, the results suggest that although there are different intervention strategies, they are frequently disorganised, aim at psychological consequences and are not well integrated on many levels of student adjustment.

**Table 2. Thematic Classification of Interventions and Outcomes**

| Intervention Type | Studies | Mode of | Key Components | Outcomes |
|-------------------|---------|---------|----------------|----------|
|-------------------|---------|---------|----------------|----------|

|                                                        |                                                                               | <b>Delivery</b>  |                                                                              |                                                                     |
|--------------------------------------------------------|-------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Mindfulness-Based Interventions                        | Antony & Neelakantan (2025); Galante et al. (2018, 2021); Ritvo et al. (2021) | Offline / Online | Mindfulness training, meditation practices, awareness exercises              | Reduced stress; improved emotional regulation; increased resilience |
| Cognitive Behavioral Therapy (CBT)-Based Interventions | Samantaray et al. (2021); Singh & Samantaray (2022)                           | Offline          | Cognitive restructuring, behavioral techniques, exposure therapy             | Reduced anxiety; improved coping mechanisms                         |
| Stress Management Programs                             | Nebhinani et al. (2024); Priyadharshini et al. (2021); Rentala et al. (2019)  | Offline          | Psychoeducation, relaxation techniques, coping skills training               | Reduced academic stress; improved resilience and adjustment         |
| Digital / Online Interventions                         | Frazier et al. (2015); Kanuri et al. (2015)                                   | Online           | Web-based modules, self-help tools, guided interventions                     | Improved accessibility; moderate effectiveness                      |
| Social Support-Based Interventions                     | Karthik Rajan (2025)                                                          | Mixed            | Peer support, family support, social interaction frameworks                  | Stress buffering effect; improved coping                            |
| Institutional / Program-Level Interventions            | Jaisoorya et al. (2023)                                                       | Mixed            | Policy-level programs, counseling services, structured mental health support | Improved access to mental health services; institutional impact     |

### 3.4 Outcomes of Interventions

The results of the incorporated studies were put together to determine the major areas of impact on the coping and adjustment of undergraduate students. Stress reduction was the most common outcome reported (across the studies included), especially in mindfulness-based interventions and stress management interventions. The percentage of research that showed structured interventions to be highly effective in lowering the perceived stress levels in students was quite high.

Also, the enhancement of coping strategies was prevalent. Cognitive behavioral therapy (CBT), mindfulness training and stress management programs were interventions that increased the capacity of students to manage both academic and emotional difficulties.

The number of studies that indicated increased resilience was moderate, which means that some

interventions, in particular, mindfulness-based ones, helped to enhance the psychological adaptability of students in the long-term.

Moreover, several randomized controlled trials demonstrated decreasing anxiety and depressive symptoms, especially in interventions that use CBT and mindfulness, implying their value in the treatment of widespread mental health issues in undergraduate groups.

Nevertheless, overall adjustment improvement, such as social, educational, and emotional adjustment, has been measured less often as a primary outcome. Few studies have specifically studied adjustment in such a holistic way, which shows there is a gap in the existing literature.

In general, the results suggest that the majority of interventions are focused on the mental health outcomes, i.e., stress, anxiety, and coping skills. Conversely, adjustment as a multidimensional

concept has not been fully explored, and there is little focus on considering all domains of adjustment in a combined approach. This underscores the importance of more thorough intervention models in the undergraduate setting.

The extent to which different domains of student adjustment were addressed across the included studies was analysed. The distribution and depth of coverage across domains are presented in Table 3.

### 3.5 Adjustment Domains Covered

**Table 3. Coverage of Adjustment Domains Across Included Studies**

| Adjustment Domain            | Level of Coverage | Nature of Evidence                                                                                          | Representative Studies                                                                                  | Interpretation                                                                               |
|------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Emotional Adjustment         | High              | Frequently assessed outcomes such as stress, anxiety, emotional regulation, and psychological well-being    | Antony & Neelakantan (2025); Galante et al. (2018, 2021); Ritvo et al. (2021); Samantaray et al. (2021) | Dominant focus of interventions; reflects strong emphasis on mental health outcomes          |
| Educational Adjustment       | Moderate          | Indirect outcomes such as academic stress reduction, improved concentration, and performance-related coping | Nebhinani et al. (2024); Priyadharshini et al. (2021); Rentala et al. (2019)                            | Addressed indirectly through stress reduction; not explicitly targeted in most interventions |
| Health (Mental & Behavioral) | Moderate          | Focus on psychological health, resilience, and well-being; limited focus on physical health behaviors       | Kim et al. (2016); Frazier et al. (2015)                                                                | Health outcomes are largely psychological; physical health aspects are underrepresented      |
| Social Adjustment            | Limited           | Focus on peer support, social interaction, and support systems                                              | Karthik Rajan (2025); Jaisoorya et al. (2023)                                                           | Social aspects are acknowledged but not systematically integrated into interventions         |
| Home Adjustment              | Very Limited      | Minimal or no direct assessment of family environment or home-related adjustment                            | —                                                                                                       | Neglected domain; represents a critical gap in intervention design                           |

The findings indicate that current interventions are heavily skewed toward emotional and psychological domains, with limited integration of educational, social, and health-related dimensions, and near absence of home adjustment. This imbalance demonstrates that existing intervention models are not holistic, failing to address all five domains of student adjustment comprehensively.

### 3.7 Indian vs Global Evidence

The included studies were comparatively analysed to identify differences in the nature, scope, and methodological rigour of intervention-based research conducted in the Indian context and global settings. The synthesised comparison is presented in Table 4.

**Table 4. Comparative Analysis of Indian and Global Intervention-Based Evidence**

| Dimension                         | Indian Evidence (n ≈ 9)                                                                                             | Global Evidence (n ≈ 8)                                                                                 | Interpretation                                                                                       |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Study Volume                      | Limited number of intervention studies                                                                              | Relatively higher number of intervention studies                                                        | Indicates underrepresentation of Indian research in this domain                                      |
| Population Focus                  | Predominantly medical students (e.g., Nebhinani et al., 2024; Priyadharshini et al., 2021; Samantaray et al., 2021) | Diverse undergraduate populations across disciplines (e.g., Galante et al., 2018; Frazier et al., 2015) | Lack of disciplinary diversity in Indian studies, especially absence of engineering-focused research |
| Study Design                      | Fewer RCTs; more quasi-experimental and feasibility studies                                                         | Higher proportion of RCTs and controlled trials                                                         | Global evidence demonstrates stronger methodological rigor                                           |
| Intervention Type                 | Primarily stress management and CBT-based interventions                                                             | Wider range including mindfulness, digital, CBT, and integrated models                                  | Limited innovation and diversity in Indian intervention approaches                                   |
| Intervention Delivery Mode        | Mostly offline, face-to-face interventions                                                                          | Combination of offline, online, and hybrid delivery modes                                               | Global studies show greater adoption of scalable digital interventions                               |
| Duration of Intervention          | Mostly short-term interventions (few weeks)                                                                         | Includes both short-term and long-term interventions with follow-ups (e.g., Galante et al., 2021)       | Lack of long-term evaluation in the Indian context                                                   |
| Outcome Focus                     | Primarily stress reduction and coping improvement                                                                   | Broader outcomes including resilience, mental health, and functional adjustment                         | Indian studies focus narrowly on immediate psychological outcomes                                    |
| Adjustment Domain Coverage        | Limited to emotional and psychological domains                                                                      | Wider coverage, though still not fully holistic                                                         | Both contexts lack full integration of all adjustment domains                                        |
| Sample Size                       | Generally small to moderate samples                                                                                 | Moderate to large sample sizes                                                                          | Limits generalizability of Indian findings                                                           |
| Use of Technology                 | Minimal use of digital platforms                                                                                    | Extensive use of web-based and app-based interventions (e.g., Frazier et al., 2015)                     | Reflects digital gap in Indian intervention research                                                 |
| Institutional-Level Interventions | Limited (e.g., Jaisoorya et al., 2023)                                                                              | More structured institutional and system-level approaches                                               | Indian research lacks policy-level and systemic interventions                                        |
| Evidence Strength                 | Emerging evidence base                                                                                              | Established and evolving evidence base                                                                  | Confirms developmental stage of Indian research                                                      |

The comparative analysis shows that the intervention-based research on coping and adjustment in India is at an early phase, with a low volume of studies, less population focus, and methodological rigour. Global studies, on the other hand, show a more advanced, varied, and methodologically sound evidence base, with novel modes of delivery and long-term assessment.

This gap underscores the importance of high-quality, large-scale, and multidisciplinary intervention studies in the Indian higher education setting, especially focusing on underrepresented groups like engineering students, and covering several areas of adjustment comprehensively.

### *3.8 Key Gaps Identified*

The synthesis of the reviewed studies demonstrated that there are a few crucial gaps in the literature on intervention-based strategies of coping and adjustment of undergraduate students. These gaps also indicate some key areas where research and development can be done in future, especially in the context of Indian higher education.

One of the weaknesses identified is the absence of discipline-specific interventions, especially for engineering students. Most of the studies that were included were targeted at medical or general populations of universities, with little emphasis on other academic fields. This restricts the generalizability of existing results to different categories of students and highlights the necessity of specific interventions for certain academic settings.

The other major gap is that the availability of multi-domain adjustment programs is limited. Interventions were mostly tailored to deal with individual psychological outcomes, including stress or anxiety, as opposed to dealing with several areas of adjustment, including emotional, social, educational, home, and health-related. Consequently, the current interventions do not have a holistic approach that would foster the overall development of the students.

The review also found that there were no long-term follow-up studies, especially in the Indian context. The majority of interventions were short-term, and little was done in terms of evaluation of

long-term results. This limits the knowledge on the effectiveness and sustainability of intervention programs in the long term.

Moreover, a lack of strict randomized controlled trials (RCTs) carried out in India can be observed. Although the global literature has shown a greater propensity towards experimentally robust studies, Indian studies tend to have a quasi-experimental or feasibility design. This restricts the evidence of the effectiveness of interventions in the local setting.

Moreover, the emphasis on holistic adjustment is low, and the number of studies that consider all five areas of adjustment is very low. The current intervention strategies are usually focused on emotional and psychological outcomes, overlooking other important aspects including social integration, academic functioning, and adjustment at home.

### *3.9 Summary of Findings*

The scoping review was a synthesis of the evidence on the intervention-based coping and adjustment methods among undergraduate students with a special emphasis on the Indian context. All in all, the evidence-based results show that, although a variety of interventions have already been designed and implemented, the current evidence base is still disjointed and unequally spread across domains and populations.

The interventions identified can be mostly described as mental health-focused, with the main goal of stress, anxiety, and psychological distress reduction. Mindfulness-based interventions, cognitive behavioral therapy (CBT) and stress management programs are approaches that have proved to be effective in enhancing the emotional well-being of students. Nevertheless, in many cases, these interventions are confined to particular results, and they do not implement a multi-dimensional approach that encompasses a comprehensive adjustment.

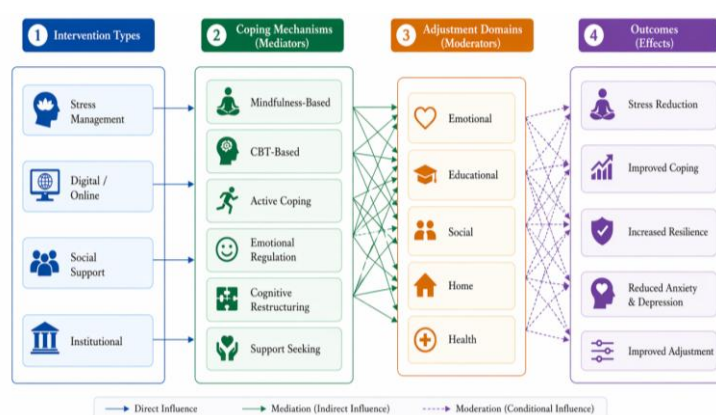
Coping strategies, in their turn, have been thoroughly researched throughout the literature. A lot of research has been done on how students cope with stress and academic difficulties and has identified different adaptive and maladaptive coping strategies. Nevertheless, the coping

strategies are seldom integrated into structured and intervention-based programs and hence a gap between the theory and its application.

The review also points out that the Indian research scene is underdeveloped compared to the evidence across the world. Available literature is relatively small in size, mainly based on medical students, and methodologically deficient, including randomized controlled design and long-term follow-up. Furthermore, the lack of interventions that are specific to a particular student group, especially engineering students, and the lack of interventions that address several aspects of

adjustment are also significant.

The results indicate that the intervention-based studies on coping and adjustment are on the rise, but there is an urgent necessity for integrated, evidence-based, and context-specific interventions in the Indian system of higher education. Further research should aim to create multi-domain adjustment frameworks and coping strategies that are holistic and specific to different undergraduates. Figure 2 demonstrates the conceptual connections between types of interventions, coping processes, areas of adjustment and outcomes.



**Figure 2. Conceptual framework illustrating the relationships between intervention types, coping mechanisms, adjustment domains, and outcomes among undergraduate students**

#### 4. Discussion

The purpose of this scoping review was to map and synthesize the available literature on intervention-based strategies to cope and adapt among undergraduate students, specifically in the Indian context. The results indicate that there is a variety of interventions available, but the evidence base is still overall fragmented, with most studies focusing on psychological outcomes, including stress reduction, stress management, and coping skills. Concluding these findings, one can say that existing models of interventions are predominantly mental health-focused, missing out on the multidimensionality of student adjustment. This is echoed by the fact that emotional adjustment outcomes prevail in the literature, whereas other domains like social, educational, and home adjustment are under-researched. The theoretical framework constructed in this review

also shows that despite the effectiveness of interventions in coping processes, their transfer to results of holistic adjustments is minimal.

The fact that mindfulness-based interventions are the most common in the reviewed studies is a reflection of the increasing popularity of the methods as suitable means of improving emotional regulation and resilience. The results of studies like Antony and Neelakantan (2025), Galante et al. (2018, 2021), and Ritvo et al. (2021) consistently show stress reductions and enhancements in psychological well-being, which is consistent with evidence on mindfulness efficacy. Likewise, as Samantaray et al. (2021) and Singh and Samantaray (2022) note, CBT-based interventions prove to be highly effective when it comes to anxiety-related issues, supporting the theory-grounded, structured interventions in the context of student mental health. Nevertheless,

even though they are effective, these interventions are mostly aimed at treating particular psychological problems instead of being systemic adjustment models.

The results of the current review can be compared with more general literature, as Conley et al. (2015) highlighted the effectiveness of universal mental health prevention programs in higher educational institutions. Nonetheless, this insight has been expanded by the current review, suggesting that, although these programs work in improving psychological outcomes, they do not have sufficient capacity to cover the entire area of student adjustment. Likewise, the success of web-based interventions, as the study by Frazier et al. (2015) shows, indicates the increased significance of online platforms as a means of mental health support. However, unlike global trends, the Indian scenario reflects low uptake of such scalable interventions, which means that there is a high level of digital divide in the delivery of interventions.

One of the most important discoveries of this review is the discrepancy between the Indian and global evidence. Global studies are more methodologically rigorous as they are more likely to have randomized controlled trials and longitudinal follow-ups, such as in Galante et al. (2021). Indian studies, like Nebhinani et al. (2024) and Priyadharshini et al. (2021), however, tend to be based on smaller samples and short-term designs, which restricts the applicability and transferability of their results. In addition, research in India is strongly focused in the medical education field with little representation of other fields, especially engineering. This homogeneity limits the generalizability of interventions to larger groups of undergraduate populations.

The other significant finding is the unlinking between coping and structured interventions. Though research like Pai et al. (2023) and Tariq et al. (2022) does highlight important coping mechanisms embraced by students, such information is seldom applied to the design of interventions. This gap indicates that despite the good theorisation of coping, there is little practical implementation of coping in intervention frameworks. Moreover, the limited attention to multi-domain adjustment also undercuts the

efficacy of current interventions. The majority of the studies as found in this review focus on emotional outcomes and give little regard to social integration, academic functioning, and home-related adjustment, thus not taking a holistic approach.

Despite this useful information, this review is limited in some aspects. First, the fact that only English-language published studies were used might have led to the omission of other studies on this topic that were carried out in other languages. Second, the use of peer-reviewed articles might have restricted the inclusion of grey literature that could have offered more information about the emerging interventions. Third, being a scoping review, the study lacked a formal quality appraisal of the included studies, which can impact on the interpretation of the strength of evidence. Furthermore, the study designs, populations and types of interventions were very heterogeneous, and their synthesis presented difficulties in attaining a consistent synthesis of results.

This review has many meaningful implications for research, practice, and policy. Research-wise, more rigorous, large-scale, and longitudinal research, especially in the Indian context, is needed. Future studies are needed to prepare multi-domain intervention models that not only treat emotional well-being but also social, educational and home accommodation. It is also necessary to increase research to other undergraduate groups other than medical students, especially those in engineering and other non-health disciplines.

Practically, it is advisable that institutions of higher learning should contemplate adopting a form of intervention programs which integrate psychological support with academic and social adjustment programs. Accessibility and scalability (particularly in resource-restricted environments) can be improved by the integration of digital and hybrid intervention models. Moreover, institutional-level programs, including those outlined by Jaisooriya et al. (2023), are to be developed to develop supportive conditions that would foster student health on a systemic scale.

To sum up, although the concept of intervention-based strategies of coping and adjustment among undergraduate students becomes increasingly

popular, the existing evidence base is still narrow and shallow, specifically within the Indian context. The need to fill the identified gaps with the help of comprehensive, context-specific, and multidisciplinary solutions will be critical to further research and practice development in this area.

## 5. Conclusion

The present scoping review aims at offering an in-depth synthesis of intervention-based solutions to coping and adjustment in undergraduate students, specifically in the Indian setting. The results show that although diverse types of interventions, including mindfulness-based programs, cognitive behavioural therapy (CBT), stress management training, and digital interventions, have been proven to be effective in enhancing psychological outcomes, the evidence base is still heterogeneous and relatively small. One of the main findings of this review is that the current interventions are mostly aimed at emotional and mental health outcomes, including stress reduction, anxiety management, and enhancing coping skills. Nevertheless, the concept of adjustment is a multidimensional phenomenon that involves

emotional, social, educational, home and health aspects, which are seldom discussed in a detailed way. This deficiency in a comprehensive model of intervention restricts the holistic efficiency of prevailing strategies in helping students adjust to the intricacies of undergraduate living. Moreover, the review also points out that the Indian research space has considerable gaps, such as few intervention-based studies, a high concentration on medical students, and the absence of stringent experimental designs, such as randomized controlled trials. The generalizability of findings is further limited due to the underrepresentation of various student groups, especially engineering students. Finally, there is an urgent need for the elaboration of integrated, context-specific, and multidisciplinary intervention models, which would deal with multiple areas of adjustment at the same time. Future studies must focus on methodologically sound, large-scale studies and integrate digital and scalable designs to make studies more accessible. Enhancement of the evidence base in this direction is crucial to inform practical policies and practice to enhance the overall well-being and adaptation of undergraduate students in India.

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