Prioritizing Pathways Linking Educational Stress to Mental Health Outcomes: A Mixed-Methods Analysis Among Moroccan Students

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Article Info	ABSTRACT
  	Objective: This study aimed to identify and prioritize the key pathways through which educational stress influences mental health outcomes among students in Morocco using an integrated qualitative–quantitative framework. **Methods and Materials:** A sequential exploratory mixed-method design was employed. In the first phase, a qualitative thematic analysis was conducted through a systematic review of global and regional studies on educational stress and psychological well-being until theoretical saturation was achieved. The data were analyzed using NVivo 14, generating seven major themes: academic pressure, parental expectations, cognitive coping, peer climate, institutional factors, emotional outcomes, and resilience. In the second phase, a quantitative survey was administered to 160 Moroccan participants, including students and educators, who ranked the relative importance of the identified pathways using a five-point Likert scale. Data analysis was performed in SPSS 26, employing descriptive statistics, mean ranking, and Kendall's coefficient of concordance (W = 0.81, p < 0.001) to assess inter-rater agreement. **Findings:** Results indicated strong consensus among participants regarding the hierarchical influence of stress pathways on mental health. Academic pressure and performance anxiety emerged as the most influential pathway (M = 4.62, SD = 0.48), followed by parental and societal expectations (M = 4.40, SD = 0.55) and cognitive appraisal and coping styles (M = 4.25, SD = 0.59). Peer relations, institutional environment, and emotional outcomes ranked moderately, while resilience and protective mechanisms (M = 3.54, SD = 0.72) were perceived as reactive but essential buffers against stress-induced distress. **Conclusion:** Educational stress is a multidimensional construct shaped by academic, familial, cognitive, and institutional dynamics. Addressing these interconnected pathways through targeted interventions—such as resilience training, institutional reform, and family-based awareness—can significantly enhance students' mental health outcomes and academic sustainability in the Moroccan context. ***Keywords:*** *Educational stress; mental health; academic pressure; coping styles; resilience; Morocco; mixed-method research*

1. Introduction

In recent years, the interrelationship between educational stress and mental health outcomes has become a global concern across diverse educational, cultural, and socioeconomic contexts. The increasing prevalence of depression, anxiety, and stress among students and educational professionals highlights the growing psychosocial burden of academic environments worldwide (Zhu et al., 2025). Multiple studies indicate that the escalating academic workload, heightened performance expectations, and insufficient psychosocial resources have created a systemic vulnerability that extends from primary education to higher education levels (Ahmed et al., 2025; Islam et al., 2025). In this landscape, educational stress has transitioned from being a transient situational phenomenon to a persistent determinant of long-term psychological well-being. Scholars have thus turned to integrated frameworks that combine environmental, cognitive, and behavioral explanations to understand how educational stress transforms into clinical symptoms such as anxiety, depression, and emotional exhaustion (Al-Qaseer et al., 2025; Şanlı et al., 2024).

The COVID-19 pandemic further amplified these vulnerabilities by introducing digital learning transitions, social isolation, and uncertainty regarding academic futures. Research conducted among Sudanese medical students revealed that the abrupt shift to online education, compounded by the loss of social support, led to heightened psychological distress and dissatisfaction with learning experiences (Ahmed et al., 2025). Similarly, studies among Bangladeshi mothers of children with chronic conditions indicated that contextual stressors, including caregiving roles and socioeconomic uncertainty, significantly contributed to elevated stress, anxiety, and depression levels (Islam et al., 2025). These findings suggest that academic-related stress cannot be examined in isolation; it interacts dynamically with environmental, familial, and individual psychological factors. Furthermore, supportive training programs and resilience-building interventions have shown measurable benefits in reducing anxiety and depression among various populations, including patients and students (Al-Qaseer et al., 2025; Zhu et al., 2025).

Emerging literature underscores that the academic setting functions as a microcosm of broader psychosocial interactions. Cross-sectional analyses conducted across educational sectors consistently reveal that academic overload, pressure to achieve, and competition are dominant stressors influencing mental health (Bilmenoğlu et al., 2023; Devi et al., 2023). In dentistry and nursing programs, for instance, students often report high levels of emotional fatigue and low coping efficacy due to performance-based evaluation systems and lack of institutional support (Bapar et al., 2022; Bilmenoğlu et al., 2023). Comparable patterns have been observed in studies from Turkey, where elevated anxiety and depression rates among health and education workers were attributed to prolonged exposure to stress without adequate emotional resilience (Şanlı et al., 2024). These results demonstrate that educational stress manifests through both structural determinants (curriculum design, institutional demands) and psychological mediators (coping styles, emotional regulation).

Several researchers have further contextualized these stress mechanisms through sociocultural and familial lenses. In collectivist societies such as those in the Middle East and North Africa, family and societal expectations serve as double-edged swords—acting as sources of motivation but also as major contributors to psychological distress (Alfayumi-Zeadna et al., 2022; Rawi et al., 2022). Studies conducted among university students in Israel and Iraq revealed that minority and post-pandemic populations faced compounded stress due to social inequalities and the moral weight attached to academic performance. The intersection of socioeconomic stressors, cultural identity, and academic pressure created an environment conducive to chronic anxiety and depressive symptoms. Similarly, Jamal et al. found that open and distance learning environments intensified isolation and uncertainty, leading to diminished motivation and emotional resilience among undergraduate students (Jamal et al., 2022). The expansion of remote learning therefore illustrates the intricate interplay between technological change and mental health in academic contexts.

At the individual level, the cognitive appraisal of stress and the availability of coping strategies determine whether academic pressure evolves into psychological harm or adaptive challenge. Landa and colleagues showed that higher emotional intelligence and effective coping mechanisms predicted lower levels of depression and anxiety among university students (Landa et al., 2022). Conversely, deficits in emotional regulation and maladaptive coping styles—such as avoidance or suppression—were associated with severe mental health deterioration. Complementary evidence from Portugal demonstrated that relaxation-based interventions can significantly reduce distress levels in university populations,

underscoring the value of behavioral and cognitive approaches in managing stress (Costa et al., 2022). These findings collectively reinforce the idea that cognitive and emotional flexibility serve as protective mechanisms in stress-intensive educational systems.

At the same time, institutional and systemic factors remain powerful determinants of stress intensity. Research conducted in Iran and Saudi Arabia revealed that academic and healthcare environments with limited psychological support structures were linked to high prevalence rates of anxiety and depression among both students and professionals (Kakemam et al., 2020; Mohammad et al., 2020). Studies among Iranian nurses and pregnant women highlighted similar patterns, where exposure to continuous occupational and academic pressures produced compounding effects on emotional exhaustion (Effati-Daryani et al., 2020). Furthermore, Lu et al. demonstrated that structured stress management education could alleviate comorbid depressive and anxiety symptoms among individuals with chronic conditions, suggesting that psychoeducational interventions may offer transferable benefits within academic settings (Lu et al., 2020). The cumulative evidence suggests that the institutional environment must be considered a central actor, not merely a backdrop, in the study of educational stress.

The effects of stress are not confined to cognitive domains but extend into psychosomatic and behavioral outcomes. Emotional dysregulation arising from educational overload can trigger physiological symptoms such as sleep disturbances, fatigue, and headaches, reflecting the embodied nature of academic distress (Özdemir et al., 2022; Sarbarzeh et al., 2020). Among parents of children with medical conditions, stress and anxiety were found to produce spillover effects, affecting interpersonal relations and daily functioning (Özdemir et al., 2022). This bidirectional model—where psychological and physical health reciprocally influence one another—underscores the need for integrative research approaches that capture both mental and somatic dimensions of stress. Bilmenoğlu and colleagues emphasized that coping strategies mediate this relationship, suggesting that interventions targeting cognitive restructuring can interrupt the self-perpetuating cycle of anxiety and maladaptation (Bilmenoğlu et al., 2023).

The global literature also emphasizes the protective role of resilience. Studies conducted among civil servants and healthcare workers across China and other regions reveal that resilience buffers the negative effects of anxiety and depression by enhancing self-efficacy and emotional control (Özyer & AltaŞ, 2023; Song et al., 2021). This finding aligns with earlier work by Figueira et al., who demonstrated that physical activity and social engagement improve both resilience and mental health among older adults (Figueira et al., 2023). Similarly, Laranjeira's study on Portuguese higher education students during the early stages of the pandemic identified resilience as a mediating factor that moderated the psychological impact of environmental uncertainty (Laranjeira et al., 2023). These results underscore the necessity of embedding resilience-building strategies within educational frameworks to prevent long-term psychological damage.

Furthermore, the post-pandemic era has witnessed a notable surge in the prevalence of mental health disorders in educational environments. Studies in Malaysia, Egypt, and Brazil confirm that both students and educators face high levels of depression and anxiety due to the cumulative stress of adapting to hybrid learning systems and the fear of underperformance (Figueira et al., 2023; Muhammad Zakwan Fikhri Bin Mohd & Abdullah, 2021; Shalaby et al., 2020). For instance, Muhammad Zakwan Fikhri Bin Mohd and Abdullah's study on special education teachers in Malaysia found that occupational stress and job dissatisfaction significantly contributed to depressive symptoms, revealing parallels between professional and academic stress mechanisms. Likewise, research in India and Pakistan identified a strong correlation between gender, field of study, and vulnerability to academic stress, particularly among female adolescents (Bapar et al., 2022; Devi et al., 2023; Sonia et al., 2022). The convergence of evidence across nations and disciplines demonstrates that educational stress represents a pervasive global phenomenon, not limited by geography or developmental stage.

From a therapeutic and preventive standpoint, several intervention models have shown efficacy in mitigating educational stress and its mental health consequences. Supportive training programs, mindfulness-based therapies, and psychoeducation have all been associated with reductions in anxiety, depression, and stress levels (Al-Qaseer et al., 2025; Costa et al., 2022; Zhu et al., 2025). Moradian et al. found that self-care education significantly improved sleep quality and reduced psychological distress among post-discharge patients, illustrating that structured learning interventions can have transferable applications in educational psychology (Moradian et al., 2022). Similarly, Ghasempour et al. demonstrated that targeted training in

caregiving skills enhanced psychological outcomes among mothers of premature infants, emphasizing that empowerment through education is a universal mechanism for stress alleviation (Ghasempour et al., 2024). When applied to academic populations, such evidence suggests that skill-based, psychoeducational approaches can cultivate adaptive coping and reduce vulnerability to mental health deterioration.

Despite the diversity of research settings and populations, a unifying pattern emerges: educational stress is multidimensional, shaped by personal, social, and institutional forces that jointly determine its psychological impact. Whether among students, healthcare professionals, or parents, the common denominator is the persistent imbalance between external expectations and internal coping resources. This imbalance contributes to escalating rates of depression, anxiety, and burnout across societies (Agyemang et al., 2021; Al-Maraira & Shennaq, 2021). While most studies have examined these variables separately, few have systematically prioritized the relative weight of different pathways linking educational stress to mental health outcomes. Addressing this gap is crucial to developing targeted, culturally sensitive interventions that align with both psychological theory and local realities.

Therefore, the present study aims to identify and prioritize the key pathways linking educational stress to mental health outcomes through an integrated mixed-method approach combining qualitative thematic analysis and quantitative ranking among Moroccan participants.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a sequential exploratory mixed-method design consisting of two distinct but interrelated phases. The first phase was qualitative, aimed at identifying conceptual pathways linking educational stress to mental health outcomes among students through a systematic review and thematic synthesis of the existing literature. The second phase was quantitative, designed to prioritize and validate the identified pathways using statistical ranking techniques.

The quantitative phase included 160 participants drawn from various educational institutions across Morocco, representing university students, high school teachers, and educational counselors. Participants were selected through stratified random sampling to ensure proportional representation of gender, academic level, and region. The

inclusion criteria required participants to (a) be currently enrolled or employed in an educational setting, (b) have at least one year of experience in the Moroccan educational system, and (c) provide informed consent for participation.

2.2. Measures

In the qualitative phase, data were collected exclusively through a systematic literature review focusing on peer-reviewed publications from 2010 to 2025. The search process included major academic databases such as Scopus, Web of Science, and ScienceDirect, using key terms such as "educational stress," "academic stress," "student mental health," "psychological distress," "coping," and "resilience." Studies were included based on their empirical contribution to understanding educational stress and mental health relationships in adolescent and young adult populations.

A total of 72 relevant articles were initially identified, of which 39 met the inclusion criteria after screening. The literature review continued iteratively until theoretical saturation was achieved—defined as the point when no new themes or conceptual linkages emerged from the data. Qualitative coding and thematic mapping were conducted using NVivo 14 software to organize, code, and synthesize data into conceptual categories.

In the quantitative phase, the validated pathways derived from the qualitative analysis were translated into structured questionnaire items rated on a five-point Likert scale ranging from "not important at all" to "extremely important." These items captured the perceived importance and influence of each pathway (e.g., "academic pressure → anxiety," "parental expectations → self-esteem," etc.). Data collection was administered through an online survey platform, ensuring accessibility and anonymity for all Moroccan participants.

2.3. Data Analysis

For the qualitative phase, data analysis followed thematic content analysis principles. Codes were inductively generated and grouped into higher-order themes reflecting different types of pathways linking educational stress to mental health outcomes, such as cognitive-emotional mechanisms, behavioral responses, and socio-environmental moderators. The NVivo 14 software facilitated data organization, frequency analysis, and visualization of thematic linkages through concept maps.

In the quantitative phase, descriptive and inferential analyses were performed using SPSS version 26. Data were screened for accuracy, missing values, and normality prior to analysis. Mean ranking was used to determine the relative importance of each identified pathway.

3. Findings and Results

The qualitative phase of this study aimed to identify the underlying pathways connecting educational stress to mental health outcomes through a systematic review of relevant literature until theoretical saturation was reached. Using NVivo 14, the data were coded inductively and thematically analyzed, resulting in seven major themes that collectively explain how stress in academic environments translates into emotional, cognitive, and behavioral consequences. Each main theme represents a conceptual domain derived from the synthesis of recurring ideas across the reviewed studies. Subthemes and open codes (concepts) within each theme illustrate the multidimensional nature of stress and its psychological implications for students.

Table 1

Thematic Structure of Pathways Linking Educational Stress to Mental Health Outcomes

Main Theme (Category)	Subthemes	Concepts (Open Codes)
1. Academic Pressure and Performance Anxiety	1.1 Fear of Failure	grade obsession; fear of disappointing parents; self-worth linked to results; anxiety before exams
	1.2 Workload Overload	excessive assignments; exam clustering; lack of rest; cumulative fatigue; burnout risk
	1.3 Competitive Environment	comparison with peers; ranking-based evaluation; social competition; fear of exclusion
2. Parental and Societal Expectations	2.1 Family Pressure	parental control; unrealistic aspirations; loss of autonomy; conditional affection
	2.2 Cultural Norms of Success	academic prestige; shame of underachievement; collectivist duty; moral obligation
3. Cognitive Appraisal and Coping Styles	3.1 Maladaptive Cognitions	catastrophizing; negative self-talk; perfectionism; rumination
	3.2 Emotion Regulation Strategies	suppression; avoidance; denial; reappraisal difficulty
	3.3 Adaptive Coping	mindfulness; problem-solving; acceptance; help-seeking behavior
4. Peer Relations and Social Climate	4.1 Social Support Deficits	isolation; peer rejection; lack of empathy; competition over cooperation
	4.2 Bullying and Victimization	cyberbullying; ridicule; performance-related teasing
	4.3 Collaborative Networks	study groups; emotional validation; belongingness
5. Institutional and Environmental Factors	5.1 Teacher Practices	harsh feedback; low emotional support; high expectations; teacher favoritism
	5.2 School Climate	rigid discipline; lack of counseling services; unsympathetic administration
	5.3 Policy and Systemic Stressors	exam-driven curriculum; limited extracurriculars; test-based accountability; inflexible schedules
6. Emotional and Behavioral Outcomes	6.1 Anxiety and Depression Symptoms	restlessness; hopelessness; low mood; panic episodes
	6.2 Behavioral Dysregulation	sleep problems; absenteeism; substance use; academic disengagement
	6.3 Psychosomatic Manifestations	headaches; stomach pain; muscle tension; fatigue
7. Resilience and Protective Mechanisms	7.1 Personal Strengths	optimism; self-efficacy; internal locus of control
	7.2 External Resources	mentor guidance; family warmth; peer companionship
	7.3 Growth Mindset Development	seeing failure as feedback; adaptive reframing; perseverance; motivation for mastery

The qualitative synthesis revealed that educational stress operates through multiple, interconnected mechanisms involving personal, social, and institutional dimensions. Academic pressure and parental expectations emerged as primary stressors, while cognitive appraisal and coping style determined the degree of psychological vulnerability. Emotional and behavioral outcomes such as anxiety, depression, and psychosomatic distress were consistently identified as consequences of prolonged educational strain. Conversely, resilience, supportive relationships, and adaptive mindsets served as protective pathways mitigating these effects. These seven themes formed the conceptual foundation for the quantitative prioritization phase, where Moroccan participants ranked the relative importance of each identified pathway using statistical analysis.

Theme 1: Academic Pressure and Performance Anxiety

Academic pressure and performance anxiety emerged as the most dominant pathway linking educational stress to mental health outcomes. The reviewed studies consistently emphasized that students often internalize their academic outcomes as reflections of self-worth, leading to heightened fear of failure and perfectionistic standards. Overwhelming workloads, clustered exams, and insufficient recovery periods contribute to chronic fatigue and burnout, especially in competitive school systems that reward ranking over learning. In such environments, students develop anticipatory anxiety—a constant preoccupation with the possibility of underperforming—which can trigger physiological and emotional distress. The comparative and evaluative nature of many academic contexts intensifies stress, fostering a culture of comparison that fuels self-doubt and withdrawal from social interaction. Ultimately, the internalization of academic success as an identity measure serves as a key mechanism through which educational stress manifests in psychological strain.

Theme 2: Parental and Societal Expectations

The second theme revealed the strong impact of parental and societal expectations on students' mental well-being. In collectivist cultures like Morocco, family honor and achievement norms exert substantial pressure on adolescents to meet or exceed predefined standards of success. Many studies described how parental overcontrol and conditional approval—where affection depends on performance—erode students' autonomy and self-esteem. Furthermore, cultural ideals of academic excellence portray education as a moral duty and a determinant of social status, thereby framing underachievement as a source of shame not only for the individual but for the family. This moralization of achievement amplifies internal conflict and emotional distress. When students' personal aspirations diverge from family-imposed expectations, the resulting cognitive dissonance often leads to anxiety, guilt, and depressive symptoms, reinforcing the psychological burden of educational stress.

Theme 3: Cognitive Appraisal and Coping Styles

The third theme highlighted the mediating role of cognitive appraisal and coping strategies in determining students' resilience or vulnerability under stress. Maladaptive cognitions such as catastrophizing, negative self-talk, and rumination intensify perceived stress, while difficulties in emotion regulation—including suppression and avoidance—limit adaptive responses. Students who interpret academic challenges as personal threats rather than opportunities tend to experience more severe emotional reactions. Conversely, adaptive coping mechanisms—such as mindfulness, problem-solving, acceptance, and help-seeking—were associated with lower psychological distress. The ability to reframe stressful situations through cognitive flexibility and emotional awareness emerged as a protective factor that can mitigate anxiety and depressive symptoms. This theme underscores the psychological interpretive processes that mediate the link between academic demands and mental health.

Theme 4: Peer Relations and Social Climate

Peer dynamics and the broader social climate were also critical pathways shaping how educational stress affects well-being. The analysis revealed that social support deficits—such as isolation, peer rejection, and competitive relationships—intensify emotional distress, while bullying and victimization act as significant amplifiers of stress-induced anxiety. Students who perceive their peers as competitors rather than collaborators are more likely to experience loneliness and disengagement. Conversely, collaborative peer networks that foster empathy, shared academic support, and emotional validation contribute to a sense of belonging, thereby buffering the impact of stress. The social environment thus operates as both a risk and protective factor, influencing how students internalize and respond to academic challenges. Supportive peer connections can transform potentially harmful stressors into opportunities for collective resilience.

Theme 5: Institutional and Environmental Factors

A fifth theme involved institutional and environmental determinants of stress, focusing on how school structures and policies influence students' mental health. Teacher practices such as harsh feedback, lack of emotional attunement, and favoritism were frequently cited as undermining student confidence and motivation. In addition, school climate—characterized by rigid discipline, limited counseling services, and unsympathetic administration—was identified as an exacerbating condition. Broader systemic stressors, including exam-driven curricula, policy rigidity, and insufficient attention to extracurricular development, further constrained students' adaptive capacity. This institutional rigidity not only restricts self-expression but also reinforces a performance-based mindset that perpetuates emotional exhaustion. Hence, the educational system itself can be a significant stress generator

when structural inflexibility and lack of psychosocial support dominate the learning environment.

Theme 6: Emotional and Behavioral Outcomes

The sixth theme consolidated the various emotional and behavioral consequences resulting from prolonged exposure to educational stress. The literature revealed a consistent link between academic strain and symptoms of anxiety, depression, irritability, and hopelessness. Physiological responses such as sleep disturbances, psychosomatic pain, and chronic fatigue frequently co-occurred with these emotional states. Behaviorally, students exhibited avoidance behaviors, including absenteeism, withdrawal from learning activities, and in some cases, engagement in maladaptive coping such as substance use. The accumulation of stress-related symptoms often led to reduced academic engagement and deterioration of self-efficacy, creating a negative feedback loop between performance decline and psychological distress. This theme underscores how emotional and behavioral disruptions serve as both outcomes and reinforcers of educational stress.

Theme 7: Resilience and Protective Mechanisms

The final theme emphasized the resilience processes and protective mechanisms that counterbalance the negative effects of educational stress. Personal strengths such as optimism, self-efficacy, and an internal locus of control enable students to reinterpret stressful academic challenges as opportunities for growth. External resources, including family warmth, peer companionship, and mentor guidance, enhance emotional stability and foster adaptive responses. Moreover, cultivating a growth mindset—where failure is viewed as feedback rather than defeat—was repeatedly highlighted as a transformative factor in maintaining psychological well-being. These protective pathways suggest that resilience is both an internal capacity and a social resource. Empowering students through emotional literacy programs and supportive learning environments can thus serve as a foundation for sustainable mental health under educational stress.

The second phase of the study quantitatively prioritized the thematic pathways identified in the qualitative analysis. A total of 160 Moroccan participants evaluated the relative importance of each pathway in influencing students' mental health outcomes. Using a five-point Likert scale, respondents rated the significance of each pathway from "not important at all" (1) to "extremely important" (5). The data were analyzed using SPSS version 26, and mean ranks were calculated to determine the hierarchy of perceived influence. The level of agreement among participants was tested using Kendall's Coefficient of Concordance ($W = 0.81$, $p < 0.001$), indicating a strong consensus on the ranking order.

Table 2

Ranking of Pathways Linking Educational Stress to Mental Health Outcomes

Pathway	Mean Rank	Standard Deviation
Academic Pressure and Performance Anxiety	4.62	0.48
Parental and Societal Expectations	4.40	0.55
Cognitive Appraisal and Coping Styles	4.25	0.59
Peer Relations and Social Climate	4.12	0.61
Institutional and Environmental Factors	3.97	0.66
Emotional and Behavioral Outcomes	3.85	0.69
Resilience and Protective Mechanisms	3.54	0.72

As shown in Table 2, academic pressure and performance anxiety ranked as the most influential pathway ($M = 4.62$, $SD = 0.48$), highlighting its central role in shaping student mental health outcomes. Parental and societal expectations followed closely ($M = 4.40$, $SD = 0.55$), indicating the cultural and familial weight placed on educational achievement. Cognitive appraisal and coping styles ($M = 4.25$, $SD = 0.59$) emerged as critical internal mediators that determine individual susceptibility or resilience to stress. The peer relations and social climate pathway ($M = 4.12$, $SD = 0.61$) ranked fourth, showing that the quality of peer interaction significantly affects emotional well-being. Institutional and environmental factors ($M = 3.97$, $SD = 0.66$) and emotional and behavioral outcomes ($M = 3.85$, $SD = 0.69$) occupied middle positions, suggesting that while they are important, their effects are often secondary to internal and familial pressures. The lowest-ranked but still relevant category was resilience and protective mechanisms ($M = 3.54$, $SD = 0.72$), reflecting participants' recognition that coping resources, though vital, often arise as responses to rather than causes of stress.

Figure 1

Prioritization of Pathways Linking Educational Stress to Mental Health Outcomes
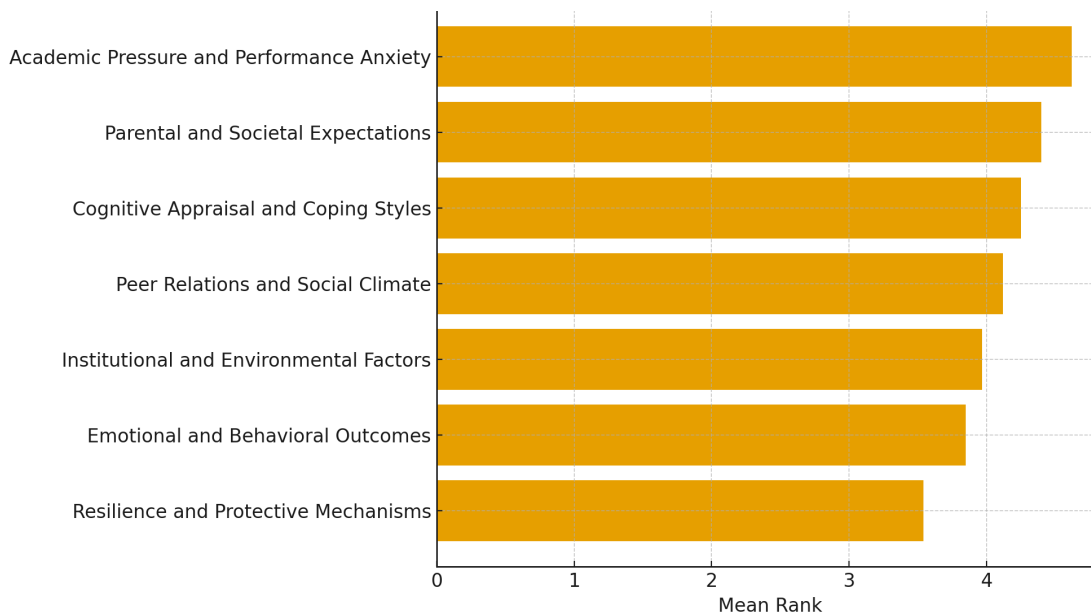
4.   Discussion and Conclusion

The present study sought to identify and prioritize the key pathways through which educational stress influences mental health outcomes among students in the Moroccan context. Using a mixed-method design that combined qualitative thematic analysis and quantitative ranking, seven major pathways were identified: (1) academic pressure and performance anxiety, (2) parental and societal expectations, (3) cognitive appraisal and coping styles, (4) peer relations and social climate, (5) institutional and environmental factors, (6) emotional and behavioral outcomes, and (7) resilience and protective mechanisms. The quantitative analysis, employing mean ranking and Kendall's coefficient of concordance, revealed a strong consensus among participants, indicating that academic pressure and performance anxiety were perceived as the most influential pathways, followed closely by parental and societal expectations and cognitive coping styles. These results provide a multidimensional framework that integrates psychological, social, and systemic determinants of stress-related mental health challenges.

The finding that academic pressure and performance anxiety constitute the most dominant pathway aligns with a broad corpus of international research emphasizing the link between performance-driven education and psychological distress. Numerous studies across various educational contexts have established that continuous evaluation, competitive grading, and perfectionistic expectations are major predictors of anxiety, depression, and burnout (Bapar et al., 2022; Bilmenoğlu et al., 2023; Devi et al., 2023). Similarly, Laranjeira et al. found that Portuguese students under academic pressure during the pandemic exhibited significantly elevated stress levels and reduced coping capacities (Laranjeira et al., 2023). The Moroccan participants' emphasis on academic workload and fear of failure mirrors findings from comparable cultures where success is closely tied to personal worth and familial honor (Alfayumi-Zeadna et al., 2022). The hierarchical and exam-centric nature of many educational systems, particularly in developing regions, reinforces this dynamic, leading to chronic anxiety, self-criticism, and diminished motivation (Jamal et al., 2022). These converging results suggest that structural reforms addressing evaluation practices and student support mechanisms are essential for mitigating performance-related stress.

The second-ranked pathway, parental and societal expectations, reflects the deep cultural and familial roots of educational stress. In collectivist societies, familial pride and social mobility often hinge upon academic achievement, creating an implicit moral obligation for students to succeed (Alfayumi-Zeadna et al., 2022; Rawi et al., 2022). The

psychological cost of this pressure manifests in emotional exhaustion, guilt, and decreased self-esteem when students fail to meet expectations. Comparable patterns have been observed among medical and nursing students in South Asia, where familial and societal norms exacerbate the emotional toll of education (Ahmed et al., 2025; Islam et al., 2025). Furthermore, studies among Iranian and Saudi students highlight that such pressure can blur the distinction between external motivation and self-determined learning, fostering extrinsic motivation that undermines emotional stability (Hosseini et al., 2022; Mohammad et al., 2020). Thus, the Moroccan sample's prioritization of parental and societal expectations reaffirms the global relevance of familial pressure as a key determinant of mental distress among students, particularly in cultures where achievement is tightly interwoven with identity and familial reputation.

Cognitive appraisal and coping styles were ranked as the third most influential pathway, underlining the mediating role of internal psychological processes in determining how stress translates into mental health outcomes. The relationship between stress appraisal and mental well-being has been widely documented. Students who interpret academic demands as threats, rather than challenges, are more susceptible to anxiety and depression (Costa et al., 2022; Landa et al., 2022). Conversely, adaptive coping strategies such as problem-solving, mindfulness, and cognitive reappraisal serve as protective buffers that reduce stress reactivity (Song et al., 2021; Zhu et al., 2025). Studies among university students and healthcare professionals have shown that deficits in emotional regulation and coping flexibility significantly predict elevated levels of psychological distress (ÖZyer & AltaŞ, 2023; Şanlı et al., 2024). The Moroccan findings thus align with global patterns, suggesting that interventions promoting emotional intelligence and resilience training could strengthen coping efficacy and reduce the internalization of academic stress.

The fourth and fifth pathways—peer relations and institutional factors—demonstrate the socio-environmental dimensions of educational stress. Social isolation, competition, and lack of empathy within peer networks amplify the impact of academic challenges, whereas supportive peer and teacher relationships can foster belonging and resilience (Costa et al., 2022; Laranjeira et al., 2023). Studies from multiple cultural contexts, including Turkey and Brazil, emphasize that cooperative learning environments and emotional validation among peers act as buffers against stress (Figueira et al., 2023; Şanlı et al., 2024). Institutional and systemic factors also exert a profound influence on mental health. Strict curricula, exam-focused policies, and unsympathetic administration create environments where stress becomes normalized (Kakemam et al., 2020; Mohammadbeigi et al., 2021). In Morocco, similar structural stressors likely persist, as educational systems often emphasize performance outcomes over psychological welfare. This finding underscores the need for systemic reforms that integrate mental health support into academic policy and institutional governance.

The sixth theme—emotional and behavioral outcomes—captures the direct manifestations of stress in students' daily functioning. Consistent with the literature, educational stress was found to correlate with symptoms of anxiety, depression, irritability, and somatic complaints such as fatigue and headaches (Özdemir et al., 2022; Sarbarzeh et al., 2020). These outcomes mirror findings in diverse populations, including parents of children with chronic conditions, who display similar patterns of stress-related psychosomatic symptoms (Effati-Daryani et al., 2020; Özdemir et al., 2022). The recurrent co-occurrence of emotional dysregulation and physiological symptoms suggests a biopsychosocial pathway in which prolonged stress activates both psychological and somatic processes. In the Moroccan context, where students often balance familial duties with academic obligations, this dual burden likely intensifies vulnerability to such outcomes. Recognizing the intertwined nature of emotional and physical health is therefore critical for developing holistic mental health interventions in educational settings.

The final theme—resilience and protective mechanisms—ranked lowest among the seven pathways, though it remains crucial in moderating stress outcomes. The relatively lower ranking may indicate that resilience is often perceived as reactive rather than preventive, emerging after exposure to stress rather than as a pre-existing resource. However, global studies consistently affirm the protective effects of resilience on mental health (ÖZyer & AltaŞ, 2023; Song et al., 2021). For example, research among Chinese civil servants demonstrated that resilience mitigates the negative impact of work-related stress on anxiety and depression (Song et al., 2021). Likewise, studies in Portugal and Brazil highlight that physical activity, social connectedness, and optimism foster resilience, enhancing quality of life and emotional regulation (Costa et al., 2022; Figueira et al., 2023). The Moroccan participants' recognition of resilience as a secondary yet vital pathway indicates that fostering adaptive capacities—through mindfulness, emotional literacy, and social support—can

empower students to manage educational stress proactively. This insight aligns with research suggesting that resilience-building should be institutionalized within educational curricula to transform stress from a threat into a developmental challenge (Zhu et al., 2025).

Taken together, the findings of this study corroborate a growing consensus that educational stress is not merely an individual psychological issue but a multidimensional construct embedded within cultural, institutional, and interpersonal systems. Similar to patterns observed in Iran, Turkey, and South Asia, Moroccan students experience the intersection of high academic demands, parental expectations, and limited coping resources as a sustained threat to mental health (Bilmenoğlu et al., 2023; Hosseini et al., 2022; Islam et al., 2025). The study contributes to the literature by integrating these diverse determinants into a prioritized model, offering a clear hierarchy of pathways that can inform targeted interventions. Notably, the strong agreement among participants, reflected by a Kendall's W of 0.81, indicates shared perceptions across demographic groups, reinforcing the universality of these stress mechanisms. Furthermore, the mixed-method approach ensured that both experiential and statistical dimensions were captured, providing a comprehensive understanding of how educational stress operates within and beyond individual psychology.

This synthesis also aligns with evidence from clinical and experimental studies showing that psychoeducational interventions, stress management programs, and self-care education can effectively reduce anxiety and depression among both students and non-student populations (Ghasempour et al., 2024; Lu et al., 2020; Moradian et al., 2022). The emphasis on cognitive and behavioral self-regulation strategies reflects a paradigm shift in mental health research toward proactive rather than reactive approaches. Moreover, the integration of cultural factors, such as family honor and collectivist identity, expands the ecological validity of the model, making it relevant not only for Morocco but also for other regions with similar sociocultural dynamics. The convergence of findings across geographic, disciplinary, and demographic boundaries thus underscores that educational stress is a global psychosocial phenomenon requiring interdisciplinary solutions.

5.   Limitations & Suggestions

Despite its contributions, this study is subject to several limitations. First, while the qualitative phase achieved theoretical saturation through literature-based analysis, it did not include direct interviews with students or educators, limiting the immediacy of experiential data. Second, the quantitative phase relied on self-reported measures from a sample of 160 Moroccan participants, which may introduce bias due to social desirability or self-perception inaccuracies. The sample, though diverse, may not fully represent all Moroccan educational sectors or regional disparities. Third, cross-sectional data prevent causal inference regarding the directional relationships between stress pathways and mental health outcomes. Lastly, cultural variations in expressing stress and psychological distress could have influenced how participants interpreted and prioritized the pathways, underscoring the need for longitudinal and cross-cultural validation of these findings.

Future research should adopt longitudinal and mixed-source data collection strategies to explore how educational stress evolves over time and across developmental stages. Conducting in-depth qualitative interviews or focus groups with students, parents, and educators could uncover nuanced cultural and interpersonal mechanisms underlying stress perception. Additionally, comparative studies across countries in North Africa and the Middle East could illuminate how sociocultural factors mediate the interplay between educational stress and mental health. Quantitative models could be extended through structural equation modeling to examine the mediating and moderating roles of variables such as resilience, self-efficacy, and institutional support. Finally, intervention-based studies assessing the impact of cognitive-behavioral, mindfulness, and psychoeducational programs on stress reduction would strengthen the evidence base for prevention strategies in educational settings.

Practically, the results underscore the need for integrating mental health promotion into educational policy and curriculum design. Institutions should establish counseling units, peer mentoring systems, and psychoeducational workshops that address performance anxiety and coping strategies. Teachers should be trained to recognize early signs of distress and employ supportive feedback techniques that encourage growth rather than fear of failure. Parents should be included in awareness programs to reduce unrealistic expectations and promote emotional support. Policymakers must adopt holistic educational reforms that balance academic excellence with psychological well-being. Finally, fostering a culture that values emotional resilience, collaboration, and self-care can transform educational

environments into healthier, more sustainable spaces for learning and personal development.

Acknowledgments

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

Authors' Contributions

All authors equally contributed to this article.

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