JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472
Journal of Holistic Nursing Science

Article journey
Submitted
7/6/2025
Revised
1/8/2025
Accepted
6/8/2025
Online first
2/9/2025

ORIGINAL RESEARCH

The protective role of sense of humor against academic stress among Indonesian nursing students: A multivariate analysis

Budi Sarasati, Andreas Corsini Widya Nugraha

Author information
Department of Psychology, Universitas Bhayangkara Jakarta Raya, Indonesia

budi.sarasatiubj@dsn.ubharajaya.ac.id

https://doi.org/10.31603/jhns.v12i2.13764

Abstract
Nursing students often face academic pressure due to the dual demands of theoretical coursework and clinical responsibilities. This stress can impact their psychological well-being and academic performance. Recent studies suggest that humor may function as a psychological buffer that enhancing emotional resilience and students' capacity to cope with academic challenges. However, few studies have investigated this topic specifically among nursing students worldwide. Therefore, this study aims to examine the relationship between sense of humor and perceived academic stress among undergraduate nursing students in Indonesia. It also seeks to evaluate whether humor serves as a protective psychological factor after adjusting for relevant demographic variables. A quantitative observational study with a cross-sectional data collection method was conducted, involving 300 final-year nursing students. The study used the Multidimensional Sense of Humor Scale (MSHS) and an adapted Perceived Stress Scale (PSS) as instruments. To analyze the data, the study used descriptive statistics and bivariate analyses to identify variables for a multivariate logistic regression model. The study then used Adjusted Odds Ratios (AORs) to interpret the associations. Students with higher humor scores were significantly less likely to report high academic stress (AOR=0.363, 95% CI=0.224–0.589). This indicates that their odds of experiencing elevated stress levels were approximately 64% lower (1-0.363) compared to those with lower humor scores. Humor remained a significant predictor after adjusting for study duration. The final regression model explained 7.9% of the variance in stress status (Nagelkerke R^2=0.079). Sense of humor may serve as a beneficial coping resource for reducing academic stress in high-pressure educational environments. Although the explained variance is modest, the findings support the inclusion of humor-promoting strategies in student mental health programs. Further nursing research is recommended to evaluate humor-based interventions across academic settings.

Keywords: Academic stress, emotion regulation, humor, nursing education, resilience

Introduction

Nursing education is considered one of the most rigorous academic fields because it uniquely combines the mastery of theoretical knowledge with the demonstration of clinical competence (Choperena et al., 2023). Students are required to understand complex scientific concepts then applying them in the course of intensive clinical settings (Silén et al., 2023). Balancing these cognitive and emotional expectations places nursing students at a heightened risk of academic stress (Mohamed et al., 2024). Academic stress refers to psychological strain resulting from high academic expectations, fear of failure, and overwhelming workloads (Zaki et al., 2022). A growing body of research indicates that nursing students experience elevated levels of stress which affect academic performance, psychological well-being, and overall quality of life (Dogham et al., 2024; Yuhuan et al., 2022). A meta-analysis of 121 studies revealed that a majority of nursing students, 42.1%, experienced moderate stress, while 19.4% to 25.1% reported mild to moderate anxiety (Vo et al., 2023). In Indonesia, a study found that 55.2% of a sample of 255 students reported experiencing academic stress during their college years (Rahmawati et al., 2025). A study in Indonesia reported that 48.7% of 76 nursing students experienced moderate stress related to academic activities (Dodikrisno et al., 2024). Other study in Indonesia documented that 66.4% of 100 first-years nursing students faced severe stress (Nappoe & Triwahyuni, 2025). Prolonged exposure to such stress may result in anxiety, burnout, depression, and diminished academic self-efficacy (Liu et al., 2024). Chronic academic stress has also been shown to impair concentration, decision-making, and memory (Mohamed, et al., 2024). These concerns are critical in nursing education as poor mental health may impact students' clinical performance and patient

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

safety (Araújo et al., 2022). Additional stressors intensify these pressures such as societal expectations, financial strain, and personal perfectionism (Ağirkan et al., 2025).

Furthermore, the abrupt transition to online learning, reduced access to clinical practice, and uncertainty about future employment have added new layers of stress for students across health-related disciplines (Smith et al., 2022; Overbaugh et al., 2022). These developments underscore the urgency for academic institutions to deliver quality education and implement sustainable strategies that support student mental health **(Figure 1)**. The transition from classroom-based learning to hands-on clinical experiences may further intensify stress levels during training (Suen et al., 2016). Moreover, individual factors have been shown to affect the mental health of nursing students such as sleep quality, caffeine intake, and perceived stress (Higbee et al., 2022). Stress has been associated with a range of adverse outcomes for nursing students that affecting physical and psychological as well as academic performance. For example, a study reported that high levels of stress may contribute to negative perceptions of the nursing profession, exposure to incivility from healthcare staff, and experiences of dehumanizing behavior, all of which may further exacerbate students' stress (Afzal, 2016). Similarly, a study also found that stress can lead to fear of making clinical errors, criticism from peers and senior staff, inadequate access to equipment and knowledge, lower academic achievement, and difficulty maintaining a healthy balance between study and personal life (Sharma et al., 2022).

Figure 1. Illustration of academic environment in nursing education (Generated by AI).

Psychological stress is not merely a response to external pressures but a dynamic process shaped by individual appraisal and coping strategies (Maqsood et al., 2024). According to Transactional Model, stress occurs when a person perceives that environmental demands exceed their available resources (Lazarus & Folkman, 1985). Coping reflects the cognitive and behavioral efforts made to manage these demands. As such, strengthening students' coping mechanisms is essential for reducing the negative impact of academic stress. One coping resource that increasing attention is resilience, the ability to adapt positively in the face of adversity. Resilient students are more likely to demonstrate academic engagement, psychological well-being, and satisfaction with their learning experience (Yoshioka & Kaneko, 2021). Resilience is not a fixed trait but a capacity that can be cultivated through personal and social development. Psychological factors such as optimism, emotion regulation, social support, and sense of humor have all been identified as contributing to resilience in educational contexts (Jang, 2024). In the framework of positive psychology, humor is recognized as the cognitive and emotional capacity to perceive, enjoy, or express amusement, humor supports stress regulation by allowing individuals to reinterpret difficult experiences more constructively (Martin & Lefcourt, 1983). Emerging empirical evidence suggests that individuals with a well-developed sense of humor tend to exhibit better emotional regulation, perceive greater social support, and demonstrate higher resilience in both academic and clinical environments (Bartzik et al., 2021; El-Sayed et al., 2024). In academic settings, humor has been shown to reduce anxiety, enhance classroom engagement, and improve information retention (Fritz et al., 2017).

Neuropsychological studies suggest that laughter and positive affect activate brain systems associated with stress reduction, including lower cortisol and higher levels of endorphins and serotonin (Martin, 2001). Thus, humor operates as a social tool and a physiological mechanism for coping with adversity. Studies demonstrated the effectiveness of humor-based interventions in reducing psychological distress among students such as laughter therapy, comedy workshops, and reflective humor journaling (Rashmi & Sunitha, 2023; Dogham et al., 2024). A systematic review confirmed that humor contributes to mental health, particularly among individuals in demanding environments like clinical education (Wulandari & Wardani, 2022). To measure humor, researchers have developed psychometric tools such as the Multidimensional Sense of Humor Scale (MSHS) (Thorson & Powell, 1993). This instrument evaluates humor across four dimensions: humor production, humor appreciation, coping through humor, and attitude toward humor. It has been widely validated and is frequently used in resilience research (Hampes, 1994; Dowling & Fain, 1999; Rosenberg et al., 2021; Bartzou et al., 2024).

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

Numerous studies confirmed the protective role of humor against stress, particularly in high-pressure professions such as healthcare, education, and public safety (Greve et al., 2021; Richards & Kruger, 2017). Recent studies conducted in diverse international contexts have reported a negative correlation between humor and perceived stress (Canestrari et al., 2021; Simione & Gnagnarella, 2023; Dionigi et al., 2023; Yu & He, 2023). Though the general benefits of humor appear to be universal, the way humor is expressed and perceived varies across social contexts. This emphasizes the importance of understanding in designing humor-based strategies. Despite the growing interest in humor as a coping mechanism, limited empirical research has examined its role among nursing students in Southeast Asia, especially in Indonesia. This represents a gap that led challenges in the Indonesian nursing education. Moreover, although previous studies found a correlation between humor and stress, few employed robust multivariate analyses to account for potential confounders such as age, sex, or academic standing. As a result, the independent predictive role of humor remains uncertain at this present. Therefore, the study aims to address these gaps by employing a multivariate logistic regression to determine whether sense of humor predicts academic stress levels among Indonesian nursing students.

Method

The study employed an observational design meaning that researchers did not introduce any form of intervention or manipulation of variables (Ramji, 2022). Instead, researchers took on a passive role that observing and documenting sense of humor against academic stress phenomena as they naturally occurred within the nursing students. The approach is appropriate for exploring relationships between variables in their authentic context (Rezigalla, 2020). The study has been conducted in two universities with Diploma 3 and undergraduate nursing study programs in Bekasi, West Java Indonesia. The researchers chose the Bekasi area for its proximity to the researcher's workplace, and Bekasi's large geographical coverage which facilitated data collection.

The population of the study consists of more than 1253 nursing students that encompassing diploma 3, bachelor's degree, and other nursing education levels. When selecting research participants, the researcher created inclusion and exclusion criteria. The inclusion criteria were male and female, enrolled as final-year nursing students, aged between 20 and 25 years, and willing to participate voluntarily. The exclusion criteria were students on academic leave and those who provided incomplete data. A purposive sampling method was used to select participants who had similar academic exposure, clinical practice obligations, and were facing comparable stressors as they neared graduation. This non-probability sampling technique warrants the participants was chosen to fit the study's criteria and maximize the relevance of the data collected to the research question (Campbell et al., 2020). Moreover, the sampling strategy allowed for a focused analysis of students under equivalent academic and emotional pressure in the college. The sample size determination was based on general guidelines for logistic regression analysis, which recommend a minimum of 10-20 participants per independent variable to avoid model overfitting (Peduzzi et al., 1996). Given a maximum of five predictor variables, this study required at least 100 participants (5 × 20). However, to enhance statistical power and generalizability, the target sample size was increased to a minimum of 250 participants. The researcher then increased the sample size to 300 nursing students.

The study used two instruments for data collection as follow Multidimensional Sense of Humor Scale (MSHS) was used to assess sense of humor (Thorson & Powell, 1993). The scale consists of 24 items rated on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The MSHS evaluates four primary dimensions of humor: (1) humor production and creativity, which involves generating humor, such as making jokes or telling funny stories; (2) humor appreciation, which refers to the capacity to enjoy or respond positively to humor created by others; (3) coping through humor, which involves using humor as a coping mechanism in stressful or difficult situations; and (4) attitudes toward humor, which encompasses an individual's general disposition toward humor, including the perceived value of humor in life. The scale is an appropriate tool because it moves a simple and one-dimensional view of humor especially among nursing students. The instrument measures several key components such as individual's tendency to use humor, humor appreciation, ability to create humor, and use of humor as a coping mechanism. The scoring and interpretation procedures involved instructing respondents to rate each item from 1 to 5 based on their level of agreement. The item scores were then summed to obtain a total humor score, ranging from 24 to 120. Since there is no universal cut-off score, researchers often use a median split based on the sample distribution to classify respondents into "low" and "high" sense of humor groups. In this study, the sample median score served as the classification threshold. Individuals scoring above the median were categorized as having a high sense of humor. However, those scoring below it as having a low sense of humor. Permission to use and adapt the MSHS was obtained directly from the original authors via email. The instrument was translated and adapted into Bahasa Indonesia using forward–backward translation, reviewed by an expert panel, and piloted among 30 students. The researcher selected one psychology expert because the measuring instruments were

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

aligned with the researcher's field of expertise. The expert's role was to perform forward and backward translation, and the results were then given to the psychology expert for sentence synthesis. The requirements for expertise included a doctoral degree in psychology and proficiency in the English language. Researchers selected students from a university's Diploma 3 study program for the pilot project. Students who participated in the pilot study were excluded from the main research process **(Figure 2)**. A study suggested that considering the non-response rate of 20%, a minimum sample size of 30 respondents would be sufficient to assess the reliability of the questionnaire (Bujang et al., 2024). The results indicated item-total validity coefficients ranging from 0.303 to 0.708, and excellent internal consistency reliability (Cronbach's α=0.924) (Periantalo, 2016). One item (Item number 23) was excluded due to low psychometric performance that resulting in a final scale of 23 items for this study.

Figure 2. Research process (Documented by authors).

The Perceived Stress Scale (PSS) – Modified Version was another tool used during the study. The PSS was originally developed by Cohen et al. (1983) and was later adapted to align with Lazarus and Folkman's (1985) cognitive appraisal framework. The standard version of the PSS contains 10 items, although a 14-item version also exists. The PSS uses a 5-point Likert scale ranging from 0 (Never) to 4 (Very Often) to assess the extent to which individuals perceive situations in their lives as stressful over the past month. The scale provides a global measure of perceived stress, evaluating how often individuals felt overwhelmed, unable to control important aspects of their lives, or experienced nervousness and tension, without separate subscales. The scoring and usage procedures involved asking respondents to rate how frequently they experienced specific feelings during the past month. Several positively worded items (e.g., confidence in handling problems) were reverse-scored. The total score was calculated by summing all item responses that generating a possible range from 0 to 40. The interpretation of scores is as follows: scores ranging from 0 to 13 indicate low stress levels, scores from 14 to 26 indicate moderate stress levels, and scores from 27 to 40 indicate high stress levels. In this study, data were categorized as high versus low based on the sample distribution, using either the median split or standardized PSS cut-off values (e.g., a score of 27 or above as indicative of high stress). Stress levels were categorized as 'high' versus 'low' accordingly. The PSS was used to measure academic stress among nursing students. The Indonesian adaptation of the PSS was based on a study that validated the instrument for Indonesian college students (Putri, 2022). In that study, the modifications included changing terminology from general life stressors to academic-specific phrasing (e.g., "academic deadlines," "clinical workload"). However, the study maintained the original factor structure. A pilot test of the Indonesian version was conducted on 30 university students that resulting item-total correlation coefficients ranging from 0.305 to 0.432, and demonstrating excellent reliability with a Cronbach's alpha of 0.961 (Periantolo, 2016). No items were excluded, resulting in a final instrument consisting of 10 items.

The data collection process was completed between May and June 2025. The technique used a cross-sectional method which means that information was gathered from a population or a representative subset at a single, specific point in time (Wang & Cheng, 2020). This design captured the prevalence of a characteristic, condition, or belief within the defined group at that moment. The method is efficient and cost-effective that made it a valuable tool for understanding sense of humor and academic stress among nursing students. The researcher used one research assistant, who also acted as a second researcher. Data were collected using two methods: offline and online. To ensure a common understanding, students were provided with instructions on how to complete the questionnaire. The process was carried out with a focus on maximizing data quality and minimizing potential bias. Questionnaires were administered in-person as a deliberate choice to ensure a controlled environment. A researcher was present to supervise the process which served several key purposes such as allowed for immediate clarification of any questions participants had, minimized the potential for response bias by preventing them from discussing answers, and warranted that every questionnaire was completed in full, thus guaranteeing data completeness. This supervised in-person approach helped to maintain the integrity and reliability of the data as it is essential for drawing accurate conclusions from the study's findings.

Data analysis was performed using IBM SPSS Statistics version 26. The initial step involved computing descriptive statistics for all demographic characteristics and variables to summarize the sample's profile. Following this, bivariate analyses were conducted using Chi-square tests and independent t-tests. These tests were used to screen for potential

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

variables that showed a preliminary association with the outcome of interest. Variables with particular score (p<0.25) in these preliminary tests were considered as candidate variables for inclusion in the subsequent multivariate analysis. The core of the analysis was a multivariate logistic regression model which was used to assess the association between humor and academic stress while controlling for the influence of other relevant variables (covariates). The findings from this model were reported as adjusted odds ratios (AORs), accompanied by their 95% confidence intervals (CIs), providing a measure of the strength and precision of the associations. To evaluate how well the model fit the data, the Nagelkerke R^2 statistic was calculated. The conventional threshold of p<0.05 was applied to determine statistical significance for the hypothesis testing

Before the study began, the Indonesian Consortium for Psychological Science (KPIN) approved the study with the approval number 083/2025 on 28 March 2025. To recruit participants, the researchers utilized a two-pronged approach: making announcements in relevant classrooms and sending formal invitations via email. This method assured a broad reach to the target population of final-year nursing students. Once potential participants were identified, the utmost care was taken to adhere to ethical guidelines. Written informed consent was obtained before any data collection began. This process was comprehensive to ensure that each participants understood the purpose, procedures, potential risks, and right to withdraw at any time without penalty.

Results

A total of 300 final-year undergraduate students participated in the study. The majority (68%) reported experiencing moderate to high levels of academic stress based on the PSS scores **(Table 1)**. There were 115 students at University A who experienced high stress (63.9%) and 65 students experienced low/moderate stress (36.1%). Meanwhile, at University B, 89 students experienced high stress (74.2%) and 31 students experienced low/moderate stress (25.8%). Although students from University B exhibited a higher proportion of high academic stress (74.2%) compared to those from University A (63.9%), the difference did not reach statistical significance at the 0.05 level. These findings suggest that institutional differences may influence stress patterns, but further research with a larger and more diverse sample is required to confirm this trend. **(Table 2)**. The Chi-square analysis revealed that gender (χ^2=1.02, p=0.313), age (χ^2=0.00, p=1.000), and study duration (χ^2=0.00, p=1.000) were not significantly associated with academic stress levels. In contrast, sense of humor demonstrated a significant association with stress (χ^2=28.32, p<0.001) that indicating that students with higher humor levels experienced lower stress **(Table 3)**.

The independent t-test results indicated that students with high stress reported significantly lower mean scores on the MSHS compared to those with low stress (Mean Difference=5.21, t=3.45, p=0.001). Conversely, students categorized with high humor levels reported significantly lower perceived stress scores (Mean Difference=-4.87, t=-4.02, p<0.001) **(Table 4)**. Bivariate analysis using the Chi-square test revealed no statistically significant association between university affiliation and academic stress level (χ^2=3.52, p=0.061) **(Table 5)**. A binary logistic regression was conducted to assess whether sense of humor significantly predicted the likelihood of experiencing high academic stress, adjusting for study duration **(Table 6)**. The analysis highlighted that students with high humor scores were approximately 2.75 times less likely to experience high stress (1/0.363). Longer study duration also predicted lower stress levels. Interaction effects were examined to explore potential moderating variables. Among the interactions tested only sex and humor showed statistical significance **(Table 7)**. The significant interaction between sex and humor suggests that the protective effect of humor may differ slightly between male and female students.

Discussion

This study demonstrated that students with a higher level of humor as measured by the MSHS were significantly less likely to report elevated academic stress. Our findings confirm that higher humor—particularly adaptive styles—relates to lower perceived stress in student and health-professional populations. In nursing education, an integrative review concludes that humor in teaching reduces stress and improves attention and retention, while cautioning against negative humor styles (e.g., sarcasm) that may undermine learning climates (Haydon et al., 2023). Beyond education settings, experimental and field study indicate that humor coping is associated with reduced perceived stress and more positive affect, and can moderate the link between maladaptive coping and stress (Çeli & Kılınç, 2022). Among nursing students, humor in learning contexts helps mitigate stress and improves a supportive atmosphere that is consistent with the protective factors (El-Sayed et al., 2024). After adjusting for study duration, those with higher humor scores were approximately 2.75 times less likely to report high stress that indicating a potentially meaningful protective relationship.

The results of this study support previous research suggesting that humor may promote resilience in the face of stress. Humor can enable individuals to reinterpret challenges through a more positive lens (Martin, 2001; Hampes,

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

2010). This cognitive reframing aligns with Lazarus and Folkman's (1985) theory of stress appraisal, wherein personal resources (e.g. adaptive coping styles) moderate the emotional impact of external demands. Broader cross-disciplinary perspectives in positive psychology also support the buffering role of humor via cognitive reappraisal of stressors—coherent with Lazarus and Folkman's appraisal framework (Fischer et al., 2021). Not all humor is equally beneficial as some types (e.g. aggressive or self-defeating humor) can be harmful, while others (e.g. affiliative humor) can improve well-being (Dionigi et al., 2022; Fang et al., 2024). From a practice standpoint, strategies that create a safe classroom environment can help use humor to reduce anxiety and boost participation that leading to better learning and well-being (Sommervile et al., 2023). However, it is important to interpret the strength of the finding comprehensively. Though the association between humor and stress is significant, the final multivariate model explained only 7.9% of the variance in perceived stress levels. The finding suggests that although humor contributes to stress mitigation, it is likely just one of many interacting psychological, academic, and environmental factors influencing stress outcomes. Therefore, humor may be protective but its contribution is not deterministic and should not be overstated. Humor can help nursing students cope with stress, but it's not the only factor. Other things like workload, lack of sleep, money problems, and clinical experiences also play a big role (Onieva-Zafra et al., 2020). This interpretation is consistent with a study showing that humor and laughter-based approaches support psychological well-being (Dalli & Pehlivan, 2025).

Table 1. Demographic characteristics of participants.

Variables	Frequency (n)	Percentage (%)
Gender		
Men	66	22.1
Women	234	77.9
Age		
<22 year	126	42
≥22 year	174	58
Study duration		
<4 year	94	31.3
≥4 year	206	68.7
MSHS score		
Low	150	50
High	150	50
PSS score		
Low / Moderate	96	32
High	204	68
Universities		
A	180	60
B	120	40

Table 2. Crosstab stress level by universities.

Universities	Low/moderate stress		High stress		Frequency in total (n)
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
A	65	36.1	115	63.9	180
B	31	25.8	89	74.2	120
Total	96	32	204	68	300

Table 3. Chi-square test results for categorical variables and stress levels.

Variables	Chi-square (χ^2)	df	*p*
Gender	1.02	1	0.313
Age	0.00	1	1.000
Study duration	0.00	1	1.000
Sense of humor	28.32	1	0.000

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

Previous research shows female nursing students often experience higher stress due to sociocultural factors; thus, it's essential to examine if humor's impact on stress varies by sex to avoid overgeneralization (Onieva-Zafra et al., 2020). Longer study duration typically coincides with intensified clinical demands and capstone milestones that elevating stress risk. Controlling for study duration showed humor's direct link to stress with supportive humor reducing anxiety in high-pressure situations (Fang et al., 2024). Positive humor styles reduce stress, while negative ones like sarcasm are best avoided (Simione & Gnagnarella et al., 2023; Haydon et al., 2023). Humor's small impact on stress can make a big difference in academic and clinical performance (Onieva-Zafra et al., 2020).

Table 4. Independent t-test results for continuous variables.

Variables	Mean difference	*t*	*p*
MSHS score (high vs low stress)	5.21	3.45	0.001
PSS score (high vs low humor)	-4.87	-4.02	0.000

Table 5. Bivariate analysis for candidate variables for logistic regression.

Variables	*p*	Included in the model
Sex		
Male	0.327	No
Female		
Age		
<22	0.411	No
≥22		
Study Duration		
<4 years	0.149	No
≥4 years		
Humor Score (MSHS)		
Low	<0.001	Yes
High		

Table 6. Logistic regression predicting high academic stress.

Predictors	B	SE	Wald	*p*	Exp(B)	95% CI for Exp(B)
Humor (high)	-1.014	0.247	16.85	<0.001	0.363	0.224 – 0.589
Study duration	-0.481	0.218	4.87	0.027	0.618	0.401 – 0.953

Nagelkerke R^2=0.079; The Hosmer-Lemeshow Test generated a p-value of 0.621.

Table 7. Interaction effects on academic stress.

Interaction among variables	B	SE	*p*	Results
Sex*humor	-0.746	0.348	0.032	Significant interaction
Age*humor	-0.295	0.327	0.365	Not significant
Study duration*humor	0.121	0.309	0.701	Not significant

In the final model, only humor and study duration were included as predictors to ensure consistency between the methods, results, and interpretation. A significant interaction between gender and humor was also observed, which suggests that humor's protective function may operate differently for male and female students. This finding aligns with existing literature which indicates that the expression and reception of humor are often shaped by gender norms and expectations (Greengross & Miller, 2011). For instance, women may rely more on affiliative or self-enhancing humor, whereas men might use more aggressive or self-defeating forms **(Figure 3)**. However, because the model explained a limited amount of the variance and the study was cross-sectional, these findings should be considered exploratory.

The results of the study hold practical significance in community and mental health nursing practice. Humor is a low-cost, low-barrier coping resource that can be incorporated into wellness programs and stress-reduction interventions. Nursing and health institutions should consider integrating humor-based strategies as part of broader student support efforts (Kim, 2014; Rashmi & Sunitha, 2023). For example, peer-led humor groups, reflective humor journaling, or incorporating appropriate humor into lectures. In the context of Indonesian academic culture, humor is

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

often used indirectly and for building rapport which contrasts with the more direct or confrontational humor styles seen in some Western contexts (Yulmiati & Melvina, 2022). Therefore, faculty development programs could be instrumental in helping educators' model constructive humor. By doing so, they can effectively reduce classroom tension and promote a more engaging learning environment for students. Such low-cost and adaptable interventions are attractive for resource-constrained academic settings in Asia. For instance, laughter yoga has improved well-being and reduced perceived stress among nursing students (Yas & Incesu, 2025). Humor also supports student engagement and a positive learning environment when employed appropriately (Haydon et al., 2023). Moreover, they encourage active participation and can improve psychological condition which is fundamental for clinical learning environments (Suen et al., 2016). This distinction carries significant implications for the design of mental health interventions. Humor-based strategies should be adapted to local norms that emphasize inclusivity and avoid certain forms of humor (Wang et al., 2018). For instance, sarcasm or self-defeating humor may increase anxiety among vulnerable student populations.

Figure 3. Illustration of humor among nursing students (Generated by AI).

Although this study has several strengths, it is important to acknowledge its limitations. First and foremost, the cross-sectional design prevents from drawing conclusions about causality. Since data was collected at only a single point in time, the researchers can identify associations between variables. However, the researcher cannot determine whether humor causes a reduction in stress or if individuals with lower stress levels are simply more likely to use humor. A second limitation is that all measures were based on self-reported data. This method is susceptible to social desirability bias where participants might consciously or unconsciously provide responses they believe are more socially acceptable. This method may lead to skewed results on sensitive topics like stress and humor. Furthermore, despite the use of validated instruments, the study was limited to a single academic institution which may affect the generalizability of the findings to other student populations, universities, or regions with different academic cultures. To address these limitations, future research should adopt a broader and more rigorous approach. Researchers should consider expanding the sample diversity to include students from various universities and geographical regions which would enhance the generalizability of the findings. Additionally, a deeper exploration of different humor styles—such as affiliative, self-enhancing, aggressive, and self-defeating humor—could provide a fresher understanding of how specific types of humor relate to stress. Most importantly, future studies should move beyond a correlational design and utilize experimental methods (e.g. randomized controlled trials) to test the efficacy of structured humor interventions. By doing so, researchers could more definitively establish a causal relationship between humor and stress mitigation that paving the way for evidence-based stress-management programs in academic settings.

Conclusion

This study provides evidence that a higher sense of humor is associated with a lower likelihood of experiencing academic stress among students in Indonesia. After adjusting for study duration, students with higher humor levels were approximately 2.75 times less likely to report high perceived stress. These findings support the conceptualization of humor as a protective psychological factor, consistent with cognitive stress appraisal theory. Therefore, humor should be understood as a complementary (not primary) component in broader strategies aimed at enhancing student well-being. From a practical perspective, the accessibility and low cost of humor-based approaches make them attractive for inclusion in academic mental health promotion. Educators and institutions are encouraged to explore ways of embedding constructive humor into curriculum delivery, peer support initiatives, and stress management programs. Future studies should further explore humor's long-term effects through experimental designs, investigate its interaction with other psychological traits (e.g., resilience, optimism), and evaluate humor interventions within academic environments.

Acknowledgments

The author wishes to express gratitude to the study participants and the nurse managers for their support in the data collection process.

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

AI statements
This study and manuscript were prepared without the use of generative text artificial intelligence tools. The AI was used only for figure creation.

Author's declaration
All authors made substantial contributions to the conception and design of the study, data acquisition, and analysis. They were also involved in drafting and critically revising the manuscript for important intellectual content and gave final approval of the version to be published.

Availability of data and materials
The dataset generated during and analyzed during the current study is available from the corresponding author upon reasonable request.

Competing interests
No conflict of interest to declare.

Ethical clearance
The study approval was obtained from the Indonesian Consortium for Psychological Science (KPIN) (Approval number: 083/2025; dated 28 March 2025).

Funding
This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Publishers and journal's note
This study is unique because it demonstrates the benefits of humor in helping nursing students cope with academic stress. The use of multivariate analysis further strengthens the findings by evaluating the association between variables .

References
Afzal, M. (2016). Sources of stress among the nursing students of private Universities of Pakistan. *Texila International Journal of Nursing, 2*(1). https://doi.org/10.21522/TIJNR.2015.02.01.Art004

Ağirkan, M., Haspolat, N.K., & Özdoğan, A.Ç. (2025). Unpacking profiles of school burnout in high-achieving students in Türkiye: A MSEM analysis. *Journal of Youth and Adolescence*. https://doi.org/10.1007/s10964-025-02244-2

Araújo, C. A. A., de Godoy, S., Ventura, A. C. A., Silva, R. Í., de Almeida, S. E. W., & Mendes, C. I. A. (2022). Reflections on nursing students fear and anxiety arising from clinical practicums. *Investigacion y Educacion en Enfermeria, 40*(3), e13. https://doi.org/10.17533/udea.iee.v40n3e13

Bartzik, M., Aust, F., & Peifer, C. (2021). Negative effects of the COVID-19 pandemic on nurses can be buffered by a sense of humor and appreciation. *BMC Nursing, 20*(1), 257. https://doi.org/10.1186/s12912-021-00770-5

Bartzou, E., Tsiloni, E., Mantzoukas, S., Dragioti, E., & Gouva, M. (2024). Humor and quality of life in adults with chronic diseases: A systematic review. *Cureus, 16*(2), e55201. https://doi.org/10.7759/cureus.55201

Bujang, M. A., Omar, E. D., Foo, D. H. P., & Hon, Y. K. (2024). Sample size determination for conducting a pilot study to assess reliability of a questionnaire. *Restorative Dentistry & Endodontics, 49*(1), e3. https://doi.org/10.5395/rde.2024.49.e3

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing, 25*(8), 652–661. https://doi.org/10.1177/1744987120927206

Çeli A. S., & Kılınç, T. (2022). The effect of laughter yoga on perceived stress, burnout, and life satisfaction in nurses during the pandemic: A randomized controlled trial. *Complementary Therapies in Clinical Practice,* 49, 101637. https://doi.org/10.1016/j.ctcp.2022.101637

Choperena, A., Rosa-Salas, V., Esandi-Larramendi, N., Diez-Del-Corral, M. P., & Jones, D. (2023). Nursing educational framework: A new nurse-driven, conceptually guided approach. *International Journal of Nursing Knowledge, 36*(1), 29–38. https://doi.org/10.1111/2047-3095.12459

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(4), 385–396. https://doi.org/10.2307/2136404

Dalli, Ö. E., & Pehlivan, S. (2025). The effectiveness of laughter-based interventions on psychological, physiological and educational outcomes in nursing students: A systematic review and meta-analysis. *Nurse Education in Practice,* 104509. https://doi.org/10.1016/j.nepr.2025.104509

Dionigi, A., Duradoni, M., & Vagnoli, L. (2022). Humor and personality: Psychometric properties of the Italian version of the comic styles markers and its relationships with the big Five personality traits. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues, 41*(12), 8705–8717. https://doi.org/10.1007/s12144-020-01303-0

Dionigi, A., Duradoni, M., & Vagnoli, L. (2023). Understanding the association between humor and emotional distress: The role of light and dark humor in predicting depression, anxiety, and stress. *Europe's Journal of Psychology, 19*(4), 358–370. https://doi.org/10.5964/ejop.10013

Dodikrisno, E. M., Taufik, Z., Yushar, A. E., Abdul M. U., & Nadira, P. (2024). Gambaran tingkat stres akademik pada mahasiswa keperawatan Stikes Pasapua Ambon tahun 2024 [Overview of Academic Stress Levels among Nursing Students at Stikes Pasapua Ambon in 2024]. *Jurnal Anestesi, 2*(3), 193–206. https://doi.org/10.59680/anestesi.v2i3.1228

Dogham, R. S., Ali, H. F. M., Ghaly, A. S., Elcokany, N. M., Seweid, M. M., & El-Ashry, A. M. (2024). Deciphering the influence: Academic stress and its role in shaping learning approaches among nursing students: A cross-sectional study. *BMC Nursing, 23*(1), 249. https://doi.org/10.1186/s12912-024-01885-1

Dowling, J. S., & Fain, J. A. (1999). A Multidimensional Sense of Humor Scale for school-aged children: Issues of reliability and validity. *Journal of Pediatric Nursing, 14*(1), 38–43. https://doi.org/10.1016/S0882-5963(99)80058-X

El-Sayed, M. M., AbdElhay, E. S., Hawash, M. M., & Taha, S. M. (2024). The power of laughter: A study on humor and creativity in undergraduate nursing education in Egypt. *BMC Nursing, 23*(1), 259. https://doi.org/10.1186/s12912-024-01913-0

Fang, C., Fan, S., Chen, D., Zhou, Y., & Fan, W. (2024). The relation between humor styles and nurse burnout: A cross-sectional study in China. *Frontiers in Public Health,* 12, 1414871. https://doi.org/10.3389/fpubh.2024.1414871

Fischer, F., Peifer, C., & Scheel, T. (2021). Editorial: Cross-disciplinary perspectives on the relationship between humor and health: Theoretical foundations, empirical evidence and implications. *Frontiers in Public Health,* 9, 774353. https://doi.org/10.3389/fpubh.2021.774353

Fritz, H. L., Russek, L. N., & Dillon, M. M. (2017). Humor use moderates the relation of stressful life events with psychological distress. *Personality and Social Psychology Bulletin, 43*(6), 845–859. https://doi.org/10.1177/0146167217699583

Greve, W., Hauser, J., & Rühs, F. (2021). Humorous coping with unrequited love: Is perspective change important? *Frontiers in Psychology,* 12. https://doi.org/10.3389/fpsyg.2021.653900

Hampes, W. P. (1994). Relation between Intimacy and the Multidimensional Sense of Humor Scale. *Psychological Reports, 74*(3_suppl), 1360-1362. https://doi.org/10.2466/pr0.1994.74.3c.1360

Hampes, W. P. (2010). The relation between humor styles and empathy. *Europe's Journal of Psychology, 6*(3), 34-45. https://doi.org/10.5964/ejop.v6i3.207

Haydon, G., Reis, J., & Bowen, L. (2023). The use of humour in nursing education: An integrative review of research literature. *Nurse Education Today,* 126, 105827. https://doi.org/10.1016/j.nedt.2023.105827

Higbee, M. R., Gipson, C. S., & El-Saidi, M. (2022). Caffeine consumption habits, sleep quality, sleep quantity, and perceived stress of undergraduate nursing students. *Nurse Educator, 47*(2), 120–124. https://doi.org/10.1097/NNE.0000000000001062

Jang, S. H. (2024). Self-compassion and positive psychological capital of nursing students on clinical practice stress. *Korean Association for Learner-Centered Curriculum and Instruction, 24*(6), 61–71. https://doi.org/10.22251/jlcci.2024.24.6.61

Lazarus, R., & Folkman, S. (1985). Stress and coping. *New York, 18*(31), 34–42.

Liu, W., Zhang, R., Wang, H., Rule, A., Wang, M., Abbey, C., Singh, M. K., Rozelle, S., She, X., & Tong, L. (2024). Association between anxiety, depression symptoms, and academic burnout among Chinese students: The mediating role of resilience and self-efficacy. *BMC psychology, 12*(1), 335. https://doi.org/10.1186/s40359-024-01823-5

Maqsood, A., Gul, S., Noureen, N., & Yaswi, A. (2024). Dynamics of perceived stress, stress appraisal, and coping strategies in an evolving educational landscape. *Behavioral Sciences, 14*(7), 532. https://doi.org/10.3390/bs14070532

Martin, R. A. (2001). Humor, laughter, and physical health: Methodological issues and research findings. *Psychological Bulletin, 127*(4), 504–519. https://doi.org/10.1037/0033-2909.127.4.504

Martin, R. A., & Lefcourt, H. M. (1983). Sense of humor as a moderator of the relation between stressors and moods. *Journal of Personality and Social Psychology, 45*(6), 1313–1324. https://doi.org/10.1037/0022-3514.45.6.1313

Mohamed, N. A., Ali, S. O., Ehrahim, E. E. E., Ahmed, A. L., & Wahba, A. M. (2024). Predictors of academic and clinical stress among nursing students. *SAGE open nursing, 10,* 23779608241290392. https://doi.org/10.1177/23779608241290392

Nappoe, B.C., & Triwahyuni, P. (2025). Tingkat stres akademik pada mahasiswa keperawatan tahun pertama [Academic stress levels among first-year nursing students]. *Journal of Telenursing (JOTING), 7*(2), 342-349.

Onieva-Zafra, M. D., Fernández-Muñoz, J. J., Fernández-Martínez, E., García-Sánchez, F. J., Abreu-Sánchez, A., & Parra-Fernández, M. L. (2020). Anxiety, perceived stress and coping strategies in nursing students: A cross-sectional, correlational, descriptive study. *BMC Medical Education, 20*(1), 370. https://doi.org/10.1186/s12909-020-02294-z

Overbaugh, K. J., Monforto, K., DiGiacomo, P., & Maloney, C. (2022). Understanding COVID-19's impact on nursing students' education, professional perceptions, stress, and coping. *Nursing Education Perspectives, 43*(6), E47–E49. https://doi.org/10.1097/01.NEP.0000000000001043

Peduzzi, P., Concato, J., Kemper, E., Holford, T. R., & Feinstein, A. R. (1996). A simulation study of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology, 49*(12), 1373–1379. https://doi.org/10.1016/S0895-4356(96)00236-3

Periantalo, J. (2016). Quantitative research for psychology [Penelitian kuantitatif untuk psikologi]. Pustaka Pelajar.

Putri, P. K. (2022). Coping stress among students during undergraduate research project. *Biopsikososial: Jurnal Ilmiah Psikologi Fakultas Psikologi Universitas Mercubuana Jakarta, 5*(2), 491-500. https://doi.org/10.22441/biopsikososial.v5i2.14623

Rahmawati, R. D., Lestari, D. R., & Rahmayanti, D. (2025). Gambaran Tingkat Stres Akademik Pada Mahasiswa Program Sarjana Keperawatan Dan Kedokteran [Overview of Academic Stress Levels in Undergraduate Nursing and Medical Students]. *Journal of Intan Nursing, 4*(1), 1-6. https://doi.org/10.54004/join.v4i1.266

Ramji S. (2022). Study design: Observational studies. *Indian Pediatrics, 59*(6), 493–498. https://pubmed.ncbi.nlm.nih.gov/35481482/

Rashmi, P., & Sunitha, P. S. (2023). Study to assess the effectiveness of laughter on academic stress among nursing students in selected nursing institutions at Mysuru. *Journal of Nursing and Medical Research,* 77–84. https://doi.org/10.52711/jnmr.2023.20

Rezigalla A. A. (2020). Observational study designs: Synopsis for selecting an appropriate study design. *Cureus, 12*(1), e6692. https://doi.org/10.7759/cureus.6692

Richards, K., & Kruger, G. (2017). Humor styles as moderators in the relationship between perceived stress and physical health. *Sage Open, 7*(2). https://doi.org/10.1177/2158244017711485

Rosenberg, C., Walker, A., Leiter, M., & Graffam, J. (2021). Humor in workplace leadership: A systematic search scoping review. *Frontiers in Psychology, 12,* 610795. https://doi.org/10.3389/fpsyg.2021.610795

Sharma, P., Acharya, S., & Paudel, K. (2022). Stress among Proficiency Certificate Level (PCL) nursing students in Kathmandu. *International Journal of Health Sciences and Research, 12*(6), 218–224. https://doi.org/10.52403/ijhsr.20220629

Silén, C., Kalén, S., Lundh, P., Mattson, J., & Manninen, K. (2023). Students' learning in clinical practice - a scoping review of characteristics of research in the Nordic countries. *Medical Education Online, 28*(1), 2279347. https://doi.org/10.1080/10872981.2023.2279347

Simione, L., & Gnagnarella, C. (2023). Humor coping reduces the positive relationship between avoidance coping strategies and perceived stress: A moderation analysis. *Behavioral Sciences, 13*(2),179. https://doi.org/10.3390/bs13020179

Smith, J. G., Urban, R. W., & Wilson, S. T. (2022). Association of stress, resilience, and nursing student incivility during COVID-19. *Nursing Forum, 57*(3), 374–381. https://doi.org/10.1111/nuf.12694

Somerville, S. G., Harrison, N. M., & Lewis, S. A. (2023). Twelve tips for the pre-brief to promote psychological safety in simulation-based education. *Medical Teacher, 45*(12), 1349–1356. https://doi.org/10.1080/0142159X.2023.2214305

Suen, W. Q., Lim, S., Wang, W., & Kowitlawakul, Y. (2016). Stressors and expectations of undergraduate nursing students during clinical practice in Singapore. *International Journal of Nursing Practice, 22*(6), 574–583. https://doi.org/10.1111/ijn.12473

Thorson, J. A., & Powell, F. C. (1993). Development and validation of a Multidimensional Sense of Humor Scale. *Journal of Clinical Psychology, 49*(1), 13–23. https://doi.org/10.1002/1097-4679(199301)49:1<13::aid-jclp2270490103>3.0.co;2-s

Vo, T. N., Chiu, H.-Y., Chuang, Y.-H., & Huang, H.-C. (2023). Prevalence of stress and anxiety among nursing students: A systematic review and meta-analysis. *Nurse Educator, 48*(3), E90-E95. https://doi.org/10.1097/NNE.0000000000001343

JHNS
Journal of Holistic Nursing Science
E-ISSN: 2579-7751 P-ISSN: 2579-8472

Wang, R., Chan, D. K. S., Goh, Y. W., Penfold, M., Harper, T., & Weltewitz, T. (2018). Humor and workplace stress: A longitudinal comparison between Australian and Chinese employees. *Asia Pacific Journal of Human Resources, 56*(2), 175–195. https://doi.org/10.1111/1744-7941.12157

Wang, X., & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. *Chest, 158*(1S), S65–S71. https://doi.org/10.1016/j.chest.2020.03.012

Wulandari, R. A., & Wardani, H. R. (2022). The effect of humor as a stress management for nurses working in hospital: Systematic review. *D'Nursing and Health Journal (DNHJ), 3*(1), 55–63. https://doi.org/10.36835/dnursing.v3i1.378

Yas, M. A., & Incesu, O. (2025). The effect of laughter yoga on well-being, perceived stress, and academic self-efficacy in nursing students: A randomized controlled trial. *Applied Psychology: Health and Well-Being, 17*(1), e12610. https://doi.org/10.1111/aphw.12610

Yoshioka, E., & Kaneko, S. (2021). Examination of educational support for students' stress in nursing practicums. *Open Journal of Social Sciences, 09*(07), 496–515. https://doi.org/10.4236/jss.2021.97036

Yu, Y., & He, M. (2023). Perceived stress from interpersonal relations predicts suicidal ideation in Chinese university students: Roles of meaning in life and coping humor. *Heliyon, 9*(3),e14106. https://doi.org/10.1016/j.heliyon.2023.e14106

Yuhuan, Z., Pengyue, Z., Dong, C., Qichao, N., Dong, P., Anqi, S., Hongbo, J., & Zhixin, D. (2022). The association between academic stress, social support, and self-regulatory fatigue among nursing students: A cross-sectional study based on a structural equation modelling approach. *BMC Medical Education, 22*(1), 789. https://doi.org/10.1186/s12909-022-03829-2

Yulmiati, Y., & Melvina, M. (2022). An analysis of humor in classroom interaction. *Social Sciences Review and Humanities, 1*(2), 121-129. https://journal.haqipub.com/index.php/ssrh/article/view/111

Zaki, M. A. A., Wahab, S. M. A., Kasim, M. M., Bakar, N., Hassan, N., Latif, R. A., & Khalid, M. I. H. A. (2022). Factors associated with stress among nursing students At Sungai Petani college of nursing during final examination. *International Journal of Academic Research in Business and Social Sciences, 12*(12), 2657 – 2663. http://dx.doi.org/10.6007/IJARBSS/v12-i12/16058

Authors' insight

Key points

- The study investigates the idea that a sense of humor acts as a buffer or shield that helping to protect nursing students from the negative effects of academic stress.
- The research is specifically conducted on Indonesian nursing students which makes the findings relevant to that particular cultural and educational context.
- The study's used multivariate analysis reflecting a clearer and more robust connection between the two variables in the research.

Emerging nursing avenues

- What specific aspects of humor (e.g., self-enhancing humor, affiliative humor) are most effective in reducing academic stress among these students?
- How do the findings from this study compare to similar research on humor and stress in nursing students from other countries or different cultural contexts?
- What practical interventions or training programs could be developed for nursing schools to help students cultivate their sense of humor as a coping mechanism?

How to cite this article (APA style)
Sarasati, B., & Nugraha, A. C. W. (2025). The protective role of sense of humor against academic stress among Indonesian nursing students: A multivariate analysis. *Journal of Holistic Nursing Science, 12*(2), 250–261. https://doi.org/10.31603/jhns.v12i2.13764