



Resilience and related factors among nursing students at Can Tho Medical College

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ABSTRACT

Objectives: To determine the level of resilience and related factors among nursing students at Can Tho Medical College. **Materials and methods:** A cross-sectional analytical study was conducted on 293 full-time nursing students from first to third year. Data were collected using the CD-RISC-10, Brief COPE, MSPSS, and ALSS scales. Data were analyzed with SPSS using descriptive statistics, Mann–Whitney and Kruskal–Wallis tests, and Spearman correlation. **Results:** The resilience of nursing students had a median score of 2.6 (IQR: 2.2–3.0), indicating a moderate level. Statistically significant factors associated with resilience included age, academic year, and parental marital status ($p < 0,05$); certain coping strategies such as active coping, positive reframing, planning, religion, and humor; as well as social support (family, friends, significant others) and academic satisfaction ($p < 0,01$). **Conclusion:** Resilience among nursing students is influenced by personal, psychological, and social factors. Appropriate psychological support programs and training in coping skills are recommended to enhance resilience in this population.

Keywords: Resilience; nursing students; coping strategies; social support; academic satisfaction.

INTRODUCTION

Resilience is a psychological capacity that enables individuals to adapt, overcome adversity, recover from difficulties, and emerge stronger afterward ¹. For nursing students, this trait is particularly important because they often face academic pressure, clinical practice demands, and challenges in preparing for their future profession, all of which can lead to stress and deteriorating mental health ^{2,3}.

Numerous international studies have demonstrated that resilience plays a

protective role—it helps reduce anxiety and depression, enhances self-confidence, decreases dropout rates, and is positively associated with academic performance, career satisfaction, and mental well-being⁴⁻⁷. Resilience has also been found to be influenced by factors such as age ⁸, academic year ⁹, academic performance ¹⁰, coping strategies ¹¹, and social support ⁴.

In Vietnam, several studies have explored resilience among university students in general, but investigations focusing specifically on nursing students

remain limited. Given that Can Tho Medical College is one of the major nursing training institutions in the Mekong Delta region, with a large number of students and a curriculum emphasizing clinical practice, it is essential to assess the resilience and its related factors among these students.

From this practical basis, this study aims to describe the level of resilience and identify associated factors among nursing students at Can Tho Medical College, thereby providing scientific evidence to develop psychological support programs and enhance students' adaptive capacities.

SUBJECTS AND METHODS

Study population: Nursing students enrolled at Can Tho Medical College.

Inclusion criteria: Full-time nursing students from first to third year.

Exclusion criteria: Students absent during the data collection period.

Study period and setting: From September 2024 to June 2025, conducted at the Faculty of Nursing, Can Tho Medical College.

Study design: A descriptive cross-sectional study.

Sample size: The total number of full-time nursing students from first to third year at Can Tho Medical College in the 2024–2025 academic year was 1,102 students, including 413 first-year, 336 second-year, and 353 third-year students.

The sample size was determined using Yamane Taro's formula for population estimation.

$$n = \frac{N}{1 + N x e^2}$$

Where:

n = required sample size

N = population size (1,102 students)

e = allowable margin of error (0.05)

Applying Yamane Taro's formula, the minimum required sample size was 293 students. In practice, the study surveyed 293 nursing students who met the inclusion criteria and agreed to participate.

Sampling method: The study used stratified sampling based on academic year, with proportional allocation to ensure representativeness.

The number of participants in each stratum was as follows:

+ First-year: 110 students

+ Second-year: 89 students

+ Third-year: 94 students

Within each stratum, participants were selected using convenience sampling during the data collection period.

Data collection instruments

The questionnaire consisted of two parts:

Socio-demographic information – including variables such as gender, age, ethnicity, religion, marital status, year of study, residence, family economic status, parents' marital status, recent academic performance, level of interest in the nursing major, participation in extracurricular activities, physical activity habits, and use of psychological support services.

Main measurement scales:

CD-RISC-10 (Connor–Davidson Resilience Scale – 10 items): Vietnamese

version translated and adapted by Dinh Thi Hong Van ¹² (Cronbach's alpha: 0.88). The scale assesses resilience through 10 items on a 5-point Likert scale (0 = not true at all to 4 = almost always true). The mean score was used for classification: <0.66 = low, 0.66–<3.86 = moderate, ≥ 3.86 = high resilience.

Brief COPE (Coping Orientation to Problems Experienced Inventory): Vietnamese version by Thai Thanh Truc ¹³ (Cronbach's alpha: 0.87). Measures coping strategies using 28 items grouped into 14 subscales (2 items each) on a 4-point Likert scale (1 = never to 4 = frequently). The mean score of each subscale reflects the extent of use of that coping strategy.

MSPSS (Multidimensional Scale of Perceived Social Support): Vietnamese version by Đinh Thị Hồng Vân ¹⁴ (Cronbach's alpha: 0.90). Includes 12 items divided into three subscales: family, friends, and significant others (4 items each), using a 5-point Likert scale (0 = strongly disagree to 5 = strongly agree). Higher mean scores indicate stronger perceived social support.

ALSS (Academic Life Satisfaction Scale): Vietnamese version by Nguyễn Thị Hà ¹⁵ (Cronbach's alpha: 0.90). Comprises 5 items rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Higher mean scores represent greater satisfaction with academic life.

All scales were authorized for use by the respective translators.

Before the main survey, a pilot test was conducted with 30 nursing students to assess internal consistency. Results showed good reliability: CD-RISC-10 = 0.80; Brief COPE = 0.80; MSPSS = 0.90 (subscales all

≥ 0.80); ALSS = 0.90 - confirming suitability for the official survey.

Data collection procedure: Data were collected in classrooms after regular lectures. Participation was voluntary, with informed consent obtained after explaining the study's objectives. Questionnaires were distributed in person; participants were guided through the process and allowed to ask questions. Average completion time was about 30 minutes. Questionnaires were checked immediately upon submission to ensure completeness and validity.

Data processing and analysis: Data were entered and analyzed using SPSS version 20.0. Normality of the resilience variable was tested using the Kolmogorov–Smirnov test ($p = 0.007$), showing a non-normal distribution. Therefore, nonparametric statistical tests were used, including:

- + Descriptive statistics (frequency and percentage for categorical variables; median and interquartile range for continuous variables)
- + Mann–Whitney test for two-group comparisons
- + Kruskal–Wallis test for multiple-group comparisons
- + Spearman's correlation for associations between variables.

Ethical considerations: The study was approved by the Ethics Committee in Biomedical Research, University of Medicine and Pharmacy at Ho Chi Minh City (Decision No. 1831/ĐHYD-HĐĐĐ, dated August 6, 2024). All participants were informed about the study and provided written informed consent before participation.

RESULTS

Table 1. General characteristics of nursing students (n = 293)

Characteristic		Frequency (n)	Percentage (%)
Age: X ± SD		20.4 ± 1.6 (Min 19, Max 34)	
Gender	Male	63	21.2
	Female	260	78.8
Academic year	First year	110	37.5
	Second year	89	30.4
	Third year	94	32.1
Parents' marital status	Separated, divorced, or one/both deceased	37	12.6
	Living together	256	87.4

The study was conducted on 293 nursing students, with an average age of 20.4 ± 1.6 years; female students accounted for 78.8%. The distribution of students across academic years was relatively even. Most participants reported that their parents were living together (87.4%).

Table 2. Resilience of nursing students (n = 293)

Item	Median	Interquartile Range (IQR)
Adapt to changes in life	3	2.0 – 3.0
Handle whatever happens in life	2	2.0 – 3.0
See the humorous side of difficulties	2	2.0 – 3.0
Become stronger after coping with stress	3	2.0 – 3.0
Recover after illness, injury, or hardship	3	2.0 – 4.0
Achieve goals despite obstacles	3	2.0 – 3.5
Stay focused and think clearly under pressure	2	2.0 – 3.0
Do not easily lose heart after failure	2	2.0 – 3.0
Stay strong when facing difficulties and challenges	3	2.0 – 3.0
Manage unpleasant emotions (sadness, fear, anger)	3	2.0 – 3.0
Overall resilience score	2.6	2.2 – 3.0

Overall, nursing students at Can Tho Medical College demonstrated a moderate level of resilience, with a median score of 2.6 (IQR: 2.2–3.0).

Table 3. Relationship between personal characteristics and resilience (n = 293)

Personal characteristics	Resilience		Test	p
	Median	Interquartile Range (IQR)		
Academic year ^a				
- First year	2.3	2.0 – 2.9	H = 13.01	0.00*
- Second year	2.6	2.4 – 3.0		
- Third year	2.6	2.3 – 3.2		
Parents' marital status ^b				
- Separated / divorced / one or both deceased	2.4	2.0 – 2.9	U=3744.5	0.03*
- Living together	2.6	2.2 – 3.1		
a: Kruskal-Wallis	b: Mann-Whitney		*p<0.05	

A statistically significant difference was found between academic year ($H = 13.08$; $p = 0.00$) and parents' marital status ($U = 3744.5$; $p = 0.03$) in relation to resilience. Specifically, second- and third-year students had higher median resilience scores (2.6) compared to first-year students (2.3). Students whose parents were living together had higher median resilience (2.6) than those with separated, divorced, or deceased parents (2.4).

Table 4. Correlation between age and resilience (n = 293)

Variable	Resilience	
	r	p
Age	0.2	0.00

There was a weak positive correlation between age and resilience ($r = 0.2$; $p = 0.00$).

Table 5. Relationship between coping strategies and resilience (n = 293)

Coping strategy	Resilience	
	r	p
Active coping	0.3	0.00
Positive reframing	0.3	0.00
Planning	0.3	0.00
Emotional support seeking	0.2	0.00
Venting	0.2	0.00

Coping strategy	Resilience	
	r	p
Humor	0.2	0.00
Acceptance	0.2	0.00
Religion	0.2	0.00
Denial	0.2	0.00

Resilience was positively correlated with several coping strategies, particularly positive reframing, active coping, and planning, which showed the strongest correlations ($r=0.3$; $p<0.01$). Other strategies - such as emotional support seeking, venting, humor, acceptance, religion, and denial - had weaker positive correlations ($r = 0.2$; $p < 0.01$).

Table 6. Relationship between social support and resilience (n = 293)

Source of social support	Resilience	
	r	p
Support from family	0.2	0.00
Support from friends	0.4	0.00
Support from significant others	0.4	0.00

All components of perceived social support were positively correlated with resilience ($p = 0.00$). Support from friends and significant others showed moderate correlations ($r = 0.4$), while family support showed a weaker correlation ($r = 0.2$).

Table 7. Relationship between academic satisfaction and resilience (n = 293)

Variable	Resilience	
	r	p
Academic satisfaction	0.2	0.00

Academic satisfaction was found to have a weak but significant positive correlation with resilience ($r = 0.2$; $p = 0.00$).

DISCUSSION

Resilience of nursing students:

The findings indicate that nursing students at Can Tho Medical College exhibited a moderate level of resilience (median 2.6; IQR: 2.2–3.0). Compared

with previous studies, this level is higher than that of nursing students in Jordan ¹⁶ and India ¹⁷, similar to those in Thailand and China–UK⁸, and lower than those in Canada¹⁸ and Spain ⁹.

These differences may be attributed to demographic characteristics, nursing education systems, sociocultural environments, and mental health support policies in each country. Variations in measurement tools and survey timing may also affect the results.

Detailed analysis revealed that students scored higher in aspects such as adaptation to change, emotional control, facing challenges, and positive outlook, while lower scores were found in task management, perseverance, concentration, and humor use. This aligns with Grande ¹⁰, suggesting a need for training programs that strengthen emotional regulation, mental recovery, and positive thinking skills.

Factors related to resilience:

Regarding personal characteristics, resilience showed a positive association with age and academic year ($p < 0.05$), with second- and third-year students scoring higher than first-year students. This finding is consistent with previous studies ^{8, 9, 18}, suggesting that accumulated learning experience and coping skills improve adaptability and recovery. Students whose parents were living together had higher resilience, emphasizing the stabilizing role of family support in promoting mental well-being and resilience ¹⁹.

In terms of coping strategies, active methods such as positive reframing, planning, and active coping were positively correlated with resilience. Additionally, emotion-focused strategies - including religious coping, acceptance, humor, venting, and emotional support seeking - also had positive associations, indicating that both behavioral and emotional coping mechanisms contribute to resilience. These

results are consistent with studies by Ching¹¹ and Cheng²⁰. Conversely, avoidant strategies - such as self-blame, distraction, behavioral disengagement, and substance use - showed no significant association, highlighting the importance of constructive coping choices for enhancing psychological strength.

The study also confirmed that all sources of social support (family, friends, significant others) were significantly and positively correlated with resilience ($r = 0.2-0.4$; $p = 0.00$). Notably, support from friends and significant others had stronger correlations than family support, likely because many students live away from home and face various academic and clinical pressures. Hence, peer and mentor relationships become more immediate and practical sources of support. Similar findings were reported by Aryuwat ⁴, Hamaideh ¹⁶, and Caton ²¹.

Finally, academic satisfaction showed a weak but significant positive correlation with resilience ($r = 0.2$; $p = 0.00$). This aligns with studies by Franzen ²², Gusar ²³, and Nguyen Toan Tran ²⁴, which highlight that academic satisfaction enhances mental health, a key foundation of resilience ^{10, 25}. Satisfaction with the curriculum, teaching quality, and learning environment fosters security, optimism, and motivation to overcome academic and clinical challenges.

Study limitations:

This study was limited to nursing students at Can Tho Medical College using a convenience sampling method, which may restrict generalizability. The cross-sectional design does not establish causality, and self-reported questionnaires may introduce response bias.

CONCLUSION

Nursing students at Can Tho Medical College demonstrated moderate resilience, with a median of 2.6 (IQR: 2.2–3.0). Resilience was significantly associated with age ($r = 0.2$; $p < 0.01$), academic year, and parents' marital status ($p < 0.05$). Moderate positive correlations were found between resilience and positive reframing, active coping, and planning ($r = 0.3$; $p < 0.01$). Weaker but significant correlations were observed with religious coping, humor, acceptance, venting, emotional support, and denial ($r = 0.2$; $p < 0.01$). Social support from friends and significant others showed moderate correlations ($r = 0.4$), while family support was weaker ($r = 0.2$), all statistically significant ($p < 0.01$). Academic satisfaction had a weak but significant positive relationship with resilience ($r = 0.2$; $p < 0.01$).

RECOMMENDATIONS

Students should strengthen positive coping strategies (planning, optimism, adaptability), develop self-regulated learning, maintain motivation and physical–mental health, and build support networks with family, friends, and instructors. The college should implement resilience training programs combined with psychological support and soft skills development, encourage participation in group and social activities, and improve teaching quality and academic environment to enhance student satisfaction and adaptability.

Future research should expand study populations and adopt longitudinal or interventional designs to evaluate long-term effects of influencing factors on resilience, contributing to sustainable and effective support strategies for nursing students.

REFERENCES

1. Stephens TM. Nursing student resilience: a concept clarification. *Nursing forum*. 2013 Apr-Jun;48(2):125-33. doi:10.1111/nuf.120152.
2. Alkaissi A, Said NB, Qadous S, Alkony M, Almahmoud O. Factors associated with perceived resilience among undergraduate nursing students: findings of the first cross-sectional study in Palestine. *BMC nursing*. 2023 May 5 ;22(1):148. doi:10.1186/s12912-023-01325-63.
3. Mitchell AEP. Resilience and mindfulness in nurse training on an undergraduate curriculum. *Perspectives in psychiatric care*. 2021 Jul;57(3):1474-81. doi:10.1111/ppc.12714
4. Aryuwat P, Holmgren J, Asp M, Lövenmark A, Radabutr M, Sandborgh M. Factors Associated with Resilience among Thai Nursing Students in the Context of Clinical Education: A Cross-Sectional Study. *Education Sciences*. 2024 Jan 9;14(1):78. doi: 10.3390/educsci14010078
5. Alatawi AO, Morsy NM, Sharif LS. Relation between resilience and stress as perceived by nursing students: a scoping review. *Evidence-Based Nurs Res*. 2024 Apr 14;4(1):19. doi:10.47104/ebnrojs3.v4i1.2326. Amsrud KE, Lyberg A, Severinsson E. Development of resilience in nursing students: A systematic qualitative review and thematic synthesis. *Nurse education in practice* . 201 Nov;41:102621. doi:10.1016/j.nepr.2019.1026216.
7. Havlin T, Keys A. Characteristics of resilient hospice workers from their administrators' perspectives: a qualitative study. *Illness, Crisis & Loss*. 2022;30(4):709-28. doi: 10.1177/10541373211017279

8. Hasson F, Slater PF, Guo X-J. Resilience, stress and well-being in undergraduate nursing students in China and the UK. *International Journal of Research in Nursing*. 2021 Jan;12(1):11-20. doi: 10.3844/ijrnsp.2021.11.20
9. Fernández-Martínez E, Martín-Pérez I, Liébana-Presa C, Martínez-Fernández M, López-Alonso AI. Fear of death and its relationship to resilience in nursing students: A longitudinal study. *Nurse education in practice*. 2021 Aug;55:103175. doi: 10.1016/j.nepr.2021.10317510.
10. Grande RAN, Berdida DJE, Villagrancia HN, Cornejo LTO, Villacorte LM, Borja MVF. Association Between Perceived Resilience and Mental Well-Being of Saudi Nursing Students During COVID-19 Pandemic: A Cross-Sectional Study. *Journal of holistic nursing : official journal of the American Holistic Nurses' Association*. 2021 Dec;39(4):314-24. doi:10.1177/08980101211009063
11. Ching SSY, Cheung K. Factors affecting resilience of nursing, optometry, radiography and medical laboratory science students. *International journal of environmental research and public health*. 2021 Apr 7;18(8):3867. doi: 10.3390/ijerph18083867
12. Nguyen QAN, Dinh HVT. The Validation of the 10-Item Connor-Davidson Resilience Scale and Its Correlation to Emotional Intelligence and Life Satisfaction Among Vietnamese Late Adolescents. *Journal of Indian Association for Child and Adolescent Mental Health*. 2022;18(3):226-34. doi: 10.1177/09731342221142072
13. Thai TT, Le PTV, Huynh QHN, Pham PTT, Bui HTH. Perceived stress and coping strategies during the COVID-19 pandemic among public health and preventive medicine students in Vietnam. *Psychology Research and Behavior Management*. 2021 Jun 18;14:795-804. doi: 10.2147/PRBM.S317059
14. Dinh Thi Hong Van, Nguyen Phuoc Cat Tuong. The relationship between social support and coping methods of students at University of Medicine and Pharmacy - Hue University. *Journal of Science and Education*. 2010;1(13):93-9.
15. Nguyen Thi Ha, Ho Thi Truc Quynh. Validation and reliability of academic life satisfaction scale for college students. *Hnue journal of science*. 2022;67(2):158-167. doi:10.18173/2354-1075.2022-0032
16. Hamaideh S, Abu Khait A, Al Modallal H, Malak M, Masa'deh R, Hamdan-Mansour A, et al. Relationships and Predictors of Resilience, Social Support, and Perceived Stress among Undergraduate Nursing Students. *The Open Nursing Journal*. 2024 Jan;18(1).doi: 10.2174/0118744346238230240103055340
17. Sam PR, Lee P. Do stress and resilience among undergraduate nursing students exist. *International Journal of Nursing Education*. 2020 Jan;12(1):146-149. doi: 10.5958/0974-9357.2020.00032.X
18. Arries-Kleyenstüber EJ. Moral Resilience in Nursing Education: Exploring Undergraduate Nursing Students Perceptions of Resilience in Relation to Ethical Ideology. *SAGE Open Nurs*. 2021 May 21;7:23779608211017798. doi: 10.1177/23779608211017798
19. Peduca IM, Esperanza JK, Magting AM, Nodalo HM, Galleposo K, Jacinto JWV. Resilience, Independence, and Struggle: Lived experiences of college students from broken families. *Threshold*. 2023 Dec;15(1). doi: 10.5281/zenodo.11312032

20. Cheng S-T, Chan ACM. The multidimensional scale of perceived social support: dimensionality and age and gender differences in adolescents. *Personality and Individual Differences*. 2004 Nov 1;37(7):1359-1369.doi: 10.1016/j.paid.2004.01.006
21. Caton MT. The impact of spirituality, social support, and self-esteem on the resilience of Haitian nurses: Implications for nursing education. *Archives of psychiatric nursing*. 2021 Apr 1;35(2):206-12.doi: 10.1016/j.apnu.2020.08.006
22. Franzen J, Jermann F, Ghisletta P, Rudaz S, Bondolfi G, Tran NT. Psychological distress and well-being among students of health disciplines: The importance of academic satisfaction. *International journal of environmental research and public health*. 2021 Feb 2;18(4):2151.doi: 10.3390/ijerph18042151
23. Gusar I, Klarin M, Ljubicic M. Mental health of nursing students with regard to their previous education and satisfaction with studying. In: *CBU International Conference Proceedings*. 2019 Sep;7:739–45. doi:10.12955/cbup.v7.1448
24. Tran NT, Franzen J, Jermann F, Rudaz S, Bondolfi G, Ghisletta P. Psychological distress and well-being among students of health disciplines: The importance of academic satisfaction in the context of academic year-end and COVID-19 stress. 2022 Apr 6.doi: 10.1371/journal.pone.0266612
25. Drach-Zahavy A, Goldblatt H, Admi H, Blau A, Ohana I, Itzhaki M. A multi-level examination of nursing students' resilience in the face of the COVID-19 outbreak: A cross-sectional design. *J Adv Nurs*. 2022 Jan;78(1):109-20.doi:10.1111/jan.14951