



Correlation of adversity quotient and resilience with professional quality of life among nurses: A cross-sectional study

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ABSTRACT

Objectives: To determine the correlations between adversity quotient, resilience, and professional quality of life among nurses. **Subjects and methods:** A cross-sectional descriptive study was conducted among 110 nurses working at Can Tho University of Medicine and Pharmacy Hospital from February to April 2025. Data were collected using self-administered questionnaires, including the Adversity Response Profile to evaluate the adversity quotient, the Brief Resilience Scale to measure resilience, and the Professional Quality of Life scale version 5.0 to determine professional quality of life. **Results:** The mean (standard deviation) score for the adversity quotient was 127 (21.6), with subscale scores for control, ownership, reach, and endurance at 29.5 (8.68), 30.2 (9.37), 32.5 (7.87), and 35.1 (7.64), respectively. The mean resilience score was 3.45 (0.7). Regarding professional quality of life, the mean scores for compassion satisfaction, burnout, and secondary traumatic stress were 39.4 (5.89), 26.9 (3.21), and 27.6 (5.57), respectively. Compassion satisfaction was found to be positively correlated with the adversity quotient ($r = 0.395$; $p < 0.001$) and resilience ($r = 0.197$; $p = 0.039$). Conversely, it was negatively correlated with burnout ($r = -0.456$; $p < 0.001$) and secondary traumatic stress ($r = -0.207$; $p = 0.03$). Burnout showed a positive correlation with secondary traumatic stress ($r = 0.593$; $p < 0.001$) but a negative correlation with resilience ($r = -0.2$; $p = 0.036$). No significant correlations were observed between burnout or secondary traumatic stress and the adversity quotient, nor between resilience and the adversity quotient or secondary traumatic stress. **Conclusion:** It is essential to develop interventions aimed at enhancing the adversity quotient and resilience, promoting compassion satisfaction, and mitigating burnout and secondary traumatic stress among nurses. Such efforts will contribute to improving work performance and the overall quality of patient care.

Keywords: Nurses, adversity quotient, resilience, professional quality of life.

INTRODUCTION

Nursing is a specialized profession that demands both compassion and dedication. Nurses play a pivotal role in providing direct

healthcare services to patients. According to the World Health Organization (2020), the global nursing workforce comprises approximately 27.9 million personnel, of

which 19.3 million are professional nurses, accounting for 59% of the total health workforce. Within hospital settings, nurses represent 50–60% of all medical staff and maintain the most frequent and closest contact with patients, ensuring continuous 24/7 care ¹.

However, the nursing profession faces many challenges, including heavy workloads, psychological stress, and a stressful work environment. A meta-analysis of 21 studies involving 213,314 nurses in 14 countries showed turnover rates ranging from 8% to 36.6%, with a combined rate of 16% (19% in Asia and 15% in North America) ². These figures highlight the need to study the professional quality of life (ProQOL) of nurses to propose solutions and policies to support the sustainable development of the profession.

Adversity quotient (AQ) and resilience are two important factors influencing nurses' ability to cope with occupational challenges. AQ, defined as the ability to adapt and overcome difficulties in adverse situations, helps nurses maintain performance in high-pressure environments ³. Meanwhile, resilience reflects an individual's capacity to recover from stress or trauma, contributing to minimizing burnout and maintaining job satisfaction ⁴. These factors can act as intermediaries or directly influence ProQOL, especially in the context of nurses frequently facing psychological stress and secondary trauma.

ProQOL, especially after the COVID-19 pandemic, has become a focal point of attention. According to Stamm (2010), ProQOL comprises three components: compassion satisfaction (CS), burnout (BO), and secondary traumatic stress (STS) ⁵. CS provides meaning and motivation in work,

while BO and STS can reduce performance and affect the quality of care ^{6,7}. BO stems from work stress, while STS is related to frequent contact with patients who have suffered trauma or death ⁶. Factors such as the work environment, colleague relationships, compensation policies, and opportunities for advancement all impact ProQOL. When negative factors predominate, nurses are at risk of quitting, putting pressure on the healthcare system ^{8,9}. Given the shortage of nursing staff in Vietnam, research into ProQOL is essential for developing policies to attract, retain, and improve the quality of work for nurses.

The Can Tho University of Medicine and Pharmacy Hospital was established in 2011 with the mission of continuously improving the quality of patient care and developing healthcare human resources. In this context, this study aims to describe the level of resilience, AQ, and ProQOL among nurses at the hospital, and to determine the correlation between these three factors. The research results are hoped to provide important insights and contribute to proposing practical solutions to improve the material and spiritual well-being, retain, and sustainably develop the nursing staff.

SUBJECTS AND METHODS

Study subjects

Inclusion criteria: Full-time and part - time nurses working in outpatient departments or clinical departments with direct patient contact, with at least 12 months of work experience, and willing to participate in the study.

Exclusion criteria: Nurses currently enrolled in long-term education, away on business trips, on maternity leave, on annual leave, or on unpaid leave during the survey period.

Study setting and period: The study was conducted from December 2024 to October 2025 at Can Tho University of Medicine and Pharmacy Hospital. Data collection was specifically carried out between February and April 2025

Study design: A cross-sectional descriptive study design was employed.

Sample size and sampling method: A total sampling method was utilized, including all nurses who met the inclusion criteria. The sample size is 110 nurses.

Data collection instruments: The research instrument consisted of three parts:

Part 1: AQ: Evaluated using the Adversity Response Profile (ARP®) QuickTake 1.0 developed by Stoltz (1997) and adapted for the Vietnamese context by Nguyen Van Tuan et al ^{3,10}. The tool comprises 20 hypothetical situations, each followed by a question scored on a 5-point Likert scale across four subscales: Control, Ownership, Reach, and Endurance (CORE). Each subscale contains 5 items; the score for each part is the sum of these items multiplied by two. AQ levels are categorized as shown in Table 1. The Cronbach’s alpha for this instrument was 0.883 in a pilot test of 30 nurses

Table 1. Classification of adversity quotient levels and its subscales

Aspect	Level				
	High	Moderate high	Moderate	Moderate low	Low
Control	48-50	43-47	36-42	30-35	10-29
Ownership	50	47-49	41-46	31-40	10-30
Reach	43-50	38-42	30-37	25-29	10-24
Endurance	44-50	39-43	32-38	26-31	10-25
Adversity quotient	176-200	158-175	136-157	119-135	40-118

Part 2: Resilience, assessed using the BRS scale developed by Bruce W. Smith et al. (2008) ¹¹. The scale consists of 6 items; items 1, 3, and 5 are positively phrased, while items 2, 4, and 6 are negatively phrased. Scoring involves reversing the points for items 2, 4, and 6, then calculating the mean across all six items. A 5-point Likert scale is used, ranging from (1) Strongly disagree to (5) Strongly agree. Higher scores indicate higher levels of resilience. The scale was translated into Vietnamese and validated by two experts in linguistics and nursing, with a Cronbach’s alpha of 0.886.

Part 3: ProQOL: Assessed using the ProQOL Version 5.0 by Stamm (2010), with the Vietnamese version translated and validated by Tran et al ¹² (2023). The tool includes 30 items across three domains: CS, BO, and STS (10 items per domain). Items are scored on a 5-point Likert scale (1-Never to 5-Very often). Total scores for each domain range from 10–50 and are categorized into low (< 23), average (23–41), and high (≥ 42). Cronbach’s alpha values in this study for the three components were 0.933, 0.75, and 0.891, respectively.

Data analysis methods: Data were processed and analyzed using Jamovi software version 2.5.3. Categorical variables are presented as frequencies (n) and percentages (%), while quantitative variables are reported as Mean and standard deviations (SD). Normality testing (skewness and kurtosis within ± 1) indicated that AQ, resilience, and ProQOL scores were normally distributed; therefore, Pearson correlation analysis was used to test the relationships between these variables. Statistical significance was set at $p < 0.05$.

Ethical considerations: The study was approved by the Biomedical Ethics Committee of Can Tho University of Medicine and Pharmacy (Approval No. 24.046GV-DHYDCT, dated November 16, 2025). Participants were provided with full information regarding the study's purpose and signed an informed consent form. All personal information was kept confidential and used solely for research purposes.

RESULTS

At the time of the survey, 123 nurses were working in the outpatient and clinical departments. Of these, 110 nurses agreed to participate in the study, representing a response rate of 89.43%. Table 2 presents AQ and its four subscales: Control, Ownership, Reach, and Endurance.

Table 2. Adversity quotient and resilience of nurses (n= 110)

Variable	Low n (%)	Moderate low n (%)	Moderate n (%)	Moderate high n (%)	High n (%)	Mean \pm SD
Adversity quotient	29 (26.4)	42 (38.2)	34 (30.9)	3 (2.7)	2 (1.8)	127 \pm 21.6
Control	48 (43.6)	38 (34.5)	16 (14.5)	2 (1.8)	6 (5.5)	29.5 \pm 8.68
Ownership	65 (59.1)	33 (30)	10 (9.1)	0 (0)	2 (1.8)	30.2 \pm 9.37
Reach	15 (13.6)	19 (17.3)	46 (41.8)	22 (20)	8 (7.3)	32.5 \pm 7.87
Endurance	8 (7.3)	33 (30)	32 (29.1)	21 (19.1)	16 (14.5)	35.1 \pm 7.64
Resilience	-	-	-	-	-	3.45 \pm 0.7

The majority of nurses had an AQ at moderate low and moderate levels, with rates of 38.2% and 30.9%, respectively. The mean (SD) AQ score was 127 (21.6). Nurses with low levels of control and ownership predominated at 43.6% and 59.1%; reach was mostly at an moderate level (41.8%), and endurance was primarily below average (30%). The mean (SD) scores for control, ownership, reach, and endurance were 29.5 (8.68), 30.2 (9.37), 32.5 (7.87), and 35.1 (7.64), respectively. The mean resilience score was 3.45 (0.7) on a 5-point scale.

Table 3. Quality of professional life of nurses (n=110)

Quality of professional life	Low n (%)	Moderate n (%)	High n (%)	Mean \pm SD
Compassionate satisfaction	0 (0)	77 (70)	33 (30)	39.4 \pm 5.89
Burnout	7 (6.4)	103 (93.6)	0 (0)	26.9 \pm 3.21
Secondary traumatic Stress	13 (11.8)	97 (88.2)	0 (0)	27.6 \pm 5.57

ProQOL among nurses was predominantly at a moderate level, with CS, BO, and STS accounting for 70%, 93.6%, and 88.2%, respectively. The mean (SD) scores were 39.4 (5.89) for CS, 26.9 (3.21) for BO, and 27.6 (5.57) for STS.

Table 4. Correlation between professional quality of life, adversity quotient, and resilience (n = 110)

	Adversity Quotient	Resilience	Compassionate satisfaction	Burnout
Adversity Quotient	-	-	-	-
Resilience	r = 0.143; p = 0.135	-	-	-
Compassionate satisfaction	r = 0.197; p = 0.039	r = 0.395; p < 0.001	-	-
Burnout	r = 0.069; p = 0.475	r = -0.2; p = 0.036	r = -0.456; p < 0.001	-
Secondary traumatic Stress	r = -0.099; p = 0.304	r = -0.042; p = 0.66	r = -0.207; p = 0.03	r = 0.593; p < 0.001

Pearson correlation analysis showed a statistically significant positive correlation between CS and AQ (r = 0.197; p = 0.039) and their resilience (r = 0.395; p < 0.001). Meanwhile, CS showed a negative correlation with BO (r = -0.456; p < 0.001) and STS (r = -0.207; p = 0.03). Furthermore, the analysis also showed a positive correlation between BO and STS (r = 0.593; p < 0.001) but a negative correlation with the resilience (r = -0.2; p = 0.036). No correlations were found between BO/STS and AQ, nor between resilience and AQ or STS.

DISCUSSION

Adversity quotient and resilience in nursing: The research results at Can Tho University of Medicine and Pharmacy Hospital indicate that the AQ of nurses is moderate low (38.2%) and moderate (30.9%) levels, with an overall mean score

of 127 \pm 21.6 out of 200. The components of AQ, including control (29.5 \pm 8.68), ownership (30.2 \pm 9.37), reach (32.5 \pm 7.82), and endurance (35.1 \pm 7.64), reflected moderate capacity to cope with adversity, aligning with Stoltz's (1997) definition of AQ as the ability to overcome challenges in work and life³.

These findings are consistent with previous research by Nguyen Viet Phuong, which recorded a mean AQ of 3.11 ± 0.77 on a 5-point scale (equivalent to approximately 124.4/200 when converted), showing consistency in the AQ levels of nurses in public hospitals in Southern Vietnam¹³. However, Cariño's (2023) study in the Philippines reported an average AQ of 123.72 ± 10.45 , with a mean or higher rate in the components from 34.4% (control) to 75.3% (range), slightly lower than this study, possibly due to local differences and work pressure¹⁴. A meta-analysis by Saxena and Rathore (2024) indicated that nurses generally had the lowest AQ among healthcare workers, with an average of 116-132/200, consistent with current results¹⁵. Other studies, such as Wang et al. (2021) (116.72 ± 11.39 in Macao nursing students) and Zhang et al. (2023) (132.90 ± 41.10 in nurses), also reinforced that the AQ of Asian nurses is generally at a low-moderate level^{16,17}, due to continuous exposure to high workloads and high-pressure environments².

Quality of professional life in nursing:

The study results showed that the nurses' ProQOL was at a moderate level, with rates of CS, BO, and STS being 70%, 93.6%, and 88.2%, respectively, with corresponding mean scores of 39.4 ± 5.89 ; 26.9 ± 3.21 , and 27.6 ± 5.57 . This result reflects a balance between CS and negative (BO, STS) factors, consistent with Stamm's (2010) definition of ProQOL as a balance between satisfaction from compassion and occupational stress⁵.

A CS score of 39.4 indicates that nurses derive satisfaction from patient care but have not reached a high level, likely due to the demands of a university hospital. This result is higher than the study by Bahari et al. (2022) in Saudi Arabia (32.43 ± 6.64)¹⁸

and Lu et al. (2020) in Taiwan (28.5 ± 3.6)¹⁹, but lower than Pham Thi Be Kieu (2023) in Vietnam (40.06 ± 4.72)⁹. The difference may be due to high expectations of sacrifice or the working environment^{13,20}.

Regarding BO, the mean score of 26.9 ± 3.21 indicates moderate BO, higher than Tran et al. (2023) (24.9 ± 5.1)¹², but lower than Bahari et al. (2022) (28.74 ± 4.88)¹⁸. This reflects pressure from long working hours and shifts, although cultural coping mechanisms in Vietnam may reduce BO²¹. The average BO rate (93.6%) underscores the need for intervention to reduce BO and avoid impacting job performance.

The STS level (27.6 ± 5.57) was moderate (88.2%) and was higher than Maddigan et al. (2023) in Canada (23.81 ± 6.52)²² and Pham Thi Be Kieu (2023) (22.94 ± 5.81)⁸, but equivalent to Bahari et al. (2022) (28.82 ± 7.26)¹⁹. As one of the two hospitals under the Ministry of Health in the Mekong Delta, Can Tho University of Medicine and Pharmacy Hospital frequently receives critically ill patients, leading to high STS due to prolonged care time²³. Overall, the average ProQOL emphasizes the need for interventions such as mindfulness training to improve CS and reduce BO/STS²⁴.

Correlation between adversity quotient, resilience, and professional life quality in nurses: Pearson correlation analysis revealed significant positive correlations between CS and both AQ ($r = 0.395$, $p < 0.001$) and resilience ($r = 0.197$, $p = 0.039$). Conversely, CS negatively correlated with BO ($r = -0.456$, $p < 0.001$) and STS ($r = -0.207$, $p = 0.03$). BO positively correlated with STS ($r = 0.593$, $p < 0.001$) but negatively with resilience ($r = -0.2$, $p = 0.036$). No significant correlations were found between BO/STS and AQ, nor

between resilience and AQ or STS. These results suggest that AQ and resilience serve as protective factors that enhance CS and mitigate negative ProQOL components, consistent with Stoltz's (1997) definition of AQ as the ability to overcome challenges and resilience as the intrinsic strength to overcome stress ³.

Moderate AQ levels enable nurses to regulate emotions and maintain motivation, thereby fostering CS ¹⁵. However, because AQ remains at low-to-moderate levels, it is not yet strong enough to significantly reduce BO and STS within the context of university hospital pressures. High endurance supports CS, but low control may lead to helplessness, weakening the defense against BO/STS ²⁵. Similarly, resilience (3.45 ± 0.7) positively influences CS and negatively impacts BO ²⁶. However, moderate resilience is insufficient to combat STS, possibly due to frequent exposure to severe trauma or lack of social support ²⁷. The negative correlation between CS and BO/STS emphasizes the role of CS as a protective barrier, while BO is a bridge to STS through emotional exhaustion, consistent with the study of Bahari et al. (2022) ($r = 0.407, p < 0.001$) ¹⁸. In Vietnam, nursing is a blend of science and art requiring immense physical and psychological stamina. With a nurse-to-population ratio of only 14 per 10,000—far below the 2025 goal of 25 nurses—nurses face heavy workloads, often caring for 10–15 patients per shift ²⁸. Consequently, interventions such as mindfulness training and enhancing AQ (specifically control and endurance) are essential to improve ProQOL and ensure a sustainable workforce ²⁴.

LIMITATIONS OF THE STUDY

This study has several limitations that should be acknowledged. First, the cross-sectional design only provides a snapshot of data at a single point in time, which precludes the establishment of causal relationships between the variables. Second, the research was conducted with a relatively small sample size at a single university hospital, which may limit the generalizability of the findings to other healthcare settings or regions. Furthermore, the analysis primarily focused on exploring the correlations between the three main variables: AQ, resilience, and ProQOL. Other potentially influential factors, such as specific individual demographics and detailed occupational characteristics, were not fully analyzed. Finally, the study did not employ advanced statistical modeling, such as multivariate linear regression, to further explore the predictive power and complex interactions among these factors..

CONCLUSION

The AQ, resilience, and ProQOL of nurses are at moderate levels. It is imperative to develop strategic solutions to enhance AQ and resilience while promoting CS, reducing BO, and STS among nurses which ultimately contribute to improved work performance and the quality of patient care.

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