




ORIGINAL ARTICLE

Factors associated with resilience, spiritual and mental well-being of advanced practice nurses: Implications for role integration

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Abstract

Aim(s): To examine the overall level of resilience and spiritual and mental well-being of advanced practice nurses (APN) in Singapore and to describe the associated factors of mental well-being.

Background: Research shows that healthcare workers' resilience and mental well-being are positively associated with spiritual well-being, which encompasses a sense of peace and meaning. Understanding APNs' spiritual and mental health, alongside resilience, may help maintain the sustainability and effectiveness of the APN workforce within the healthcare system, especially in the post-pandemic environment.

Methods: This nationwide cross-sectional online survey (May–June 2023) assessed APNs' resilience and spiritual and mental well-being. The Connor–Davidson Resilience 10 Scale, the Warwick–Edinburgh Mental Well-Being Scale, and the Functional Assessment of Chronic Illness Therapy–2-Factor Non-Illness Spiritual Well-Being Scale Version 4 were used. Sociodemographic and work-related information were collected to explore associations between participants' characteristics and their level of resilience and spiritual and mental well-being.

Results: Eighty-two APNs and APN interns participated in the study, representing 21.4% nationwide. Participants' level of resilience, peace and meaning components of spirituality, and whether they worked in an acute care setting, were statistically significant predictors of APNs' mental well-being. APNs working in acute care hospitals had higher levels of mental well-being than other healthcare settings.

Conclusion: The significant roles of the Peace and Meaning subscales of spiritual well-being underscore the importance of fostering supportive work environments. Supportive work environments can foster peace and meaning by facilitating the integration of APN roles and nurturing a sense of purpose and connection within their professional practice.

Implications for nursing: Effective APN integration into the healthcare system, crucial for their mental well-being, requires addressing macro-, meso- and micro-level issues. At the macro level, clear scopes of practice and legislative support can provide stability and purpose, fostering peace of mind. Meso-level strategies, such as collaborative practice models, can cultivate a sense of connection and shared meaning within teams. Micro-level strategies, including professional development, mentorship and supportive work environment, can nurture reflective practice and personal growth, further

enhancing APNs' spiritual well-being through a sense of peace and meaning. These strategies collectively strengthen APNs' professional identity, job satisfaction and mental well-being, leading to better patient outcomes and a more resilient healthcare workforce.

KEYWORDS

Advanced practice nurse, advanced practice nursing, cross-sectional, health workforce, mental well-being, nurse practitioner, nursing, professional development, resilience, spiritual well-being, survey

INTRODUCTION

Advanced practice nursing has increasingly been adopted worldwide (Rogers et al., 2024). The International Council of Nurses (2020) has defined an advanced practice nurse (APN) as a registered nurse who has developed the expert knowledge, complex clinical competencies and decision-making skills necessary for extended practice. Across most contexts, advanced practice nursing refers to legislatively sanctioned nursing roles beyond a registered nurse's defined scope of practice (Rogers et al., 2024). Accordingly, the scope of practice of an APN is shaped by the context in which they are credentialed to practise (International Council of Nurses [ICN], 2020).

Internationally, the role of APNs has evolved in response to varying health care needs and settings, demonstrating significant heterogeneity in practice authority, educational requirements, and role implementation (Rosa et al., 2020). For instance, in regions like Australia, the United States, Canada and some European countries, APNs have been instrumental in bridging gaps in healthcare accessibility, particularly in rural and underserved areas (Groenewegen et al., 2022). This variation is further exemplified by the distinct differences in regulatory frameworks, which govern their practice rights and professional titles, such as nurse practitioners, clinical nurse specialists, and nurse midwives (Wheeler et al., 2022). These roles, while diverse, consistently emphasise the APN's critical function in healthcare including advancing primary care, managing chronic diseases and leading health promotion and disease prevention efforts. Their integration into healthcare systems globally signifies a shift towards more diversified and adaptable healthcare workforce strategies to meet complex and evolving healthcare demands (Kilpatrick et al., 2023).

In Singapore, 'APN' is the legally protected title introduced since 2003 (Woo et al., 2019) to describe nurses who practise beyond a registered nurse's scope of practice. Legality thus ensures the reservation of this appellation to registered nurses who have completed the accredited Master of Nursing programme (Singapore Nursing Board [SNB], 2020). Unlike countries such as Canada, New Zealand, the United Kingdom and the United States, Singapore does not have differentiated titles (such as nurse practitioner, nurse consultant and clinical nurse specialist) for nurses in advanced practice; instead, the single, consolidated title of 'APNs' is used to generically characterise nurses in advanced practice. In the context of Singapore, the roles of an APN are a hybrid of those of a clinical nurse specialist and a nurse practitioner (Woo et al., 2019).

Some APNs have collaborative prescribing rights, which allow them to prescribe a predetermined list of drugs without a doctor's endorsement (Ministry of Health, 2021). However, APNs in Singapore still have limited referral rights.

Currently, Singapore has 330 registered APNs specialising in acute care, community health, medical-surgical care or mental health, representing less than 1% of the nursing workforce (Ministry of Health, 2020; Zhou, 2021). A nationwide study reported that 68% work in acute care hospitals, 20% in community settings, and about 40% have collaborative prescribing rights (Ministry of Health, 2021; Woo et al., 2019).

While registered nurses also face numerous challenges, APNs' extended scope of practice places them at the forefront of diagnostic reasoning, clinical decision-making and direct management of complex patient conditions, often with greater autonomy and accountability (ICN, 2020). As such, APNs are not only confronted with the routine demands and stressors typical of nursing roles but also must navigate additional pressures such as managing advanced clinical responsibilities, maintaining high-level competencies, and justifying their practice to colleagues and patients who may have limited understanding of the APN role (Woo, Koh, et al., 2020). These heightened expectations and expanded scope of responsibilities, particularly in a rapidly evolving and resource-constrained healthcare landscape, underscore the need for a higher level of resilience in APNs compared to registered nurses.

Despite the critical contributions of APNs to healthcare, their roles in Singapore are often undermined by challenges such as limited role clarity, inadequate recognition from colleagues and patients and restricted professional autonomy (Woo et al., 2019, 2020). These barriers, compounded by the additional pressures of the COVID-19 pandemic, have heightened the stress and uncertainty faced by APNs, testing their adaptability and perseverance (Woo et al., 2021).

In this context, resilience emerges as a vital attribute for APNs to navigate these challenges effectively. Resilience, conceptualised as a trait, process and outcome (Masten, 2001), is particularly relevant for APNs as it enables them to maintain their mental well-being, sustain professional efficacy and adapt to the complexities of their roles. However, resilience does not exist in isolation. Growing evidence suggests that spiritual well-being—understood not merely as religious affiliation but as an encompassing concept involving personal meaning, peace and one's relationship with the broader environment—can further bolster resilience and

mental health among healthcare professionals (Le et al., 2019; Rogers, Lamarche, et al., 2022; Rogers, Windle, et al., 2022). By examining spiritual well-being, we acknowledge that APNs may draw upon intrinsic sources of inner strength, purpose and equanimity when facing heightened occupational stress. Hence, understanding APNs' spiritual well-being is not only relevant but may provide crucial insights into strengthening their resilience and supporting their overall mental well-being.

The theoretical stance underlying our study is informed by the positive psychology framework, which posits that resilience involves dynamic interactions between individual characteristics, life experiences and the resources available within one's environment (Seligman & Csikszentmihalyi, 2000). This perspective underscores the adaptive capacity of individuals to thrive despite challenges, emphasising the role of positive emotions and traits such as optimism and perseverance in fostering resilience (Luthans et al., 2007). In the context of APNs, this approach enables a deeper understanding of how they sustain their mental health and professional efficacy amidst the complexities of their roles.

It is postulated that increased resilience functions as a protective factor against the negative consequences of occupational stress among healthcare workers (Ang, Chew, et al., 2022; Cheng et al., 2023). There is an increasing body of knowledge that examines the influence of spiritual well-being on personal resilience and mental well-being (Ang, Shorey, et al., 2022). Often, spiritual well-being is mistaken for religiosity. However, spirituality is intrinsically human and encompasses more than faith. It pertains to how individuals perceive and interact with their environment and is commonly associated with positive mental dispositions (Wattis et al., 2017). Research indicates that healthcare workers', including APNs', resilience and mental well-being are positively associated with their spiritual well-being (Le et al., 2019; Rogers, Lamarche, et al., 2022; Rogers, Windle, et al., 2022).

These findings highlight a current gap in understanding: while it is known that resilience and spiritual well-being are beneficial, we lack a clear baseline understanding of how these factors interact specifically within the APN workforce, especially in contexts like Singapore, where APNs hold distinct roles and responsibilities. By systematically exploring their resilience, spiritual well-being and mental health, this study aims to address this gap, ultimately informing targeted strategies to support APNs' sustainability and effectiveness in a post-pandemic healthcare environment. A baseline understanding of APNs' resilience and spiritual and mental well-being can significantly enhance our knowledge of the APN workforce's capacity to remain sustainable and integral to the healthcare system.

AIM

The aim of the study is to examine the overall level of resilience and spiritual and mental well-being of APNs in Singapore and to describe the associated factors of mental well-being.

METHOD

Study design

An exploratory cross-sectional nationwide online survey was conducted in Singapore, a 720-km² island city-state with a population of 5.9 million people (Singapore Department of Statistics, 2024). This study adhered to the STROBE guidelines for reporting cross-sectional studies (Supporting Information S1).

Participants and setting

Considering that there were only 383 APNs at the time of the study, census sampling was undertaken (Ilker et al., 2016). All registered APNs and APN interns practising in Singapore were eligible for the study.

Instrument

Three validated instruments were used to assess APNs' resilience and spiritual and mental well-being. These instruments were, namely, the Connor–Davidson Resilience 10 Scale (CD-RISC-10), the Functional Assessment of Chronic Illness Therapy-2-Factor Non-Illness Spiritual Well-Being Scale (FACIT-Sp-12) Version 4, and the Warwick–Edinburgh Mental Well-Being Scale (WEMWBS).

The CD-RISC-10 was used to measure the level of resilience (Campbell-Sills & Stein, 2007; Connor & Davidson, 2003). It is a 10-item instrument pertaining to trait resilience and psychological resilience. Respondents rated each item on a 5-point Likert scale, with '0' being 'never' and '4' being 'almost always'. Higher scores imply higher levels of resilience. The CD-RISC-10 has been used across multiple settings and also by healthcare providers. When administered on a global sample of APNs, a Cronbach alpha of 0.89 was achieved (Rogers, Lamarche, et al., 2022). The CD-RISC-10 was also previously validated among nurses in Singapore and was found to have good internal consistency (Cronbach alpha 0.91) (Ang et al., 2018).

The FACIT-Sp-12 Version 4 was used to measure the spiritual well-being of APNs. The 12-item instrument explores the three aspects of spiritual well-being: peace, meaning and faith (Bredle et al., 2011). The FACIT-Sp-12 Version 4 has been adapted for use with the general population without illness and has been validated for use on healthcare workers (Bormann et al., 2017; Rogers, Windle, et al., 2022). A reasonable level of internal consistency (Cronbach's alpha values on the Meaning and Faith subscales were 0.88 and 0.82, respectively) was achieved when administered on a global sample of APNs.

The WEMWBS is a 14-item scale, worded positively to assess respondents' thoughts and feelings over the past two weeks. It was developed to subjectively measure the mental well-being and psychological functioning of individuals over

the age of 16 years (Stewart-Brown & Janmohamed, 2008; Tennant et al., 2007). Respondents rated each item on a 5-point Likert scale, with '1' being 'none of the time' and '5' being 'all of the time'. The score ranges from 14 to 70 with higher scores indicating more positive mental well-being (Taggart et al., 2015). The WEMWBS was used in earlier research on nurses (Choi & Lee, 2020; Rogers, Windle, et al., 2022; Wood et al., 2020) and demonstrated strong internal consistency when administered on a global sample of APNs (Cronbach's alpha 0.92).

In addition to the three main instruments, data relating to their social-demographic information (e.g. age, gender, marital status) and work-related characteristics (e.g. specialty of practice, work setting, working hours, years of work experience, APN training history and professional education) were collected. Details are provided in the Supporting Information.

Recruitment and data collection

The survey was administered via Qualtrics, a secure web-based software, between May and June 2023. A publicly accessible unique hyperlink to the survey was created for dissemination. A two-pronged approach was taken to recruit APNs and APN interns for this study. The study invitation with the survey's hyperlink was sent to the National University of Singapore alumni lifelong email accounts of all Master of Nursing alumni. In addition, the study invitation was sent to the APN leads of every health institution in Singapore. To garner a good response rate, the study invitation was sent again two and four weeks after the first email.

Ethical considerations

The completion and submission of the survey implied consent to participate in this study. No personal information or data on the institution of employment were collected. All research-related activities received approval from the Institutional Review Board of the National University of Singapore (NUS-IRB-2023-162).

Data analysis

For all statistical analyses, the IBM SPSS Statistics for Windows Version 26.0 was used (IBM Corp., 2019). Descriptive analyses were used to describe the participants' characteristics and levels of resilience, spiritual well-being and mental well-being. One-way ANOVAs were conducted to examine if levels of resilience, mental well-being and spiritual well-being differed between participants with different sociodemographic backgrounds, working in different settings or roles. A step-wise linear multiple regression analysis was done to examine factors associated with the emotional well-being of APNs. The level of significance was set at 0.05. Participants with missing entries were excluded from any analyses.

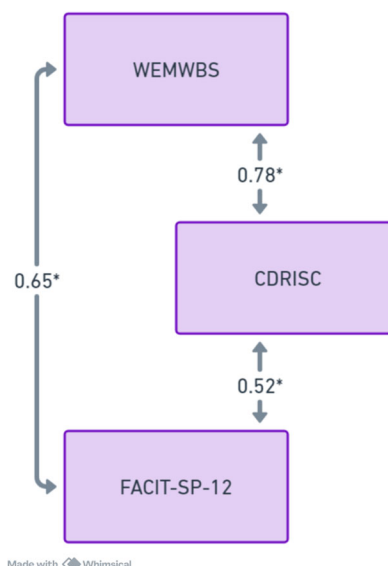


FIGURE 1 Spearman correlation coefficients among study scales. WEMWBS: Warwick–Edinburgh Mental Well-being Scale. CDRISC: Conner–Davidson Resilience Scale. FACIT-SP-12: Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being 12-item scale. * $p < 0.001$.

RESULTS

Participant characteristics

A total of 82 APNs and APN interns participated in the study, achieving a 21.4% response rate. Table 1 presents the demographic and work-related characteristics of the respondents. The respondents were predominantly female (90%) and Chinese (89%). The mean age of the respondents was 41 (± 6) years. Two-thirds are married (65%).

All have a master's degree but two had an additional doctorate degree. On average, the respondents have work experiences of 5 (± 5) years as APNs and 18 (± 7) years as registered nurses (RNs) respectively. The majority (81%) worked in acute care hospitals, most (59%) of whom worked in the medical-surgical specialty. The respondents reported working an average of 44 (± 8) hours per week.

All three instruments yielded significant, positive associations (Figure 1). The Spearman's correlation indicated a strong correlation exists between the CD-RISC-10 and WEMWBS scores ($r_{sp} = 0.78$, $p > 0.001$). Moderate correlations were observed between CD-RISC-10 and FACIT-SP-12 scores ($r_{sp} = 0.52$, $p > 0.001$) and FACIT-SP-12 and WEMWBS scores ($r_{sp} = 0.65$, $p > 0.001$), respectively.

APNs' level of resilience, spiritual well-being and mental well-being

Participants in the study exhibited a mean resilience score of 36.9 (± 5.1) with values ranging from 21.0 to 50.0. Participants reported mean Meaning, Peace and Faith subscale scores of 12.3 (± 3.1), 10.2 (± 2.9) and 10.5 (± 4.1), respectively. The

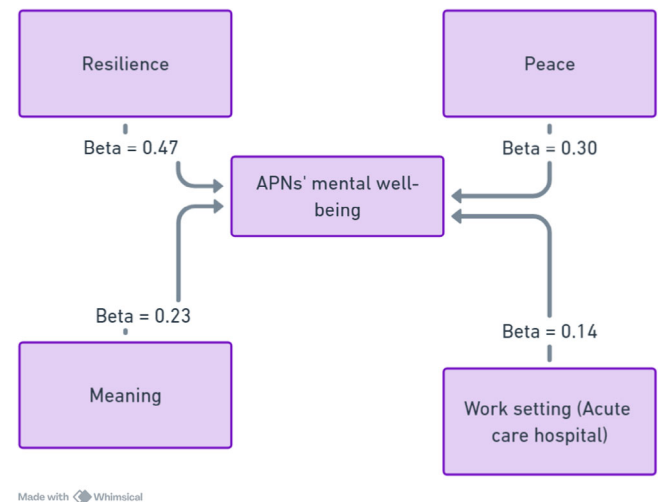
TABLE 1 Participant characteristics ($n = 82$).

	Mean (SD)	n (%)
Age	41 (6)	
Gender		
Female		74 (90)
Male		8 (10)
Ethnicity		
Chinese		73 (89)
Malay		5 (6)
Indian		1 (1)
Others		3 (4)
Marital status		
Single		26 (32)
Married		53 (65)
Divorced		3 (4)
Highest level of education		
Master's degree		80 (98)
Doctorate degree		2 (2)
APN work experience (years)	5 (5)	
APN training		
Singapore		81 (99)
USA		1 (1)
RN work experience (years)	18 (7)	
RN training		
Singapore		80 (98)
Other countries		2 (2)
Work setting		
Acute care hospital		66 (81)
Polyclinic		7 (9)
Outpatient		6 (7)
Others		3 (4)
Specialty of practice		
Medical-surgical		48 (59)
Acute care		14 (17)
Mental health		7 (9)
Community health		5 (6)
Paediatrics		5 (6)
Others		3 (4)
Working hours per week	44 (8)	
Shift pattern		
Office hours (Monday to Friday)		43 (52)
Office hours (work on weekends as well)		19 (23)
Rotating AM/PM shifts		16 (20)
Office hours and on-call duties		3 (4)
Rotating AM/PM/ND ^a shifts		1 (1)
CDRISC ^b total score	36.9 (5.1)	
WEMWBS ^c total score	48.6 (7.6)	
FACIT-SP-12 ^d total score	33.0 (8.3)	

(Continues)

TABLE 1 (Continued)

	Mean (SD)	n (%)
FACIT-SP-12 ^d —Meaning	12.3 (3.1)	
FACIT-SP-12 ^d —Peace	10.2 (2.9)	
FACIT-SP-12 ^d —Faith	10.5 (4.1)	

^a AM/PM/ND: Morning, afternoon and night shifts.^b CDRISC: Conner–Davidson Resilience Scale.^c WEMWBS: Warwick–Edinburgh Mental Well-being Scale.^d FACIT-SP-12: Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being 12-item scale.**FIGURE 2** Factors associated with APNs' mental well-being.

Meaning subscale scores ranged from 4.0 to 16.0, the Peace subscale scores ranged from 3.0 to 16.0, and the Faith subscale scores ranged from 0.0 to 16.0. Participants had a mean mental well-being score of 48.6 (± 7.6), with scores ranging between 31.0 and 69.0. Table 2 describes participants' resilience, spiritual well-being and mental well-being scores by demographic group.

Factors associated with APNs' mental well-being

Stepwise multiple linear regression analyses (Table 3) indicated that participants' level of resilience, peace and meaning components of spirituality, and whether they worked in an acute care setting were statistically significant predictors of APNs' mental well-being ($F = 59.5$, $p < 0.001$). Resilience was observed to have the strongest effect (standardised Beta = 0.47), followed by the Peace subscale (standardised Beta = 0.30), the Meaning subscale (standardised Beta = 0.23) and work setting (standardised Beta = 0.14) (Figure 2). This model accounted for 74% of the variance in APNs' mental well-being (adjusted $R^2 = 0.74$).

These results suggest that APNs with higher levels of resilience [$\beta = 0.71$, 95% CI (0.50–0.92), $p < 0.001$], higher levels of peace [$\beta = 0.79$, 95% CI (0.34–1.24), $p < 0.001$] and

TABLE 2 Descriptive statistics for all study measures by demographic group ($n = 82$).

Variable	n (%)	CDRISC ^a , mean (SD)	WEMWBS ^b , mean (SD)	FACIT-SP-12 ^c , mean (SD)	FACIT-SP-12 Meaning, mean (SD)	FACIT-SP-12 Peace, mean (SD)	FACIT-SP-12 Faith, mean (SD)
Total	82 (100)	36.9 (5.1)	48.6 (7.6)	33.0 (8.3)	12.3 (3.1)	10.2 (2.9)	10.5 (4.1)
Gender							
Female	74 (80)	37.1 (5.0)	48.8 (7.6)	33.1 (8.1)	12.4 (3.1)	10.3 (2.8)	10.5 (4.1)
Male	8 (10)	35.9 (5.9)	46.8 (8.1)	32.3 (10.6)	11.5 (3.2)	9.9 (3.8)	10.9 (4.2)
Ethnicity							
Chinese	73 (89)	37.1 (4.7)	48.7 (7.5)	33.4 (8.1)	12.5 (3.0)	10.4 (2.9)	10.5 (4.0)
Malay	5 (6)	41.0 (3.0)	54.2 (3.8)	35.2 (5.2)	11.4 (2.1)	10.6 (1.5)	13.2 (1.6)
Indian and others	4 (5)	28.3 (5.1)	38.3 (5.0)	24.0 (13.1)	9.0 (4.0)	7.3 (2.9)	7.7 (7.5)
Marital status							
Single	26 (32)	36.5 (5.3)	46.7 (6.9)	31.0 (8.0)	11.5 (3.2)	10.1 (2.7)	9.4 (4.4)
Married	53 (65)	36.9 (5.0)	49.3 (7.1)	34.0 (7.9)	12.6 (2.9)	10.3 (2.9)	11.1 (3.7)
Divorced	3 (4)	41.3 (1.5)	52.0 (19.3)	34.3 (17.0)	13.0 (4.4)	11.0 (5.3)	10.3 (7.4)
Highest education level							
Master's degree	80 (98)	36.8 (5.1)	48.4 (7.6)	32.8 (8.3)	12.2 (3.0)	10.2 (2.9)	10.5 (4.1)
Doctorate	2 (2)	41.0 (1.4)	57.0 (4.2)	41.0 (4.2)	15.5 (0.7)	12.5 (0.7)	13.0 (4.2)
Work setting							
Acute care hospital	66 (81)	37.2 (4.9)	49.4 (7.3)	33.4 (7.6)	12.4 (3.0)	10.4 (2.6)	10.7 (3.7)
Outpatient	7 (9)	39.0 (4.8)	47.0 (7.7)	35.3 (7.4)	12.2 (3.3)	10.8 (4.4)	12.3 (5.3)
Polyclinic	6 (7)	32.0 (5.3)	43.9 (7.4)	28.6 (11.9)	11.6 (4.0)	9.0 (3.5)	8.0 (5.2)
Others	3 (4)	40.0 (0.0)	42.5 (16.3)	29.5 (20.5)	11.5 (5.0)	9.0 (5.7)	9.0 (9.9)
APN specialty							
Acute care	48 (59)	37.4 (4.2)	49.0 (4.9)	32.4 (4.0)	12.3 (2.2)	9.9 (1.6)	10.2 (3.1)
Medical-surgical	14 (17)	36.9 (4.8)	48.4 (7.9)	33.7 (8.2)	12.4 (3.2)	10.4 (3.1)	11.0 (3.9)
Mental health	7 (9)	38.9 (6.5)	51.0 (10.9)	36.4 (11.8)	13.0 (3.7)	11.0 (4.1)	12.4 (4.4)
Paediatrics	5 (6)	37.6 (4.8)	50.0 (6.9)	31.2 (8.4)	11.0 (2.7)	10.6 (2.3)	9.6 (4.7)
Community health	5 (6)	34.8 (5.3)	46.6 (6.1)	31.6 (8.6)	13.4 (2.7)	9.8 (2.4)	8.4 (4.3)
Others	3 (4)	33.0 (10.6)	44.3 (11.7)	23.3 (12.9)	9.3 (3.8)	8.3 (3.8)	5.7 (6.7)
Shift pattern							
Office hours (only Mon–Fri)	43 (52)	36.2 (4.9)	47.0 (7.4)	32.6 (7.9)	12.2 (2.7)	9.8 (3.0)	10.6 (4.2)
Office hours (include weekends and on-call duties)	22 (27)	37.9 (6.1)	50.7 (9.1)	34.4 (10.8)	12.7 (3.6)	11.1 (3.3)	10.7 (4.9)
Rotating AM/PM ^d or AM/PM/ND ^e	17 (21)	37.6 (3.9)	49.8 (5.3)	32.3 (5.3)	11.8 (3.3)	10.3 (1.8)	10.2 (2.9)

^aCDRISC: Conner–Davidson Resilience Scale.^bWEMWBS: Warwick–Edinburgh Mental Well-being Scale.^cFACIT-SP-12: Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being 12-item scale.^dAM/PM: Morning and afternoon shifts.^eAM/PM/ND: Morning, afternoon and night shifts.

higher levels of meaning [$\beta = 0.57$, 95% CI (0.18 – 0.96), $p = 0.005$] had significantly higher levels of mental well-being. In addition, compared to APNs who in other healthcare settings such as outpatient setting, polyclinics, community hospitals and home care, APNs working in acute care hospitals [$\beta = 2.69$, 95% CI (0.47–4.91), $p < 0.018$] had significantly higher levels of mental well-being.

DISCUSSION

The results of this study provide valuable insights into the resilience, spiritual well-being and mental well-being of APNs in Singapore in the aftermath of the COVID-19 pandemic. The findings indicate that APNs in Singapore exhibit a relatively high level of resilience, as reflected by a mean

TABLE 3 Regression model of factors associated with APNs' mental well-being (WEMWBS) ($n = 82$).

Variables	β^a (95% CI)	Standardised Beta	p
(constant)	5.05 (−1.55 to 11.65)	–	0.131
CDRISC ^b total score	0.71 (0.50–0.92)	0.47	<0.001
FACIT-SP-12 ^c —Meaning	0.57 (0.18–0.96)	0.23	0.005
FACIT-SP-12 ^c —Peace	0.79 (0.34–1.24)	0.30	<0.001
Work setting ^d —Acute care hospital	2.69 (0.47–4.91)	0.14	0.018
Model summary			
F-statistics ^e	59.49		
p (F-test)			<0.001
Adjusted R^2	0.74		

^a β : Unstandardised coefficients.^bCDRISC: Conner–Davidson Resilience Scale.^cFACIT-SP-12: Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being 12-item scale.^dReference group was other work settings including outpatient, community hospital, polyclinic, home care and 'prefer not to say'.^eStepwise multiple linear regression.

CD-RISC-10 score of 36.9. To contextualise this, previous research in healthcare settings has reported mean CD-RISC-10 scores generally ranging in the mid-to-high 30s among nurses and other clinicians, suggesting that the APN respondents possess comparable or slightly higher resilience than other nursing cohorts internationally (Cheng et al., 2022; Rogers, Lamarche, et al., 2022). This is particularly noteworthy given the complex challenges APNs face, such as role ambiguity, high workload and rapidly changing clinical demands, which can all contribute to occupational stress (Ang, Chew, et al., 2022; Woo et al., 2021). That APNs demonstrate robust resilience under these conditions underscores their capacity to adapt, recover and maintain psychological equilibrium despite pervasive stressors in their professional environment.

Spiritual well-being, as assessed by the FACIT-Sp-12, offered insight into three subscales—Meaning, Peace and Faith. The Meaning subscale encompasses having a sense of purpose, direction and significance in one's work, while the Peace subscale relates to feeling calm, centred and composed, even amidst external pressures (Bredle et al., 2011). Both Meaning and Peace were found to significantly contribute to APNs' mental well-being. These findings suggest that cultivating a strong sense of purpose and inner calmness helps APNs interpret occupational challenges less as insurmountable burdens and more as meaningful opportunities for professional growth or service. By reframing stressors, APNs may experience reduced psychological strain and enhanced capacity to cope (Perera et al., 2018; Rogers, Windle, et al., 2022). In contrast, the Faith subscale, which focuses on having confidence in something greater than oneself (not limited to religious belief), did not emerge as a significant predictor. This aligns with the conceptualisation of spirituality that extends beyond

religious faith, underscoring that APNs' sense of meaning and peace can be critical buffers against occupational stress, independent of formal religious affiliation (Wattis et al., 2017).

Mental well-being, as measured by the WEMWBS, reflects a state of positive mental health encompassing optimism, satisfaction, and supportive interpersonal relationships (Tennant et al., 2007). The participants' mean mental well-being score of 48.6, indicative of moderate-to-high positive mental health, is comparable to scores reported in other healthcare populations (Choi & Lee, 2020; Rogers, Windle, et al., 2022). Taken together, these results imply that higher resilience and certain dimensions of spiritual well-being (meaning and peace) coincide with better mental health outcomes for APNs. This aligns with a growing body of evidence showing that resilience can mitigate the negative impacts of occupational stress and enhance overall well-being (Cheng et al., 2022; Shahrbabaki et al., 2023). By enabling APNs to maintain emotional balance, interpret challenges through a lens of purpose and foster inner tranquillity, these qualities effectively buffer against the psychosocial pressures inherent in advanced practice roles.

However, supportive workplace conditions are also essential for sustaining peace and meaning. Workplace incivility, whether originating from co-workers, doctors, supervisors or patients, can disrupt a sense of calm, degrade professional quality of life, and intensify occupational stress (Alshehry et al., 2019; Nazari et al., 2023). Human resource strategies such as coaching, communication skills training, collaborative team-building exercises and conflict management workshops can help mitigate incivility (Nazari et al., 2023). Such initiatives foster trust, respect and dignity, cultivating a safer and more supportive environment where APNs can maintain meaning and peace. When APNs perceive their workplace as fair, respectful and team-oriented, their resilience and spiritual well-being are more likely to flourish, allowing them to cope more effectively with occupational stress and sustain their mental health (Ang, Shorey, et al., 2022).

The regression analysis further showed that APNs working in acute care settings reported higher mental well-being levels than those in other contexts. Although acute care environments are known for their intensity and pressure, these settings may offer clearer role delineation, greater interprofessional support and more structured practice models (Jokiniemi et al., 2023; Woo et al., 2019). Such features can reduce role ambiguity and foster team cohesion—factors that alleviate occupational stress and support the APN's capacity to draw upon resilience, meaning and peace. In contrast, APNs in less structured or resource-constrained settings may face fewer supportive frameworks, heightened uncertainty and increased stress. Addressing these contextual factors at the macro, meso, and micro levels by refining scopes of practice, enhancing interprofessional collaboration and promoting professional development opportunities can optimise APN integration, job satisfaction and sustainability within the healthcare workforce (Porat-Dahlerbruch et al., 2023; Torrents et al., 2020).

Proper integration of APNs into the healthcare system is crucial for maximising their potential and ensuring their

well-being. Role integration involves clearly defining the scope of practice, responsibilities and expectations for APNs within their specific work environments. This process helps reduce role ambiguity and enhances professional identity, which in turn can improve job satisfaction (Auffermann et al., 2021). Effective role integration can also facilitate better utilisation of APNs' advanced skills, leading to improved patient care and health outcomes. When APNs are well-integrated into the healthcare team, they can contribute more effectively to patient management, interdisciplinary collaboration, and healthcare innovation (Lowe et al., 2018). This integration not only benefits patients but also fosters a supportive and cohesive work environment for APNs (Porat-Dahlerbruch et al., 2023).

Effective role integration for APNs requires a multifaceted approach that addresses macro, meso and micro-level issues within the health system. One fundamental strategy at the macro level of health systems is the establishment of clear scopes of practice. This involves detailing the specific professional activities, responsibilities, competencies and decision-making authorities of APNs, distinguishing them from other nursing and medical roles (Pool et al., 2023; Porat-Dahlerbruch et al., 2023). Clear role definitions and national guidelines help prevent overlaps and conflicts, providing APNs with a clear understanding of their professional boundaries and expectations (Jokiniemi et al., 2023; Sheer & Wong, 2008). In addition, legislative and policy support is important. This includes enacting laws and regulations that recognise and protect the APN role (Schober et al., 2020).

At the meso level, within healthcare organisations, health administrators and leaders need to establish the role of the APN within care models and teams. The APN's specific practice authorities and patient panels should be defined, documented and disseminated throughout the organisation (Porat-Dahlerbruch et al., 2023). Healthcare institutions should implement collaborative practice models to promote teamwork, communication and trust among APNs, doctors and other healthcare professionals. Regular interdisciplinary meetings, reflections, shared decision-making processes and joint training sessions can also facilitate interprofessional collaboration within the organisation. This fosters mutual respect and understanding, which increases the likelihood of successful implementation and integration of APN roles (Torrens et al., 2020).

At the micro level, residencies, ongoing professional development and mentorship programmes will benefit APN role integration. These programmes provide opportunities for APNs to enhance their competence and skill proficiency, confidence, interprofessional communication and collaboration, and clinical judgement (Kesten & El-Banna, 2021). Organisations that provide such programmes have been shown to improve the socialisation of the APN role, thereby improving the recruitment and retention of APNs (Kesten & El-Banna, 2021; McDonough, 2024). Besides, mentorship from experienced APNs and healthcare leaders can offer guidance and role modelling. Mentors can render moral and spiritual support during role transition. Regular contact with mentors has

been reported to contribute to APNs' professional growth, job satisfaction and well-being (Whitehead et al., 2022). By addressing macro-, meso- and micro-level issues, healthcare organisations can enhance the professional identity and job satisfaction of APNs, ultimately leading to better patient outcomes and a more resilient healthcare workforce.

LIMITATIONS AND FUTURE RESEARCH

This study is not without limitations. The response rate of 21.4% may limit the generalisability of the findings, and the cross-sectional nature of the survey does not allow for causal inferences. Future research should consider longitudinal designs to explore the dynamic aspects of resilience, spiritual well-being and mental well-being over time. Additionally, qualitative studies could provide deeper insights into the lived experiences of APNs, further elucidating the contextual factors that influence their well-being. Qualitative data could enrich our understanding of the nuanced challenges and support needs of APNs, informing more tailored interventions.

CONCLUSION AND RECOMMENDATIONS

This study provides essential insights into the resilience, spiritual well-being and mental well-being of APNs in Singapore, particularly in the post-COVID-19 era. The high resilience and positive mental health observed among APNs highlight their capacity to cope with professional challenges. The significant roles of the Peace and Meaning subscales of spiritual well-being underscore the need for supportive work environments that foster these aspects.

Effective APN integration into the healthcare system, which is imperative for their mental well-being, requires addressing macro-, meso- and micro-level issues. At the macro level, clear scopes of practice and legislative support are vital. At the meso level, healthcare organisations should establish collaborative practice models. At the micro level, ongoing professional development, mentorship programmes and supportive work environments are integral.

These strategies enhance the professional identity, job satisfaction and mental well-being of APNs, leading to better patient outcomes and a more resilient healthcare workforce. Future research should explore the dynamic aspects of resilience, spiritual well-being and mental well-being among APNs through longitudinal and qualitative studies, providing deeper insights into their experiences and support needs.

IMPLICATIONS FOR NURSING PRACTICE

Effective APN integration into the healthcare system, which is imperative for their mental well-being, requires addressing macro-, meso- and micro-level issues. Although this study's sample size was relatively small and drawn from a single national context, the insights gained are not confined to Singa-

pore. At the macro level, clear scopes of practice and legislative support are challenges faced by APNs globally, as many countries grapple with establishing and refining advanced practice roles (Wheeler et al., 2022). At the meso level, healthcare organisations worldwide must consider strategies such as collaborative practice models to alleviate role ambiguity and support APN autonomy. At the micro level, ongoing professional development, mentorship programmes and supportive work environments resonate internationally, given the universal importance of fostering professional identity and job satisfaction among advanced practice nurses. Although caution is warranted in applying these findings broadly, the underlying issues—role clarity, work environment quality and the interplay of resilience and spiritual well-being—transcend national boundaries. Implementing these strategies can lead to better patient outcomes and a more resilient healthcare workforce across various healthcare systems.

AUTHOR CONTRIBUTIONS

Brigitte Fong Yeong Woo, Wei How Darryl Ang, Melanie Rogers, Wentao Zhou: Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data. Brigitte Fong Yeong Woo, Wei How Darryl Ang, Melanie Rogers, Wentao Zhou: Involved in drafting the manuscript or revising it critically for important intellectual content. Brigitte Fong Yeong Woo, Wei How Darryl Ang, Melanie Rogers, Wentao Zhou: Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content. Brigitte Fong Yeong Woo, Wei How Darryl Ang, Melanie Rogers, Wentao Zhou: Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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CONFLICT OF INTEREST STATEMENT


The authors have no conflict of interest to declare.


DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to containing information that could compromise the privacy of research participants.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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