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A Comparison of Psychological Well-Being, Coping Strategies, and Emotional Problems Between Taiwanese and Australian Nursing Students

Pi-Ming YEH^{1*}  • Lorna MOXHAM²  • Christopher PATTERSON³ • Carolyn ANTONIOU⁴  • Jenn-Chang LIOU⁵

ABSTRACT

Background: Nursing professional health courses have been reported to be very exhaustive and stressful, with most nursing students reporting moderate levels of stress.

Purpose: This study was designed to compare the spiritual well-being, coping strategies, psychological well-being, anxiety, depression, and suicidal ideation between Taiwanese and Australian nursing students.

Methods: Three hundred eighty-one nursing students (180 from Taiwan and 201 from Australia) were recruited for this cross-sectional comparative research study. The Psychological Well-being Scale, Spiritual Well-being Scale, Coping Strategies Inventory Short-Form, Hamilton Anxiety Scale, Zung Depression Scale, and Brief Screen for Adolescent Depression Scale were used to collect data. SPSS 27.0 was used for data analysis. Descriptive data analysis, chi-square tests, independent *t* test, Pearson correlations, and stepwise multiple regressions were used to examine the research questions.

Results: Students in Australia had higher mean scores than Taiwanese nursing students for psychological well-being, life satisfaction/self-actualization, and using problem-focused disengagement coping strategies, whereas Taiwanese students had higher mean scores for using emotion-focused engagement coping strategies and depression than their Australian nursing students. Spiritual well-being and problem-focused disengagement were shown to be significantly and positively related to psychological well-being and significantly and negatively related to anxiety, depression, and suicidal ideation in both groups. No significant difference between Australian students and Taiwanese students was found in anxiety, suicidal ideation, and negative-emotion-related alcohol use.

Conclusions/Implications for Practice: The multiple regressions performed in this study support life satisfaction/self-actualization and the emotion-focused disengagement coping strategy as significant predictors of anxiety, depression, and suicidal ideation in both student groups. The findings of this study help nursing program faculty better understand the key factors of influence on nursing student mental health and provide a conceptual framework for using problem-focused coping strategies and spiritual education on students.

KEY WORDS:

psychological well-being, spiritual well-being, coping strategies, suicidal ideation, nursing students.

Introduction

Stress in Nursing Students

As nursing professional health courses are very comprehensive and stressful, most nursing students report moderate levels of stress (Nebhinani et al., 2020). Nursing students use various strategies to cope with this stress, with active coping as the most common and substance use as the least common (Nebhinani et al., 2020).

Level of stress among students is significantly associated with their interest in nursing courses. Nursing students with strong interest use active coping significantly more often than their peers with minimal interest, who tend to use denial, venting, and self-blame-related coping strategies (Nebhinani et al., 2020).

A strong correlation has been identified between time management of stress and, respectively, sleep and the physical, psychological, and environmental domains of quality of life as well as insomnia in nursing students (Soares Mendes & Figueiredo De Martino, 2020). Health status has been reported as “good” (28–55) in 35.5% of participants, “moderate” (56–83) in 24.6% of participants, and “poor” (≥ 84) in 39.9% of participants

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(Wu et al., 2021). Nursing students in the “good health status” group earned significantly lower scores for somatic symptoms, anxiety and insomnia, social dysfunction, and depression than those in the “poor health status” group (Wu et al., 2021). Factors related to moderate-to-severe stress in Taiwanese nursing students included (a) taking care of patients, (b) teachers and nursing personnel, (c) assignments and workload, (d) peers and daily life, (e) lack of professional knowledge and skills, and (f) the clinical environment (Wu et al., 2021). Nursing students with mild stress had very low scores for these six variables (Wu et al., 2021). A significant relationship was found between the health status of nursing students and their internship-related stress (Wu et al., 2021).

Hedrick et al. (2021) identified that 17% of U.S. undergraduate nursing students had an adverse childhood experiences score of 4 or higher, which is associated with greater depression, anxiety, and stress (Hedrick et al., 2021). Furthermore, body satisfaction and weekday sleep have been shown to be significantly negatively related to depression, anxiety, and perceived stress in U.S. nursing students (Fruh et al., 2021).

Psychological Well-Being in Taiwanese College Students

Taiwanese undergraduate students' subjective well-being was categorized into five themes: self-understanding and growth, academic learning and professional growth, interpersonal relationships, realizing life goals and beliefs, and interactions with the environment (Y.-N. Lin, 2017). Each of these five activities was associated with a higher sense of happiness and satisfaction in this population (Y.-N. Lin, 2017). Taiwanese college students' perspectives regarding the causes of success relate to several factors. The most important factor is working hard, the second most important factor is ability, the third most important factor is luck, the fourth most important factor is fate, the fifth most important factor is retribution, and the sixth and last most important factor is god's blessings (Tsai & Ceng, 2021). Most Taiwanese students describe their growth as self-maturity, position, and achievement (H.-T. Chang & Liu, 2017).

Relationship harmony has been shown as significantly and positively related to peace of mind, happiness, and meaning in life as well as to have a significantly positive relationship to psychological well-being (S.-Y. Wang et al., 2016). Most Taiwanese students describe their relationships as “love and friendship,” “care and help,” and “idea exchange and discussion” (H.-T. Chang & Liu, 2017).

Codependency includes the five factors of (a) other focus/self-neglect, (b) low self-worth, (c) hiding self, (d) medical problems, and (e) family of origin issues (S. Chang, 2018). Taiwanese college students have a medium–low level of codependency ($M = 55.66$, $SD = 14.25$, minimum = 25, maximum = 125; S. Chang, 2018), with codependency having a significantly negative relationship with self-differentiation in Taiwanese college students. Taiwanese college students with lower levels of codependency tend to have higher levels of self-differentiation. They tend to have lower emotional reactivity,

emotional cutoff, and fusion with others and to have a higher ability to maintain good relationships (S. Chang, 2018).

Psychological Well-Being in Australian College Students

Fernandez et al. (2020) compared psychological well-being in nursing students in the three countries of Australia, Saudi Arabia, and South Africa, finding that Australian nursing students had lower levels of anxiety and depression and higher psychological well-being than their counterparts in the other two countries (Fernandez et al., 2020). Weier and Lee (2016) reported that Australian college students used the following 10 characteristics (in descending order) to describe themselves: (1) fun ($n = 245$, 79%), (2) financially limited ($n = 234$, 75%), (3) worthwhile ($n = 226$, 73%), (4) exciting ($n = 205$, 66%), (5) spontaneous ($n = 188$, 60%), (6) responsible ($n = 182$, 59%), (7) structured (in a positive way; $n = 182$, 59%), (8) stable ($n = 167$, 54%), (9) more stressful ($n = 163$, 52%), and (10) overwhelming ($n = 155$, 50%; Weier & Lee, 2016).

Moxham et al. (2018) examined Australian nursing students and indicated being employed as a predictor of better mental health and lower levels of psychological distress, anxiety, and depression. Marital status has been identified as a significant predictor of psychological well-being in Australian nursing students, with married nursing students reporting greater psychological well-being (Moxham et al., 2018). Moreover, age has been identified as a significant predictor of psychological distress, anxiety, and depression in Australian nursing students (Moxham et al., 2018), with younger students reporting higher levels of psychological distress, anxiety, and depression (Moxham et al., 2018). In addition, gender has been shown to be a significant predictor of anxiety, with female nursing students exhibiting higher levels of anxiety than their male counterparts (Moxham et al., 2018).

Yeh et al. (2016) examined the relationships between the anxiety, depression, personality, and family interaction status of Australian nursing students with their psychological well-being and suicidal ideation. The results indicate lower depression levels, positive personality, and positive family interactions as significant predictors of Australian nursing students' psychological well-being (Yeh et al., 2016). In addition, anxiety, depression, and harsh discipline have been identified as significant predictors of Australian nursing students' suicidal ideation (Yeh et al., 2016).

Coping Strategies

In both Taiwanese and European Americans, mindfulness and distress disclosure have been found to be significantly and negatively related to depression symptoms and to be positively related to life satisfaction (Kahn et al., 2017). Thus, Taiwanese with high mindfulness may manage their emotions effectively (Kahn et al., 2017).

Yeh and Waters (2021) found that people with higher scores for using the problem-focused engagement coping strategy and

the problem-focused disengagement coping strategy had higher scores for psychological well-being and lower scores for suicidal ideation (Yeh & Waters, 2021). Moreover, people with higher scores for using the emotional-focused engagement coping strategy and emotional-focused disengagement coping strategy had lower scores for psychological well-being and higher scores for suicidal ideation (Yeh & Waters, 2021).

Stress has been shown to be significantly negatively related to trait resilience, self-efficacy, and secure attachment; self-efficacy has been shown to be significantly positively related to trait resilience; and trait resilience has been shown to be significantly positively related to active coping (Li & Yang, 2016). The relationships among stress, self-efficacy, trait resilience, secure attachment, and active coping were found to be similar across college student populations in the United States, China, and Taiwan (Li & Yang, 2016).

Jensen et al. (2016) indicated that some university students are using prescription stimulants for nonmedical “pharmaceutical cognitive enhancement (PCE)” to improve alertness, focus, memory, and mood in an attempt to manage the demands of study at the university. They interviewed 38 Australian university students (with and without PCE experience) about their coping strategies to solve their stress and PCE experience. Their results indicated that when students' coping ability decreased, their stress levels increased (Jensen et al., 2016). The most common coping strategy was avoidance, which was an emotion-focused coping strategy. Secondary coping was a problem-focused coping strategy. Most of the students who used PCE used avoidant and emotion-focused coping strategies (Jensen et al., 2016). When they could not solve their problems, they used prescription stimulants (Jensen et al., 2016). Therefore, helping students to understand positive appropriate problem-focused coping strategies and helping them to develop realistic stress appraisal techniques are very important (Jensen et al., 2016).

Theoretical Framework

The Development of Personality and Psychological Well-Being Model (Yeh & Waters, 2021) was the research framework used in this study. This framework indicates that a

person's personality is influenced by family interaction and spiritual well-being. People with different personalities use different coping strategies that will influence their psychological well-being, suicidal ideation, anxiety, and depression (Yeh & Waters, 2021; Figures 1 and 2).

Few studies have compared the differences of the psychological well-being and mental health between Taiwanese and Australian nursing students. Therefore, the purpose of this study was to compare Taiwanese and Australian nursing students in terms of their spiritual well-being, coping strategies, psychological well-being, anxiety, depression, and suicidal ideation.

The specific research questions addressed were the following:

1. What were the differences in demographic characteristics between Taiwanese and Australian nursing students?
2. What were the differences in spiritual well-being, coping strategies, psychological well-being, anxiety, depression, suicidal ideation, and alcohol use between Taiwanese and Australian nursing students?
3. What were the relationships among spiritual well-being, coping strategies, psychological well-being, anxiety, depression, and suicidal ideation in Taiwanese nursing students?
4. What were the relationships among spiritual well-being, coping strategies, psychological well-being, anxiety, depression, and suicidal ideation in Australian nursing students?
5. How much of Taiwanese nursing students' psychological well-being, anxiety, depression, and suicidal ideation were predicted by spiritual well-being and coping strategies?
6. How much of Australian nursing students' psychological well-being, anxiety, depression, and suicidal ideation were predicted by spiritual well-being and coping strategies?

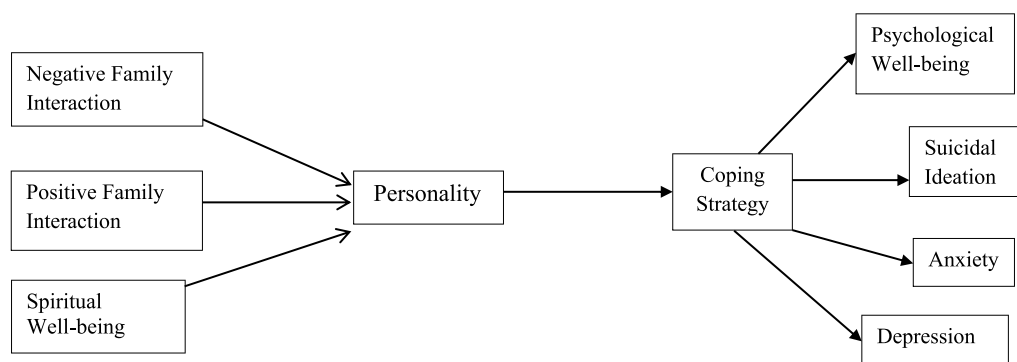
Methods

Design, Sample, and Setting

This cross-sectional descriptive research used a convenience sample of 381 nursing students, comprising 180 Taiwanese nursing students and 201 Australian nursing students. The

Figure 1

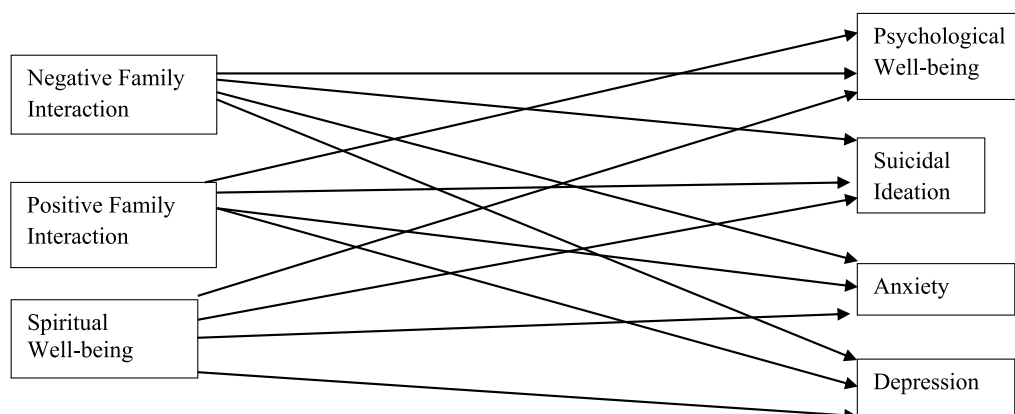
The Development of Personality and Psychological Well-Being Model (Yeh & Waters, 2021)



Note. The outcome variables were psychological well-being, suicidal ideation, anxiety, and depression.

Figure 2

The Development of Personality and Psychological Well-Being Model (Part 2; Yeh & Waters, 2021)



Note. The outcome variables were psychological well-being, suicidal ideation, anxiety, and depression.

sample was recruited from three universities in Taiwan and Australia from January 2015 to December 2016. The sampling criteria for college students were as follows: (a) at least 18 years old, (b) able to read and write Chinese (for Taiwanese nursing students) or able to read and write English (for Australian nursing students), and (c) voluntary participation and willing to complete the questionnaire.

Procedure

A cross-sectional comparative research design was used to explore the independent variables (spiritual well-being and coping strategies) and dependent variables (psychological well-being, anxiety, depression, and suicidal ideation) to determine differences between Taiwanese and Australian nursing students.

Before data collection, the study was approved by the institutional review board (approval number to conduct the study: HE13/425). Participants were made aware of the voluntary nature of the study, their right to choose not to participate, and their right of unprejudiced withdrawal. Throughout the research project, all ethical requirements were adhered to and no adverse incidents arose.

Data were collected using structured questionnaires. The process of data collection included the following steps: The researchers (a) introduced the research purpose, (b) requested informed consent, (c) invited the nurses to participate, (d) emphasized that participation was voluntary, (e) provided participants the questionnaires to be completed with paper and pencil, and (f) collected the completed questionnaires, giving those who agreed to participate and returned their completed questionnaires a package of chocolate (worth about US \$2). The students who agreed to participate in this study took the questionnaire and filled it out at their convenience outside of class time. The participants placed completed questionnaires in a box at the department's office and then received a small gift. The completed questionnaires were kept in a locked draw accessible only to the researcher. The questionnaire required about 30 minutes to complete.

Instruments

Data were collected using six instruments, all of which were selected for reliability and validity. These instruments, described in the following sections, were used to measure outcome variables (psychological well-being, anxiety, depression, and suicidal ideation) and independent variables (spiritual well-being and coping strategies).

Psychological Well-Being Scale

Psychological well-being was measured using the 18-item Psychological Well-Being Scale (Ryff, 1989), which assesses six concepts, including autonomy, environmental mastery, purpose in life, personal growth, positive relations with others, and self-acceptance. The items are scored on a 6-point Likert-type scale ranging from (1) *strongly disagree* to (6) *strongly agree*. Higher scores indicate better psychological well-being, with possible scores ranging from 18 to 108. Evidence for the validity of the scale has been examined by confirmatory factor analyses (Ryff & Keyes, 1995). In previous research, the internal consistency reliability for each subscale based on a sample of 321 adults (age range: 19.53–74.96 years) indicated a high degree of reliability for each subscale, with Cronbach's alphas ranging from .83 to .91 (Ryff, 1989). In this study, the Cronbach's alpha was .81 overall, .83 for Taiwanese nursing students' data, and .81 for Australian nursing students' data.

Spiritual well-being

Participants' spiritual well-being was measured using the 21-item Jarel Spiritual Well-being Scale (Hungelmann et al., 1996). Three concepts (faith/belief dimension, life/self-responsibility, and life satisfaction/self-actualization) are assessed using this questionnaire, with items scored on a 6-point Likert-type scale ranging from (1) *strongly disagree* to (6) *strongly agree*. Higher scores indicate better spiritual well-being, with possible scores ranging from 21 to 126. Evidence for the validity and reliability of this scale was provided by Hungelmann et al. (1996). In this study, the Cronbach's alpha (internal

consistency reliability) was .81 overall, .79 for Taiwanese nursing students' data, and .83 for Australian nursing students' data.

Coping strategies

The 16-item Coping Strategies Inventory Short-Form (Addison et al., 2007) was used to measure nursing students' coping strategies with four subscales: problem-focused engagement, problem-focused disengagement, emotion-focused engagement, and emotion-focused disengagement. Items are scored on a 5-point Likert-type scale ranging from (1) *never* to (5) *almost always*. Higher subscale scores indicate related coping strategies are used more frequently. In this study, the Cronbach's alpha was .76 for the problem-focused engagement subscale, .67 for the problem-focused disengagement subscale, .59 for the emotion-focused engagement subscale, and .62 for the emotion-focused disengagement subscale. For Taiwanese nursing students' data, the Cronbach's alpha was .74 for the problem-focused engagement subscale, .66 for the problem-focused disengagement subscale, .57 for the emotion-focused engagement subscale, and .69 for the emotion-focused disengagement subscale in this study. For Australian nursing students' data, the Cronbach's alpha was .78 for the problem-focused engagement subscale, .69 for the problem-focused disengagement subscale, .61 for the emotion-focused engagement subscale, and .60 for the emotion-focused disengagement subscale in this study.

Anxiety

Anxiety was measured using the Hamilton Anxiety Scale (Hamilton, 1959). Forty-two questions were scored on a 5-point scale, with 0 = *not present*, 1 = *mild*, 2 = *moderate*, 3 = *severe*, and 4 = *very severe*, and higher scores associated with higher levels of anxiety. Total possible scores range from 0 to 168. In this study, the Cronbach's alpha for the Hamilton Anxiety Scale was .90 overall, .86 for Taiwanese nursing students' data, and .95 for Australian nursing students' data.

Depression

Depression was measured using the Zung Depression Scale (Zung, 1965). Twenty questions were scored on a 4-point scale, with 1 = *none or little*, 2 = *some*, 3 = *good part*, and 4 = *most or all*. Higher scores indicate feeling more depressed, with total possible scores ranging from 20 to 80. In this study, the Cronbach's alpha was .77 overall, .74 for Taiwanese nursing students' data, and .80 for Australian nursing students' data.

Suicidal ideation

The Brief Screen for Adolescent Depression Scale was developed by the Signs of Suicide Project (2009). It was used in this study to measure participants' suicidal ideation. Seven questions were used with items scored on a yes/no basis. Each yes answer earned 1 point, and each no answer earned 0 points, with possible scores for the scale ranging from 0 to 7. Scores from 0 to 2 indicate no evidence of depression, a

score of 3 indicates some evidence of depression, and scores of 4 and greater indicate the person should talk to a mental health professional. In this study, the Cronbach's alpha was .74 overall, .75 for Taiwanese nursing students' data, and .73 for Australian nursing students' data.

Questionnaire Translation

The translated versions of any questionnaire must satisfy the two requirements of having acceptable levels of semantic and conceptual equivalence and be valid and reliable (Behr, 2018). All of the questionnaires were translated from their original English versions into Chinese by the researcher and back-translated from Chinese to English by an independent translator (Behr, 2018). The English translations were compared with the original questionnaires, and minor discrepancies were revised based on consensus. On the basis of content validity, no significant differences were noted between the two language versions of the questionnaires.

“Internal consistency reliability concerns the extent to which the various components of a multicomponent measure (e.g., items on a psychosocial scale) are consistently measuring the same attribute” (Polit & Beck, 2018, p. 250). “Internal consistency, a widely reported aspect of reliability, is estimated by an index called coefficient alpha (or Cronbach's alpha)” (Polit & Beck, 2018, p. 250). After data collection, the means of internal consistency reliability were .74 for the Taiwanese versions of the questionnaires and .76 for the English versions of the questionnaires. Examination of the two questionnaire versions showed a statistically significant positive relationship ($r = .87$, $p = .002$) between the two versions in terms of internal consistency reliability. According to the paired t test, there was no significant difference between the different language versions of the questionnaires in terms of internal consistency reliability ($t = -1.09$, $p = .309$). Thus, the two language versions of the questionnaires used in this study exhibited very good content validity and internal consistency reliability.

Data Analysis

The analyses were conducted using IBM SPSS Statistics Version 27.0 (IBM Inc., Armonk, NY, USA). Descriptive statistics (mean, SD , range, frequency, and percentage) were used to describe the study sample. Chi-square (χ^2) and t test were used to examine the differences between two group variables. Pearson correlations and stepwise multiple regressions were used in this study.

Results

Comparison of Demographic Characteristics Between Taiwanese and Australian Nursing Students

There were no students of Chinese background among the Australian participants. The mean age of the Australian nursing students (25.80 years, $SD = 8.43$) was higher than that of the Taiwanese nursing students ($M = 19.17$, $SD = 2.60$; $t = -10.12$, $p < .001$; Table 1). There were also statistically

significant differences in demographic characteristics between the two groups in terms of gender ($\chi^2 = 23.30, p < .001$), depression treatment ($\chi^2 = 9.20, p < .001$), marital status ($\chi^2 = 74.94, p < .001$), religion ($\chi^2 = 310.63, p < .001$), number of children ($\chi^2 = 47.39, p < .001$), employment status ($\chi^2 = 168.39, p < .001$), and monthly income ($\chi^2 = 133.20, p < .001$; Table 2).

Most participants were female, 127 (70.6%) in Taiwan and 181 (90%) in Australia, and single, 179 (99.4%) in Taiwan and 130 (64.7%) in Australia (Table 2). Most of the Taiwanese nursing students were not religious ($n = 101, 56.1%$), but most of the Australian nursing students were Christian ($n = 96, 47.7%$). Most of the Taiwanese nursing students were unemployed ($n = 118, 65.6%$), but most of the Australian nursing students held part-time jobs ($n = 166, 82.6%$). The Australian nursing students earned a higher mean income than the Taiwanese nursing students (Table 2). One hundred thirty-two Australian

nursing students (65.7%) responded that they had consecutively consumed five or more alcoholic drinks during the past year, which was significantly more than what the Taiwanese nursing students had consumed ($n = 39, 21.7%$; $\chi^2 = 93.33, p < .001$; Table 2).

Comparison of Main Variables Between Taiwanese and Australian Nursing Students

The Australian nursing students had higher scores for psychological well-being ($t = -2.68, p < .01$), autonomy ($t = -6.27, p < .001$), positive relationships with others ($t = -2.31, p < .05$), and purpose in life ($t = -2.25, p < .05$; Table 1) than their Taiwanese counterparts. The Taiwanese nursing students had similarly high (very positive) scores for psychological well-being. In terms of spiritual well-being, the Australian

Table 1

t Test Comparing Psychological Well-Being, Spiritual Well-Being, Coping Strategies, Anxiety, Depression, Suicidal Ideation, and Alcohol Use Between Taiwanese and Australian Nursing Students (N = 381)

Variable	Taiwan (n = 180)		Australia (n = 201)		t
	M	SD	M	SD	
Age	19.17	2.60	25.80	8.43	-10.12***
Children	0.01	0.15	0.55	1.09	-6.57***
Psychological well-being	79.13	0.17	82.06	11.01	-2.68**
Autonomy	11.06	2.64	12.69	2.44	-6.27***
Environmental mastery	12.99	2.02	12.61	2.63	1.57
Personal growth	15.03	2.36	15.06	2.37	-0.14
Positive relationship with others	13.46	2.50	14.09	2.81	-2.31*
Purpose in life	13.35	2.65	13.97	2.71	-2.25*
Self-acceptance	13.25	2.47	13.63	2.84	-1.41
Spiritual well-being	87.94	10.91	89.86	14.15	-1.47
Faith/belief	23.52	4.22	22.36	7.45	1.85
Life/self-responsibility	28.64	4.92	28.53	5.72	0.20
Life satisfaction/self-actualization	35.78	4.90	38.97	5.34	-6.06***
Coping strategies					
Problem-focused engagement (Ex. I try to let my emotions out.)	14.11	2.81	13.66	3.08	1.47
Problem-focused disengagement (Ex. I make a plan and follow it.)	13.52	2.32	14.27	2.46	-3.06**
Emotion-focused engagement (Ex. I hope for a miracle.)	13.19	2.55	11.49	2.73	6.29***
Emotion-focused disengagement (Ex. I tend to criticize myself.)	13.08	2.48	12.82	2.52	1.03
Anxiety	32.59	21.62	35.61	21.93	-1.35
Depression	41.37	6.52	38.48	8.09	3.81***
Suicidal ideation	1.98	1.90	1.98	1.79	0.02
Alcohol use	4.42	1.98	4.39	1.98	0.12

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

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Table 2

Chi-Square Tests Comparing Sociodemographic Data and Depression Level Between Taiwanese and Australian Nursing Students (N = 381)

Variable	Taiwan (n = 180)		Australia (n = 201)		χ^2
	n	%	n	%	
Depression level					0.46
0–2 (normal)	112	62.2	134	66.7	
3 (possible depression)	24	13.3	19	9.4	
4–7 (should talk to a mental health professional)	44	24.5	48	23.9	
Gender					23.30***
Male	53	29.4	20	10.0	
Female	127	70.6	181	90.0	
Depression treatment					9.20***
Yes	0	0	10	5.0	
No	180	100	191	95.0	
Marital status					74.94***
Single	179	99.4	130	64.7	
Married	1	0.6	38	18.9	
Divorced	0	0	10	5.0	
Separated	0	0	2	1.0	
De facto	0	0	20	9.9	
Widowed	0	0	1	0.5	
Religion					310.62***
Not religious	101	56.1	81	40.3	
Christian	11	6.1	96	47.7	
Buddhist	27	15.0	8	4.0	
Taoism	35	19.5	0	0	
Jewish	0	0	2	1.0	
Hindu	0	0	2	1.0	
Other	6	3.3	12	6.0	
Children					47.39***
0	179	99.4	152	75.6	
1	0	0	12	6.0	
2	1	0.6	19	9.4	
3	0	0	14	7.0	
4	0	0	2	1.0	
5	0	0	2	1.0	
Employment status					168.39***
Full-time job	33	18.3	10	5.0	
Part-time job	29	16.1	166	82.6	
Unemployed	118	65.6	25	12.4	
Income per month (USD)					133.20***
< \$1,000	175	97.2	85	42.3	
\$1,000–\$1,999	3	1.7	65	32.3	
\$2,000–\$2,999	0	0	28	13.9	
\$3,000–\$3,999	1	0.6	14	7.0	
\$4,000–\$4,999	0	0	3	1.5	
\$5,000–\$5,999	0	0	2	1.0	
\$6,000–\$6,999	0	0	1	0.5	
≥ \$7,000	1	0.6	3	1.5	
During the past year, there was a time I drank five or more alcoholic drinks consecutively	39	21.7	132	65.7	93.33***

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

nursing students had higher scores in life satisfaction and self-actualization than the Taiwanese nursing students ($t = -6.06, p < .001$; Table 1). In terms of coping strategies, the Australian nursing students had higher scores for using problem-focused disengagement coping strategies than the Taiwanese nursing students ($t = -3.06, p < .01$), whereas the Taiwanese nursing students had higher scores for using emotion-focused engagement coping strategies ($t = 6.29, p < .001$; Table 1). The Taiwanese nursing students had statistically significant higher scores for depression than the Australian nursing students ($t = 3.81, p < .001$; Table 1). Although all of the above variables were statistically significantly different, the mean values for these variables were very similar between the two groups.

Relationships Among Taiwanese and Australian Nursing Students' Spiritual Well-Being, Coping Strategies, Psychological Well-Being, Anxiety, Depression, and Suicidal Ideation

As shown in the Pearson correlation results in Table 3, spiritual well-being was significantly and positively related to psychological well-being in both groups ($r = .665, p < .001$, and $r = .463, p < .001$, respectively) and were significantly and negatively related to anxiety ($r = -.276, p < .001$, and $r = -.288, p < .001$, respectively), depression ($r = -.500, p < .001$, and $r = -.376, p < .001$, respectively), and suicidal ideation ($r = -.335, p < .001$, and $r = -.231, p < .001$, respectively; Table 3).

In terms of coping strategies, the Taiwanese and Australian nursing students' problem-focused engagement and problem-focused disengagement were significantly and positively related to psychological well-being ($r = .330, p < .001$, and $r = .328$,

$p < .001$, respectively; $r = .474, p < .001$, and $r = .461, p < .001$, respectively) and were significantly and negatively related to anxiety ($r = -.143, p = .056$, and $r = -.143, p = .042$, respectively; $r = -.235, p < .001$, and $r = -.323, p < .001$, respectively), depression ($r = -.310, p < .001$, and $r = -.247, p < .001$, respectively; $r = -.470, p < .001$, and $r = -.412, p < .001$, respectively), and suicidal ideation ($r = -.212, p < .01$, and $r = -.164, p < .05$, respectively; $r = -.307, p < .001$, and $r = -.258, p < .001$, respectively; Table 3).

Emotion-focused engagement and emotion-focused disengagement in the Taiwanese nursing students were significantly and positively related to anxiety ($r = .264, p < .001$, and $r = .325, p < .001$, respectively), depression ($r = .196, p < .01$, and $r = .258, p < .001$, respectively), and suicidal ideation ($r = .265, p < .001$, and $r = .328, p < .001$, respectively) but were not related to psychological well-being (Table 3).

Emotion-focused engagement and emotion-focused disengagement in the Australia nursing students were significantly and negatively related to psychological well-being ($r = -.266, p < .001$, and $r = -.401, p < .001$, respectively) and significantly and positively related to depression ($r = .233, p < .001$, and $r = .465, p < .001$, respectively) and suicidal ideation ($r = .173, p < .05$, and $r = .494, p < .001$, respectively; Table 3). Emotion-focused disengagement in the Australia nursing students were significantly and positively related to anxiety ($r = .383, p < .001$; Table 3).

Predictors of Taiwanese Nursing Students' Psychological Well-Being, Anxiety, Depression, and Suicidal Ideation

The four stepwise multiple regression models controlled for the covariate variables (including age and marital status) of the dependent variables included (a) psychological well-being,

Table 3

The Relationships Among Taiwanese (Upper Right) and Australian (Lower Left) Nursing Students' Spiritual Well-Being, Coping Strategies, Psychological Well-Being, Anxiety, Depression, and Suicidal Ideation (N = 381)

Variable	1	2	3	4	5	6	7	8	9
1. Spiritual well-being	–	.425***	.465***	-.022	-.088	.665***	-.276***	-.500***	-.335***
2. Problem-focused engagement	.262***	–	.322***	.250***	.017	.330***	-.143	-.310***	-.212**
3. Problem-focused disengagement	.383***	.360***	–	.043	.102	.474***	-.235***	-.470***	-.307***
4. Emotion-focused engagement	-.029	.001	-.112	–	.398***	-.071	.264***	.196**	.265***
5. Emotion-focused disengagement	-.180**	-.280***	-.247***	.256***	–	-.128	.325***	.258***	.328***
6. Psychological well-being	.463***	.328***	.461***	-.266***	-.401***	–	-.351***	-.605***	-.445***
7. Anxiety	-.288***	-.143*	-.323***	.128	.383***	-.540***	–	.582***	.613***
8. Depression	-.376***	-.247***	-.412***	.233***	.465***	-.647***	.705***	–	.660***
9. Suicidal ideation	-.231***	-.164*	-.258***	.173*	.494***	-.480***	.590***	.684***	–

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

(b) anxiety, (c) depression, and (d) suicidal ideation. The independent variables were spiritual well-being (including life satisfaction/self-actualization, faith/belief, and life/self-responsibility) and coping strategies (including problem-focused engagement, problem-focused disengagement, emotional-focused engagement, and emotional-focused disengagement).

For the Taiwanese nursing students (see Table 4), the results of stepwise multiple regression show that the first model variables accounted for 51% of the variance in psychological well-being ($R^2 = .51$), the second model variables accounted for 22.8% of the variance in anxiety ($R^2 = .23$), the third model variables accounted for 46.6% of the variance in depression ($R^2 = .47$), and the fourth model variables accounted for 30.6% of the variance in suicidal ideation ($R^2 = .31$). Total scores for spiritual well-being, life satisfaction/self-actualization, and problem-focused disengagement were significant predictors of psychological well-being ($\beta = 0.35, p < .001$; $\beta = 0.31, p < .001$; and $\beta = 0.16, p < .05$, respectively). Life satisfaction/self-actualization, emotional-focused disengagement, and emotional-focused engagement were significant predictors of anxiety ($\beta = -0.32, p < .001$; $\beta = 0.24, p < .001$; and $\beta = 0.17, p < .05$, respectively), depression ($\beta = -0.44, p < .001$; $\beta = 0.22, p < .001$; and $\beta = 0.12, p < .05$, respectively), and suicidal ideation ($\beta = -0.28, p < .001$; $\beta = 0.27, p < .001$; and $\beta = 0.17, p < .05$, respectively; Table 4). Problem-focused disengagement was also a significant predictor of depression ($\beta = -0.28, p < .001$) and suicidal ideation ($\beta = -0.20, p < .01$; Table 4). Life satisfaction/self-actualization and problem-focused disengagement were significantly and positively related to psychological well-being and significantly and negatively related to anxiety, depression, and suicidal ideation in the Taiwanese nursing students. Emotional-focused disengagement and emotional-focused engagement were positively associated with anxiety, depression, and suicidal ideation (Table 4).

Predictors of Australian Nursing Students' Psychological Well-Being, Anxiety, Depression, and Suicidal Ideation

The four stepwise multiple regression models controlled for the covariate variables (including age and marital status) of the dependent variables included (a) psychological well-being, (b) anxiety, (c) depression, and (d) suicidal ideation. The independent variables were spiritual well-being (including life satisfaction/self-actualization, faith/belief, and life/self-responsibility) and coping strategies (including problem-focused engagement, problem-focused disengagement, emotional-focused engagement, and emotional-focused disengagement).

For the Australian nursing students (see Table 5), the results of stepwise multiple regression show that the first model accounted for 56% of the variance in psychological well-being ($R^2 = .56$), the second model variables accounted for 26.9% of the variance in anxiety ($R^2 = .27$), the third model variables accounted for 39% of the variance in depression ($R^2 = .39$), and the fourth model variables accounted for 29.2% of the variance in suicidal ideation ($R^2 = .29$). For the Australian nursing students, the results of the stepwise multiple regression showed the total scores for spiritual well-being, life satisfaction/self-actualization, life/self-responsibility, and emotion-focused disengagement to be significant predictors of psychological well-being ($\beta = -0.34, p < .01$; $\beta = 0.75, p < .001$; $\beta = 0.40, p < .001$; and $\beta = -0.19, p < .001$, respectively). Life satisfaction/self-actualization and emotion-focused disengagement were significant predictors of anxiety ($\beta = -0.37, p < .001$, and $\beta = 0.27, p < .001$, respectively), depression ($\beta = -0.34, p < .001$, and $\beta = 0.33, p < .001$, respectively), and suicidal ideation ($\beta = -0.23, p < .001$, and $\beta = 0.43, p < .001$, respectively). Problem-focused disengagement was a significant predictor of a reverse relationship with depression ($\beta = -0.16, p < .05$; Table 5).

Table 4

Four Stepwise Multiple Regression Models: Predictors of Taiwanese Nursing Students' Psychological Well-Being, Anxiety, Depression, and Suicidal Ideation (N = 180)

Variable	Psychological Well-Being		Anxiety		Depression		Suicidal Ideation	
	β	t	β	t	β	t	β	t
Total scores of spiritual well-being	.35	3.99***						
Life satisfaction/self-actualization	.31	3.42***	-.32	-4.81***	-.44	-6.77***	-.28	-3.84***
Problem-focused disengagement	.16	2.55*			-.28	-4.29***	-.20	-2.71**
Emotion-focused disengagement			.24	3.34***	.22	3.53***	.27	3.85***
Emotion-focused engagement			.17	2.30*	.12	1.98*	.17	2.41*
R^2	.51		.23		.47		.31	
F and df	61.01	3, 176	17.35	3, 176	38.12	4, 175	19.25	4, 175
p	< .001		< .001		< .001		< .001	

Note. Covariate variables (including age and marital status) were controlled. Only significant predictors were shown in this table. * $p < .05$. ** $p < .01$. *** $p < .001$.

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Table 5
Four Stepwise Multiple Regression Models: Predictors of Australian Nursing Students' Psychological Well-Being, Anxiety, Depression, and Suicidal Ideation (N = 201)

Variable	Psychological Well-Being		Anxiety		Depression		Suicidal Ideation	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Total scores of spiritual well-being	-.34	-3.07**						
Life satisfaction/self-actualization	.75	0.28***	-.37	-5.77***	-.34	-5.09***	-.23	-3.66***
Life/self-responsibility	.40	4.37***						
Problem-focused disengagement					-.16	-2.47*		
Emotion-focused disengagement	-.19	3.75***	.27	4.31***	.33	5.56***	.43	6.81***
<i>R</i> ²	.56		.27		.39		.29	
<i>F</i> and <i>df</i>	62.47	4, 196	36.49	2, 198	42.03	3, 197	40.84	2, 198
<i>p</i>	< .001		< .001		< .001		< .001	

Note. Covariate variables (including age and marital status) were controlled. Only significant predictors were shown in this table.
 p* < .05. *p* < .01. ****p* < .001.

Spiritual well-being, life satisfaction/self-actualization, and life/self-responsibility all had significantly positive relationships with psychological well-being. In addition, life satisfaction/self-actualization was significantly and negatively related to anxiety, depression, and suicidal ideation in the Australian nursing students. Moreover, emotion-focused disengagement had a significantly negative relationship with psychological well-being and a significantly positive relationship with anxiety, depression, and suicidal ideation (Table 5).

Discussion

In this study, the Australian nursing students had higher scores for psychological well-being, autonomy, having positive relationships with others, and purpose in life than their Taiwanese counterparts. However, the Taiwanese nursing students also had very positive scores for psychological well-being. On the basis of the theoretical framework, psychological well-being is influenced by different coping strategies and spiritual well-being. In terms of coping strategies, the Australian nursing students had higher scores for using problem-focused disengagement coping strategies than the Taiwanese students, whereas the Taiwanese nursing students had higher scores for using emotion-focused engagement coping strategies than the Australian nursing students. Although the scores for the above variables were statistically significantly different between the groups, the mean values of these variables were very similar.

Chen et al. (2020) found that 247 (28.8%) of the Taiwanese nursing students in their study had sleep-related problems, whereas 388 (45.3%) felt tensed, 349 (40.7%) felt easily irritated, 472 (55.1%) felt blue or sad, 528 (61.6%) felt inferior to others, 228 (26.6%) had previously self-harmed or attempted suicide, 96 (11.2%) had a future intent to commit suicide, 22 (2.6%) had previous alcohol/drug issues with life impairment, and 166 (19.4%) expressed not having anyone to talk to/receive emotional support from when feeling low

(Chen et al., 2020). Over a quarter of the participants in that study had a poor mental health status, and more than 60% had experienced stressful events during the previous year. A higher suicide risk and neurotic trait were noticed compared with the general public (Chen et al., 2020). In this study, using a problem-focused disengagement coping strategy, life satisfaction/self-actualization, and spiritual well-being were significant predictors of better psychological well-being in the Taiwanese nursing students. In the future, problem-focused disengagement coping strategy and spiritual well-being may be included in the normal school curriculum to increase psychological well-being in nursing students. In this study, emotion-focused disengagement and engagement coping strategies were found to be significant predictors of increasing anxiety, depression, and suicidal ideation. Therefore, it is very important to help nursing students use problem-focused coping strategies to decrease their anxiety, depression, and suicidal ideation.

The Australian nursing students in this study had higher scores for psychological well-being and for using problem-focused disengagement coping strategies than the Taiwanese nursing students. These findings are consistent with the findings of other studies in the literature. U.S. college students' psychological well-being was shown to have a statistically significant positive relationship with their problem-focused engagement coping and problem-focused disengagement coping and a statistically significant negative relationship with emotion-focused engagement coping and emotion-focused disengagement coping (Yeh & Chiao, 2018). In addition, self-efficacy was identified as the most effective predictor of trait resilience in both U.S. and Taiwanese college students (Li & Yang, 2016). Self-efficacy contributes to the development of trait resilience in the coping process (Li & Yang, 2016).

The results of this study revealed statistically significant differences in religion between Taiwanese and Australian nursing students. Most of the Taiwanese nursing students (*n* = 101, 56.1%) were not religious, whereas most of the

Australian nursing students ($n = 96, 47.8\%$) were Christian. In Taiwan, 35.1% of the people practice Buddhism and 33% follow Taoism, whereas only 3.9% are Christian (Life of Taiwan, 2019). In Australia, 68% of the people are Christians, whereas 2.8% are Buddhists (Hughes, 2021). Christian belief systems have an important influence on the national political, educational, and social identities of Australia (Hughes, 2021).

The religious differences between Taiwan and Australia may be a cause of the differing results for spiritual well-being, resulting in the Australian nursing students' higher scores in life satisfaction and self-actualization. Yeh and Chiao (2018) indicated that U.S. college students' psychological well-being has a statistically significant and positive relationship with their spiritual well-being. Yeh and Waters (2021) also indicated that spiritual well-being has a statistically significant positive relationship with older adults' psychological well-being and negative relationships with anxiety, depression, and suicidal ideation. Their finding is consistent with the results of this study.

Most of the Taiwanese nursing students in this study were unemployed, whereas most of the Australian nursing students held a part-time job. In addition, the Australian nursing students earned a higher mean income than the Taiwanese nursing students. This result may have contributed to the Australian nursing students' relatively higher scores in life satisfaction and self-actualization.

Although the Australian nursing students ($n = 10, 5\%$) had a higher percentage of receiving depression treatment ($\chi^2 = 9.20, p < .001$) than their Taiwanese counterparts ($n = 0, 0\%$), the Taiwanese nursing students ($M = 41.37, SD = 6.52$) showed statistically significantly higher scores for depression than the Australian nursing students ($M = 38.48, SD = 8.09; t = 3.81, p < .001$). The possible factors influencing these results include (a) spiritual well-being, (b) coping strategies, and (c) psychological well-being.

Yeh and Chiao (2015) found that, in U.S. college students, spiritual well-being, faith/belief, and life/self-responsibility, and life satisfaction/self-actualization have statistically significant negative relationships with depression. Higher total scores for spiritual well-being and its three subscales have been related to lower depression in college students (Yeh & Chiao, 2015). The same authors also indicated that higher scores for using problem-focused disengagement coping strategies were associated with lower scores for depression. In addition, higher college student scores for using emotion-focused engagement and emotion-focused disengagement coping strategies have been associated with higher scores for depression (Yeh & Chiao, 2015). A previous study of Australian nursing students' psychological well-being showed a significantly negative relationship with anxiety and depression (Yeh et al., 2016). These results are consistent with the findings of this study.

Cultural differences were shown in this study to affect alcohol consumption habits. Although 132 of the Australian nursing students (65.7%) self-reported as having consecutively consumed five or more alcoholic drinks at least once, which was significantly higher than the Taiwanese nursing

students ($n = 39, 21.7\%$), Australian nursing students still had higher scores ($M = 82.06, SD = 11.01$) of psychological well-being than their Taiwanese counterparts ($M = 79.13, SD = 10.17; t = -2.682, p < .01$). Whereas drinking alcohol is a regular part of socialization in Australia, it is not in Taiwan. The socialization culture involving alcohol consumption in Australia seems to facilitate students developing positive social relationships. In Taiwan, drinking alcohol is often a self-medicating approach to manage depression, anxiety, and stress. Benson et al. (2020) indicated that Australian nonstudents consumed more alcohol, drank more frequently, and were involved in more negative alcohol-related consequences than Australian students (Benson et al., 2020). In Taiwan, individuals between the ages of 14 and 22 years with an experience of parental conflict, divorce, or parental death were found to have elevated risks of drinking and smoking initiation (Hsu & Kawachi, 2019).

Limitations

This study was affected by three limitations that are important to consider in relation to the findings and their implications for future research. First, the sample was recruited from one Australian university and two Taiwanese universities. Because of the small sample size and specific areas, the generalizability of this study is limited. In future studies, the sample size should be increased, participants should be recruited from universities in different geographic areas, and more ethnically diverse populations should be targeted to increase the generalizability of findings. Second, participation in this study was voluntary, so the results may reflect only the experiences of individuals willing to share their experiences. There is potential for bias, as it was not possible to obtain demographic information on nonrespondents. Third, the instrument subscales of emotional coping strategies had low internal consistency reliability scores, possibly because these subscales contained few questions. Emotional coping strategies included the emotion-focused engagement subscale (four questions) and the emotion-focused disengagement subscale (four questions). Because the alpha value is a function of the number of items, shorter scales will often have lower reliability estimates yet still be preferable in many situations because they carry a lower burden of completion (Internal consistency, 2020).

Conclusions

This study showed statistically significant differences in spiritual well-being, using different coping strategies, psychological well-being, and depression between Taiwanese and Australian nursing students, although their mean scores were very close and most of Taiwanese and Australian nursing students had good psychological well-being. Multiple regressions showed life satisfaction/self-actualization and the emotion-focused disengagement coping strategy to be significant predictors of anxiety, depression, and suicidal ideation in both Australian and Taiwanese nursing students. These findings should help faculty in nursing program better understand the factors that influence nursing students' mental health and provide the

concepts of using problem-focused coping strategies and spiritual education in teaching students.

Implications

Psychological well-being and mental health in nursing students are often cited as very important areas that need to be addressed by universities. This study highlights how different cultures impact nursing students' psychological well-being, spiritual well-being, coping strategies, anxiety, depression, and suicidal ideation, using Taiwanese and Australian nursing students as an example. Understanding factors that influence positive psychological well-being is critical to instituting protective factors and providing emotional support. Finally, this study provides evidence for the contribution that academia can make to the well-being of Taiwanese and Australian nursing students. Using problem-focused coping strategies and increasing life satisfaction and self-actualization may help nursing students increase their psychological well-being and decrease depression, anxiety, and suicidal ideation.

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