


Association Among Work Characteristics, Role Transition, and Job Burnout in Nurse Practitioners in Taiwan

INQUIRY: The Journal of Health Care Organization, Provision, and Financing
Volume 59: 1–10
© The Author(s) 2022
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/00469580221081403
journals.sagepub.com/home/inq


Yi Ju Chen, MSN¹ and Kuan Pin Lin, RN, PhD² 

Abstract

Workplace burnout is common among nurse practitioners (NPs) and often occurs during role transition from a registered nurse to an NP. This study aimed to explore the predictors of job burnout in nurse practitioners (NPs). A quantitative cross-sectional design was conducted on 361 convenience sample of NPs from four hospitals in central Taiwan. Data on the demographic and working characteristics (hospital grade, years of experience as an RN and NP, practice setting, working shifts, working hours, average number of patients take care, salary, and performance bonus), Chinese version of the Nurse Practitioner Role Transition Scale, and Occupational Burnout Inventory were used. The enrolled NPs showed medium-level role transition scores (mean = 65.73, SD = 9.59), and the prevalence of personal burnout, client-related burnout, and over-commitment was 51.2%, 19.4%, and 49.9%, respectively. Role transition, hospital grade, practice setting, working hours, and number of patients take care were significant predictors of personal burnout, client-related burnout, and over-commitment after adjusting for confounding variables, possibly explaining 52.8%, 42.1%, and 36.3% of variance, respectively. Hospital administrators should provide necessary assistance to help NPs transition to new role and ensure a positive work environment and reasonable workload so as to prevent the impact of job burnout on NPs.

Keywords

registered nurses, nurse practitioners, work characteristics, role transition, job burnout

¹Division of Orthopedics, Everan Hospital, Taichung, Taiwan

²Department of Nursing, Hung Kuang University, Taichung, Taiwan

Corresponding Author:

Kuan Pin Lin, Department of Nursing, Hung Kuang University, No. 1018, Sec. 6, Taiwan Boulevard, Shalu District, Taichung City 43302, Taiwan.

Email: linkp@sunrise.hk.edu.tw



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and

Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

Highlights

What do we already know about this topic?

- Nurse practitioners (NPs) are being viewed as important care providers, owing to the shortage of physicians in many countries.
- NPs are exposed to chronic occupational stressors result in work-related burnout and can lead to various harmful consequences.

How does your research contribute to the field?

- NPs had high prevalence of burnout, especially in personal burnout.
- Personal and work characteristics were correlated with role transition and job burnout in NPs.
- Role transition was significantly negatively associated with job burnout in NPs.

What are your research's implications toward theory, practice, or policy?

- Workplace administrators should thus regularly assist NPs, particularly young and novice NPs, to facilitate adaptation and to reduce stress.
- It is imperative to promptly identify job burnout in NPs so as to prevent its effects on them.
- Hospital administrators should ensure a positive working environment and reasonable workload to alleviate job burnout in NPs with the intention of boosting the longevity of their careers and to avoid staff shortage.

Introduction

A nurse practitioner (NP) is a registered nurse (RN) who has expert knowledge, possesses complex decision-making skills and clinical abilities, and can provide comprehensive healthcare services, including diagnosing and treating acute and chronic conditions, prescribing medications, taking care of patients from an overall perspective, and providing counseling.¹ In Taiwan, to address the persistent shortage in the number of physicians, NPs have been receiving increasing attention and are being viewed as key cost-effective care providers since 2000²; a similar situation has been reported in the United States and some European countries.^{1,3,4}

In Taiwan, since promulgation of the "Regulation of the Scope of Practice of Nurse Practitioners" in 2016, NPs can perform medical interventions under the supervision of physicians, as well as in accordance with physicians-established protocols.^{5,6} The scope of practice of NPs is more legitimized, and the roles and functions of NPs are more identify clearly. However, the learning background of NPs is different from that of physicians, the transition from an RN to NP can be tumultuous; even an RN with abundance of nursing experience and well training is bound to encounter stress.⁷⁻⁹ Novice NPs come from diverse backgrounds,¹⁰ and this role transition may lead to changes in their professional identity, loss of confidence, role confusion, and emotional turmoil.^{11,12} Successful role transition is thus important for NPs to enable them to become efficient and effective care providers as quickly as possible; on the contrary, unsuccessful role transitions may cause dissatisfaction with the role, poor performance, lack of confidence, intention to resign, or desire to return to their original role.^{10,13}

Burnout is considered a psychological symptom, and all categories of medical staff may experience it.^{14,15} It is a result of prolonged chronic stress, and it causes gradual loss of

energy and enthusiasm.¹⁵ In high-stress occupations, particularly in medical staff, the prevalence of burnout is over than 40%.^{16,17} Several studies investigating burnout among health-care professionals have reported that NPs represent an emerging high-burnout group; burnout severity is similar to that observed in nurses^{18,19} or physicians,²⁰ with the severity being higher than that in other medical professionals, as NPs are exposed to chronic occupational stressors due to staff shortage,^{16,19} working in shifts,^{17,21} working overtime,²² and work overload.^{16,17} Burnout due to work-related stress is common in medical professionals and can lead to various harmful consequences, including adverse effects on their mental and physical health^{23,24}; an increase in turnover rates, medical errors, healthcare-associated infections, and patient mortality; and a decrease in the quality of care.^{17,23} Burnout in the workplace is a ubiquitous phenomenon in both industrialized and developing countries^{18,21,23,25}; therefore, for economic and healthcare systems, job burnout among NPs must be investigated.

Some studies have explored role transition in NPs, but these studies have mainly included the Western population.^{10,25} Most research has focused on the personal experience of NPs with regard to role transition^{7,9-12,26,27}; accordingly, the impact of role transition on job burnout remains unclear. To the best of our knowledge, limited information exists regarding role transition from an RN to NP, and data are lacking on the impact on job burnout in Eastern countries. Moreover, in Taiwan, the NPs are trained by physicians and senior NPs in different grade hospitals, not in nursing schools.² It is meaningful to understand the differences between Taiwan from Western countries on role transition and burnout of NPs. Thus, the primary objectives in this study were to investigate the status of role transition from an RN to NP and job burnout as well as to explore the association among work characteristics, role transition, and job burnout in NPs.

Methods

Study Design and Participants

This study used a quantitative cross-sectional design and was conducted at four hospitals in central Taiwan. The participants were enrolled from two medical centers and two regional hospitals in central Taiwan. Participants who met the following criteria were included: NPs (a) with national certification, (b) practicing in their area of specialty, and (c) with an ability to read and write Chinese. Of the 372 potential participants who were enrolled, 361 NPs were recruited; 11 NPs who declined to participate in research and did not complete pertinent questionnaires were excluded. Accordingly, the response rate was 97%. We used the G*Power analysis tool (statistical analysis = linear multiple regression, effect size = .15, α = .05, sample size = 361, number of tested predictors = 3, and total number of predictors = 20) to check the statistical power, and the power was over .9, indicating an adequate sample size to perform statistical analysis in the research.

Ethical Consideration

This study was approved by the ethics in human research committee of the Cheng Ching General Hospital in Taiwan (no. HP-180035). All participants were assured of their anonymity and confidentiality, and all of them signed an informed consent statement prior to inclusion.

Measurements

A structured questionnaire was used to collect demographic data, work characteristics, role transition, and job burnout. The demographic data included age, gender, educational degree, marital status, and average hours of sleeping time (daily). The work characteristics included hospital grade, years of experience as an RN and NP, practice setting, working shifts, working hours (weekly), average number of patients take care (at each duty), salary (monthly), and performance bonus.

We used the Chinese version of the Nurse Practitioner Role Transition Scale (C-NPRTS), which was originally developed by Strange (Nurse Practitioner Role Transition Scale, NPRTS),²⁵ to evaluate the perceptions of NPs toward role transition. The original NPRTS comprises 18 items and three subscales: confidence, comfort, and competence in the role; collegial relationships; and understanding of the role by clients. Participants were asked to respond by using a 5-point Likert-type scale, and the higher total score, the higher the perception of role transition. The internal consistency reliability for the NPRTS was over .80 in original and previous study.^{10,25} The NPRTS was translated from English into traditional Chinese as follow the recommendations for questionnaire translation.²⁸

As the C-NPRTS was used for the first time in Taiwan, we applied exploratory factor analysis (EFA) to confirm the validity of the NPRTS across different races and languages. The EFA revealed that extracted three factors properly identified to the domain structures of the C-NPRTS, and the factors explained 67.05% of the total variance, which factor loadings of $\geq .40$ were identified and listed in clusters. Moreover, the Kaiser–Meyer–Olkin measure was .915, revealing that sampling was adequate, and the Bartlett test of sphericity was $< .001$, indicating the appropriateness of the data for factor analyses. In addition, the Cronbach's α coefficient of the C-NPRTS and subscales was .80–.91, indicating acceptable internal consistency reliability. The results found herein are consistent with those for the original questionnaire.²⁵

The Occupational Burnout Inventory, which revised from Copenhagen Burnout Inventory by Yeh et al in Taiwan²⁹ was used to assess participants' perception of burnout during the past week. The questionnaire comprises 21 items, and participants were asked to respond by using a 5-point Likert-type; the scale comprises 4 dimensions: personal burnout, work-related burnout, client-related burnout, and over-commitment. Total values range from 0 to 100 for each subscale, with a score of ≥ 50 indicating high burnout. It has been reported that personal and work-related burnout are highly correlated²⁹; thus, to avoid an overlap, we adopted three subscales—personal burnout, client-related burnout, and over-commitment—from the Occupational Burnout Inventory to evaluate job burnout. The Occupational Burnout Inventory was a reliable (Cronbach's α coefficient was above .84) and validated self-report tool for assessing burnout problems of workplace.²⁹ In this study, the Cronbach's α coefficient of the Occupational Burnout Inventory and subscales was .80–.91, indicating acceptable internal consistency reliability.

Data Collection

When the required ethical approval was gained, the authors contacted the administrators of hospitals. The authors inquired about the number of NPs from hospitals, and eligible NPs were invited to participate in this study. Before the participants filled out the questionnaire, the researcher explained the right of taking part in research. Participants had adequate time to complete the questionnaire. After the participants completed the questionnaire, the researcher took back it and processed the data.

Statistical Analysis

SPSS v22.0 (IBM, Armonk, NY, USA) was used for data analyses. Descriptive statistics are expressed as mean \pm SD and percentages. As the number of participants working in obstetrics and gynecology, pediatrics, psychiatry, emergency room (ER), and intensive care unit (ICU) was few, we classified them as "others" before conducting analytical statistics. The independent sample *t* test or one-way ANOVA

Table 1. Descriptive statistics of study variables (n = 361).

Variables	n (%)	Mean ± SD
Age		39.93 ± 6.77
Gender		
Male	22 (6.1)	
Female	339 (93.9)	
Education degree		
College	36 (10.0)	
Bachelor	283 (78.4)	
Master	42 (11.6)	
Marital status		
Single	138 (38.2)	
Married	223 (61.3)	
Sleeping hours		6.66 ± .93
Hospital grade		
Medical center	236 (65.4)	
Regional hospital	125 (34.6)	
Years of RN experience		10.11 ± 5.76
Years of NP experience		8.79 ± 6.62
Practice setting		
Medical	118 (32.7)	
Surgical	175 (48.5)	
Obstetrics and gynecology	15 (4.2)	
Pediatrics	9 (2.5)	
Psychiatry	4 (1.1)	
ER and ICU	40 (11.1)	
Working shifts		
No	223 (61.8)	
Yes	138 (38.2)	
Working hours (weekly)		
≤40	57 (15.8)	
41~50	223 (61.8)	
≥51	81 (22.4)	
Number of patients take care		
<10	103 (28.5)	
11~15	191 (52.9)	
≥16	67 (18.6)	
Salary (Monthly)		
<50 000 (NT)	211 (58.4)	
≥50 000 (NT)	150 (41.6)	
Performance bonus		
No	86 (23.8)	
Yes	275 (76.2)	
Role transition (C-NPRTS)		65.73 ± 9.59
Role confidence, comfort, and competence		32.62 ± 5.40
Collegial relationships		26.60 ± 3.99
Understanding of the role by clients		6.53 ± 1.75
Occupational burnout inventory		
Personal burnout/≥ 50	176 (51.2)	49.81 ± 18.47
Client-related burnout/≥ 50	70 (19.4)	34.90 ± 15.83
Over-commitment/≥ 50	180 (49.9)	48.35 ± 17.55

Note. SD, standard deviation; RN, registered nurse; NP, nurse practitioner; ER, emergency room; ICU, intensive care unit; NT, New Taiwan dollars; C-NPRTS, Chinese version of the Nurse Practitioner Role Transition Scale; C-CBI, Chinese version of the Copenhagen Burnout Inventory.

Table 2. Analysis of role transition score according to demographic data and working characteristics (n = 361).

Variables	C-NPRTS		Role Confidence, Comfort, and Competence		Collegial Relationships		Understanding of the Role by Clients	
	r/Mean ± SD	P value	r/Mean ± SD	P value	r/Mean ± SD	P value	r/Mean ± SD	P value
Age	.183**		.253**		.056		.090	
Gender		.735		.710		.884		.785
Male	66.40 ± 10.03		33.04 ± 5.44		26.72 ± 3.46		6.63 ± 1.78	
Female	65.69 ± 9.58		32.60 ± 5.41		26.59 ± 4.03		6.53 ± 1.75	
Education degree		.001		.009		<.001		.230
① College	67.36 ± 8.58	③ > ②	32.52 ± 5.58	③ > ②	28.13 ± 3.49	① > ②	6.69 ± 2.06	
② Bachelor	64.85 ± 9.51		32.28 ± 5.31		26.15 ± 3.97	③ > ②	6.45 ± 1.71	
③ Master	70.30 ± 9.72		35.02 ± 5.38		28.35 ± 3.81		6.92 ± 1.65	
Marital status		<.001		<.001		.003		.001
Single	63.21 ± 8.80		31.33 ± 5.08		25.88 ± 3.72		6.16 ± 1.88	
Married	67.26 ± 9.74		33.46 ± 5.45		27.07 ± 4.09		6.77 ± 1.61	
Sleeping hours	.159**		.168**		.102		.103*	<.05
Hospital grade		.361		.490		.765		.051
Medical center	66.09 ± 8.91		32.77 ± 5.06		26.65 ± 3.86		6.67 ± 1.65	
Regional hospital	65.06 ± 1.77		32.34 ± 6.00		26.52 ± 4.24		6.28 ± 1.89	
Years of RN experience	-.051		-.088		-.009		.010	
Practice Setting		.135		.009		.772		.158
① Medical	64.39 ± 9.10		31.68 ± 5.22	③ > ①	26.41 ± 4.03		6.29 ± 1.83	
② Surgical	66.09 ± 9.83		32.65 ± 5.57		26.75 ± 3.93		6.69 ± 1.70	
③ The others	67.14 ± 9.67		34.19 ± 4.96		26.55 ± 4.12		6.54 ± 1.69	
Working shifts		.904		.965		.575		.861
No	65.78 ± 9.30		32.61 ± 5.08		26.69 ± 3.97		6.52 ± 1.80	
Yes	65.58 ± 10.08		32.6 ± 5.95		26.57 ± 4.03		6.65 ± 1.74	
Working hours		.369		.435		.487		.335
① ≤ 40	67.39 ± 10.02		33.40 ± 5.64		27.14 ± 4.35		6.84 ± 1.67	
② 41~50	65.43 ± 9.46		32.58 ± 5.17		26.43 ± 3.97		6.45 ± 1.67	
③ ≥ 51	65.40 ± 9.71		32.22 ± 5.94		26.72 ± 3.83		6.51 ± 1.91	
Number of patients take care		.636		.513		.448		.390
① < 10	66.25 ± 9.98		32.53 ± 5.52		27.02 ± 4.23		6.68 ± 1.75	
② 11~15	63.34 ± 8.96		32.43 ± 5.14		26.43 ± 3.77		6.41 ± 1.70	
③ ≥ 16	66.24 ± 10.83		33.34 ± 5.91		26.43 ± 4.21		6.61 ± 1.94	
Salary (NT/monthly)		<.001		.018		.001		<.001
<50 000	63.81 ± 9.24		31.4 ± 5.4		26.21 ± 3.86		6.3 ± 1.85	
≥50 000	68.54 ± 9.43		34.4 ± 4.9		27.24 ± 4.20		6.95 ± 1.67	
Performance bonus		.019		.037		.002		.633
No	63.57 ± 9.38		31.66 ± 5.31		25.44 ± 4.31		6.51 ± 1.78	
Yes	66.42 ± 9.63		32.92 ± 5.43		26.97 ± 3.82		6.61 ± 1.63	

Note. * P < .05; ** P < .01; C-NPRTS, Chinese version of the Nurse Practitioner Role Transition Scale; SD, standard deviation; RN, registered nurse; NT, New Taiwan dollars.

with post hoc test was used to detect variations in categorical variables. The Pearson's correlation coefficient was used to evaluate the association between continuous variables. Hierarchical multiple regression analysis adjusted for confounding variables was used to identify the predictors of job burnout, and 95% confidence interval (CI) was calculated. Statistical significance was set at $P \leq .05$.

Results

Characteristics of Participants

The descriptive statistics for demographic data, work characteristics, role transition, and burnout scores for all participants are summarized in Table 1. Of 361 participants, 93.3% were women, and the mean age was 39.93 (SD = 6.77) years.

Table 3. Analysis of burnout score according to demographic data, working characteristics, and role transition (n = 361).

Variables	Personal Burnout		Client-Related Burnout		Over-commitment	
	r/Mean ± SD	P value	r/Mean ± SD	P value	r/Mean ± SD	P value
Age	.002		-.027		-.069	
Gender		.105		.987		.425
Male	43.63 ± 19.03		34.84 ± 15.18		45.45 ± 16.89	
Female	50.22 ± 18.39		34.90 ± 15.89		48.54 ± 17.60	
Education degree		.066		.152		.439
①College	50.55 ± 21.13		35.87 ± 19.19		50.41 ± 20.85	
②Bachelor	50.65 ± 18.22		35.43 ± 15.74		48.51 ± 16.68	
③Master	43.57 ± 16.86		30.45 ± 12.56		45.47 ± 20.17	
Marital status		.102		.111		.134
Single	51.69 ± 19.72		36.59 ± 17.06		50.00 ± 18.38	
Married	48.60 ± 17.55		33.80 ± 14.91		47.28 ± 16.95	
Sleeping hours	-.192**		-.072		-.179**	
Hospital grade		.025		.583		.002
Medical center	48.13 ± 17.03		34.56 ± 14.79		46.29 ± 17.15	
Regional hospital	53.00 ± 20.61		35.53 ± 17.68		52.24 ± 17.70	
Years of NP experience	-.060		-.013		-.078	
Practice Setting		.012		.297		.014
① Medical	53.34 ± 19.37 ① > ③		36.75 ± 15.88		51.69 ± 17.78 ① > ③	
② Surgical	49.25 ± 19.32		33.90 ± 16.19		47.74 ± 17.44	
③The others	45.14 ± 12.81		34.25 ± 14.69		44.11 ± 16.57	
Working shifts		.279		.426		.770
No	48.99 ± 17.87		34.36 ± 14.86		48.13 ± 17.16	
Yes	51.18 ± 19.43		35.85 ± 17.34		48.7 ± 18.20	
Working hours (weekly)		<.001		.993		.001
① ≤ 40	43.15 ± 15.34 ③ > ①		35.08 ± 16.38		43.94 ± 17.94 ③ > ①	
② 41~50	48.94 ± 17.66 ③ > ②		34.90 ± 15.31		47.22 ± 16.46 ③ > ②	
③ ≥ 51	56.68 ± 20.49		34.77 ± 17.03		54.60 ± 18.82	
Number of patients take care		.002		.167		.238
① < 10	45.48 ± 18.34 ③ > ①		32.56 ± 15.27		46.11 ± 17.80	
② 11~15	50.15 ± 17.56		35.44 ± 15.45		48.77 ± 16.62	
③ ≥ 16	55.53 ± 19.84		55.5 ± 19.89		50.57 ± 19.60	
Salary (monthly)		.047		.101		.025
<50 000 (NT)	51.49 ± 18.09		36.09 ± 15.74		50.12 ± 17.93	
≥50 000 (NT)	47.52 ± 18.79		33.35 ± 15.90		45.91 ± 16.72	
Performance bonus		.614		.546		.590
No	50.69 ± 17.40		35.80 ± 15.56		49.24 ± 15.72	
Yes	49.54 ± 18.81		34.62 ± 15.93		48.07 ± 18.10	
Role Transition (C-NPRTS)						
Role confidence, comfort, and competence	-.393**		-.357**		-.207**	
Collegial relationships	-.325**		-.304**		-.218**	
Understanding of the role by clients	-.392**		-.363**		-.130*	
	-.252**		-.195**		-.146**	

Note. * P < .05; ** P < .01.

SD, standard deviation; NP, nurse practitioner; NT, New Taiwan dollars; C-NPRTS, Chinese version of the Nurse Practitioner Role Transition Scale.

Most participants had a bachelor's degree (78.4%) and about 60% participants were married. The average years of experience as an RN and NP were 10.11 (SD = 5.76) and 8.79 (SD = 6.62), respectively. Overall, 48.5% participants practiced in surgical settings and 32.7% in medical settings; one-third worked in shifts. The majority of participants received

performance bonus, and their monthly salary was under 50 000 New Taiwan dollars. The mean role transition score was 65.73 (SD = 9.59), and the prevalence of high burnout (score ≥ 50) with regard to personal burnout, client-related burnout, and over-commitment in all participants was 51.2%, 19.4%, and 49.9%, respectively.

Table 4. Hierarchical multiple regression analysis of burnout (n = 361).

Variables	Personal Burnout	Client-Related Burnout	Over-commitment
	β (95% CI)	β (95% CI)	β (95% CI)
Model 1^a			
Role confidence, comfort, and competence	-.147 (-.92, -.08)*	-.161 (-.84, -.11)*	-.201 (-1.08, -.23)**
Collegial relationships	-.306 (-1.99, -.84)***	-.305 (-1.71, -.71)***	.011 (-.54, .64)
Understanding of the role by clients	.010 (-1.28, 1.27)	.063 (-.54, 1.67)	-.045 (-1.74, .85)
R ² /Adjust R ²	.410/.168	.384/.147	.221/.049
Model 2^b			
Role confidence, comfort, and competence	-.146 (-.94, -.05)*	-.207 (-1.01, .20)**	-.175 (-1.03, -.11)*
Collegial relationships	-.308 (-1.99, -.86)***	-.296 (-1.69, -.66)***	.005 (-.57, .61)
Understanding of the role by clients	.020 (-1.05, 1.47)	.089 (-.34, 1.95)	-.024 (-1.55, 1.06)
Hospital grade (ref: medical center)	.084 (-.63, 7.15)	.025 (-2.71, 4.37)	.137 (1.02, 9.10)*
Years of NP experience	.056 (-.14, .45)	.108 (-.01, .53)	.027 (-.23, .38)
Practice setting (ref: the others)			
Medical	.160 (1.21, 11.39)*	.058 (-2.68, 6.58)	.130 (-.41, 10.15)
Surgical	.103 (-1.05, 8.68)	-.004 (-4.55, 4.29)	.059 (-2.99, 7.11)
Working shifts (ref: no)	.041 (-2.25, 5.39)	.013 (-3.06, 3.89)	-.007 (-4.22, 3.71)
Working hours (ref: ≤ 40 hours)			
41~50 hours	.093 (-1.35, 8.45)	-.047 (-5.99, 2.92)	.054 (-3.16, 7.02)
≥51 hours	.230 (4.39, 15.92)**	-.063 (-7.64, 2.84)	.185 (1.78, 13.74)*
Number of Patients Take Care (Ref: <10)			
11~15 persons	.082 (-.96, 7.04)	.073 (-1.31, 5.97)	.062 (-1.97, 6.33)
≥16 persons	.185 (3.59, 13.95)**	.111 (-.18, 9.24)	.102 (-.79, 9.96)
Salary (ref: ≥ 50 000 NT)	.027 (-2.97, 4.96)	.048 (-2.05, 5.16)	.046 (-2.47, 5.76)
Performance bonus (ref: yes)	-.011 (-4.67, 3.75)	-.032 (-5.00, 2.65)	.046 (-2.49, 6.24)
R ² /Adjust R ²	.514/.264	.414/.171	.349/.122
Model 3^c			
Role confidence, comfort, and competence	-.128 (-.89, .01)	-.200 (-.99, -.17)**	-.157 (-.98, -.04)*
Collegial relationships	-.302 (-1.98, -.81)***	-.303 (-1.73, -.67)***	.005 (-.58, 0.63)
Understanding of the role by clients	.021 (-1.04, 1.49)	.092 (-.33, 1.99)	-.018 (-1.49, 1.14)
Hospital grade (ref: medical center)	-.083 (-.93, 7.08)	.018 (-3.07, 4.26)	.138 (.92, 9.26)*
Years of NP experience	-.004 (-.37, .35)	.126 (-.03, .63)	.026 (-.31, .44)
Practice setting (ref: the others)			
Medical	.147 (.58, 10.96)*	.056 (-2.86, 6.64)	.110 (-1.29, 9.53)
Surgical	.096 (-1.37, 8.46)	-.009 (-4.78, 4.21)	.046 (-3.50, 6.73)
Working shifts (ref: no)	.055 (-1.77, 5.94)	.007 (-3.31, 3.75)	.002 (-3.96, 4.07)
Working hours (ref: ≤ 40 hours)			
41~50 hours	.092 (-1.46, 8.44)	-.052 (-6.24 ~ 2.82)	.062 (-2.92, 7.40)
≥51 hours	.207 (3.33, 14.98)**	-.071 (-8.02 ~ 2.64)	.174 (1.25, 13.40)*
Number of patients take care (ref: <10)			
11~15 persons	.068 (-1.53, 6.54)	.068 (-1.53, 5.84)	.053 (-2.35, 6.05)
≥16 persons	.175 (3.09, 13.55)**	.115 (-.13, 9.45)	.089 (-1.46, 9.44)
Salary (Ref: ≥ 50 000 NT)	.031 (-2.88, 5.19)	.044 (-2.27, 5.12)	.042 (-2.72, 5.69)
Performance bonus (ref: yes)	-.023 (-5.23, 3.24)	-.036 (-5.22, 2.52)	.038 (-2.85, 5.98)
Age	.092 (-.11, .61)	-.007 (-.35, .31)	-.003 (-.38, .37)
Gender (ref: male)	.035 (-4.73, 10.17)	-.024 (-8.39, 5.24)	.012 (-6.92, 8.61)
Education degree (ref: master)			
College	.044 (-4.89, 10.27)	.093 (-2.05, 11.83)	.001 (-7.88, 7.94)
Bachelor	.045 (-3.52, 7.56)	.044 (-3.37, 6.77)	-.003 (-5.92, 5.63)
Marital status (ref: married)	.033 (-2.54, 5.03)	.031 (-2.45, 4.48)	.045 (-2.33, 5.56)
Sleeping hours	-.083 (-3.55, .25)	-.003 (-1.78, 1.69)	-.094 (-3.75, .20)
R ² /Adjust R ²	.528/.278	.421/.178	.363/.132

Note. CI, confidence interval; * P < .05; ** P < .01; *** P < .001; NP, nurse practitioner; NT, New Taiwan dollars.

^aunadjusted

^badjusted for working characteristics.

^cadjusted for working characteristics and demographic data.

Association Among Variables

Table 2 indicates that participants who were older ($r = .183$, $P < .01$), had a master's degree (70.30 ± 9.72 , $P = .001$), were married (67.26 ± 9.74 , $P < .001$), had more sleeping hours ($r = .159$, $P < .01$), worked in other settings (34.19 ± 4.96 , $P = .009$), received a higher salary (68.54 ± 9.43 , $P < .001$), and performance bonus (66.42 ± 9.63 , $P = .019$) showed a significantly higher role transition score. With regard to burnout scores, Table 3 shows that NPs with shorter sleeping hours had significantly higher personal burnout ($r = -.192$, $P < .01$) and over-commitment ($r = -.179$, $P < .01$) scores. Moreover, NPs working in regional hospitals (53.00 ± 20.61 , $P = .025$; 52.24 ± 17.70 , $P = .002$) and medical settings (53.34 ± 19.37 , $P = .012$; 51.69 ± 17.78 , $P = .014$), with more working hours (56.68 ± 20.49 , $P < .001$; 54.60 ± 18.82 , $P = .001$) and number of patients take care (55.53 ± 19.84 , $P = .002$) and receiving a lower salary (51.49 ± 18.09 , $P = .047$; 50.12 ± 17.93 , $P = .025$) showed significantly higher personal burnout and over-commitment scores. In addition, Pearson's correlation analyses indicated that role transition and the three subscales were significantly negatively correlated with burnout.

Multiple Regression Analysis of Burnout

Table 4 shows the results of the hierarchical regression analysis, which was performed to identify predictors of job burnout. After adjusting for demographic data (age, gender, educational degree, marital status, and sleeping hours) and work characteristics (hospital grade, years of experience as an NP, practice setting, working shifts, working hours, number of patients under care, salary, and performance bonus), regression analyses revealed that collegial relationship ($\beta = -.302$, $P < .001$), practice setting ($\beta = .147$, $P < .05$), working hours ($\beta = .207$, $P < .01$), and number of patients take care ($\beta = .175$, $P < .01$) were significantly related to personal burnout, which possibly explains 52.8% of variance. Further, after adjusting for demographic data and work characteristics, regression analyses showed that role confidence, comfort, competence ($\beta = -.200$, $P < .01$), and collegial relationship ($\beta = -.303$, $P < .001$) were significantly related to client-related burnout, which potentially explains 42.1% of variance. Finally, after adjusting for demographic data and work characteristics, regression analyses indicated that role confidence, comfort, and competence ($\beta = -.157$, $P < .05$), hospital grade ($\beta = .138$, $P < .05$), and working hours ($\beta = .174$, $P < .05$) were significantly related to over-commitment, which possibly explaining 36.3% of variance.

Discussion

The aims of this study were to examine NP role transition and job burnout as well as to verify the predictors of job burnout. In this study, the overall role transition score was higher than that reported by Barnes,¹⁰ although the same questionnaire was

used in both studies. It is reasonable as the NPs were senior nurses with experienced employed by hospitals in Taiwan; they may be familiar with clinical work than NP graduates in other countries. In this study, age, educational degree, marital status, practice setting, performance bonus, and salary were significantly correlated with role transition. It is possible that older age nurse with more experiences had adequate socialization to the NP role, and married nurse receiving support from import family facilitates coping during role transition. NPs with higher educational degree or working in ER and ICU may receive sufficient training, thereby boosting their self-confidence and competence and making the process of role transition simpler. Moreover, substantial rewards may increase the work morale of NPs, encouraging them to undergo role transition. In addition, prior experience as an RN was not correlated with transitioning to the NP role, and this finding is consistent with that reported by Barnes.¹⁰ We believe that not only the number of years of experience as an RN but also the type of experience gained is important³⁰; further studies on this topic are warranted.

In line with previous studies,¹⁶⁻²⁰ the prevalence of personal burnout and over-commitment (score ≥ 50) for all participants in this study was 51.2% and 49.9%, respectively. Burnout evidently results from chronic workplace stress that has not been successfully managed, consequently affecting health.^{23,24} Its characteristics include feeling exhausted, a negative or cynical feeling related to work, and reduced professional effectiveness.³¹ NPs often face complicated, emergent, and critical circumstances and thus need to make efficacious responses immediately; this makes their job very stressful, increasing the risk of burnout. The prevalence of client-related burnout was $< 20\%$ in this study, which was unanticipated. Client-related burnout is defined as the perception of burnout caused by the interaction between workers and clients.²⁹ In Taiwan, during training, nurses are taught to be patient, empathetic, and caring toward patients; our observations could perhaps be attributed to this nursing philosophy.

In this study, burnout was significantly correlated with sleeping hours, hospital grade, practice setting, working hours, number of patients take care, salary, and role transition. In addition, after adjusting for confounding variables, regression analysis indicated that hospital grade, practice setting, working hours, number of patients take care, and role transition were significant predictors of burnout. NPs who participated in this study showed a medium-level role transition score, suggesting that they had adapted to their new role; nevertheless, role transition was found to be significantly negatively correlated with job burnout. This could be because NPs had to acquire considerable knowledge and skills during role transition, which required them to spend more time at work, making them highly susceptible to job burnout. Transitioning from a professional and experienced RN to a novice NP is tumultuous and challenging for nurses, and NPs constantly experience pressure, as they are expected

to maintain cordial relationships with medical staff as well as adapt to their new role.^{10,27} Moreover, staff shortage at lower grade hospitals, lack of resources, and excessive requirements at their workplace may increase workload and lead to prolonged working hours, voluntary or forced over-commitment, and markedly lower sleep hours, consequently exacerbating burnout.^{16-19,21,22,29}

Amendments to the “Nursing Personnel Act” in 2000, the “Nurse Practitioner” became official title in Taiwan. With the efforts of the Taiwan Association of Nurse Practitioners, the revised scope of practice of NPs regulation became law.⁶ It not only expand the roles of NPs, but Taiwan is also the first country where legalization for the practice of NPs in Asia. Although, the practice of NPs is protected by law, there are some problems in clinical practice for NPs in Taiwan. Previous research indicated that ambiguous works demarcation between resident and NPs, the gap in professional ability expectation, lacking of specialized training for NPs, and allocation being unaligned with professional considerations, result in psychological stress and frustration for NPs.⁸ The scope of actual medical assistance exceeds the professional capabilities of NPs, and these practical problems have not been resolved through amendments to laws.

Nowadays, the demand for NPs is increasing, but transitioning to the role of an NP is a challenging process. Based on the results of this study, we have some practical suggestions. First, during such a transition, workplace administrators should thus regularly assist NPs, particularly young and novice NPs, to facilitate adaptation and to reduce stress. Second, it is imperative to promptly identify job burnout in NPs so as to prevent its effects on them. Hospital administrators should ensure a positive working environment and reasonable workload to alleviate job burnout in NPs with the intention of boosting the longevity of their careers and to avoid staff shortage. Finally, in Taiwan, with the exception of amendments to law, considering the education level for master’s degree, unifying training program, in order to eliminate the frustration and related job stress of NPs.

Limitations

This study had some limitations. Because of the cross-sectional design, we could not evaluate chronological sequence of the development of role transition and job burnout. In addition, we did not investigate factors such as policies at a workplace, availability of assistance resources, social support, job strain, and personality, which are bound to influence role transition and job burnout. Actually, there are role and job position differences on field of NPs and grade of hospitals in Taiwan, it should be investigated the impact on job burnout in depth in the future. Finally, further analysis of the C-NPRTS is warranted; a diverse sample from different regions should be analyzed to increase the content of different cultural dimensions.

Conclusions

This is the first study to provide a reliable and valid questionnaire that can be used to assess the effects of role transition on Chinese NPs and to report empirical data on role transition and its relationship to job burnout. We herein found that personal and work characteristics were correlated with role transition and job burnout, and that role transition was significantly negatively associated with job burnout in NPs. In addition, NPs undergoing role transition and experiencing excessive workload were more susceptible to job burnout.

Transitioning from an RN to NP is a complex, emotional, and confusing process, affecting job identity and professional confidence. Moreover, burnout has adverse physical, psychological, and occupational consequences. Therefore, it is important to investigate role transition and job burnout in NPs.

Author Contributions

Both authors designed the study. Yi Ju Chen collected the data and performed all analyses. Kuan Pin Lin wrote the initial draft of the manuscript and revised the manuscript for final submission. Both authors approved the final version for submission.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Kuan Pin Lin  <https://orcid.org/0000-0002-2574-2268>

References

1. American Association of Nurse Practitioners. What’s a Nurse Practitioner (NP)? 2020. Accessed June 10. <https://www.aanp.org/about/all-about-nps/whats-a-nurse-practitioner>.
2. Department of Nursing and Health Care. Ministry of Health and Welfare, Taiwan. Regulations Governing Specialties and Examination of Nurse Practitioner. Published; 2017. Accessed June 10, 2021 <https://dep.mohw.gov.tw/donahc/cp-1043-5258-104.html>.
3. Association of American Medical Colleges. The Complexities of Physician Supply and Demand: Projections from 2016 to 2030. Published; 2019. Accessed June 15, 2020 https://aamc-black.global.ssl.fastly.net/production/media/filer_public/31/13/3113ee5c-a038-4c16-89af-294a69826650/2019_update_-_the_complexities_of_physician_supply_and_demand_-_projections_from_2017-2032.pdf.
4. Maier CB, Aiken LH. Task shifting from physicians to nurses in primary care in 39 countries: A cross-country comparative study. *Eur J Publ Health*. 2016;26(6):927-934.

5. Department of Nursing, Health Care. Ministry of Health and Welfare, Taiwan. Regulation of the Scope of Practice of Nurse Practitioners. Published; 2016. Accessed October 10, 2021 <https://dep.mohw.gov.tw/donahc/cp-1043-5254-104.html>.
6. Chiu HJ, Tsay SL, Tung HH. [The New Era of the Nurse Practitioner]. *Hu li za zhi The journal of nursing*. 2017;64(1):11-16.
7. Twine N. The first year as a nurse practitioner: An integrative literature review of the transition experience. *J Nurs Educ Pract*. 2017;8(5):54.
8. Hung TL, Chi WH. Difficulties and challenges of nurse practitioners in clinical practice in Taiwan. *J Taiwan Nurse Pract*. 2019;6(1):12-21.
9. Hart AM, Bowen A. New nurse practitioners' perceptions of preparedness for and transition into practice. *J Nurse Pract*. 2016;12(8):545-552.
10. Barnes H. Exploring the factors that influence nurse practitioner role transition. *J Nurse Pract*. 2015;11(2):178-183.
11. Jangland E, Yngman Uhlén P, Arakelian E. Between two roles - Experiences of newly trained nurse practitioners in surgical care in Sweden: A qualitative study using repeated interviews. *Nurse Educ Pract*. 2016;21:93-99.
12. Poronsky CB. Exploring the transition from registered nurse to family nurse practitioner. *J Prof Nurs*. 2013;29(6):350-358.
13. Fitzpatrick S, Griphover J. Expert nurse to novice nurse practitioner: The journey and how to improve the process. *J Nurse Pract*. 2016;12(10):e419-e421.
14. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001;52:397-422.
15. Montero-Marín J, Skapinakis P, Araya R, Gili M, García-Campayo J. Towards a brief definition of burnout syndrome by subtypes: development of the "burnout clinical subtypes questionnaire" (BCSQ-12). *Health Qual Life Outcomes* 2011; 9(74):74-77.
16. Epp K. Burnout in critical care nurses: A literature review. *Dynamics*. 2012;23(4):25-31.
17. Moss M, Good VS, Gozal D, Kleinpell R, Sessler CN. An official critical care societies collaborative statement-burnout syndrome in critical care health-care professionals. *Chest*. 2016;150(1):17-26.
18. Chou L-P, Li C-Y, Hu SC. Job stress and burnout in hospital employees: Comparisons of different medical professions in a regional hospital in Taiwan. *BMJ Open*. 2014;4(2):e004185.
19. Tawfik DS, Sexton JB, Kan P, et al. Burnout in the neonatal intensive care unit and its relation to healthcare-associated infections. *J Perinatol*. 2017;37:315-320.
20. Grace MK, VanHeuvelen JS. Occupational variation in burnout among medical Staff: Evidence for the stress of higher status. *Soc Sci Med*. 2019;232:199-208.
21. Caruso CC, Baldwin CM, Berger A, et al. Position statement: Reducing fatigue associated with sleep deficiency and work hours in nurses. *Nurs Outlook*. 2017;65(6):766-768.
22. Wolf LA, Perhats C, Delao AM, Clark PR. Workplace aggression as cause and effect: Emergency nurses' experiences of working fatigued. *Internat Emerg Nurs*. 2017;33:48-52.
23. Bridgeman PJ, Bridgeman MB, Barone J. Burnout syndrome among healthcare professionals. *Am J Health Syst Pharm*. 2018;75(3):147-152.
24. Salvagioni DAJ, Melanda FN, Mesas AE, González AD, Gabani FL, Andrade SMD. Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLoS One*. 2017;12(10):e0185781.
25. Strange SN. The development and psychometric testing of the nurse practitioner role transition scale. [Doctoral dissertation]. University of Connecticut; 2015. Accessed June 15, 2020 <https://opencommons.uconn.edu/dissertations/661>.
26. Andregård AC, Jangland E. The tortuous journey of introducing the Nurse Practitioner as a new member of the healthcare team: A meta-synthesis. *Scand J Caring Sci*. 2015;29:3-14.
27. MacLellan L, Higgins I, Levett-Jones T. An exploration of the factors that influence nurse practitioner transition in Australia: A story of turmoil, tenacity, and triumph. *J Am Assoc Nurse Pract*. 2016;29(3):149-156.
28. Polit DF, Beck CT. *Nursing Research: Generating and Assessing Evidence for Nursing Practice*. 10th ed.. NY: Lippincott Williams & Wilkins; 2016.
29. Yeh WY, Cheng Y, Chen MJ, Chiu AWH. Development and validation of an occupational burnout inventory. *Taiwan J Public Health*. 2008;27(5):349-364. (in traditional Chinese).
30. Thompson A. An educational intervention to enhance nurse practitioner role transition in the first year of practice. *J Am Assoc Nurse Pract*. 2019;31(1):24-32.
31. World Health Organization. Burn-out an "occupational phenom-enon": International Classification of Diseases. World Health Organization. 2019. Accessed June 10, 2020. https://www.who.int/mental_health/evidence/burn-out/en/.