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

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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

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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. 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 2000; a similar situation has been reported in the United States and some European countries.

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. 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. Novice NPs come from diverse backgrounds, and this role transition may lead to changes in their professional identity, loss of confidence, role confusion, and emotional turmoil. 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.

Burnout is considered a psychological symptom, and all categories of medical staff may experience it. It is a result of prolonged chronic stress, and it causes gradual loss of energy and enthusiasm. In high-stress occupations, particularly in medical staff, the prevalence of burnout is over than 40%. Several studies investigating burnout among healthcare professionals have reported that NPs represent an emerging high-burnout group; burnout severity is similar to that observed in nurses or physicians, with the severity being higher than that in other medical professionals, as NPs are exposed to chronic occupational stressors due to staff shortage, working in shifts, working overtime, and work overload. 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, an increase in turnover rates, medical errors, healthcare-associated infections, and patient mortality; and a decrease in the quality of care. 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. Most research has focused on the personal experience of NPs with regard to role transition; 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. 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), 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. The NPRTS was translated from English into traditional Chinese as follow the recommendations for questionnaire translation. 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 ≥.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.

The Occupational Burnout Inventory, which revised from Copenhagen Burnout Inventory by Yeh et al in Taiwan 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 correlated; 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. 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 ± 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.
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.
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 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            |
| 1 College                          | 50.55 ± 21.13    | 35.87 ± 19.19          | 50.41 ± 20.85   |
| 2 Bachelor                         | 50.65 ± 18.22    | 35.43 ± 15.74          | 48.51 ± 16.68   |
| 3 Master                           | 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    | 36.75 ± 15.88          | 51.69 ± 17.78   |
| 2 Surgical                         | 49.25 ± 19.32    | 33.90 ± 16.19          | 47.74 ± 17.44   |
| 3 The others                       | 45.14 ± 12.81    | 34.25 ± 14.69          | 44.11 ± 16.57   |
| Working hours                      | .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    | 35.08 ± 16.38          | 43.94 ± 17.94   |
| 2 41~50                            | 48.94 ± 17.66    | 34.90 ± 15.31          | 47.22 ± 16.46   |
| 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    | 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            |
| <50000 (NT)                        | 51.49 ± 18.09    | 36.09 ± 15.74          | 50.12 ± 17.93   |
| ≥50000 (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)          | -.393***         | -.357**                | -.207**         |
| Role confidence, comfort, and competence | -.325**       | -.304**                | -.218**         |
| Collegial relationships            | -.392**          | -.363**                | -.130*          |
| Understanding of the role by clients | -.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.
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*                                        |                  |                        |                 |
| 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 (–5.167)          | –.045 (–1.74, .85) |
| R²/Adjust R²                                     | .410/.168        | .384/.147              | .221/.049       |
| Model 2*                                        |                  |                        |                 |
| 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 (–3.14, 1.95)     | –.024 (–1.55, 1.06) |
| Hospital grade (ref: medical center)           | .084 (–6.6, 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, 1.39)* | .058 (–2.68, 6.58)     | .130 (–.41, 10.15) |
| Surgical                                       | .103 (–1.05, 8.68) | –.04 (–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)                |                  |                        |                 |
| 11–15 persons                                  | .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 (–1.8, 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) |
| R²/Adjust R²                                     | .514/.264        | .414/.171              | .349/.122       |
| Model 3*                                        |                  |                        |                 |
| 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 (9.2, 9.6)* |
| Years of NP experience                         | –.004 (–.37, 35)  | .126 (–0.3, 63)        | .026 (–.31, 44)  |
| Practice setting (ref: the others)             |                  |                        |                 |
| Medical                                        | .147 (5.8, 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)                |                  |                        |                 |
| 11–15 persons                                  | .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 (–1.3, 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 (–1.11, .61)  | .007 (–3.35, .36)      | .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) |
| R²/Adjust R²                                     | .528/.278        | .421/.178              | .363/.132       |

Note. CI, confidence interval; *P < .05; **P < .01; ***P < .001; NP, nurse practitioner; NT, New Taiwan dollars.
*unadjusted
*adjusted for working characteristics.
*adjacent 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 ($70.30 \pm 9.72$, $P = .001$), were married ($67.26 \pm 9.74$, $P < .001$), had more sleeping hours ($r = .159$, $P < .01$), worked in other settings ($34.19 \pm 4.96$, $P = .009$), received a higher salary ($68.54 \pm 9.43$, $P < .001$), and performance bonus ($66.42 \pm 9.63$, $P = .019$) 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 ($53.00 \pm 20.61$, $P = .025$; $52.24 \pm 17.70$, $P = .002$) and medical settings ($53.34 \pm 19.37$, $P = .012$; $51.69 \pm 17.78$, $P = .014$), with more working hours ($56.68 \pm 20.49$, $P < .001$; $54.60 \pm 18.82$, $P = .001$) and number of patients take care ($55.53 \pm 19.84$, $P = .002$) and receiving a lower salary ($51.49 \pm 18.09$, $P = .047$; $50.12 \pm 17.93$, $P = .025$) 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, 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 have been 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. We believe that not only the number of years of experience as an RN but also the type of experience gained is important; future studies on this topic are warranted.

In line with previous studies, 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. Its characteristics include feeling exhausted, a negative or cynical feeling related to work, and reduced professional effectiveness. 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. 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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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**

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