

Research article

Factors Influencing the Quality of Life of Nurse Anesthetists and the Correlations Among Work Stress, Job Satisfaction, and Quality of Life: A Case Study of Three Medical Centers in Southern Taiwan

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Abstract

The objective of this study was to determine the factors influencing the quality of life (QoL) of nurses serving in the anesthesiology departments of 3 medical centers in Southern Taiwan, and to investigate the correlations among work stress, job satisfaction, and QoL.

This study adopted a cross-sectional design. The interviewees were nurse anesthetists at 3 medical centers in Southern Taiwan who had been employed at their respective units for over 6 months. The recruitment period was from January 2012 to March 2012. Data were collected using a structured questionnaire composed of the following sections: basic personal characteristics, a perceived source of work stress for medical work scale, a job satisfaction for nurses' scale, and the SF-36 QoL scale. A total of 150 nurse anesthetists participated in the study.

Regarding the overall QoL, the study results indicate that the following factors are statistically significant: exercise habits, employment status, subspecialty attributes, and turnover intention. Nursing work satisfaction (4 dimensions) shows a significantly positive correlation with the SF-36 QoL. The current study employed a stepwise multiple regression method to analyze the predictive factors that influence the overall QoL, physical component summary (PCS), and mental component summary (MCS) of nurse anesthetists in the QoL dimension. The analytical results indicate that turnover intention is a key influencing factor for all 3 QoL items. The overall QoL, PCS, and MCS scores of nurse anesthetists with turnover intention are reduced by 8.231, 3.602, and 4.478 points, respectively, when compared with nurses without turnover intention. Subsequently, general job satisfaction is the predictive factor for overall QoL and MCS QoL. Other factors that influence QoL include exercise habits, age, and subspecialty attributes.

Turnover intention, overall job satisfaction, exercise habits, and subspecialty attributes are the predictive factors influencing the overall QoL, PCS, and MCS of nurses serving in anesthesiology departments.

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Keywords: nurse anesthetists, work stress, job satisfaction, quality of life

Introduction

Because of the modernization of life and the increasing use of advanced technologies, workplaces have become increasingly competitive. Thus, physical, mental, and spiritual problems caused by work-related stress have also increased. Work stress can lead to low levels of job satisfaction, high rates of undesirable events, and unfavorable physical and mental health outcomes [1]. In the twenty-first century, one of the main factors endangering health is a high level of work stress [2,3], and nursing is among the high-pressure fields [4-6]. High work stress can result in high turnover rates as well as low quality of care and organizational efficiency [7-9]. Low job satisfaction

corresponds with high work stress, which might lead to a high level of burnout, turnover intention, and even disease. Hospital nurses often experience burnout caused by work stress and lowa lack of job satisfaction, both of which may lead to turnover intention [10-16]. Therefore, the risk factors that could affect the work stress of medical personnel, as well as preventative measures against such stress, are worth exploring [17-19]. Nursing is a service that is relevant to the lives of most people, and the work-related stress of nurses is typically higher than that experienced by other professionals. Furthermore, because patients currently request higher-quality care, the quality of service provided affects not only the satisfaction of patients but also an employee's sense of satisfaction. Thus, work stress, job satisfaction, and quality of life (QoL) are closely related among nursing staffs [19,20].

Previous studies pertaining to the work-related stress of nurses have focused primarily on clinical nurses as the study subjects. However, although nurses in various departments provide nursing care, the nature and content of work in anesthesiology departments differ considerably from those of work in other departments. Nurse anesthetists are often exposed to the high pressure caused by changes in patients' vital signs. When encountering different surgical procedures and patients with varying anesthesia histories, nurses are required to maintain a high degree of vigilance and often must work under great pressure. Therefore, the current study analyzed the factors influencing the QoL of nurse anesthetists, and to investigate the correlations among work stress, job satisfaction, and QoL. Using the analytical results, the current study proposes improvement strategies for enhancing the job satisfaction and QoL of nurses, thereby improving the overall quality of patient healthcare.

Materials and Method

Study design

This study used a cross-sectional design and a structured questionnaire to collect data. During the data collection period from January 2012 to March 2012, 192 questionnaires were administered and 160 questionnaires were collected. Omitting 10 questionnaires with incomplete data yielded 150 valid samples for an effective response rate of 78.13%.

Participants

The subjects in this study were nurse anesthetists working at three medical centers in Southern Taiwan, and who had been employed at their respective workplaces for at least 6 months. To ensure equity and ethical considerations, this study was approved by the Institutional Review Board and subsequently explained to the subjects before a questionnaire survey was conducted with their signed consent.

Instruments

The study involved using a structured questionnaire comprising four parts, the first of which addressed basic personal characteristics, including gender; age; education level; training; marital status; number of children; religion; title; place of work; whether the respondent had received a nurse anesthetist training certificate; subspecialty

attribute (nurse anesthetists who focus on a subspecialty as their main anesthesiological works were defined as having subspecialty attributes. By contrast, nurse anesthetists without subspecialty attributes need to support various surgical anesthesiological works); total years of experience in nursing, as a nurse anesthetist, and in the anesthesia department of a hospital; whether the work is full-time, contractual, fixed, or in variable shifts; whether the respondent engages in part-time administrative work; turnover intention; overtime hours; whether the respondent exercises; and total annual salary. The second part consisted of the Questionnaire of Medical Workers' Stress (QMWS), which was developed according to the work environments of Taiwanese medical staffs. The scale comprises eight work stress sources: maintaining the operations of medical institutions, coping with hospital evaluation work, patient stability, maintaining patient relationships, encountering medical malpractice disputes, salary payment systems, personal evaluation systems, promotions, and academic research. The questions are rated from 1 (*definitely not a stressor*) to 6 (*definitely a stressor*). The higher the score is, the stronger the feeling of work stress; conversely, the lower the score is, the lower the feeling of work stress [18]. The third part of the study was the nurses' job satisfaction scale, which was developed specifically for nurses and comprises four dimensions: interpersonal relations, benefits and promotion, work conditions, and workload. The job satisfaction scale has 18 questions, which are scored from 5 (*very satisfied*) to 1 (*very unsatisfied*). Thus, the higher the score is, the greater the job satisfaction and vice versa [21]. The fourth part of the questionnaire is the SF-36 QoL scale, which was developed by Dr. John Ware, Jr. from the United States, who authorized the Taiwanese version of the SF-36 scale for translation; Professor Lu Rui-Fen was commissioned to be responsible for the Taiwanese version. The SF-36 QoL scale addresses the aspects of the physical component summary (PCS) and mental component summary (MCS), as well as eight dimensions, totalling 36 questions. The eight dimensions are physical functioning (PF), role limitation caused by physical problems (RP), bodily pain (BP), general health (GH), vitality (VT), role limitation because of emotional problems (RE), social functioning (SF), and mental health (MH). The SF-36 QoL scale was scored using 3-point, 5-point, and 6-point Likert scales, and the original total score ranges from 35 to 145 points. The scores for each dimension were converted into standard scores and after the conversion, the standard score of each dimension was 100 points. If a total score of 50 or more is reached, then it represents a high QoL [22]. The higher the score is, the higher the QoL and, similarly, a lower score indicates a lower QoL.

Statistical Analyses

For data analysis, this study used SPSS, version 17.0 for Windows. Independent t-tests, one way ANOVA, and stepwise multiple regression were performed to determine the effects of attributes, work stress, and level of job satisfaction on the QoL of nurse anesthetists.

Results

As shown in Table 1, the PCS dimension for nurses without turnover intention is higher than for those with turnover intention ($p = .011$). In addition, for the MCS dimension, nurses aged 41 years and above exhibited higher values than did those aged between 31 and 40 years ($p = .003$); those who were married exhibited higher values than

did those who were not ($p = .041$); those without turnover intention exhibited higher values than did those who had turnover intention ($p < .001$); and those who had accumulated 20 to 29 years of work experience exhibited higher values than did those who had accumulated 0 to 9 years ($p = .016$). Regarding the SF-36 overall QoL, nurses who 1) possessed exercise habits, 2) were contracted, 3) with subspecialty attributes, and 4) exhibited no turnover intention demonstrated a significantly beneficial overall QoL.

Table 2 indicates that the items of “individual assessment systems” presented a higher negative correlation with “mental health (MH)” ($r = -.361$; $p < .01$) compared with “coping with hospital accreditation work,” which presented a lower negative correlation with “role limitation due to physical problems (RP)” ($r = -.166$; $p < .05$). In the context of items related to the sources of pressure in the healthcare profession, “maintaining hospital operations” presented a highly negative correlation with “social functioning (SF)” ($r = -.173$; $p < .05$). Furthermore, the items “coping with hospital accreditation work,” “maintaining positive relationships with the patient,” “salary payment system,” “individual assessment system,” “promotion or academic research” and “feelings of the overall work pressure” showed a statistically negative correlation with MH. In addition, “facing medical malpractice” exhibited a highly negative correlation with “vitality (VT).”

The correlation between the job satisfaction and QoL of nurse anesthetists indicates that the job satisfaction for nursing showed a positive correlation with SF-36 QoL, where increased job satisfaction elevated QoL. In addition, “workload” showed the highest positive correlation with “VT” ($r = .450$; $p < .01$).

The current study employed a stepwise multiple regression method to analyze the key factors influencing the SF-36 overall QoL, PCS, and MCS. The analytical results are tabulated in Table 4; turnover intention was the most significant influencing factor for all three QoL items. The SF-36 overall QoL, PCS, and MCS scores of nurses with turnover intention were reduced by 8.231, 3.602, and 4.478 points, respectively, when compared with those of nurses without turnover intention. Subsequently, the four variables of turnover intention, overall job satisfaction, exercise habits, and subspecialty attributes effectively predicted 33.4% of the variance for the SF-36 overall QoL.

Table 1: Analysis of differences between the basic personal characteristics and quality of life of Nurse Anesthetist in Southern Medical Centers (N = 150)

Quality of Life Variable	PCS Physical Component Summary		MCS Health Component Summary		SF36 Overall Quality of Life	
	Mean±SD	P value	Mean±SD	P value	Mean±SD	P value
Hospital		.393		.571		.176
①A Medical Center	49.25 ±9.05		40.12 ±10.40		106.07± 13.22	

②B Medical Center	51.36 ±7.36	41.58 ±8.10	111.45± 13.49
③C Medical Center	51.00 ±6.68	42.01 ±8.63	109.46± 13.95
Age	.091	.003	.145
①≤ 30 years old	53.94 ±3.85	40.30 ±7.62	③> ② 111.23± 9.03
②31-40 years old	50.63 ±8.22	38.67 ±9.65	106.15± 14.61
③≥ 41 years old	48.81 ±8.11	44.66 ±8.45	110.84± 13.35
Education	.404	.318	.076
①College or less	48.60 ±8.16	42.92 ±9.80	108.83± 15.66
②University	50.71 ±7.74	40.36 ±8.89	107.99± 12.53
③Master	51.74 ±8.83	43.48 ±11.21	112.82± 18.06
Currently studying	.184	.287	.056
No	50.08 ±7.94	40.86 ±9.13	107.85± 13.39
Yes	53.40 ±7.16	43.98 ±10.75	116.02± 14.54
Marital status	.415	.041	.087
No spouse	51.04 ±7.70	39.14 ±9.76	106.09± 12.97
Spouse	49.89 ±8.06	42.49 ±8.71	110.22± 13.88
Number of children	.113	.061	.055
①0	51.67 ±7.22	39.25 ±9.70	107.26± 13.74
②1	47.70 ±8.92	41.02 ±7.99	104.46± 12.81
③2 or more	50.01 ±8.02	43.46 ±8.92	111.99± 13.30
Religion	.781	.587	.871
No	50.14 ±8.12	41.62 ±10.02	108.75± 15.48
Yes	50.53 ±7.78	40.73 ±8.68	108.36± 12.07
Exercise habits	.105	.308	.010
No	49.77 ±8.13	40.68 ±9.44	106.92± 13.89
Yes	52.46 ±6.73	42.67 ±8.61	114.25± 11.00
Location	.074	.274	.725

Operating Room	50.86 ±7.6		40.76 ±9.23		108.70± 13.99	
Recovery room and other (PCA)	47.36±9.18		43.28±9.46		107.51±11.40	
Employment status		.115		.032		.050
Official employment	50.10 ±7.96		40.92 ±9.45		107.98± 13.64	
By contract	54.94 ±5.16		44.71 ±3.49		118.34± 9.11	
Nurse Anesthetist training certificate		.978		.362		.483
No	50.27 ±6.82		39.70 ±10.75		106.87± 13.40	
Yes	50.32 ±8.20		41.49 ±8.56		108.87± 13.14	

Table 1: Analysis of differences between the basic personal characteristics and quality of life of Nurse Anesthetist in Southern Medical Centers (N = 150) (continued)

Quality of Life Variable	PCS Physical Component Summary		MCS Health Component Summary		SF36 Overall Quality of Life	
	Mean±SD	P value	Mean±SD	P value	Mean±SD	P value
Subspecialty attributes		.147		.042		.015
Yes	52.03 ±5.79		44.52 ±8.33		114.48± 12.90	
No	49.95 ±8.33		40.32 ±9.37		107.15± 13.52	
Working Shifts		.244		.238		.711
Fixed	48.97 ±9.11		42.77 ±9.42		109.29± 13.66	
Rotations	50.82 ±7.45		40.57 ±9.20		108.27± 13.66	
Overtime hours		.589		.273		.179
① < 20 hours	51.57 ±7.17		40.76 ±8.02		109.55± 11.09	
② 20-39 hours	50.49 ±8.20		41.83 ±10.23		109.72± 15.13	
③ ≥40 hours	48.98 ±7.26		35.85 ±11.96		99.70± 21.55	
Job Title		.684		.808		.982

Leader or above	49.56 ±7.14	41.75 ±11.93	108.48± 16.98
Nurses	50.48 ±8.04	41.11 ±8.97	108.57± 13.30
Part-time administrative work	.407	.167	.807
No	50.51 ±7.61	40.68 ±9.12	108.35± 13.46
Yes	48.64 ±10.55	44.34 ±10.66	109.30± 15.88
Turnover Intention	.011	<.001	<.001
No	51.87 ±7.66	44.35 ±7.35	114.02± 12.29
Yes	48.32 ±7.89	37.16 ±10.04	101.64± 12.28
Years of nursing experience	.062	.021	.225
①0-9 years	53.69 ±4.61	39.54 ±9.00	③>② 110.14± 11.20
②10-19 years	50.09 ±8.53	39.13 ±9.93	106.11± 15.53
③20-29 years	48.96 ±8.26	44.03 ±7.05	110.33± 10.61
Years of Nurse Anesthetists experience	.534	.103	.236
①0-9 years	51.18 ±7.39	39.84 ±8.57	107.78± 12.40
②10-19 years	49.44 ±8.83	40.70 ±10.19	107.26± 15.81
③20-29 years	50.57 ±6.99	44.52 ±8.98	112.70± 11.95
Years of hospital anesthesia	.306	.016	.304
①0-9 years	51.35 ±7.60	39.17 ±8.85	③>① 107.47± 13.85
②10-19 years	48.92 ±8.51	42.21 ±9.59	108.23± 14.05
③20-29 years	50.03 ±7.77	45.17 ±8.84	112.43± 12.17
Annual Salary	.549	.301	.614
①610 thousand and less	51.52 ±7.97	39.32 ±9.82	107.74± 15.22

②610-800 thousand	50.31 ±8.21	40.96 ±8.97	107.83± 13.91
③810 thousand or more	49.48 ±7.17	42.78 ±9.10	110.56± 11.37

Note: Two groups uses independent samples t test and two-tailed test with a significance level of $\alpha = .05$; three groups or more uses ANOVA (post-test uses Scheffe)

Table 2: Correlation analysis between the various dimensions of feelings of work stress in medical practice and QoL

Item	SF-36	PCS	PF (Physical Functioning)	RP (Role Limitation Due to Physical Problems)	BP (Bodily Pain)	GH (General Health)	MCS	VT (Vitality)	SF (Social Functioning)	RE (Role Limitation Due to Mental Problems)	MH (Mental Health)
Maintaining Hospital Operations	-.069	-.036	-.104	-.126	-.023	.006	-.082	.010	-.173*	-.057	-.111
Coping with Hospital Accreditation Work	-.142	-.049	-.117	-.166*	-.056	-.083	-.148	-.156	-.149	-.100	-.193*
Stability of Patient Illness	-.130	.026	.037	-.155	-.085	.072	-.220*	-.189*	-.185*	-.125	-.241**
Maintaining Positive Relationships with the Patient	-.120	.002	-.022	-.172*	-.066	.033	-.184*	-.158	-.115	-.159	-.198*
Facing Medical Malpractice	-.159	-.022	-.008	-.124	-.107	-.067	-.163	-.294**	-.223**	-.018	-.243**
Salary Payment System	-.202*	-.003	.022	-.054	-.130	-.131	-.213*	-.273**	-.190*	-.049	-.318**
Individual Assessment System	-.276**	-.069	-.010	-.131	-.246**	-.224**	-.274**	-.227**	-.251**	-.090	-.361**
Promotion or Academic Research	-.201*	-.086	-.144	-.132	-.141	-.127	-.152	-.136	-.241**	-.013	-.296**
Overall Work Stress Score	-.229**	-.042	-.060	-.186*	-.149	-.092	-.254**	-.249**	-.267**	-.108	-.341**

Table 3: Correlation analysis between the various dimensions of nursing job satisfaction and QoL

Item	SF-36	PCS	PF (Physical Functioning)	RP (Role Limitation Due to Physical Problems)	BP (Bodily Pain)	GH (General Health)	MCS	VT (Vitality)	SF (Social Functioning)	RE (Role Limitation Due to Mental Problems)	MH (Mental Health)
Work Environment	.337**	.115	.158	.043	.037	.321**	.266**	.343**	.201*	.177*	.237**
Interpersonal Relationships	.356**	.057	.182*	.032	.022	.302**	.325**	.367**	.260**	.178*	.366**
Benefits and Promotion	.247**	.011	.055	.131	.013	.234**	.304**	.258**	.209*	.198*	.311**
Work Load	.431**	.157	.200*	.186*	.142	.335**	.410**	.450**	.352**	.317**	.305**
Overall Job Satisfaction	.417**	.087	.174*	.096	.050	.368**	.401**	.436**	.324**	.259**	.386**

Note: The Pearson's Correlation Method was applied, where significance = 0.5 for two-tailed tests; **P < .01 *P < .05

Table 4: Stepwise regression analysis for the influences of basic personal characteristics , overall work stress scores, and overall job satisfaction scores on SF-36 QoL, PCS, and MCS based on the nurse anesthetists of a medical center in northern Taiwan.

Variables	Non-Standardized Regression Coefficient (B)	Standardized Regression Coefficient (β)	R ²	Δ R ²	t	F
SF-36						
Constant	83.956				11.248***	
Turnover intention ^a	-8.231	-0.300	0.197	0.197	-3.732***	30.176***
Overall job satisfaction score	0.481	0.297	0.278	0.081	3.739***	23.452***
Exercise habit ^b	5.942	0.182	0.311	0.033	2.423*	18.173***
Subspecialty attributes ^c	5.287	0.155	0.334	0.023	2.051*	15.042***
PCS						
Constant	51.773				55.124***	
Turnover intention ^d	-3.602	-0.226	0.051	0.051	-2.567*	6.590*
MCS						
Constant	24.918				4.748***	
Overall job satisfaction score	0.310	0.282	0.167	0.167	3.366**	23.734***
Age \geq 41 ^e	4.623	0.239	0.238	0.070	2.954**	18.224***
Turnover intention ^f	-4.478	-0.238	0.287	0.050	-2.846**	15.586***

Note:

1. Stepwise multiple regression was used to employ the regression model in the present study.

2. * < .05 ** < .01 *** < .001

3. SF-36: (1) The analytical variables included basic personal characteristics (turnover intention, exercise habit, subspecialty attribute, and employment status), overall work stress score, and overall job satisfaction score. (2) a: nurses with turnover intentions were allocated a score of 1, otherwise 0; b: nurses with exercise habits were allocated a score of 1, otherwise 0; c: nurses with subspecialty attributes were allocated a score of 1, otherwise 0.

4. PCS: (1) the analytical variables included basic personal characteristics (turnover intention), overall work stress score, and overall job satisfaction score. (2) d: nurses with turnover intentions were allocated a score of 1, otherwise 0.

5. MCS: (1) the analytical variables included basic personal characteristics (age, marital status, employment status, subspecialty attribute, turnover intention, overall years of nursing, years of service in the anesthesiology department), overall work stress score, and overall job satisfaction score. (2) e: nurses with age ≥ 41 were allocated a score of 1, otherwise 0; f: nurses with turnover intentions were allocated a score of 1, otherwise 0.

Discussions

The current study analyzed the differences among the demographics of nurse anesthetists based at three medical centers in Southern Taiwan, and the impact of these factors on their QoL. The results show that nurses who possessed exercise habits, were contracted, had distinct subspecialty attributes, and did not exhibit turnover intention demonstrated a superior SF-36 overall QoL. These results are consistent with those derived by Chen et al. (2011) [23], who investigated the relationships between nurses' health-promoting lifestyles and QoL, and those of Pan (2006) [24], who examined the health and QoL of nurses.

Exercise habits exhibited statistically significant differences with the SF-36 overall QoL, suggesting that nurses who exercise regularly possess comparatively higher SF-36 QoL than do those who do not exercise regularly. This result is consistent with Lin, Wen, and Wei (2007) [25], who investigated the relationships between Taiwanese adults' leisure, exercise, and health activities and their health conditions and health-related QoL. Turnover intention shows statistically significant differences with the various QoL dimensions of PCS and MCS, suggesting that nurses without turnover intention possess a comparatively higher QoL in the various dimensions. This result is consistent with Lu et al. (2007), who found that turnover intention showed a significantly negative correlation with job satisfaction, and Yu (2008), who maintained that increased job satisfaction elevated QoL [20, 26].

Years of nursing, age, and marital status revealed statistically significant differences with MCS, suggesting that the QoL dimensions of senior nurses is superior to those of junior nurses. In addition, older and married nurses possessed superior QoL. These results were similar to that of some previous studies [23, 24].

Subspecialty attributes showed statistically significant differences with the QoL dimensions of MCS, suggesting that nurses with subspecialty attributes possessed comparatively higher QoL than those with nonspecialty attributes. The current study deduced that in anesthesia surgery, the separation of anesthesia procedures increased the familiarity and professionalism of nurses. Thus, their mental pressure and vitality conditions are enhanced.

This study found that the feelings of work stress in medical practice (8 items) experienced by nurses serving in the anesthesiology department showed significant negative correlation with nursing job satisfaction (4 dimensions). This suggests that decreased feeling of work stress increased QoL and job satisfaction. This result was similar to that of a previous study [27]. Subsequently, work satisfaction (4 dimensions) of nurse anesthetists showed significant positive correlation with QoL, suggesting that increased job satisfaction consequently elevates QoL. This result was consistent with Yu et al. (2008) [20], who analyzed 911 nurses in the counties of Yunlin and Chiayi in Taiwan, and the findings of Cimete et al. (2003) [28]. Nurses who experience increased work stress typically exhibit lower job satisfaction, which further decreases QoL. Long-term stress in the workplace not only effects the physical, mental, and spiritual health of nurses, but further negatively influences their job satisfaction and QoL.

Li (2004) [29] asserted that increased work stress lowers job satisfaction, influences physical and mental health, and elevates turnover intention. Lu, While, and Barriball (2007) [26] conducted a study on 512 nurses serving in medical centers in China and found that turnover intention revealed a significant negative correlation with job satisfaction, suggesting that increased job satisfaction lowers turnover intention. Other studies have also maintained that job burnout induced by increased work stress subsequently elevates turnover intention [12,13]. In the current study, a stepwise multiple regression model was employed to predict the key factors influencing the SF-36 overall QoL, PCS, and MCS of nurse anesthetists. Results showed that turnover intention was the key predictive factor for all three QoL items. A previous study indicated that nurses without turnover intention present higher job satisfaction [26]. Thus, turnover intention and job satisfaction affect each other, and job satisfaction and QoL affect each other.

Conclusion

Turnover intention is the key factor influencing the SF-36 overall QoL, PCS, and MCS. Currently, research in Taiwan on the correlations among the work stress, job satisfaction, and QoL of nurse anesthetists is lacking. Thus, the results obtained in the current study can be provided as a reference to understand the work stress of nurse anesthetists more clearly, to formulate improvement strategies, and to elevate job satisfaction and QoL, thereby enhancing the quality of patient care.

This study had some research limitations. First, the subjects of this study were nurse anesthetists from three southern medical centers in Taiwan, so selection bias could not be avoided. Therefore, the results could not be generalized to all of Taiwanese nurse anesthetists, but the results would be of reference value for hospitals with the same characteristics. Second, this study was limited to hospitals and the subjects were nursing staff with more than six months of work experience. Groups experiencing high pressure might have left or were possibly reassigned to nonanesthetic nursing roles; thus, the overall results may be underestimated. Finally, this investigation was a cross-sectional study and was limited in determining the causal relationship.

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