

Original Article

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# A Three-Year Survey of Hospital Nurses' Quality of Working Life - Final Year Post-registration Education Nursing Students

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**Purpose:** The aim of the present study is to investigate how hospital nurses perceive their quality of working life while attending RN-to-BSN programs.

**Methods:** This three-year study used a longitudinal time-series research design with data collected by a survey administered at a medical university in Taiwan. Study subjects included registered nurses who, while working full time in hospitals, were concurrently enrolled in an RN-to-BSN program at a medical university. Data were collected in the second week of the second semester of the students' final year in the program. The Hospital Nurses' Quality of Working Life Questionnaire was used. The range of Cronbach's alpha for the instrument was 0.80 to 0.89.

**Results:** Over the three years, a consistent low mean value of around 2.5 was found for welfare in organizational aspects, working and non-working time utilization, and job prospects in self-actualization. Lesson learned from the SARS experience, during Covid 19 pandemic, praises for nurses' contributions on COVID-19 front line reinforce the weakness of nurses' working life on work related dimensions.

**Conclusion:** The findings of this research reveal what happens to nurses' working lives when they work full time and are enrolled in an RN-to-BSN program. The information obtained through the questionnaire may prove valuable to hospital managers concerned with improving nurses' workplace environment as part of their efforts to improve both nurse retention and the quality of service their nurses provide.

**Keywords:** Nurses; Education; Nursing; Quality of Life

## 1. Introduction

Nurses are trained to improve the quality of their patients' lives, and in pursuit of that goal, these healthcare professionals also expected to improve the quality of their nursing knowledge and skills continually. However, their ability to accomplish both of these goals is often hindered by the quality of the working lives that these important medical

professionals lead, for their satisfaction with their working lives is intimately tied to the quality of care that they provide [1]. In an environment where they are more and more frequently exposed to patients with novel and infectious diseases such as COVID-19, SARS, MERS-Cov, Ebola, and H1N1, nurses often suffer both physically and emotionally – from loneliness, anxiety, fear, fatigue, sleep disorders, and other physical and mental health problems [2,3]. In order to ensure that nurses remain in good health and that they stay in the nursing profession, hospitals should endeavor to create a working environment in which nurses enjoy a high quality of working life.

Quality of working life is a concept that focuses

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on how an organization can increase its productivity and effectiveness by ensuring the holistic wellbeing of its employees [4]. As people spend about one-third of their lives at work, understanding the interrelationship between the various aspects that constitute the quality of their working life might contribute to improved workplace conditions that will help meet both organizational productivity goals and employee expectations and needs [5]. Almalki, FitzGerald, and Clark [6], in a study focusing on primary health care nurses in Saudi Arabia and the relationship between their quality of working life and turnover intention, suggest that, in order to improve primary health care nurses' work satisfaction, reduce turnover, and enhance productivity and nursing care outcomes, it is important to create and maintain a working environment conducive to a healthful working life.

#### *Advancing nurses' education and improving quality of working life*

The quality of nursing care is frequently taken as the measure of healthcare quality. However, in many countries around the world, one of the biggest challenges that hospitals face is developing and retaining a quality nursing workforce. Between 1995 and 2000, there was a 26% decline in new registered nurses (RNs) in the United States, a decline attributed to increased job opportunities offering not only higher pay but also higher status and better social image [7]. O'Brien-Pallas and Baumann [2] identified four dimensions that constitute nurses' working life: the work life–home life dimension, the work design dimension, the work context dimension, and the work world dimension. Studies by Hsu [8] and Lee, Dai, Park, and McCreary [9] reported that most nurses are dissatisfied with their lives across most of these dimensions. These results were echoed in the Dargahi, Changizi, and Jazayeri Gharabagh [10] study, which reported how a disappointing working environment led to low satisfaction among radiology employees. This difficulty in recruiting and retaining nurses and other healthcare workers in an environment of increasing career options is one occurring with increased frequency in Taiwan hospitals, as well.

In Taiwan, the National Health Service (NHS)

offers citizens comprehensive healthcare benefits. All hospitals must undergo an accreditation inspection once every 4 years, and the scores hospitals receive affects how much funding they will receive from the NHS. The education level of a hospital's nursing staff is one item on this accreditation assessment; therefore, many larger hospitals have begun employing only nurses with higher levels of education. Unfortunately, many hospitals are also reducing employees' paid benefits and increasing productivity expectations in an effort to survive in an environment where competition for limited NHS funds is intense and margins are small [11].

In an effort to satisfy hospital demands for more highly trained nurses, nursing programs at educational institutions and professional nursing associations have announced their support for raising the minimum educational level for nurses to the BSc degree by the year 2024 [12]. More and more nurses themselves acknowledge that pursuing a higher level of education might provide them better job opportunities, better pay, and more authority to speak for themselves and positively influence policy regarding their working environment [13].

Among current hospital nurses, almost half graduated from vocational high school nursing programs and still have not earned an associate degree (49.8% in 2011). (All vocational high school nursing programs were discontinued in 2007; now, 2-year technical institute nursing programs provide basic nurse training.) Each year, about 13,500 students graduate from vocational nursing programs at technical colleges (Associate of Arts degree), and , in 2014, about 5,635 graduates 90% of them continued on to pursue BSc degrees [14]. Overall, about 80% of all newly graduated of both vocational nursing programs and university programs go on to work in hospitals. However, only about 20% of these new nursing graduates stay in nursing past their initial 90-day probationary period, and these nurses do not fill the shortage in hospital nurses created by senior nurses leaving the profession [15].

In order to meet the need for more qualified nurses identified by nursing programs and professional associations, Taiwan nursing colleges have begun offering RN-to-BSN classroom-based programs on one or two full-day classes during the work week, on

weekday evenings, and/or on weekends to enable RNs to keep their jobs while continuing their education. In the US, registered Nurses (RNs) who want to earn a Bachelor of Science in Nursing (BSN) degree can complete an RN-to-BSN program online in one to two years of full-time, year-round enrollment, or three to four years of part-time enrollment. In a typical, 120-credit bachelor's program and the time to completion for these programs varies depending on several factors: how many courses a student takes per semester; the number of general education credits a student needs in addition to core nursing courses; and **the structure of the program** (<https://educationusa.state.gov/your-5-steps-us-study/research-your-options/online-learning>). It requires more responsibility and discipline to take online courses, and the abandonment of the courses remains one of the challenges of online education.

Most of these university RN-to-BSN programs require three consecutive years of study. While concurrently enrolled, nurses must take one or two days off each week to attend university classes. Therefore, they spend almost all their days off and free time on their studies. This is an even greater challenge for nurses serving at smaller institutions, who must personally negotiate their work schedules with the small group of nurses with whom they work closely every day.

Since the local SARS episode, there has been no research into how Taiwan nurses perceive their quality of working life, especially those nurses attending school-based RN-to-BSN programs. The aim of the present study is to investigate how hospital nurses perceive their quality of working life while attending RN-to-BSN programs.

Assessing the quality of their working life will afford organizations and managers a clearer understanding of how their nurse/student status interacts with their self-achievement goals, work environment, and home-life challenges, and, by extension, how participating in such programs affects the quality of the nursing services they provide their patients.

## 2. Methods

This study employed a three-year longitudinal time-series research design. Three years is considered an

appropriate length of time for this type of investigation, as it is not too short or too long [16]. This study has been reviewed by the CSMU Institutional Review Board. The Board has determined that this study is exempt from review and approval is not required because it is an anonymous survey in teaching programs. Access to subjects and approval for the project was granted by the curricular development and research committee of the participating school of nursing. A signed informed consent form was obtained from all participants after clearly introducing the survey.

### 2.1. Subjects

Subjects for the study possessed a Nursing Diploma, held a Taiwan Registered Nurse's license, and were enrolled in an RN-to-BSN program while currently employed in nursing. Participating nurses had been granted permission by their hospitals to enroll in the 2-year RN-to-BSN university program and had passed the required entrance exam. Excluded from the study were students whose working arena was not a hospital or who had already resigned/withdrawn at the time they filled out the questionnaire. A total number of 344 licensed nurses were included in this study; all were scheduled to complete their 2-year RN-to-BSN program between 2007 and 2009.

### 2.2. Data collection

From 2007 to 2009, participants completed the Hospital Nurses' Quality of Working Life (NQWL) questionnaire during the second week of the second semester of their final year.

### 2.3. Survey instrument

The Chinese version of the NQWL was used in this study [17]. The NQWL questionnaire underwent exploratory factor analysis (EFA) to confirm the validity of its constructs, which explained 63% of the total variance. For this study, we performed Confirmatory Factor Analysis (CFA) to reconfirm the validity of the constructs of the NQWL. We first deleted the items' Cronbach alpha < 0.6 and then applied 2nd order CFA to examine nurses' working lives along organization, work aspects, self-actualization, and interpersonal relationships dimensions. The individual related variables and

NQWL scales were entered into the regression model first (model 1) followed by the 24 NQWL dimensions factors (model 2). This procedure was followed in order to observe the change in GFI when NQWL dimensions were added to the model. The results of Two-level CFA (M1 = Model 1) revealed that not all of them were a good fit of the Model 1 (CFI=0.957, RMSEA=0.093), and Model 4 (CFI=0.973, RMSEA=0.074) revealed the best fit of the data to the NQWL model.

The survey instrument consisted of four scales: organizational factors, work factors, self-actualization factors, and inter-relationship factors. The Cronbach's alphas ranged from 0.80 to 0.89, demonstrating acceptable internal consistency [17]. Similarly, the Cronbach's alphas in this study ranged from 0.80 to 0.89, demonstrating acceptable internal consistency.

Demographic characteristics (such as age, education level, rank) were included as control variables because a previous study [8] showed that these variables were related to hospital nurses' quality of working life.

## 2.4. Data Analysis

Data were analyzed using SPSS version 18 software (SPSS Inc., Chicago, IL, USA) and LISREL version 8.5 software (Scientific Software International Inc., Skokie, IL, USA). The LISREL package was used to test the model of nurses' overall NQWL. Descriptive analyses were used to examine individual related variables, and dimensions in NQWL scales.

## 3. Results

### *Personal Status Items*

Thirteen demographic variables were examined. There were no significant differences between year 2007, 2008 and 2009 participants with regard to age, marital status, living status, annual salary, years of nursing experience, religion, or self-perception of NQWL (Table 1). Of the participants, 63.7% were 26-30 years old, 72.1% were single, and 61.7% had 3-8 years of nursing working experience.

There were significant differences ( $p$ -values < 0.05) between year 2007, 2008 and 2009 participants in four areas: number of dependents in the family, type of ward, speed of shift rotation, and health condition (Table 1). About half of 2008 and 2009

participants had fixed shifts or changed shifts every month. However, 2007 participants changed shifts every 4 to 7 days, and reported their health condition to be at levels worse than those for 2008 and 2009 participants.

### *Quality of Working Life Factors*

Of the six dimensions measured by the NQWL, the mean values for four rose between 2007 and 2009, organization dimension, work dimension, self-actualization dimension, and interrelationships dimension (Table 2).

There were significant differences from 2007 and 2009 in mean values for 12 NQWL items across all dimensions (Table 3). Below, we will examine these 12 items by dimension.

### Organization dimension factors

On the organization dimension, there were statistically significant differences ( $p$ -values < 0.05) for salary, position, type of wards worked, health condition, and perception of NQWL. Results indicate that participants had higher working life quality mean values on the organization dimension when they were earning a higher annual salary, above 650 thousand NT\$ (USD 21,667; 1US\$=30 NT\$), holding a higher position as ward leader, or working in surgical departments, or when they indicated that they were in good health or when they self-reported that they enjoyed a good level of NQWL. Over the three years of the study, continuous low mean values of around 2.5 were found for factors in the organizational dimension.

### Work dimension factors

Mean values for factors in the work dimension and self-actualization dimension rose from year 2007 to 2009. On the work dimension, there were statistically significant differences ( $p$ -values < 0.05) when factors were indexed to salary, number of divisions served in, position, types of wards worked, number of dependents, health condition, and perception of NQWL. The results indicate that participants who received a higher salary, had experience working in either one or more than 5 different types of wards, had served in surgical departments, or had no dependents, had higher working life quality mean values on work

**Table 1. Personal status of participants**

		2007 (N=120)		2008 (N=125)		2009 (N=99)		Total (N=344)		Chi-Square Tests	Sig.
		Count	%	Count	%	Count	%	Count	%		
<b>Age</b>	Less than 25 years old	5	4.2	14	11.2	11	11.1	30	8.7	$\chi^2 = 10.46,$ df =6,	.11
	26 ~ 30 years old	79	65.8	85	68.0	55	55.6	219	63.7		
	31~35 years old	24	20.0	20	16.0	25	25.3	69	20.1		
	More than 36 years old	12	10.0	6	4.8	8	8.1	26	7.6		
<b>Marital status</b>	Married	39	32.5	28	22.2	22	22.4	89	25.9	$\chi^2 = 10.64,$ df =6,	.10
	Living with partner	1	.8	1	.8	3	3.1	5	1.5		
	Single	78	65.0	97	77.0	73	74.5	248	72.1		
	Divorced	2	1.7	0	0	0	0	2	.6		
<b>Living status</b>	Living with family members (non-parents in law)	57	48.3	59	47.6	54	54.5	170	49.9	$\chi^2 = 9.24,$ df =10,	.51
	Living with parents-in-law	12	10.2	8	6.5	8	8.1	28	8.2		
	Living in hospital dormitory	19	16.1	27	21.8	18	18.2	64	18.8		
	Living with other (not family members)	5	4.2	4	3.2	7	7.1	16	4.7		
	Live alone	24	20.3	26	21.0	12	12.1	62	18.2		
	Other	1	.8	0	0	0	0	1	.3		
<b>Annual salary (NT\$)</b>	Less than 450,000	39	33.1	43	34.4	31	31.0	113	32.9	$\chi^2 = 6.50,$ df =8,	.60
	450,001 ~ 550,000	46	39.0	48	38.4	33	33.0	127	37.0		
	550,001 ~ 650,000	19	16.1	19	15.2	25	25.0	63	18.4		
	650,001 ~ 750,000	9	7.6	8	6.4	9	9.0	26	7.6		
	More than 750,001	5	4.2	7	5.6	2	2.0	14	4.1		
<b>Years of nursing experience since graduation from nursing school</b>	Less than 2 years	4	3.3	5	4.0	4	4.0	13	3.8	$\chi^2 = 13.46,$ df =14,	.50
	2 - less than 3 years	7	5.8	2	1.6	5	5.0	14	4.1		
	3 ~5 years	31	25.8	39	31.2	34	34.0	104	30.1		
	6 ~ 8 years	41	34.2	45	36.0	23	23.0	109	31.6		
	9 ~ 11 years	20	16.7	26	20.8	22	22.0	68	19.7		
	12 ~ 14 years	7	5.8	4	3.2	7	7.0	18	5.2		
	15 ~ 17 years	5	4.2	2	1.6	2	2.0	9	2.6		
	More than 18 years	5	4.2	2	1.6	3	3.0	10	2.9		

Note: \* = p &lt; 0.001; \*\* = p &lt; 0.0001

**Table 1. Personal status of participants**

		2007 (N=120)		2008 (N=125)		2009 (N=99)		Total (N=344)		Chi-Square Tests	Sig.
		Count	%	Count	%	Count	%	Count	%		
<b>Most frequent type of shift</b>	Day shift	57	48.3	57	46.3	30	30.0	144	42.2	$\chi^2 = 11.82$ , df = 8,	.160
	Evening shift	30	25.4	27	22.0	29	29.0	86	25.2		
	Night shift	13	11.0	13	10.6	19	19.0	45	13.2		
	Rotating shifts	10	8.5	13	10.6	13	13.0	36	10.6		
	Other	8	6.8	13	10.6	9	9.0	30	8.8		
<b>Religion</b>	Christianity	10	8.5	5	4.0	2	2.0	17	4.9	$\chi^2 = 10.15$ , df = 8,	.254
	Catholicism	0	0	0	0	1	1.0	1	.3		
	Buddhism, Taoism	67	56.8	85	67.5	63	63.0	215	62.5		
	None	40	33.9	35	27.8	32	32.0	107	31.1		
	Other	1	.8	1	.8	2	2.0	4	1.2		
<b>Speed of shift rotation</b>	4 days	19	16.4	7	5.6	6	6.1	32	9.4	$\chi^2 = 27.62$ , df = 12,	.006**
	One week	21	18.1	11	8.8	10	10.2	42	12.4		
	Two week	7	6.0	5	4.0	2	2.0	14	4.1		
	Three weeks	1	.9	3	2.4	1	1.0	5	1.5		
	One month	22	19.0	33	26.4	27	27.6	82	24.2		
	Fixed shift	12	10.3	30	24.0	26	26.5	68	20.1		
	Other	34	29.3	36	28.8	26	26.5	96	28.3		
<b>Type of ward</b>	Medical department	32	27.1	24	19.2	30	30.0	86	25.1	$\chi^2 = 15.02$ , df = 6,	.02*
	Surgical department	7	5.9	25	20.0	13	13.0	45	13.1		
	General department	18	15.3	25	20.0	15	15.0	58	16.9		
	Other	61	51.7	51	40.8	42	42.0	154	44.9		
<b>Number of dependents in the family</b>	None	12	12.9	38	33.0	40	40.0	90	29.2	$\chi^2 = 19.30$ , df = 4,	.001**
	One - two	51	54.8	43	37.4	36	36.0	130	42.2		
	Three or more	30	32.3	34	29.6	24	24.0	88	28.6		
<b>Health condition</b>	Very good	3	2.5	7	5.6	7	7.0	17	5.0	$\chi^2 = 19.23$ , df = 10,	.037**
	Good	38	32.2	30	24.0	27	27.0	95	27.7		
	Average	55	46.6	80	64.0	60	60.0	195	56.9		
	Not good	19	16.1	7	5.6	5	5.0	31	9.0		
	Very poor	2	1.7	1	.8	1	1.0	4	1.2		
	Other	1	.8	0	0	0	0	1	.3		

Note: \* =  $p < 0.001$ ; \*\* =  $p < 0.0001$

**Table 2. Mean scores of NQWL scales from 2007 through 2009 (N=345).**

Scales	Factors	2007 <sup>①</sup> (N=120)		2008 <sup>②</sup> (N=125)		2009 <sup>③</sup> (N=99)		Average (N=344)		Sig.
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
<b>Organisation aspects</b> ③>②>①	1 <b>Advancement on merit</b> ③>②>①	<b>2.81</b>	<b>.67</b>	<b>2.83</b>	<b>.69</b>	<b>3.03</b>	<b>.66</b>	<b>2.88</b>	<b>.68</b>	<b>.03*</b>
	2 <b>Welfare</b> ③>②>①	<b>2.69</b>	<b>.98</b>	<b>2.82</b>	<b>.94</b>	<b>3.07</b>	<b>.88</b>	<b>2.85</b>	<b>.95</b>	<b>.01*</b>
	3 Remuneration (Financial benefits) ③>①>②	2.90	.91	2.68	.89	2.90	.87	2.82	.90	.10
	4 Stability ③>②>①	3.23	.01	3.31	.79	3.47	.81	3.33	.88	.11
<b>Work aspects</b> ③>②>①		<b>2.94</b>	<b>.51</b>	<b>3.03</b>	<b>.50</b>	<b>3.16</b>	<b>.46</b>	<b>3.04</b>	<b>.50</b>	<b>.00**</b>
5 Job nature ③>②=①		3.40	.46	3.40	.47	3.53	.39	3.44	.45	.06
6 Workload ③>①>②		3.08	.80	3.00	.82	3.25	.75	3.10	.80	.06
7 Time arrangement and Work schedule ③>②>①		2.95	.92	2.98	.79	3.12	.78	3.01	.84	.31
8 Working and non-working time utilization ③>②>①		2.43	.74	2.49	.73	2.54	.68	2.47	.72	.56
9 <b>Job division</b> ③>②>①		<b>3.08</b>	<b>1.06</b>	<b>3.11</b>	<b>.92</b>	<b>3.39</b>	<b>.85</b>	<b>3.18</b>	<b>.96</b>	<b>.03*</b>
10 <b>Working environment</b> ③>②>①		<b>2.71</b>	<b>.88</b>	<b>2.78</b>	<b>.86</b>	<b>3.03</b>	<b>.75</b>	<b>2.82</b>	<b>.84</b>	<b>.02*</b>
11 Work assistance ③>②>①		2.78	.93	2.84	.90	3.04	.92	2.88	.92	.10
12 <b>Favorable work site</b> ③>②>①		<b>2.98</b>	<b>.79</b>	<b>3.37</b>	<b>.76</b>	<b>3.42</b>	<b>.72</b>	<b>3.25</b>	<b>.78</b>	<b>.00**</b>
13 Work variety ③>①>②		4.00	.51	3.93	.58	4.01	.51	4.00	.54	.42
<b>Self-actualization</b> ③>②>①		<b>3.27</b>	<b>.55</b>	<b>3.37</b>	<b>.54</b>	<b>3.50</b>	<b>.47</b>	<b>3.37</b>	<b>.53</b>	<b>.01*</b>
14 Job prospects ③>②>①		2.55	.93	2.61	.85	2.79	.86	2.64	.88	.12
15 <b>Achievements</b> ③>②>①		<b>3.20</b>	<b>.78</b>	<b>3.26</b>	<b>.77</b>	<b>3.45</b>	<b>.62</b>	<b>3.29</b>	<b>.74</b>	<b>.04*</b>
16 <b>Professional support</b> ③>②>①		<b>3.59</b>	<b>.85</b>	<b>3.80</b>	<b>.79</b>	<b>3.84</b>	<b>.69</b>	<b>3.74</b>	<b>.79</b>	<b>.04*</b>
17 <b>Job authority</b> ③>②>①		<b>3.62</b>	<b>.60</b>	<b>3.71</b>	<b>.62</b>	<b>3.83</b>	<b>.56</b>	<b>3.71</b>	<b>.60</b>	<b>.04*</b>
18 <b>Professional (meaningful) development</b> ③>②>①		<b>3.00</b>	<b>.60</b>	<b>3.13</b>	<b>.56</b>	<b>3.23</b>	<b>.52</b>	<b>3.11</b>	<b>.57</b>	<b>.01*</b>
<b>Interrelationships</b> ③>②>①		3.25	.55	3.32	.54	3.36	.52	3.31	.54	.33
19 Relationship with supervisors ③>②>①		3.10	.90	3.22	.88	3.29	.77	3.20	.86	.24
20 Relationship with doctors ③>②>①		3.37	.89	3.40	.89	3.44	.84	3.40	.87	.82
21 Self-offering ②>③>①		3.90	.49	4.00	.43	3.98	.50	3.96	.47	.22
22 <b>Relationship with colleagues</b> ②>③>①		<b>3.32</b>	<b>.45</b>	<b>3.46</b>	<b>.44</b>	<b>3.42</b>	<b>.39</b>	<b>3.40</b>	<b>.43</b>	<b>.04**</b>
23 Hospital image ③>①>②		3.23	.78	3.21	.72	3.29	.80	3.24	.76	.75
24 Benefit to self ②>①>③		<b>2.31</b>	<b>.79</b>	<b>2.46</b>	<b>.87</b>	<b>2.30</b>	<b>.78</b>	<b>2.36</b>	<b>.82</b>	<b>.22</b>
<b>Self-efficacy</b> ②>③>①	②>③>①	<b>3.42</b>	<b>.39</b>	<b>3.56</b>	<b>.38</b>	<b>3.47</b>	<b>.48</b>	<b>3.49</b>	<b>.42</b>	<b>.02**</b>
<b>Vocational concepts</b> ③>②>①	③>②>①	3.05	.43	3.07	.43	3.15	.47	3.09	.45	.20

**Note:** Factor number with shadow: mean scores computed after reverse responses scores of negative statements.

**Note:** Items with bold: one \* stands for  $p < 0.05$ ; \*\* stands for  $p < 0.001$

**Table 3. Poor performance of NQWL items with mean value less than 2.5**

Subscales / Factor	Items (No.)	2007	2008	2009	Average
		SA/A %	SA/A %	SA/A %	SA/A %
<b>Organization aspects</b> Welfare	The hospital evaluations of our performance are fair and impartial. (2.2)	9.1%	12.1%	22.0%	13.9%
	The hospital organises some group leisure activities which are tied in with nurses' working time. (2.4)	17.5%	19.9%	27.0%	21.1%
<b>Work aspects</b> Working and nonworking time arrangement	I have to use my holiday time when the hospital requires me to take part in extra-curricular activities. (11.5 <sup>a</sup> )	70.0%	68.8%	69.0%	69.3%
	The demands of my present job mean that I often go off duty late (more than 30 minutes). (11.7 <sup>a</sup> )	64.2%	69.6%	61.0%	65.2%
	When my job conflicts with my family activities, I can apply for leave. (11.2)	21.9%	16.8%	26.0%	21.6%
Work security	The working environment is healthy and staff do not get ill. (6.2)	17.5%	19.9%	27.0%	21.1%
Work character	After taking a rest, I still feel tired. (7.9 <sup>a</sup> )	83.3%	76.0%	76.8%	78.8%
<b>Self-actualization</b> Job prospects	The present job lacks opportunities for me to develop new techniques. (13.1 <sup>a</sup> )	61.7%	49.6%	49.0%	53.6%
	The hospital offers information about how different jobs match different career plan. (13.8)	18.3%	14.4%	17.0%	16.5%
<b>Interrelationship</b> Benefit to self	Some colleagues strive for fame and wealth in order to pursue personal advantages. (15.4 <sup>a</sup> )	58.3%	62.7%	59.0%	60.1%
	Some colleagues take advantage from office authority in order to gain personal benefits. (15.5 <sup>a</sup> )	57.5%	50.8%	62.6%	56.5%
	Some colleagues use hospital resources (for example telephone, computer and medical appliances and so on) to deal with personal matters. (15.6 <sup>a</sup> )	77.5%	78.0%	69.0%	69.4%

Note: ( ) reveals item number and item number with <sup>a</sup> are negative statement items.

Note: SA/A stands for strongly agree and agree

aspects (Table 4).

Over the three years of the study, continuous low mean values of around 2.5 were found for the working and non-working time utilization factors in the work dimension.

#### Self-actualization dimension factors

Mean values for factors in the self-actualization dimension rose from year 2007 to 2009. Among factors in the self-actualization dimension, mean values for job prospects, achievements, professional support, job authority, and professional (meaningful)

development rose from year 2007 to 2009.

Self-actualization mean values were also significantly different when indexed to marital status and salary. Results indicate lower working life quality mean values on self-actualization for participants who were single, divorced (with no partner), or earned a lower salary. The interrelationship dimension also revealed significant differences when indexed to salary.

Over the three years of the study, continuous low mean values of around 2.5 were found for job prospects in the self-actualization dimension. Only 13.9 % of the participants replied that, "the

Table 4. Mean scores of NQWL scales and personal characteristics of participants

Demographic characteristics	Categories	OA	WA	SA	I	NQWL
<b>Year</b>		3.48*	5.75*	5.26*		4.96*
	2007 <sup>①</sup>	③>②>①	③>①	③>①		③>①
	2008 <sup>②</sup>					
	2009 <sup>③</sup>					
<b>Marital status</b>				2.74*		2.66*
	Married <sup>①</sup>			②>①>③>		②>①>③=
	Living with partner <sup>②</sup>			④		④
	Single <sup>③</sup>					
	Divorced <sup>④</sup>					
<b>Current annual salary (50 NT\$ = £ 1)</b>		10.24**	2.64*	3.45*	4.48*	7.98**
	Less than 450,000 NT\$ <sup>①</sup>	④>⑤>③>	④=⑤>③>	④=③>⑤>	⑤>③>④>	④>⑤>③>
	450,001 ~ 550,000 NT\$ <sup>②</sup>	②>①	②>①	②>①	②>①	②>①
	550,001 ~ 650,000 NT\$ <sup>③</sup>					
	650,001 ~ 750,000 NT\$ <sup>④</sup>					
	More than 750,000 NT\$ <sup>⑤</sup>					
<b>Current position</b>		3.04*				
	Ward leader <sup>①</sup>	①>④>③>				
	Senior nurse <sup>②</sup>	②				
	Nurse <sup>③</sup>					
	Other <sup>④</sup>					
<b>Number of divisions</b>			3.07*			
	One kind <sup>①</sup>		⑥>①>②>			
	Two kinds <sup>②</sup>		⑤>③>④			
	Three kinds <sup>③</sup>					
	Four kinds <sup>④</sup>					
	Five kinds <sup>⑤</sup>					
	Six kinds <sup>⑥</sup>					
<b>Type of wards</b>		3.35*	4.40*			
	Medical department <sup>①</sup>	②>④>①>	②>④>①>			
	Surgical department <sup>②</sup>	③	③			
	General department <sup>③</sup>					
	Other <sup>④</sup>					
<b>Number of dependents</b>			4.84*			
	None <sup>①</sup>		①>②>③			
	One or two <sup>②</sup>					
	Three or more <sup>③</sup>					

OA: Organization aspects; WA: work aspects; SA: self-actualization; I: interrelationships; SE: self-efficacy; VC: vocational concepts

Note: \* =  $p < 0.001$ ; \*\* =  $p < 0.0001$

hospital evaluations of their performance are fair and impartial.” Two thirds of respondents replied that they had to use their holiday time to take part in extra-curricular activities, they could apply for leave when their job conflicts with their family activities, and that the working environment was not healthy and staff did get ill (Table 4).

### Interrelationships dimension factors

The mean values for interrelationship dimensions rose by a significant amount. There were statistically significant differences ( $p$ -values  $< 0.05$ ) in the mean values for participants earning a higher salary for almost all the NQWL scales, and in their overall NQWL, in years 2008 and 2009 (Table 4).

**Table 4. Mean scores of NQWL scales and personal characteristics of participants**

Demographic characteristics	Categories	OA	WA	SA	I	NQWL
Years of nursing experience	Less than 2 years <sup>①</sup>			2.40*		
	2 ~ less than 3 years <sup>②</sup>			⑥>②		
	3 ~5 years <sup>③</sup>					
	6 ~ 8 years <sup>④</sup>					
	9 ~ 11 years <sup>⑤</sup>					
	More than 12 years <sup>⑥</sup>					
Health condition	Very good / good <sup>①</sup>	15.36**	12.40**		6.98*	12.06**
	Average <sup>②</sup>	①>②>③	①>②>③		①>②>③	①>②>③
	Not (very) good <sup>③</sup>					
Perception of NQWL	Very good <sup>①</sup>	11.39**	21.37**	10.04**	8.58**	
	Good <sup>②</sup>	①>②>③>	①>②>③>	①>②>③>	①>②>③>	
	Average <sup>③</sup>	④>⑤	④>⑤	④>⑤	④>⑤	
	Not good <sup>④</sup>					
	Not very good <sup>⑤</sup>					

OA: Organization aspects; WA: Work aspects; SA: Self-actualization; I: Interrelationships; SE: Self efficacy; VC: Vocational concepts; NQWL: Nurses' quality of work life  
 Note: \* = p < 0.001; \*\* = p < 0.0001

#### 4. Discussion

##### *Stress caused by cross-training*

The current study revealed a well-designed educational program might improve nurses' quality of work life. In Taiwan, cross training is a common practice to enhance nursing care competencies and improve the quality of patient care. Nowrouzi et al. [18] studied the relationship between obstetrics nurses' quality of work life and unit of cross-training. Their research indicated that nurses had feelings of apprehension, stress, and anxiety when they first began their cross-training. This was because looking for equipment in their new, unfamiliar setting took up a great deal of their time, and their cross-training interfered with training student nurses and providing care to families. However, their study also found that the obstetrics nurses who were cross-trained in all areas of their specialty were estimated to be 3.82 times happier with the quality of their work life than those nurses who were not so cross-trained.

Due to nursing staff shortages, however, cross training is also common for hospitals in Taiwan to share nursing staff between wards in different hospital divisions such as surgical and urogenital wards.

When undergoing their cross-training, Taiwan nurses are frequently required to transfer to an unfamiliar unit, where they are immediately faced with their lack of appropriate skills, significantly increasing their stress level. In their investigation into nurses' self-actualization, I et al. [19] examined the relationship between job satisfaction and stress suffered by nurses undergoing cross-training; their results showed that nurses experiencing greater job stress during cross-training had lower job satisfaction.

Chen, Hsueh, Chang, and Liu [20] studied the impact of a project designed to improve the satisfaction of nurses receiving cross-training. Their study results show that after they improved the original cross-training program by creating training evaluations, revising nursing guidelines for cross-training units, setting up training program for preceptors, and providing reader friendly operating instructions for specialized equipment, nurses' satisfaction increased from 0% to 72.2%.

Moradi, Maghaminejad, & Azizi-Fini. (2014) study quality of working life of nurses and its related factors found a significant relationship between nurses QWL and their education level. Their research found nurses with higher education levels have higher expectations of their working life and

consequently experience more emotional exhaustion when their work environment does not meet their expectations. The above results from Canada and Taiwan demonstrate the stress incurred by nurses undergoing cross-training and how a well-designed educational program might increase nurses' job satisfaction and improve their quality of work life.

The present study of working nurses concurrently enrolled in an RN-to-BSN program showed increasing mean values for job prospects, achievements, professional support, job authority, and professional (meaningful) development, lending further support to the idea that the quality of nurses' working life might be positively influenced by educational programs designed to help nurses realize their personal and professional potential.

Low mean values appeared for nurses who had experience working in either one hospital division or in more than five divisions. The current study indicates that more careful consideration should be given to the emotional states of nurses who transfer to a new division where working patterns are different from their previously working station.

### *Shift work and NQWL*

The current study revealed no significant relationship between shift types and NQWL. Leineweber, Chungkham, Westerlund, Runesdotter, Alenius, and Tishelman [21] studied a sample of 23,076 registered nurses from 2020 units in 384 hospitals in 10 European countries, focusing on the relationship between nurses' working environment and satisfaction with schedule flexibility and intention to leave. Their results showed that satisfaction with schedule flexibility was related to intention to leave the profession or the workplace. However, they measured satisfaction with schedule flexibility by only asking, "How satisfied are you with the following aspects of your job?"

Our study results indicate that shift type is not as important to these nurses as speed of shift change. Our findings also show that nearly 70% of the respondents were on day or evening shift while fewer respondents were on night or rotation shift while they were enrolled in their RN-to-BSN program. Wisetborisut, Angkurawaranon, Jiraporncharoen, Uaphanthasath, and Wiwatanadate [22] also studied

shift work and burnout among health care workers; they found that shift workers, especially those with over 10 years on shift work, experienced greater burnout than those who did not work changing shifts. Other findings from Peter, Houkes, de Rijk, Bohle, Engels, Nijhuis [23] show that nurses suffer less from decreasing work engagement and emotional exhaustion when their work schedules fit with their private lives. Our research finding gives a clear indication that respondents who change shift every 4 or 7 days felt in poorer health than those whose speed of shift rotation was once every month or who were on a fixed shift.

### *Professional/private life balance*

Linton, Dabney, Knecht, & Koonmen. (2019) explore RN-to-BSN student experiences of returning to school found that they chose an online venue due to their family and work obligations; otherwise they would rather be in a traditional face-to-face classroom. In the US, In 1980, only 22% of nurses held a BSN in nursing IN 1980, and the number of nurses graduating with a BSN or higher was 57% by 2018 (<https://nursejournal.org/articles/reasons-why-rns-should-pursue-their-bsn-degree/>).

The present research findings show that nurses are struggling with work related factors such as workload, time for their family, and self-actualization. Ramesh, Nisha, Josephine, Thomas, and Joseph [24] examined NQWL in a medical college hospital in Bangalore. They found that most participants were unable to balance their work and family lives, felt stressed in their work, and felt unable to complete their work in the time available. Linton, Dabney, Knecht, & Koonmen. (2019) indicate little is known about what RNs expect from their RN-to-BSN education experience. They explore students' expectations of the RN-to-BSN program revealed the main themes as workload, flexibility, coursework, support and flexibility, and these factors could lead to student-perceived gaps in service quality. In the three consecutive years of data collected for the present study, we see that around two-thirds of nurses indicated that they could not apply for leave when their job conflicted with their family activities and that they must use their holiday time when the hospital requires that they participate in extra-curricular activities. Many of these nurses

indicated that they felt tired even after participating in these “holiday” activities. This may be the main reason for their indicated inability to balance their work and family lives.

### *Family structure*

Furthermore, in the present study, there were low mean values for factors in the work dimension, in nurses’ working and non-working time utilization, work environment, and work assistance. Hu, Zhou,, Mao, Geng, Zhang, and Zhang. (2019) review influencing factors and improvement strategy to the quality of nursing work life. They conclude nursing work has the characteristics of high labor intensity, and frequent shifts which resulting imbalance between work and family life [25]. Huang,, Xu, Fu, et al. (2011) found that about 80% of nurses in China thought they had no time to take care of their families, and more than 60% of nurses felt exhausted after work [26].

Shazly and Fakhry [25] studied Egyptian nurses’ perceptions of the quality of nursing work life and related priorities for improvement. They used a self-administered questionnaire and their results showed that about one-third of these nurses perceived their QWL as high, with work context dimension (supervision, opportunities for self-development at work, and having the chance to continue study through work) being the dimension in which they were least satisfied. The results also showed that perception of NQWL rose significantly with increases in age, number of children, experience, and training courses attendance.

On the other hand, respondents in the current study, perhaps because they were enrolled in a RN-to-BSN program, valued having opportunities for self-development at work and having the chance to continue study through work; however, a low QWL was perceived among participants who were young and who had a greater number of dependents in their family. Hsieh [26] researched job tension and life quality among the nursing staff at Tai-Tung Hospital in Taiwan; the results showed that nurses with three or more children felt less tension than those having none or only one child. Jeong et al. [27] found that, in addition to their roles as wife and mother, married women in Asia take on the

additional role of daughter-in-law as most of them live with their parents-in-law. Cahuas, He, Zhang, and Chen [28] showed that married women have fewer free moments for individual leisure pursuits because of the increased social activities such as family gatherings and activities they are required to attend. Looked at together, these two studies might indicate that not all “dependents” as indicated on the survey, are equal. That is, while a greater number of children might not have a negative effect on QWL, a greater number of non-children dependents (e.g. parents-in-law) might.

### *Public perception of nurses*

Before SARS, Hsu [8] collected data regarding nurses’ quality of work life in Taiwan. Hsu’s research showed that the work, self-actualization, and interpersonal relationship dimensions were the three most important dimensions of nurses’ quality of work life; in her study, remuneration (financial benefits), welfare, and advancement on merit all had mean scores of less than two. Pre-SARS 2003 NQWL results showed that nurses felt uncomfortable when patients regarded them as unimportant medical professionals; in contrast, this perception is not a key finding in the present study. From 2009 to 2012, the Taiwan government invested funds in programs to improve the quality of hospital in-patient care, and part of that effort targeted improving hospital nurses’ welfare [29]. Having learned from the SARS experience, Taiwan president Tsai, the Taiwan Ministry of Health and Welfare, and everyone in Taiwan have praised nurses’ contribution on the front line of the COVID-19 pandemic, and the need to improve nurses’ working life has drawn public attention.

## **4. Conclusions**

Our results identify which dimensions of nurses’ working life might be important to improving the QWL of nurses concurrently enrolled in a school-based RN-to-BSN nursing program. Before and after SARS, nurses in Taiwan indicated that, with regard to their QWL, they felt that their remuneration (financial benefits), welfare, and chances for advancement on merit were not good. Good conversion could be seen

from this study as mean values for survey items related to job prospects, achievements, professional support, job authority, and professional (meaningful) development rose from year 2007 to 2009, indicating the importance of professional development opportunities to QWL. Low mean values appeared for nurses who had experience working in either one division or in more than five divisions. Lower QWL numbers were also found for respondents whose shift rotated every 4 or 7 days, with respondents indicating a more desirable speed of shift rotation of once every month or for working on a fixed shift with no rotations. While nurses enrolled in a in school face to face RN-to-BSN nursing education program, nursing managers should aware the work and family situation of them, rationally allocate manpower according to the actual situation, seniority and ability of nurses, in order to reduce their workload, maintain a good quality of working life, and to deliver good patient service, and patient safety.

### *Recommendations*

Although this study has its limitation and is only in one country, it provides an interesting assessment of the in class RN-BSN education and provides data that can be useful to further RN-BSN educational proposals. The results of the present study suggest that more careful consideration should be given to how nurses manage the stresses inherent in their jobs. Specific attention should also be give to the emotional state of nurses who already in the RN-BSN education transferring to a new division where working patterns are different from their previous working station. Additionally, in their in-house promotional activities, hospitals might promote nurses' feelings of self-actualization by informing patients and visitors that not only their physicians, but also their nurses are of the highest caliber and are deserving of respect and honor. This research helps health care providers develop strategies for improving nurses working conditions and their quality of work life. Thus, nurses will be able to perform better quality of nursing service and care for their patients.

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