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Predictors of Intention to Stay as Perceived by Nurses Working at Community Hospitals, Ministry of Public Health, Thailand

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Abstract

Background: To understand how nurses perceive the intention to stay in the profession (ITSP) is a priority concern to combat the nursing shortage crisis. In Thailand, few studies have investigated and clarified ITSP in community hospitals (CHs). The purpose of this study is to examine and identify the predictors of ITSP at CHs functioning under the Ministry of Public Health, Thailand.

Method: A cross-sectional study was conducted in 47 CHs in 8 different provinces, utilizing multi-stage sampling. A total of 955 participants completed a set of e-questionnaires to measure personal factors, managerial characteristics (MCs), work characteristics (WCs), and the relationship of different factors with ITSP. Descriptive statistics, Pearson's correlation (*r*), and multiple regression analysis were undertaken.

Results: The study showed a moderate level of ITSP ($M = 3.38$, $SD = 0.70$). The nurses' characteristics did not have a statistically significant association with ITSP. Overall, the MCs were positively correlated to ITSP ($r = 0.379$, $p < 0.05$). Similarly, overall WCs were positively associated with ITSP ($r = 0.370$, $p < 0.05$). Some domains of MCs and WCs were significant influences upon ITSP. Human capital, work happiness, autonomy, skill variety, and work-life balance together accounted for 21.4% of the variance in ITSP.

Conclusion: ITSP was affected by human capital, work happiness, autonomy, skilled variety, and work-life balance. Notably, nursing administrators and policymakers should develop strategies to support nurses in CHs that strengthen their career prospects to persuade them to stay in the profession longer.

Keywords: Nurse, Intention to stay in profession, Community hospital, Thailand

1. Introduction

Nursing shortages are a critical issue for the nursing workforce worldwide. These shortages negatively affect the quality of nursing care. The World Health Organization predicted a shortage in Southeast Asia of 5.2 million nurses by 2020 [1]. Thailand's healthcare system is in crisis at all levels, particularly in public hospitals that function under the Ministry of Public Health (MoPH), which employ 80% of the Thai nursing workforce [2].

The MoPH created the 2017−2021 Strategic Plan to boost human capital development (people excellence) to incorporate management, work, and personal attributes. In order to improve healthcare standards, it proposed a nurse-to-population ratio of 1: 300 by 2021 [2]. Unfortunately, in 2019, Thailand faced a shortfall of 50,021 nurses [3] in meeting this ratio.

Intention to stay in profession (ITSP) develops over a long-term career process, starting with the intention to stay in a unit, then progressing to a desire to continue working in a hospital, and finally the intention to stay in the nursing profession [4]. Nurses' ITSP refers to a nurse's plans to stay in the nursing profession until retirement. Evidence indicates ITS serves as a predictor of nursing retention [5]. Other studies have revealed that nurses have left the profession at an annual rate of 4.4% since 2009. This study also cited the fact that only 60% of nurses

remained in their profession in 2029, while 24% of nurses worked in supportive healthcare jobs, and another 16% worked in other professions [6]. This warning sign indicates that ITSP is likely in poor and serious condition, leading nurses to later quit and leave positions providing bedside nursing care. Likewise, existing studies revealed that the ITSP was at a low-to-moderate level in public community hospitals (CHs) [7–9]. A low level of ITS referred to not continuing in the profession, while a moderate level of ITS was defined as uncertainty about whether to continue in the profession. Additionally, the study mentioned that the timeline for staying or leaving varies from a few months to 2-3-years before nurses actually leaving the unit, hospital, or nursing profession. During this time span, the individual nurses keep working in their positions, even though they feel they are "on the border" with the world of work outside the nursing profession. The final decision to leave the nursing profession entirely may depend on whether or not working conditions are not improved soon enough [10].

The CH is a key pillar needed to achieve targets of universal health coverage and health-related, sustainable development goals. The CH requires a sufficient workforce at all levels with 100% full-time-equivalence to improve quality and reduce the transfer of patients across health areas by 10% annually [11]. Recently, there have been only 7130 nurses (62.5%) working at the primary and 7094 nurses (84.5%) working at the secondary care levels [3]. Previous studies have identified various factors related to nurses' individual characteristics were consistently related to nurses' ITSP consistently [12–15]. Indeed, some have argued that personal factors including age, generation, education, marital status, work experience, income, and hometown may all be associated with a nurse's ITSP [9,12,15].

Managerial characteristics (MCs) including human capital, leadership, professional growth, justice, work happiness, and work-life balance have been associated with ITSP [16]. The studies have shown that transformational leadership both affected and influenced ITSP including career development and professional growth. Also, nurses' work happiness and work-life balance were positively related to ITS [16,17]. Work characteristics (WCs) were antecedents of ITSP. Likewise, skill variety, task identity, task significance, autonomy, and feedback were associated with ITSP [18,19].

Understaffing poses a severe threat to the healthcare system. Empirical data on ITSP has indicated that comparatively few nurses are career-oriented in CHs in Thailand [7]. While these investigations provided valuable information about ITSP, they were limited by their generalizations. The Thai healthcare system has unique characteristics including health-system settings in district areas, which must be investigated. This study examined the characteristics of nurses, management, work, and ITSP in CH settings. We also investigated the predictive potential of the characteristics of nurses, management, and work on a nurse's ITSP in CHs operating under the Thailand Office of the Permanent Secretary, Ministry of Public Health in Thailand.

2. Methodology

2.1. Study setting and population

We conducted a cross-sectional research study to explore the descriptive characteristics of nurses working at community hospitals in Thailand, as well as to examine possible predictors of intention to stay in profession (ITSP) for this population using a self-administered e-questionnaire. Multiple linear regression models were used to examine the associations between predictors and ITSP. A total of 955 nurses who met the inclusion criteria participated in this study. The inclusion criteria were: 1) males or females who had graduated from a baccalaureate nursing program; 2) registered Nurses (RNs) who had worked in community hospitals (CH) with ≥ 60 beds for at least one year, and 3) willingness to participate.

We utilized a multi-stage sampling technique to select a sample of RNs who worked in public, community hospitals under MoPH of Thailand in order to capture a representation of nurses' intention to stay (ITS) across Thailand. Subsequently, we selected hospitals from provinces with between four and twelve Health-Area (HAs) using the random sampling. As a result, we selected eight provinces including Chachoengsao, Chanthaburi, Chaiyaphum, Nakhon Ratchasima, Nakhon Sawan, Phichit, Krabi, and Surat Thani. From these eight provinces, we chose 47 CHs from four different HAs.

2.2. Research instruments

A self-administered e-questionnaire package was used to collect data. The package comprised of a nurse demographic data form, a management factors questionnaire, a job diagnostic survey, and the nurses' ITS scale.

2.3. Nurses' characteristics

The nurses' characteristics were defined as the personal characteristics possessed by a nurse. These

characteristics included gender, generation, marital status, education level, work experience, nursing level, income, working unit, and employment status. The Nursing Characteristics and Demographic Data Form consisted of 14 questions, which was created by the researcher.

2.4. Managerial characteristics (MCs)

The MCs consisted of a manager's administrative behaviors in achieving the ultimate goals of the organization and supporting nurses' ITSP measured by management factors. The MCs were measured by the Management Factor Questionnaire (MFQ) adapted from previous research [17]. The validity and reliability of the e-questionnaire were evaluated and confirmed. The MFQ contained 55 items organized into six different domains. Each item was assessed with a 5-point Likert scale. The domains of the MFQ included: 1) human capital (11 items), 2) leadership (18 items), 3) justice (11 items), 4) professional growth (6 items), 5) work happiness (6 items), and 6) work-life balance (3 items).

The answers ranged from strongly agree (score = 5) to strongly disagree (score = 1). The interpretation of the MFQ based on the scores was defined as: high (score = 3.50−5.00, moderate (score = 2.50−3.49), low (score = 1.00−2.49). We also assessed and found that the MFQ has good internal consistency and reliability (Cronbach's alpha = 0.966).

2.5. Work characteristics (WCs)

The WCs refer to job enrichment in terms of employee task conditions. They are measured by a 26-item Job Diagnostic Survey (JDS) adapted from Boonmung in 2009. The JDS is organized into five domains including: 1) skill variety (6 items), 2) task identity (4 items), 3) task significance (4 items), 4) autonomy (6 items), and 5) feedback (6 items). Each item was rated with a 5-point Likert scale ranging from highly agree (score = 5) to very minimally agree (score = 1). The JDS (Thai version) scoring and interpretation for each level of scale was: high (score = 3.50−5.00), moderate (score = 2.50−3.49), low (score = 1.00−2.49). The JDS had good internal consistency and reliability (Cronbach's alpha = 0.89).

2.6. Nurses' ITSP

Nurses' ITSP refers to their plans to continue in their nursing careers. It is measured by McCain's ITS Scale [20]. This scale uses five items rated on a 5-

point Likert scale ranging from strongly agree (score = 5) to strongly disagree (score = 1). This instrument was translated from the original version into Thai using the back-translation method. In the current study, the ITS scale had moderate internal consistency and reliability (Cronbach's alpha = 0.74). The levels of the ITS Scale was interpreted as: high level and "Sure to stay" (score = 3.50−5.00), moderate level and "Not sure" (score = 2.50−3.49), low level and "Not stay" (score = 1.00−2.49). We designed our scale to ensure that all small cases could be calculated for the levels of this scale.

The validity and reliability of the study instruments were tested to ensure their quality. Content validity was established by a panel of five experts who specialize in the area of nursing administration. The content validity index (CVI) of the Management Factors Questionnaire (MFQ), the Job Diagnostic Survey (JDS), and the Nurses' Intention to Stay (ITS) Scale were 0.873, 1.00, and 1.00, respectively. The scale's content validity indexes (S-CVI) for the MFQ, JDS, and Nurses' ITS Scale were 0.923, 1.00, 1.00, respectively.

We psychometrically evaluated the current study's items using a pilot study with 100 nurses to gather feedback on how to enhance the instruments we used in our study. We received only positive feedback, so no instrument changes were required. In the Management Factor Questionnaire, we assessed the reliability of the different domains using Cronbach's alpha (α) among our study participants (n = 955). We found moderate to good reliability for the different domains: human capital (α = 0.96), leadership (α = 0.98), justice (α = 0.97), professional growth (α = 0.96), work happiness (α = 0.81), and work-life balance (α = 0.77). Based on responses from the pilot group (n = 100), the reliability of the Management Factor Questionnaire and interpretation scale was also good (α = 0.98 and 0.98). Similarly, the content validity of the Job Diagnostic Survey and interpretation scale was good (α = 0.97 and 0.97, respectively). The content validity of the different domains of the JDS varied from moderate to good: skill variety (α = 0.764), task identity (α = 0.87), task significance (α = 0.89), autonomy (α = 0.93), and feedback (α = 0.84).

2.7. Ethical considerations

This research study was approved by the Ethics Review Committee for Research Involving Human Subjects of the Health Science Group at Chulalongkorn University (COA No.180/2563) on April 23, 2020. Additionally, the author was granted

permission from the Provincial Public Health Offices of the eight provinces where the study settings were selected.

2.8. Data collection

Data were collected after approval from the proposal research committee of the university, where the researcher is currently employed, and from the hospital officials and nurses. Letters asking for permission to conduct the research study were forwarded to the Chief Nurse Officer (CNO) at each community hospital in our study prior to data collection. Then, the researcher made personal contact with the CNO/assigned research coordinator in each setting to inform him/her briefly on the important aspects of the study as well as the data collection procedure. Meanwhile, the nurses in all designated hospitals were sent electronic letters announcing the study and inviting them to participate. The research coordinator distributed an e-questionnaire package to a recruited sample of nurses who worked at each inpatient unit on the collecting data. The packages included participant information sheets, informed consent, and a QR Code to access the electronic study questionnaire. Thus, a participant who met the inclusion criteria received verbal and written information that described the purpose, content, benefit, and risk involved, as well as how to finish the e-questionnaire. The research coordinator collected and mailed the signed consent forms from participants in a secured envelope back to the researcher.

2.9. Statistical analysis

Data analysis was conducted using the IBM SPSS Version 22 statistical package. No missing values for any scales were noted. Descriptive statistics (means, standard deviations, and frequency distribution) were used to describe the demographic, managerial, and work characteristics, as well as nurses' intention to stay in the profession (ITSP). We examined quantitative data to check assumptions regarding at normality of independent and dependent variables, the linearity of relationship between independent and dependent variables, and lack of multicollinearity in our model. We validated all assumptions. Pearson's correlation coefficient was used to investigate the relationship between two quantitative variables with normal distributions. In addition, Pearson's Chi-square test was used to examine the relationship for categorical variables. Stepwise multiple regression was adopted to identify the predictors of ITSP when more than two

independent variables (age, years of employment, incomes, managerial characteristics, work characteristics) showed statistically significant differences the level of 0.2 ($p < 0.2$) in the bivariate analysis. The significance level for the multiple regression model was set at $\alpha = 0.05$.

3. Results

3.1. Participant characteristics

The researcher distributed 1099 e-questionnaires to registered nurses (RNs) who were employed in 47 public community hospitals under the Permanent of Secretary, the Ministry of Public Health with bed capacity ≥ 60. In total, 955 RNs met the inclusion criteria and assessed electronic questionnaires, resulting in a response rate of 86.89%. The results showed that a majority of the nurses were female (n = 943, 98.7%), either single (n = 450, 47.1%) or married (n = 450, 47.1%), and held a bachelor's degree (n = 916, 95.9%). Most of the participants had been in the profession for 1–5 years (n = 321, 33.6%). The mean age of the nurses was 34.99 years (SD = 9.43), with a range of 22–60 years. Nearly all participants had incomes between 20,001 and 30,000 baht per month (n = 365, 38.2%). Civil service was the main source of employment (n = 766, 80.2%). Many nurses currently worked at the medical unit (n = 439, 46.0%) and in the general unit (mixed patients care unit) (n = 253, 26.5%). Most RNs were nursing practitioners (n = 524, 54.9%) working at the professional level (n = 429, 44%). Most participants (n = 859, 89.9%) had hometowns that were located in the same geographic area as their working districts. Table 1 shows the demographic characteristics of the participants.

3.2. Parameters measuring nurses' ITSP

The overall ITSP was at a moderate level (Mean = 3.38, SD = 0.70). Among our participants, a moderate level (29.38%) of them planned to stay in the nursing profession for the next 2–3 years. Only 33.6% of our participants wanted to leave their profession at the time of our survey, which indicated that nurses were not leaving their profession at a high level. We found that a moderate level (39.4%) of our participants wanted to spend the rest of their careers in nursing. Our study also found that 36.2% of our participants planned to work at their present job as nurses for as long as possible at a high level. Also, a moderate level (31.9%) of participants responded that under no circumstances would they leave their present jobs.

Table 1. *Individual demographic characteristics of study participants (n = 955).*

Demographic Characteristics	N	%
Sex		
Male	12	1.3
Female	943	98.7
Marital status		
Single	450	47.1
Married	450	47.1
Widowed/Divorced/Separated	55	5.8
Educational level		
Bachelor's degree	916	95.9
Higher than Bachelor's degree	39	4.10
Generation (Birth years)		
Baby boomer (1947–1964)	27	2.8
Gen X (1965–1976)	184	19.3
Gen Y (1977–1994)	580	60.7
Gen Z (1995–2010)	164	17.2
Work experience (years)		
1–5	321	33.6
6–10	178	18.6
Employment status		
Civil servant	766	80.2
Not a civil servant	189	19.8
Monthly income (Baht)		
≤ 20,000	203	21.3
20,001–30,000	365	38.2
30,001–40,000	221	23.1
40,001–50,000	109	11.4
>50,000	57	6.0
Nursing position		
Nurse practitioner	524	54.9
Professional	429	44.9
Senior professional	2	0.2
Working unit type		
Medical unit	439	46.0
Surgical unit	7	0.7
Obstetrics-Gynecology (OB-Gyn) unit	94	9.8
Intensive Care unit (ICU)	43	4.5
Operating Room/Anesthesia unit (OR/ANES)	66	6.9
Special unit	53	5.5
General unit	253	26.5
Hometown location		
Same area as working location	859	89.9
Near hospital	36	3.8
Out of area of working location	60	6.3

3.3. Predictors of nurses' ITSP in CHs

To understand the relationships between variables, we calculated the Pearson's product-moment correlation between all quantitative variables. We also conducted the Chi-Square test between qualitative variables. Our null hypothesis was that there was no association between the quantitative variables. Thus, the low p-values for the correlations between personal age, years of employment, income, managerial characteristics, characteristics, and Intention to stay in the profession (ITSP) indicated that there was an association between different variables, and that the null hypothesis should be rejected. In addition, the study showed overall of the MCs were positively correlated to ITSP ($r = 0.379$, $p < 0.05$) as well as the WCs were positively associated with ITSP ($r = 0.370$, $p < 0.05$). Some domains of MCs and WCs were significant influences upon ITSP.

Table 2 displays a correlation matrix between participants' personal factors, and managerial characteristics (MCs), work characteristics (WCs), and nurses' intention to stay in the profession (ITSP) showing results from bivariate Pearson's correlation analyses. The magnitude of relationships was interpreted by the following criteria: $r < 0.30$ = weak or low relationship, $0.30 \geq r \leq 0.50$ = moderate relationship and $r > 0.50$ = strong or high relationship (Burns & Grove, 2009). Personal factors had no significant correlation with ITSP. WCs with subscales of feedback ($r = 0.32$), autonomy ($r = 0.33$) task identity ($r = 0.30$), and task significance ($r = 0.32$) yielded moderate correlation with ITSP. However, the subscale of skill variety had a weak correlation ($r = 0.29$) with ITSP. Similarly, MCs with a subdomain of work happiness, professional growth, justice, leadership, and human capital yielded moderate correlation. Yet, the subdomain of work-life balance had a weak correlation ($r = 0.29$) with ITSP. Age had the strongest correlation with years of employment ($r = 0.89$).

Tables 3 and 4 display the results of the multiple linear regression analyses to identify the predictors of ITSP. Preliminary analyses ensured that there were no violations of the assumption of normality and linearity. The order of entry for independent variables into the multiple regression models was determined by results from the Pearson's *r* correlation analysis. In our stepwise regression model, human capital was the first variable entered into the model, followed by work happiness, autonomy, skill variety, and work-life balance. A linear regression equation with statistically significant associations with certain predictors was found. The full model (Model 5) contained all the predictor variables (human capital, work happiness, autonomy, skill variety, work-life balance) for ITSP. There were no indications of multicollinearity in this model. We observed a statistically significant, moderate positive correlation ($r = 0.463$) between these five predictors together (human capital, work happiness, autonomy, skill variety, work-life balance) with ITSP. Based on the R^2 value, these 5 factors together explained 21.4% of the variance in ITSP. A summary of the stepwise multiple linear regression model results is presented in Table 3.

Table 2. Correlation matrix between the studied factors (personal factors, work characteristics [WCs], managerial characteristics [MCs]) and nurses' intention to stay in profession (ITSP) among nurse participants (n = 955).

#	Factors	Personal factors			WCs					MCs					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Age	1.00													
2	Years of Employment	0.89*	1.00												
3	Income	0.80*	0.75*	1.00											
4	Feedback	−0.12*	−0.12*	−0.08*	1.00										
5	Autonomy	−0.09*	−0.07*	−0.03	0.71*	1.00									
6	Task significance	0.09*	0.08*	0.14*	0.55*	0.60*	1.00								
7	Task identity	−0.01	0.01	0.06	0.63*	0.64*	0.78*	1.00							
8	Skill variety	0.05	0.06	0.13*	0.52**	0.56*	0.76*	0.73*	1.00						
9	Work-life balance	0.02	0.04	0.01	0.12*	.010*	0.09*	0.14*	0.06	1.00					
10	Work happiness	0.02	0.04	0.03	0.22*	0.18*	0.18*	0.25*	0.15*	0.82*	1.00				
11	Professional growth	−0.16*	−0.14*	−0.12*	0.70*	0.58*	0.46*	0.50*	0.45*	0.13*	0.24*	1.00			
12	Justice	−0.11*	−0.10*	−0.08*	0.74*	0.62*	0.47*	0.53*	0.46*	0.14*	0.26*	0.86*	1.00		
13	Leadership	−0.17*	−0.15*	−0.13*	0.65*	0.5**	0.45*	0.52*	0.47*	0.14*	0.26*	0.73	0.81*	1.00	
14	Human capital	−0.12*	−0.12*	−0.10*	0.66**	0.51**	0.45*	0.49*	0.44*	0.16*	0.24*	0.74*	0.73*	0.61*	1.00
15	ITSP	0.02	0.02	0.04	0.32*	0.33*	0.30*	0.32*	0.29*	0.29*	0.33*	0.32*	0.32*	0.30*	0.33*

*$p < 0.05$.

Table 3. Results for stepwise multiple regression analysis for association of managerial characteristics (MCs) and work characteristics (WCs) with nurses' intention to stay (ITSP) at community hospitals (CHs) in Thailand (n = 955).

Model	R	R^2	Adjusted R^2	S.E. of the estimate	R^2 change	F	p-value
1	0.332[a]	0.110	0.109	0.660	0.110	118.147	0.000
2	0.417[b]	0.174	0.172	0.636	0.064	73.595	0.000
3	0.447[c]	0.199	0.197	0.627	0.025	30.021	0.000
4	0.456[d]	0.208	0.205	0.624	0.009	10.581	0.001
5	0.463[e]	0.214	0.210	0.622	0.006	7.082	0.008

[a] Predictors: (constants), human capital;
[b] Predictors: (constants), human capital, work happiness;
[c] Predictors: (constants), human capital, work happiness, autonomy;
[d] Predictors: (constants), human capital, work happiness, autonomy, skill variety;
[e] Predictors: (constants), human capital, work happiness, autonomy, skill variety, work-life balance.

Table 4. Coefficients for multiple linear regression model for association between managerial characteristics (MCs) and work characteristics (WCs) with nurses' intention to stay (ITSP) at community hospitals (CHs) in Thailand (n = 955).

	Model variables	b adjusted	95.0% Confidence Interval for B		p-value
			Lower Bound	Upper Bound	
1	(constants)		1.876	2.343	0.001
2	Human capital	0.332	0.287	0.414	0.000
3	Work happiness	0.26	0.278	0.443	0.009
4	Autonomy	0.192	0.142	0.301	0.000
5	Skill variety	0.116	0.051	0.206	0.001
6	Work-life balance	0.135	0.038	0.25	0.008

$R^2 = 0.214$; Adj $R^2 = 0.210$; p-value <0.001.

Table 4 shows the coefficients for the final multiple linear regression model (Model 5) for the association between managerial characteristics (MCs) and work characteristics (WCs) with nurses' intention to stay (ITSP). It displays coefficients of predictive variables for subdomains of MCs (human capital, work happiness, work-life balance) and subdomains of WCs (autonomy and skill variety) in their association with nurses' ITSP.

4. Discussion

4.1. Disposition of the nurses' intention to stay (ITSP) at the community hospitals (CHs) in Thailand

This study investigated the levels of intention to stay in the profession (ITSP) of nursing and determined how certain factors influenced and predicted

nurses' ITSP at community hospitals (CHs) in Thailand. The findings revealed that 955 nurses in our study had a moderate ITSP. This result demonstrated that many nurses were uncertain about whether they would continue in their profession. The findings showed that only 29.9% of the nurses in our study planned to keep their jobs for at least two or three more years. In contrast, 39.9% of our participants were not at all certain about spending the rest of their careers in nursing. Their reluctance to continue in nursing was often caused by the heavy workload imposed on them in the understaffed CHs [11]. Most study participants had 1−5 years of career experience. Most of our participants were nursing practitioners. Policymakers should pay close attention to new nurses regarding their professional growth. Another study reported the retention time for nurses to stay in their profession was 5.42 years on average [21].

In terms of geographical location of their home, 859 participants (89.9%) lived in their hometown or near the workplace in our study. Similarly, other studies revealed that 51.56% and 82.70% RNs stayed near their workplace [8,16]. Living near their hometowns might promote nurses' intention to stay in the current workplace [6]. Interestingly, most participants were young nurses who may be gaining reimbursement of scholarships through programs such as "Nurse Loves Hometown Project." This group of new nurses should receive career advancement opportunities, which could encourage them to continue in their profession [21]. A previous study suggested that career advancement opportunities had a significant influence on ITS [16].

The nurses' perception of their ITSP in the current study was similar to results found in previous studies [5,17]. These results implied there were no factors strongly influencing ITSP. Regarding the moderate level of ITSP, the nursing shortage might increase. Thus, it can be inferred that the nurses were quite uncertain about whether they would continue in their professions. Therefore, hospital executives must find solutions to prevent further critical nurse shortages, since these issues are controllable by healthcare organizations. Accordingly, nursing managers should consider how these factors may improve nursing retention rates.

4.2. Predictors of nurses' intention to stay (ITSP) at the community hospitals (CHs) in Thailand

Overall, nurses with a favorable perception of the managerial characteristics (MCs) at their workplace were more likely to display ITSP. Pearson's r correlation analysis showed a significant and positive

relationship between human capital and ITSP, when considering the parameters of human capital, leadership, professional growth, justice, work happiness, and work-life balance. Another study also indicated that management factors including human capital, transformative leadership, and work happiness promoted the retention of nurses [16]. In addition, the overall results for work characteristics (WCs) pointed to a positive directed relationship with ITSP. In addition, our results revealed a significant and positive relationship between ITSP and the domains of skill variety, task identity, task significance, autonomy, and feedback. A previous study also supported the notion that work characteristics influence nurses' work engagement [22]. However, we found that personal factors had no statistical significant relationships with ITSP. We hypothesize that this situation might be affected by a government support policy during the spread of COVID-19.

We found that human capital was the strongest factor predicting ITSP, accounting for 11% of the ITSP variance (Model 1). Human capital plays a vital role in the maintenance of healthcare personnel. It keeps personnel engaged in their job through professional growth, skill development, and the promotion of human capital potential [1,2,16]. We found that the combined effect of human capital and work happiness was stronger predictors, accounting for 17.4% of the ITSP variance (Model 2). Work happiness is one of the key desirables as a national indicator for nursing retention [2,11]. It is a part of a successful organization, as the contentment of employees and employers are related to a nurse's ITS [17,23]. Combining human capital, work happiness, and autonomy together was an even stronger factor, accounting for 19.9% of ITSP variance (Model 3) in our study. Autonomy refers to nurses working through their own judgment. Another study also showed that autonomy affected nurses' disposition to leave the profession [18,21]. By adding skill variety to the prior model, we found that the model could explain 20.8% of the ITSP variance (Model 4). Skill variety refers to a nurse's perception of her working environment as a place of multidisciplinary activities requiring a wide range of ability, knowledge, competence, and communication abilities in order to succeed [18]. Skill variety can lead to sustainable employment of an organization's employees [19].

The final model (Model 5) included human capital, work happiness, autonomy, skill variety, and work-life balance. Adding work-life balance as a factor results in a model that accounts for 21.4% of ITSP variation. The concept of work-life balance is

crucial in human resources management. Thus, many organizations are exploring how they can help employees achieve more balance by offering work-life balance policies and programs. However, some factors including age, years of employment, and income did not appear to predict ITSP in our study. They could act as mediators or have an indirect effect on ITSP.

In summary, our final multiple regression model was capable of explaining 21.4% of ITSP variance. Human capital was the best predictor of ITSP. This topic might merit further study because 78.6% of the variance remained unexplained. Thus, further exploration is necessary to understand and determine the remaining predictors of nurses' ITSP in the CHs in Thailand.

4.3. Limitations

This cross-sectional, correlational study could not be used to determine the cause-and-effect relationships between different factors and ITSP during nurses' careers. Our study was limited to measuring the nurses' ITSP at a single point in time. Furthermore, the study was limited to the CHs in Thailand that excluded small-sized hospitals. We only included nurses who were working at community hospitals in Thailand with 60 or more beds. Thus, similar findings may not be obtained with a sample taken in another setting or at a different time. Therefore, the generalization of these findings to nurses working in different locations, at different practice settings, and at different time points should be considered with caution. Despite its limitations, this study contributes to continuing research on the nursing workforce.

5. Conclusion/implications for practice

The findings show most participants had moderate intention to stay (ITSP) in the nursing profession. We found that there are still significant areas for improvement in the healthcare organizations operating under the Thai MoPH. Overall, the managerial characteristics (MCs) were at a high level, and were associated with ITSP. Similarly, the work characteristics (WCs) were at a high level, and were also associated with ITSP. The six domains of MCs were predictors of ITSP, with human capital was the strongest predictor. Our final predictive model showed that the ITSP of nurses can be explained by the sub-domains of MCs, specifically human capital, work happiness, and work-life balance, and the sub-domains of WCs, particularly autonomy and skill variety. Together these five

factors (human capital, work happiness, work-life balance, autonomy, and skill variety) predicted 21.4% of the variance in ITSP.

The findings also reveal a sense of alarm coming from the nurses working at CHs in Thailand, as well as the value of human capital in developing the nursing workforce. These findings demonstrate a need for hospital management to create strategies that promote the retention of nurses in the nursing profession. We recommend that nurse managers, nurse administrators, and nursing policymakers design strategies to support and encourage those nurses who are currently working in the CHs of Thailand to strengthen their career prospects, and to encourage them to continue working in their profession over the long term. In addition, more research is needed to increase our understanding of predictors of ITSP, especially for nurses working at small hospitals in remote areas.

Conflict of interest

None.

Acknowledgments

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