

# Does Tailor Different Educational Programs for Different Groups Might Improve Acceptance by Nursing Staff?

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## Research article

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# Abstract

**Background:** Long-term shortages in the nursing workforce and high turnover rates are common in Taiwan medical industry. Little research has investigated the psychological factors associated with retention of nursing staff. However, in practice, religious hospitals often provide education in medicine or the medical humanities to enhance psychological satisfaction. The objective of this study was to explore factors influencing nursing staff's retention with their work across different levels of demand. A further objective was to investigate whether medical humanities educations were associated with the retention of nursing staff.

**Methods:** This study used self-administrated questionnaires to survey nurses working in northern areas of Taiwan. The questionnaire design was based on the six levels of Maslow's hierarchy of needs. Participation was voluntary and participants signed informed consent documents. Self-administrated questionnaires were administered by contacting a total of 759 participants; 729 questionnaires were returned (response rate 96.04 %). A logistic regression analysis was used to estimate the impact of seniority of nursing work on nurses reported intention to stay after adjusting for nurse characteristics (gender and age).

**Results:** In the Pearson correlation analysis, nurses' willingness to stay was moderately correlated with "physical needs", "safety needs", "love and belonging needs", and "esteem needs" ( $r=0.559, P<0.001$ ;  $r=0.533, P<0.001$ ;  $r=0.393, P<0.001$ ;  $r=0.476, P<0.001$ , respectively). Furthermore, nurses' willingness to stay was highly correlated with "self-actualization needs", "behind self-actualization needs" and "medical humanities education relevant" ( $r=0.707, P<0.001$ ;  $r=0.728, P<0.001$ ;  $r=0.678, P<0.001$ , respectively). We found that the odds ratio (OR) of retention of nursing staff who worked within 1 year (OR=4.511,  $P=0.002$ ) and 1-3 years (OR=3.248,  $P=0.003$ ) was significantly higher referred to those who worked 5-10 years.

**Conclusions:** With regard to medical humanities education, we recommend adjusting the training as the compulsory activities under the official programs are inadequate and adjusting the required hours of medical humanities education. Tailoring different educational programs for different groups (especially for the groups of nurses who have worked 3-5 years and 5-10 years in the case study hospital) might improve acceptance by nursing staff.

## Background

The shortage of nursing workers is a global phenomenon [1]. As a core aspect of any healthcare system, a sufficient number of highly trained and experienced registered practical staff is critical to providing patient-centered healthcare services [2-3]. The HHR literature shows a serious shortage of healthcare workers in many countries around the world, especially in the numbers of doctors and nurses [4-6]. In short, nursing is facing a growing shortage of employees around the world and Taiwan is no exception [7, 8]. Most medical interventions require the services of doctors, nurses, and other health professionals.

Research shows shortage of healthcare workers may affect health outcomes such as: quality of care, morbidity, and mortality [3-6, 9, 10]. Percentage of registered practical nurse of Taiwan is about 58.4% [11]. Compared to that of Canada as 93.6% and that of USA as 83.2%, percentage of registered practical nurse of Taiwan is obviously low [11]. In addition, nurse turnover rates in Taiwan for 2009-2013 were 16.95%, 17.12%, 18.54%, 19.03% and 16.45%.

Hospitals in Taiwan can be easily divided into three categories. The location of these types of hospitals in their environment, their building structures, number of beds, facilities, and organizational structures may be similar. Due to differences in ownership, the management systems and environmental climates of these hospitals may vary. Hospital management systems are likely to be different across different types of hospitals. Management systems affect employees and need to be considered in terms of their job performance and the quality of work life they provide.

A previous research has shown that nursing is often experienced as work that is time consuming and stressful [12]. Factors such as low job control, high job requirements, and deficits in supportive work relationships are associated with stress [13] and high employee turnover in nurses [14]. Research has shown that nurses report their basic needs as being related to employee job satisfaction [15], overall health [16], and intention to stay. The relationship between leadership styles in healthcare institutions and nurses' work life quality is unclear. It is necessary to understand the relationship between basic needs, the quality of work life in the healthcare profession, and the intention to remain in these professions. In our hospital, humanistic culture operates on the principle of seeking the ideals of truth, beauty, and goodness. Our hypothesis of this study is education based on humanistic culture associated with life quality of practiced nurses. Therefore, we propose a model based on a theory and grounded in empirical observations that might allow researchers to investigate these relationships through a linear regression model.

In this study, the relationships between facets of Maslow's hierarchy of needs were by using the Pearson's correlation test, and the correlation between each facet and any wish is discussed. We also performed simple and multiple regression analysis to investigate the impact of Maslow's hierarchy of needs on the retention of nursing staff in a faith-based hospital in Taiwan.

## **Methods**

### **Research design**

This was a cross-sectional quantitative study. The data were collected using a self-report questionnaire consisting of two sections: demographic information and job satisfaction. Demographic data obtained included gender, age, education level, religion, seniority among nursing staff, seniority among hospital staff, and time of any medical or human-related education and training received in the past six months. Anonymous questionnaires were surveyed among clinical nursing staff in general wards, intensive care wards, and oncology wards but excluded in outpatient, emergency, and other ward services to ensure consistency of work content.

## **Ethical approval**

This study was performed in Taipei Tzu Chi Hospital from May 2017 to April 2018 and was coordinated by the superintendent offices of Taipei Tzu Chi Hospital and Buddhist Tzu Chi Medical Foundation. This study was approved by the Institutional Review Board of Taipei Tzu Chi Hospital (IRB number: 06-X10-026).

## **Sampling Strategy**

The sample was recruited using convenience sampling according to the following method: First, a total of 759 questionnaires were sent to the clinical nursing staff of the Taipei Tzu Chi Hospital. The overall response rate was 97.6 %, providing a total 741 questionnaires that were validly completed and returned. Second, the questionnaire content was analyzed based on theoretical predictions from Maslow's hierarchy of needs. See Appendix for the complete questionnaire design.

## **Measures**

The content of the questionnaire was discussed with six nursing experts, and the interviewee's (participant's) understanding of the vocabulary was measured. The content of the questionnaire was constructed accordingly to consensus and presented so that participants were asked to respond according to the five-point Likert scale method (responses ranging from 1 to 5). Three nursing experts will conduct tests of expert validity according to predefined inspection items such as "clear meaning," "related to the investigation content," and "easy to answer." The content validity index (CVI) values of each item were greater 0.8. There were a few items that were "easy to answer" or "exactly clear", with corresponding CVI values less than 0.8, but the overall impact was small, indicating that the questionnaire had good content validity.

Participants completed the questionnaire, which assessed participants along the following dimensions of Maslow's hierarchy of needs: (1) Physical needs, (2) Safety needs, (3) Love and belonging needs, (4) Esteem needs, (5) Self-actualization needs, (6) behind self-actualization needs, (7) medical humanities education relevance, and (8) retention relevance. We also conducted a pilot study with 30 employed nurses to investigate the reliability of the questionnaire. Cronbach's alpha ( $\alpha$ ) for the overall questionnaire was .94. Cronbach's  $\alpha$  of each dimension was as follows: (1) physical needs, .75; (2) safety needs, .61; (3) love and belonging needs, .83; (4) esteem needs, .79; (5) self-actualization needs, .83; (6) behind self-actualization needs, .8; (7) medical and humanities education relevance, .94; and (8) retention relevance, .9. According to the results of the investigation, the scale used in this study has good reliability.

## **Job satisfaction**

In the present study, the job satisfaction scale used items rated on a five-point Likert scale. It included 10 items related to job satisfaction that were: salary, total weekly working hours, safety in working environment, mutual assistance, acceptability of constructive advice, and learning resources and opportunities for growth. Participants were asked to rate their degree of satisfaction about their jobs on a

scale ranging from Strongly Agree (SA); Agree (A); Neutral (N); Disagree (D); Strongly Disagree (SD) which coding 1, 2, 3, 4, 5, respectively. The 10 item job satisfaction scale produced an acceptable level of reliability (Cronbach's  $\alpha = .889$ ).

### **Statistical analysis**

Pearson correlations were used to assess relationships between all variables in the model. Student's t or Analysis of variance (ANOVA) was used for continuous parametric data to detect the differences among the different groups. Linear regression analysis was used to examine the pattern of the relationships among all variables. Logistic regression analyses were used to investigate the association between the nurses' characteristics and intention to stay the hospital. To assess model fit, we examined R-square and the p value of F statistic ( $<0.05$ ) as fit indices. SPSS version 24.0 was used to perform descriptive statistical analysis.

## **Results**

A total of 729 nurses working in different facilities responded to the questionnaire (96.04% response rate). All analysis was performed as two-sided tests with significance levels of 0.05.

### **Nurses' characteristics and their intent to stay**

Overall, only 87.8% of nurses indicated that they were likely or very likely to stay in their current job (See Table 1). Analysis showed that the majority of respondents were females (95.6%). Most responding nurses were below 29 years of age (57.9%) and this age group was second least likely to report intention to stay in their current job (86.7%) (Table 1). A total of 2.7% of responding nurses were educated in graduate school, and this group was least likely to report intention to stay (84.2 %). A total of 27.2% of responding nurses had over than 10 years of overall working experience related to nursing, and this group was the most likely to report intention to stay (91.3 %) except within 1 year of experience working as a nursing. A total of 12.6% of responding nurses had not received medical and human-related education/training in the past six months, and this group was least likely to report an intention to stay (84.4 %).

### **Bivariate analysis**

The correlations between all the levels of Maslow's hierarchy of needs and intension to stay in this study are displayed in Table 2. The analysis found that there is a positive correlation between each level and the intension to stay. Among them, "physiological needs", "safety requirements", "love and subordination needs" and moderate willingness to stay are moderately positively correlated (correlations between 0.30 and 0.50). Further, "self-realization needs", "beyond self-demand" and "medical humanity education relevance" were highly positively correlated (correlation greater than 0.60), and all correlations reached statistically significance ( $p < 0.001$ ). The results of the study show that each level of need and medical humanities education are positively related to nurses' intension to stay at their current jobs. This is

consistent with the research hypothesis. The results also show that Maslow's hierarchy of needs and increases in medical humanities education are positively related to the retention nursing employees. Retention measures should be meeting the needs of each facet will help to retain the benefits.

### **Multivariate regression**

We constructed a multivariate regression model after controlling for adjusted age, sex, and education level. We found that Maslow's hierarchy of needs had significant positive effects on intention to stay. These results are displayed in Table 3 (also adjust covariates). Furthermore, we found self-actualization needs had the most positive influence on intention to stay after adjusting for covariates. These results support the research hypothesis.

## **Discussion**

Most of the respondents in this study (64.9%) were less than 29 years of age. This suggests that the majority of the nursing workforce will be challenged within the next decade. One participant is quoted as saying, "We do budgeting for personnel every year, but we don't actually control this from time to time. Our job analysis does not include recruitment." Approval is always required before hiring. This shows the reliance on recruitment budgets and political development [17]. Not all nurse managers organize training after recruitment, which may adversely affect the socialization process of newly hired nurses, and result in poor retention [18]. The results of this study show that several demographic and personal characteristics of nurses are related to their intention to stay in their current job. Specifically, nurses are less likely to report intent to stay were younger. The fact that age is not significantly related to the intention to leave can be attributed to the fact that age and years of experience are parallel; more experienced nurses are usually older. The direct link between years of experience/age and intention to stay is consistent with other studies in the literature. [19, 20].

Our findings suggest that nurse planners, policy makers, and decision makers should implement targeted retention programs designed to retain freshly graduated nurses and inexperienced nurses [21]. The present study's findings further indicated that the odds ratio of nurses within 1 year work experience were about four fold as likely to indicate intention to stay in their current job as compared to their counterparts with 5~10 years of experience in nursing (Table 4). Such findings are also in accordance with previously reported studies in the literature [22]. Sociocultural factors associated with the role of experienced workers in society may also play a role in enhancing the job retention of nurses [23]. Older nurses generally also display higher levels of job commitment [24].

The present study also affiliated with Maslow's hierarchy of needs, revealed that influential factors behind the retention of nurses in Taiwan are related to their professional qualifications. This allows administrators and medical practitioners to make informed decisions regarding nursing retention. Many medical institutions seem to follow a standard strategy during recruitment period [25], but not all institutions conduct job analysis before starting recruitment. This may be because most of the

interviewing managers are not involved in regular budgeting plans, which can determine effective and sufficient analysis of the main weaknesses of the nursing staff.

According to Maslow's hierarchy of needs, physiological needs, security needs, love and subordinate needs (social needs) are also collectively called "deficiency needs." For nursing staff, basic needs such as their physiological and safety needs are not met. This may ultimately lead to the loss of nursing staff. The results of this study showed that the satisfaction of respondents associated with their physiological needs was significantly lower than satisfaction associated with other facets. This effect demonstrated that the satisfaction of hospital nursing staff with "working time" and "salary structure" was lower than other facets. Even with the adjustment of salary structure in hospitals and improvements in the work process, salary and working hours are still important issues nurses face today in the workplace.

Salary may not be the primary reason for leaving. The sense of achievement from work, positive relationships with partners, and the ethical culture are important factors contributing to retention [26, 27]. Satisfaction with love and subordinate needs (social needs) was reported as the highest satisfaction across all dimensions. It is obvious that hospital care workers work in "unit cooperation" and "cooperation with other teams."

With regard to Maslow's high-level needs, self-esteem needs and self-fulfilling needs are known as advanced "growth demands," and Maslow adds spiritual demand in a later period that is, "beyond self-fulfilling needs." If people's needs are not being satisfied, this will determine their intention to stay. Although there is no statistical difference between the groups in the "study of medical and human-related education and training hours" in the past six months, the regression coefficient in regression model was significant. The promotion of human activities in hospitals should not take a long time.

According to Maslow's hierarchy of needs, the motivation of people to work ultimately to meet various needs, when a job can meet all levels of needs in people, job satisfaction will increase accordingly and willingness to stay at one's current job follows. Nursing staff's feedback regarding clinical work indicates that it meets basic needs (i.e., physiological needs, safety needs, love and belonging needs), further satisfying self-esteem and self-actualization needs, and even high-level needs for spiritual satisfaction. After meeting the various needs, nursing staff will be less likely to resign from their current positions. Healthcare organizations should be able to provide a variety of resources to meet the needs of their nursing staff at all levels of the medical workplace, and to attract new nursing staff to maintain clinical operations in hospitals and clinics. Based on the theory of Maslow's hierarchy of needs, this study explored the needs of nursing staff and explored the relationship between each demand level and turnover rate. Moreover, a hospital's education and literacy for medicine and the humanities also affects the clinical practice of nursing staff, and their intention to stay.

## Conclusions

We believe that to increase retention of nursing staff several provisions could be pursued, which include: providing a regular day shift system, providing solid new basic education and training, cultivating a

working environment that values lifelong learning, tailoring a promotion path, strengthening the communication skills of clinical instructors and head nurses, and funding further research investigating ways to improve the retention of nursing staff. In the area of medical humanities education, we recommend adjusting the training as the necessary teaching activities under the official procedure are inadequate, adjusting the required hours of medical humanities education, and tailoring different educational programs to different groups (especially for groups of nurses with 3-5 and 5 - 10 years of work experience in the case study hospital) in order to make these programs more widely accepted by nursing staff.

## Limitations

We were limited to the available data from a faith-based hospital. The present study is conducted at one specific time, not as a longitudinal research. In addition, nurse employees responded to a questionnaire via self-report. The potential biases from this method can be minimized due to the substantial sample size (729 questionnaires) and high response rate (96.04 %).

## Abbreviations

Odds ratio	OR
Content validity index	CVI
Analysis of variance	ANOVA

## Declarations

### Ethics approval and consent to participate

This current study was approved by the Institutional Review Board of Taipei Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, and New Taipei City, Taiwan (IRB number: 06-X10-026).

### Consent for publication

Not applicable.

### Availability of data and material

Datasets used in the analysis are available from the corresponding author on reasonable request.

### Competing interests

The authors declare no competing interests with any organization having direct or indirect financial interest in the subject matter discussed in the manuscript.



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## Authors' contributions

LHC and TTS proposed the research idea, performed the analysis, wrote the results and discussion, and contributed to the literature review. CFW, ANT, RWL, LYY, CMH, WHP and CYC provided clinical suggestions and helped revise the manuscript. IST supported data analysis and prepared the manuscript for submission. All authors read and approved the final manuscript.

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## Tables

**Table 1.** Comparison of the level of demand and the correlation between medical humanities education and the intention to stay

				Intention to stay		
		n	percentage	n	percentage	P-value
Retention	Stay	636	87.8			
	Leave	88	12.2			
Sex	Male	31	4.4	29	93.5	0.307
	Female	681	95.6	595	87.4	
Age	Below 29	414	57.9	359	86.7	0.099
	30~39	221	30.9	191	86.4	
	40~49	65	9.1	63	96.9	
	Over 50	15	2.1	14	93.3	
Education level	Junior high school	4	0.6	4	100	0.327
	Junior college	295	41.2	258	87.5	
	Two-year college	44	6.1	43	97.7	
	Two-year technical college	163	22.8	139	85.3	
	University	191	26.7	168	88.0	
	Graduated school	19	2.7	16	84.2	
Religion	None	375	52.5	328	87.5	0.408
	Buddhism	201	28.2	178	88.6	
	Taoism	94	13.2	83	88.3	
	Christianity	21	2.9	20	95.2	
	Catholic	9	1.3	6	66.7	
	Other	14	2.0	12	85.7	
Seniority of nursing work	Within1 year	109	15.2	101	92.7	0.003**
	1~3 year	169	23.6	152	89.9	
	3~5 year	118	16.5	98	83.1	
	5~10 year	125	17.5	99	79.2	
	Over 10 year	195	27.2	178	91.3	
Seniority of	Within1 year	135	18.9	124	91.9	0.067

hospital work	1~3 year	194	27.1	172	88.7	
	3~5 year	133	18.6	110	82.7	
	5~10 year	141	19.7	119	84.4	
	Over 10 year	112	15.7	103	92.0	
Time of received	None	90	12.6	76	84.4	0.426
medical and human-related education and training in the past six months	1~5 hours	499	69.7	437	87.6	
	6~10 hours	102	14.2	94	92.2	
	Over 10 hours	25	3.5	22	88.0	

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

**Table 2.** Correlations for all the levels of needs and intention to stay

Levels of Maslow's hierarchy of needs	Intention to stay
Physical needs	0.559***
Safety needs	0.533***
Love and belonging needs	0.393***
Esteem needs	0.476***
Self-actualization needs	0.707***
Behind self-actualization needs	0.728***
Medical humanities education relevant	0.678***

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

**Table 3.** The relationship between Maslow's hierarchy of needs and intention to stay

Variables	Intention to stay		Intention to stay (adjusted)	
	Estimate (SE)	P-value	Estimate (SE)	P-value
Physical needs	.539(.030)	<0.001***	.543(.030)	<0.001***
Safety needs	.645(.038)	<0.001***	.660(.038)	<0.001***
Love and belonging needs	.530(.046)	<0.001***	.556(.046)	<0.001***
Esteem needs	.590(.041)	<0.001***	.598(.041)	<0.001***
Self-actualization needs	.798(.030)	<0.001***	.800(.030)	<0.001***
Behind self-actualization needs	.715(.025)	<0.001***	.719(.026)	<0.001***
Medical humanities education relevant	.603(.024)	<0.001***	.599(.025)	<0.001***

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Adjusted age, sex, education level in regression model

**Table 4.** Logistic regression of intention to stay

Seniority of nursing work	OR	95% CI	P-value
Within1 year	3.316	(1.491, 8.158)	0.005**
1~3 years	2.348	(1.221, 4.622)	0.011*
3~5 years	1.287	(0.676, 2.479)	0.444
Over 10 years	2.750	(1.434, 5.399)	0.003**
Model adjusted age and sex			
Within1 year	4.511	(1.818, 12.069)	0.002**
1~3 years	3.248	(1.500, 7.102)	0.003**
3~5 years	1.698	(0.820, 3.554)	0.156
Over 10 years	1.566	(0.730, 3.406)	0.250

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Note: reference is 5~10 year of seniority of nursing work