

ORIGINAL RESEARCH

A study on work engagement among nurses in Japan: the relationship to job-demands, job-resources, and nursing competence

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ABSTRACT

Objective: This study reviewed the state of work engagement among nurses in Japan, and the relationship to job demands and job resources. Additionally, our research attempted to clarify the role of work engagement on the effects that job-resources have on nursing competence.

Methods: A questionnaire composed of the Utrecht Work-Engagement Scale the Brief Scales for Job Stress-Nurse and the Clinical Nursing Competence Self-Assessment Scale was distributed to 917 nurses working in hospitals in Japan.

Results: A negative correlation, although slight, was found between job-demands and work engagement. There was a positive correlation between job-resources and work engagement, however, work engagement was only found to be significantly affected by job fulfillment. Work engagement seems to mediate the relationship between job-resources and job-demands however the results from the path analysis did not fully support this model.

Conclusions: Our study did not sufficiently explain the relationships between variables. It can be suggested that the correlations between job-resources, job-demands, and work engagement are bidirectional or circulatory, rather than unidirectional.

Key Words: Work engagement, Job-demands, Job-resources, Nursing competence

1. INTRODUCTION

Several studies have been conducted in Japan concerning burn-out syndrome among hospital nurses, and the correlations between mental health and work-related stress.^[1,2] Regardless, the job separation rate for nurses working in Japanese hospitals remains over 10%.^[3-5] Our theory is that hospital administrators, although aware of the declining mental state of nurses, experience intervention difficulty and require tools to help nurses sustain a positive daily work

environment.

1.1 Work engagement

Work engagement is defined as a positive affective motivational state of fulfillment, manifested as vigor, dedication, and absorption.^[6] Vigor is defined as high levels of energy and mental resilience at work. Dedication is described as strong involvement in one's work accompanied by feelings of enthusiasm and significance. Absorption relates to be-

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ing fully engrossed in one's work and having difficulties detaching oneself from it.^[7]

1.2 Factors related to work engagement and their outcomes

The relation between work engagement and job-resources and personal resources was clarified.^[7-14] In addition, it has also been shown that work engagement alleviates job-demands. Higher levels of work engagement lead to positive work outcomes.^[11, 14-18] Research conducted on nurses in foreign countries have shown that high levels of work engagement lead to contributions to causes outside of nursing, higher quality of care for nursing patients, and motivation to voice opinions in conferences.^[19, 20] Research conducted in Japan concerning work engagement in nurses has shown the relation towards age, marital status, years of experience, employment/work status, desire to separate from job, role in the workplace, and support from superiors.^[21-24] However, previous studies conducted in Japan have not shown the relation between work engagement and job demands and outcomes, or the role of work engagement in the relationship between job-resources and outcomes.

1.3 Hypothesis

For these reasons, the authors have examined the following hypothesis.

Hypothesis 1: There is a negative relationship between work engagement and job-demands (quantitative and qualitative burdens, interpersonal relationship difficulties at work, critical degree of the patient, patient-nurse relationship).

Hypothesis 2: Job-resources (level of discretion, support from colleagues and superiors, job fulfillment) and level of education, job rank, and nursing qualifications all had a positive relation to work engagement.

Hypothesis 3: Work engagement mediates the effect and increases the level of influence of job-resources on nursing competence.

2. METHOD

2.1 Participants and procedures

The subjects of our survey were nurses who have worked continuously for over a year in hospitals in Japan. The authors, who received consent from the subject hospitals, distributed the survey to 917 nurses, and retrieved the anonymous surveys at collection stations using the placement method. 837 surveys were collected (90.9% collection rate), and 613 surveys were considered valid (73.2% valid survey rate).

2.2 Measure

Basic attributes for analysis were gender, age, marital status (single, married, divorced), and years of nursing experience. Attributes for analyzing job-resources were level of education, rank, and possession of higher level qualifications for nursing (public health nurse, midwife, or Japanese Nursing Association accredited Certified Nurse: CN, Certified Nurse Specialist: CNS, or Certified Nurse Administrator: CNA).

Work engagement: Work engagement was measured using 9 items from Japanese version of the Utrecht Work Engagement Scale (UWES-J).^[25] UWES-J is composed of 3 sub-concepts of "vigor", "dedication", and "absorption".

Job-demands/Job-resources: Job-resources and job-demands were measured using the Brief Scales for Job Stress-Nurse (BSJS-NS).^[1] Job-demands were measured using the sub-scales of "quantitative burden of work" (workload, availability of free time), "qualitative burden of work" (deadlock at work, complicated or difficult work content), "interpersonal relationship difficulties at work" (interpersonal difficulties among the work team), "the critical degree of the patient" (life or death illnesses) and the "patient-nurse relationship" (harassing or threatening behaviors by patients towards nurses). Job-resources were measured using the sub-scales of "discretion" (task progression, ability to vocalize opinions), "support from colleagues and superiors" (support in the workplace from colleagues and superiors), and "fulfillment" (work satisfaction, ability to display competency).

Nursing Competence: Nursing competence was measured using the Clinical Nursing Competence Self-Assessment Scale (CNCSS).^[26] This scale is composed of the four concepts of "basic nursing competence", "development capability according to level of health", "coordinative capability between care environment and team structure", and "ability to devote oneself to nursing competency". For this study, chose "basic nursing competence" and "ability to devote oneself to nursing competency" as our dependent variables taking into consideration that our subjects were nurses who worked in various hospital departments.

2.3 Analysis

For Hypothesis 1 and 2, Pearson's correlation coefficient and multiple regression analysis were used to evaluate the items pertaining to BSJS-Ns and UWES. Comparison beyond group 3 was clarified through one-way analysis of variance and Tukey's test. Hypothesis 3 was made clear by using path analysis to evaluate the role of UWES in BSJS-Ns and CNCSS. We used SPSS ver. 22 and SPSS AMOS ver. 23 as our analysis software.

2.4 Ethical considerations

Approval was obtained for this study from Saga University Medical School Research Ethical Committee and the ethical committees of the hospitals who granted permission for our surveys.

3. RESULTS

The Cronbach α coefficient for each scale was UWES.928, BSJS-Ns.776, and CNCSS.937. The background information for the subjects can be seen in Table 1.

Table 1. Base line characteristics

Characteristics	Percent (%)	
Gender n (%)		
Female	447	72.9
Mean age yr (SD)	37.5	10.2
Nursing experience Mean yr (SD)	14.4	9.7
Length of service	8.0	6.9
Marital status n (%)		
Married	337	55.0
Single	229	37.3
Divorced	47	7.7
Education n (%)		
< Bachelor	557	85.8
≥ Bachelor	56	14.2
Rank n (%)		
Staff	488	79.6
Administor	125	20.4
Possession of higher level qualifications for nursing n (%)		
Only a nurse license	534	87.1
Higher level qualitifcation	81	22.9

3.1 Comparison of the degree of work engagement by basic attributes

Table 2 shows the results of the comparison between the sub-scale scores for work engagement and basic attributes. Marital status, motive for job placement, rank, and status of employment all showed significant differences against independent item scores for work engagement.

3.2 The relationship between work engagement and job-demands and job-resources

Table 3 shows the correlation between job-demands and job-resources, and the sub-scale scores for work engagement. Table 4 shows the results of the multiple regression analysis conducted with sub-scale scores of work engagement as the dependent variables, and job-demands and job-resources as the independent variables. There was a strong correlation between “fulfillment” and work engagement. “Fulfillment” and

“critical degree of the patient” showed a significant relation to sub-scale items for work engagement.

3.3 The role of work engagement in the relation between job-resources and nursing competence

Figure 1 shows the mediatory effect of work engagement on the relation between job-resources and nursing competence. Significant results for path analysis showed passes from “fulfillment” to “dedication”, then ultimately passing through “basic nursing competence (standardized indirect effect = .222)” and “ability to devote oneself to nursing competency (standardized indirect effect = .292)”.

4. DISCUSSION

4.1 The relation between work engagement and job-demands

We could not satisfactorily explain the hypothesis 1. Studies on nurses in foreign countries have reported that there is no relation between job-demands and work engagement.^[19,27,28] Our research showed a negative correlation, although weak, between job-demands and work engagement. The “critical degree of the patient” had a negative influence on work engagement, although there was not sufficient evidence to fully support this relation. The weak correlation between job-demands and work engagement, combined with only a partial influence of job-demands makes the results of this study similar to those of studies in foreign countries.

4.2 The relation between work engagement and job-resources

We could not satisfactorily explain the hypothesis 2, because we could not explain relation of work engagement and education level, qualifications for nursing. Although job-resources showed a positive correlation with work engagement, the strongest correlation was seen with “fulfillment”. Work engagement was influenced by “fulfillment”. “Fulfillment” is a constructive concept of “self-effectiveness”.^[29] “Self-effectiveness” is positively related to work engagement.^[30] In short, it is possible that “fulfillment”, as an element of “self-effectiveness”, positively influenced work engagement. In addition, per the results of internal correlation for job-resources, there is a possibility that work engagement was indirectly positively influenced by “support from colleagues and superiors”, “discretion”, and “fulfillment”.

Additionally, in accordance to foreign research, we also found no relation between level of education and work engagement, nor for job rank and work engagement.^[31,32] We believe these results fail to show a significant difference for work engagement due to the range of educational backgrounds for nurses in Japan, and the lack of division of tasks

by educational level.

There was no relation seen between nurses in possession of higher level qualifications for nursing and work engagement. The nurses who were licensed as public health nurses in our survey had the same ward duties as other nurses. In addition,

most of CNS and CN had various working conditions and employment statuses, and most experienced no changes in salary, rank, or role, even after obtaining their license.^[33,34] The authors believe this setting is a factor in what may or may not significantly influence work engagement.

Table 2. Comparison of UWES(Utrecht Work Engagement Scale) by the basic attribute

Charastirics	N	vigor				dedication				absorption			
		M	SD	Tukey's test	p	M	SD	Tukey's test	p	M	SD	Tukey's test	p
Gender													
Female	447	6.12	3.15		.35	7.89	3.16		.27	6.04	3.09		.30
Male	166	6.22	3.49			7.64	3.34			5.73	3.29		
Marital status													
Married	337	6.56	3.19]***]*	.00	8.08	3.07]*	.03	6.08	3.05		.15
Single	229	5.41	3.15			7.39	3.33			5.67	3.18		
Divorced	47	6.72	3.46			8.13	3.37			6.49	3.51		
Level of education													
< Bachelor	557	6.05	3.22		.68	7.72	3.21		.80	5.89	3.12		.38
≥ Bachelor	56	7.05	3.31			8.82	3.05			6.63	3.36		
Rank													
Staff	488	5.91	3.31		.07	7.50	3.29		.00	5.66	3.16		.02
Administer	125	7.06	2.80			9.09	2.51			7.14	2.81		
Possession of higher level qualifications for nursing													
Only a nurse license	532	5.97	3.24		.56	7.63	3.20		.29	5.80	3.11		.74
Higher level qualification	81	7.27	3.02			9.10	2.97			7.00	3.15		

Note. M = Mean; SD = Standard Deviation; p = p-Value; * p < .05; ** p < .01; *** p < .001.

Table 3. Correlation of utrecht work engagement scale and brief scales for job stress-nurse (Pearson coefficient of correlation)

No	Variable	1	2	3	4	5	6	7	8	9	10	11
W.E	1 Vigor	1										
	2 Dedication	.807**	1									
	3 Absorption	.712**	.776**	1								
J.D	4 Quantitative burden of work	-.171**	-.095*	-.010	1							
	5 Qualitative burden of work	-.168**	-.160**	-.069	.670**	1						
	6 Interpersonal relationship difficulties at work	-.231**	-.204**	-.138**	.281**	.304**	1					
	7 Critical degree of the patient	-.181**	-.072	-.075	.324**	.243**	.193**	1				
J.R	8 Patient-nurse relationship	-.189**	-.207**	-.157**	.164**	.236**	.157**	.188**	1			
	9 Discretion	.231**	.236**	.161**	-.059	-.163**	-.156**	.050	-.085*	1		
	10 Support from colleagues and superiors	.243**	.244**	.177**	-.085*	-.100*	-.327**	.085*	-.027	.308**	1	
	11 Fulfillment	.529**	.651**	.523**	-.022	-.150**	-.171**	.100*	-.182**	.369**	.398**	1

Note. W.E = Work-engagement; J.D = Job demands; J.R = Job resources; p-Value; * p < .05; ** p < .01.

Table 4. The relation between utrecht work engagement and BSJS-Ns (multiple regression analysis)

Variable	Vigor				Dedication				Absorption		
	B	SE	β		B	SE	β		B	SE	β
Fulfillment	0.86	0.05	0.53 ***	Fulfillment	1.04	0.05	0.65 ***	Fulfillment	0.84	0.05	0.54 ***
Critical degree of the patient	-0.29	0.05	-0.20 ***	Critical degree of the patient	-0.18	0.05	-0.12 ***	Critical degree of the patient	-0.18	0.05	-0.13 ***
Interpersonal relationship difficulties at work	-0.13	0.06	-0.08 *	Interpersonal relationship difficulties at work	-0.11	0.05	-0.07 *				
Quantitative burden of work	-0.10	0.05	-0.07 *								
R ²	0.35				0.45				0.29		

Note. **p* < .05; ***p* < .01; ****p* < .001.

4.3 The mediatory role of work engagement in the relation between job-resources and nursing competency

This study clarified the influence of “fulfillment” (via “enthusiasm”) on nursing competency, although we could not satisfactorily explain the hypothesis 3, because the value of R² was low. The reason for the results achieved was due to the unidirectional frame of our research which used the Job-Demands-Resource Model (JD-R model) to consider job-resources’ effect on work engagement and nursing competency.

Baker (2011) developed the JD-R Model, and proved the existence of the positive gain spiral as a circulating relationship with positive effects between work engagement and job-resources.^[35] Positive gain spiral showed results even when the subjects were nurses. The positive gain spiral suggested in this study can be seen in Figure 2. In order to clarify the existence of the results in Figure 2, we must conduct further research based on the positive gain spiral model.

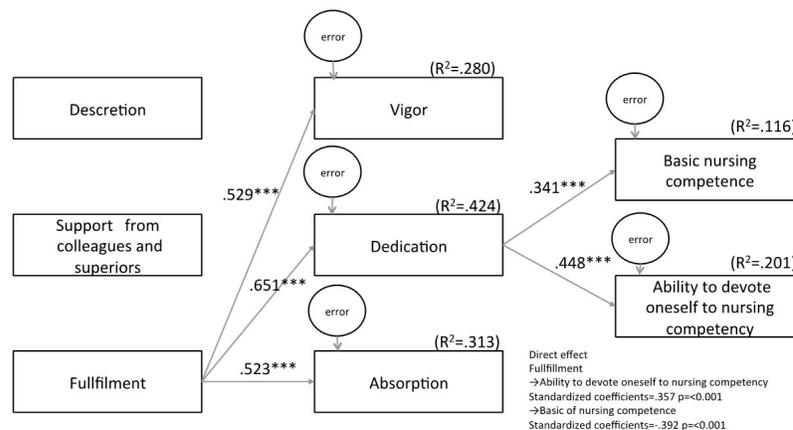


Figure 1. The wealth of the work and the arbitration role of work engagement in the nursing practice ability *** *p* < .001

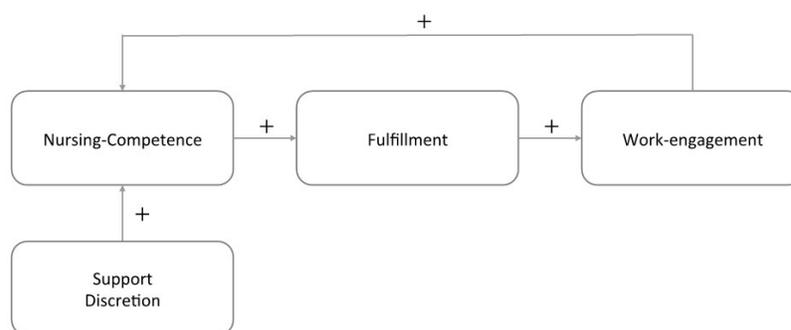


Figure 2. Nursing competence, fulfillment, work-engagement positive gain spiral

5. CONCLUSION

Our research was not able to sufficiently clarify the relationship between job-demands, job-resources and work engagement, nor to explain whether work engagement played a role in the effect of job-resources and nursing competency. The weakness of this study was in the inability to clarify the positive gain spiral in the relationship between job-resources, work engagement, and nursing competency. For future re-

search, there is a need to organize variables and framework outlines, and to clarify the existence of the positive gain spiral among nurses. In addition, we hope to explore other necessary variables and supportive factors which may positively affect this spiral.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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