Factors influencing work engagement among psychiatric nurses in Japan

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博 士 論 文

Factors influencing work engagement among psychiatric nurses in Japan

（日本における精神科看護師のワーク・エンゲージメントに影響を及ぼす要因）

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神戸大学大学院保健学研究科保健学専攻

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Contents

1. INTRODUCTION

1.1. Workplace of psychiatric nurses

Psychiatric hospitals face many tasks, including inpatient discharge promotion (Okumura et al., 2018), treatment of elderly patients with mental disorders (World Health Organization, 2017), and risk management during psychiatric patient care (Slemon, 2017), all of which necessitate better performance by mental health care providers in their work environment. Psychiatric nurses often experience stressful events due to psychiatric patients' mental symptoms and maladaptive behaviors, such as disturbed and unpredictable behavior (Hassen & Tumah, 2018), unpleasant attitude toward nurses (Yada et al., 2011), and aggression (Fujimoto et al., 2017). These situations characteristic of psychiatry can negatively influence psychiatric nurses' mental health and performance and consequently inactivate their workplace. Therefore, identifying strategies that create an activated workplace wherein psychiatric nurses can achieve excellent performance is imperative.

1.2. Work engagement

Work engagement has been defined as a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption (Shaufeli et al., 2002). Vigor refers to high levels of psychological energy and mental resilience during work. Dedication is described as involvement in one's work and experiencing a sense of significance, enthusiasm, and challenge. Absorption refers to being totally immersed in and focused on one's work (Shaufeli et al., 2002). Employees with enhanced work engagement are expected to perform better by experiencing positive emotions, better health, and improved productivity (Bakker, 2011). Empirical studies have demonstrated that work engagement improves various

nurse performances, such as patient-centered care among nurses working in retirement homes (Abdelhadi & Drack-zahavy, 2012), creativity among geriatric nurses (Toyama & Mauno, 2017), and extra-role performance among nurses working in large general hospitals (Salanova et al., 2011). Furthermore, Van Bogaert et al. (2013) reported that work engagement facilitated quality of care among psychiatric nurses. These results corroborate the importance of enhancing work engagement to improve psychiatric nurses' performance.

2. LITERATURE REVIEW

To clarify targeted strategies that enhance work engagement, identification of potentially modifiable factors that stimulate work engagement is imperative. The literature search, conducted on March 2018, included an electronic database, MEDLINE. We used "nurs*" and "work engagement" as the search terms (108 titles and abstracts hit). A total of 50 papers were selected based on the following inclusion criteria: peer-reviewed research, availability of English language full-text publication, involvement of staff nurses, measurement of work engagement, and factors that influenced work engagement; examination of relationship between work engagement and other factors; and quantitative study design. Of the 50 full-text papers, we extracted the following data: author(s), year, factors that influenced work engagement, statistically significant or non-significant results, and setting (psychiatric or nonpsychiatric).

2.1. Factors that influence work engagement among nurses

The factors that influenced work engagement among nurses are presented in Table 1. There was only one paper that included psychiatric nurses, and the rest involved nonpsychiatric nurses.

2.1.1. Summary on nonpsychiatric nurses

Regarding the factors that influenced nonpsychiatric nurses' work engagement, a total of 85 were identified and categorized into the following seven themes: (1) job itself, (2) social relationship, (3) superior's management and leadership, (4) attitude/recognition, (5) ability/trait, (6) private aspects, and (7) demographics. Furthermore, the studies had shown that reward (Adriaenssens et al., 2015; Wang et al., 2017), job control (Adriaenssens et al., 2015; Van Bogaert et al., 2017), supervisor and/or coworker support (García-Sierra et al., 2016; Poulsen et al., 2016), and nurse–physician collaboration (Van Bogaert et al., 2017) were positively and significantly associated with work engagement. These work-related factors have been recognized as strong predictors of work engagement among nonpsychiatric nurses.

2.1.2. Summary on psychiatric nurses

At the time of the literature review, there was only one paper regarding psychiatric nurses' work engagement (Van Bogaert et al., 2013). Subsequently, two new papers were published (Hontake & Ariyoshi, 2018; Gillet et al., 2019). The studies had shown that job satisfaction and nurse practice environment (nurse–physician collaboration and nursing management) positively affected work engagement among psychiatric nurses (Hontake & Ariyoshi, 2018; Van Bogaert et al., 2013). Gillet et al. (2019) demonstrated that supervisor support was indirectly and positively related to psychiatric nurses' work engagement through psychological need satisfaction. Nonetheless, given the sparse studies on work engagement among psychiatric than nonpsychiatric nurses, factors related to psychiatric nurses' work engagement had not been sufficiently identified.

2.2. Factors that reflect the characteristics of psychiatric nursing

Magnavita and Heponiemi (2012) had reported that the prevalence of patients' negative attitudes toward nurses, such as hostile, aggressive, annoying, or unpleasant behaviors, was higher in psychiatric than nonpsychiatric settings. Considering this difference in job characteristics, factors related to work engagement among psychiatric nurses may also differ from those among nonpsychiatric nurses. Nonetheless, the uniqueness of psychiatric nursing had not been considered in the previous studies on work engagement among psychiatric nurses.

2.2.1. Patients' attitude towards nurses

First among the factors that reflect the characteristics of psychiatric nursing is patients' unpleasant attitude toward nurses, which has been recognized as one of the representative job stressors psychiatric nurses face (Hassen & Tumah, 2018). Previous studies have shown that patients' unpleasant attitude was positively correlated with psychological distress among psychiatric nurses (Yada et al., 2014; Yoshizawa et al., 2016).

2.2.2. Emotional intelligence

Another factor important for psychiatric nurses is emotional intelligence, which is defined as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990). Given the utility of emotional intelligence for building nurse–patient relationship, which is the basis of psychiatric nursing practice, emotional intelligence has been considered a requirement for psychiatric nurses (Fitzpatrick,

2016). Previous studies have reported that emotional intelligence was negatively correlated with burnout among psychiatric nurses (De Looff et al., 2018). Additionally, based on a modification of the conceptualization of Mayer and Salovey (1990), emotional intelligence has been conceptualized as composed of four distinct dimensions (Wong & Law, 2002), i.e., self-emotion appraisal (SEA; ability to understand one's emotions), other-emotion appraisal (OEA; empathic ability to perceive and understand other people's emotions), regulation of emotion (ROE; ability to regulate one's emotions), and use of emotion (UOE; ability to motivate oneself toward a goal). Zhu et al. (2015) have demonstrated that all four dimensions of emotional intelligence positively correlated with work engagement of nonpsychiatric nurses.

2.3. Implications

Overall, studies on factors related to psychiatric nurses' work engagement remain limited. Furthermore, no study has yet verified whether some key variables (e.g., patients' attitude toward nurses and emotional intelligence) important to psychiatric nurses may be associated with work engagement. As such, a comprehensive exploration of factors influencing psychiatric nurses' work engagement from different aspects is necessary.

3. MODEL

3.1. Job demands-resources theory

Work engagement has frequently been studied within the job demands–resources (JD-R) theory (Bakker & Demerouti, 2007; Keyko et al., 2016) in which several factors can be incorporated. Bakker (2011) proposed an evidence-based work engagement model adapted from JD-R theory. According to his

model, job and personal resources positively predict work engagement and have a particularly positive impact on engagement when job demands are high. Job resources are job aspects that have motivational potential, help reach organizational goals, and can be used to deal with job demands (Bakker, 2011). The aforementioned work-related factors such as reward, job control, supervisor support, coworker support, and nurse–physician collaboration are considered job resources. Personal resources are aspects of the self that are linked to resiliency and the ability of successful management (Hobfoll et al., 2003). Emotional intelligence dimensions are considered personal resources. Job demands are job aspects that require sustained physical and/or psychological effort and are associated with certain physiological and/or psychological costs (Bakker & Demerouti, 2007). Patients' attitude toward nurses is considered job demand.

3.2. Hypothesized model

Based on the Bakker's model (Bakker, 2011) and the presented empirical evidence, we set a hypothesized model of factors influencing work engagement among psychiatric nurses (Figure 1), comprising the following five hypotheses:

H1: Job resources (reward, job control, supervisor support, coworker support, and nurse–physician collaboration) positively predict work engagement among psychiatric nurses.

H2: Personal resources (emotional intelligence dimensions) positively predict work engagement among psychiatric nurses.

H3: Job demand (patients' attitude toward nurses) negatively predicts work engagement among psychiatric nurses.

H4: Job demand (patients' attitude toward nurses) boosts the positive relationship between job resources and work engagement among psychiatric nurses.

H5: Job demand (patients' attitude toward nurses) boosts the positive relationship between personal resources and work engagement among psychiatric nurses.

4. AIM

This study aimed to identify the factors influencing work engagement among psychiatric nurses.

5. METHODS

5.1. Study design

The current study utilized a cross-sectional and correlational design.

5.2. Sample and setting

Participants consisted of psychiatric nurses working at nine private psychiatric hospitals throughout the Kinki region of Japan who were selected through convenience sampling. The inclusion criteria required that participants be either a registered nurse or a licensed practical nurse and engaged in direct psychiatric patient care. Nurse managers were excluded. To determine the appropriate sample size for this study, a power analysis was conducted. Based on an α value of 0.05, 25 predictors, and a power level of 0.80, our calculation revealed that 172 participants were required to obtain a moderate effect size (0.13). Assuming a response rate of 25%, 688 questionnaires had to be distributed.

5.3. Instruments

Work engagement

Work engagement was assessed using the nine-item short version of the Utrecht Work Engagement Scale (UWES-9) (Shaufeli et al., 2006; Shimazu et al., 2008), which includes three subscales measuring vigor, dedication, and absorption with three items for each subscale. This scale had seven response alternatives ranging from 0 (never) to 6 (always), with higher scores indicating higher work engagement. The UWES-9 was found to have acceptable internal consistency, reliability, and construct validity (Shimazu et al., 2008). Accordingly, this sample had a Cronbach's α coefficient of 0.94. The average score was calculated as an index of work engagement.

Job resources

Job resources included reward, job control, supervisor support, coworker support, and nurse–physician collaboration.

Reward was assessed using the short version of the Effort–Reward Imbalance Questionnaire (ERIQ-S) (Siegrist et al., 2009; Kurioka, 2013), which includes a seven-item reward subscale. Items were scored using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree) with higher scores indicating a positive perception of reward, including mutual respect and promotion. The ERIQ-S was found to have acceptable internal consistency reliability and construct validity (Kurioka, 2013). Accordingly, this sample had a Cronbach's α coefficient of 0.64. Subscale scores were determined by summing the seven items.

Job control, supervisor support, and coworker support were assessed using the Job Content Questionnaire (JCQ) (Karasek et al., 1998; Kawakami et al., 1995), which includes a three-item decision authority (i.e., job control) subscale, a four-item supervisor support subscale, and a four-item coworker support subscale. All items were scored using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree) with higher scores indicating higher perceived job control, supervisor support, and coworker support. The JCQ was found to have acceptable internal consistency reliability and construct validity (Kawakami et al., 1995). Accordingly, this sample had a Cronbach's α coefficient of 0.69–0.94. Each subscale score was determined by summing the items within the respective subscale.

Nurse–physician collaboration was assessed using the "Collegial Nurse–Physician Relations" subscale of the Practice Environment Scale of the Nursing Work Index (PES-NWI) (Lake, 2002; Ogata et al., 2010). This subscale includes three items that were scored using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree) with higher scores indicating better nurse–physician relations. The PES-NWI was found to have acceptable internal consistency reliability and content validity (Ogata et al., 2010). Accordingly, this sample had a Cronbach's α coefficient of 0.89. Subscale scores were determined by summing the three items.

Personal resources (Emotional intelligence dimensions)

Emotional intelligence was assessed using the Wong and Law Emotional Intelligence Scale (WLEIS) (Law et al., 2004; Wong & Law, 2002; Toyota & Yamamoto, 2011). The WLEIS is a 16-item scale consisting of four subscales: SEA (e.g., "I really understand what I feel"), OEA (e.g., "I have a good

understanding of the emotions of people around me"), ROE (e.g., "I can always calm down quickly when I am very angry"), and UOE (e.g., "I would always encourage myself to try my best"), with four items in each subscale. This scale had seven response alternatives, ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating higher self-perceived emotional ability. The WLEIS was found to have acceptable internal consistency, reliability, and construct validity (Toyota & Yamamoto, 2011). Accordingly, this sample had a Cronbach's α coefficient of 0.76–0.89. Each subscale score was determined by summing the items within the respective subscale.

Job demand (Patients' attitude toward nurses)

Patients' attitude toward nurses was assessed using the "Attitude of Patients" subscale of the Psychiatric Nurse Job Stressor Scale (PNJSS) (Yada et al., 2011), which includes six items that evaluate the degree to which psychiatric patients display an unpleasant attitude toward nurses (e.g., "I feel that there are patients who have an unpleasant attitude toward me."). Respondents ranked each item according to a 100-mm visual analog scale, with each millimeter being equivalent to 1 point (response range: 0–600) and higher scores indicating higher job stress due to psychiatric patients' unpleasant attitude toward nurses. The PNJSS was found to have good internal consistency reliability and construct validity (Yada et al., 2011). Accordingly, this sample had a Cronbach's α coefficient of 0.87. Subscale scores were determined by summing the six items.

Demographics

Demographic variables included age, years of psychiatric hospital work experience, gender, qualification (registered or licensed practical nurse), and type of ward (acute, chronic, or others).

5.4. Data collection

Data collection took place from August to October in 2018. Nursing directors of each hospital were asked for their cooperation with this survey, all of who agreed to participate. Anonymous self-administered questionnaires were subsequently distributed to all eligible nurses (N=730) working at each hospital. Completed questionnaires were placed into envelopes, sealed, and posted to a collection box located within the wards.

5.5. Data analysis

A descriptive analysis of the study variables was conducted. Either Student's t-test or one-way analysis of variance was performed to compare mean work engagement scores between subgroups of discrete variables, while Pearson's correlation coefficients were calculated to determine correlations between continuous variables. Hierarchical multiple regression analysis with mean-centered predictor variables was conducted to estimate the strength of the association of demographics (control variables) (step 1), job resources, personal resources and job demand (step 2) and job resources*job demand interaction terms and personal resources*job demand interaction terms (step 3) with work engagement. To better explore the moderating effects of job demand, the interactions were plotted using the standardized regression coefficients of regression lines for high (1 SD above the mean) and low (1 SD below the mean) levels of the job demand. Additionally, data were checked for multicollinearity using the variance inflation

factor (VIF). Statistical analysis was performed using R version 3.6.0, with $p<0.05$ being considered statistically significant.

5.6. Ethical considerations

The Institutional Review Board of the Graduate School of Health Science, Kobe University, approved this study (No 712). Participants received a written explanation of the aims, methods, voluntary nature of the study, and the protection of anonymity. Only those who agreed to participate in the study answered the questionnaire.

6. RESULTS

Among the 730 nurses who received questionnaires, 425 returned completed questionnaires (response rate: 58.2%).

6.1. Sample demographics (Table 2)

Participants had a mean (± standard deviation) age and psychiatric hospital work experience of 42.12 ± 11.43 and 11.45 ± 9.13 years, respectively. The majority of the psychiatric nurses were female (66.82%) and registered nurses (83.76%). Moreover, 36.71% were engaged in acute wards, and 40.94% were assigned to chronic wards.

6.2. Work engagement level (Table 3)

Participants had a mean (± standard deviation) work engagement score of 2.33 ± 1.00.

6.3. Comparison of work engagement between subgroups of study variables

No significant differences in work engagement were identified for study variables.

6.4. Correlations between study variables (Table 3)

No significant correlation was observed between work engagement and psychiatric hospital work experience. A significant negative correlation was found between work engagement and patients' attitude toward nurses. Moreover, significant positive correlations were found between work engagement and other variables.

6.5. Hypothesis testing

Hierarchical multiple regression analysis found that reward (β=0.20; p<0.001), supervisor support (β=0.10; p=0.038), nurse–physician collaboration (β=0.13; p<0.01), OEA (β=0.12; p=0.011), UOE (β=0.35; p<0.001), reward*patients' attitude toward nurses (β=0.10; p=0.028) and supervisor support*patients' attitude toward nurses (β=0.10; p=0.019) were significantly associated with work engagement (Table 4). Thereby H1, H2, and H4 were partly supported, while H3 and H5 were not supported. The significant interaction effects are presented in Figure 2 and 3. Additionally, all VIF values did not exceed 2.0 in this model.

7. DISCUSSION

The present study has been the first to comprehensively explore the factors influencing psychiatric nurses' work engagement from multiple aspects, such as job resources, personal resources, and job demand.

Accordingly, our results revealed that psychiatric nurses with the ability to self-motivate (UOE) tend to possess higher work engagement. This study has also been the first to show that the self-motivation

dimension of emotional intelligence may play a particularly important role in enhancing work engagement among psychiatric nurses. Regarding motivation, psychiatric nurses are working in a stressful environment, and enhancing their job motivation has been recognized as an important task (Engin & Cam, 2009). However, psychiatric nurses' motivations vary according to individual characteristics (Gimba and Duma, 2015), and the approach toward strengthening them should also vary from person to person (Gagné & Deci, 2005). Therefore, psychiatric nurses who have the ability to self-motivate may be likely to find the most effective ways of motivating themselves, achieve their goals, and consequently increase work engagement. Moreover, the present study showed that psychiatric nurses with the ability to empathize (OEA) tend to possess higher work engagement. This finding is similar to that presented in a previous study wherein a positive relationship was found between the interpersonal dimension, including empathy of emotional intelligence, and work engagement among nonpsychiatric nurses (Pérez-Fuentes et al., 2018). Empathy has been considered to cultivate a deeper interpersonal relationship between psychiatric patients and nurses (Delaney et al., 2017). Furthermore, not only are psychiatric nurses required to understand their patients' feelings and build rapport as mental health care professionals, they also hope for and derive pleasure from such actions (Hummelvol & Severinsson, 2001). Therefore, psychiatric nurses with empathic ability who succeed in building good relationships with their patients may be able to enhance work engagement by taking pride in their work and enjoying it. Unexpectedly, this study shows that the abilities to understand self-emotion (SEA) and regulate self-emotion (ROE) are not related to work engagement, which is inconsistent with a previous finding among

nonpsychiatric nurses (Zhu et al., 2015). Because most psychiatric nurses use these abilities as a matter of course in the daily care for patients with mental illnesses, these abilities may not be able to become predictors of their work engagement.

Our results indicate that psychiatric nurses with a positive perception of reward, supervisor support, and nurse–physician collaboration tend to possess higher work engagement. This finding regarding reward was consistent with that presented in previous studies among nonpsychiatric nurses (Adriaenssens et al., 2015; Wang et al., 2017). Providing adequate rewards may be an essential job resource among all nurses. The findings regarding supervisor support and nurse–physician collaboration obtained herein were consistent with those obtained in previous studies among psychiatric nurses (Gillet et al., 2019; Van Bogaert et al., 2013). Considering that multi-disciplinary team care is mainstream in psychiatric hospitals, good relations with different positions and occupations may be particularly important factors for enhancing work engagement. Here job control and coworker support were not related to work engagement, which was inconsistent with previous findings on psychiatric nurses (Hontake & Ariyoshi, 2018). But their model did not include rewards, supervisor support, and nurse–physician collaboration. It is an important finding in this area that these factors particularly enhance the work engagement of psychiatric nurses.

On the contrary, the current study demonstrated that psychiatric patients' unpleasant attitude toward nurses (job demand) did not predict work engagement. Although we assumed that patients' unpleasant attitude toward nurses would decrease psychiatric nurses' work engagement based on previous reports

showing that such attitudes facilitate poor mental health among psychiatric nurses (Yada et al., 2014; Yoshizawa et al., 2016), our results did not support this assumption. This suggests that psychiatric nurses may be able to maintain work engagement even in the face of negative attitudes from patients.

Here the job demand was confirmed to have an important moderating role. The results demonstrate that the positive impacts of reward and supervisor support on work engagement are strengthened when psychiatric nurses face the patients' unpleasant attitude toward nurses (i.e., when job demand is high). The patients' unpleasant attitudes are considered common phenomena in psychiatric hospitals (Hassen & Tumah, 2018; Magnavita & Heponiemi, 2012), and how to cope with them has been an important issue for organizations and individuals. In this respect, our findings suggest that reward and supervisor support may work more effectively as facilitators of work engagement, especially in a demanding environment. Unlike our expectations, the relationships between personal resources and work engagement were not affected by job demand. Emotional abilities are always used in psychiatric nursing, and those effects may remain the same regardless of whether the work environment is stressful.

7.1. Implications for nursing management

The present study showed that certain work conditions, especially reward, supervisor support, and nurse–physician collaboration, were positively related to work engagement among psychiatric nurses. Traditionally, nursing leaders have targeted and improved such job resources. Nonetheless, continued improvement in job resources, particularly in psychiatric settings, is necessary. As rewards and supervisor support work more effectively when job demand is high, nursing leaders should provide resources such as

rewards and support, especially for nurses who are struggling with nurse–patient relationships. On the contrary, psychiatric nurses should not passively expect others to improve their work environment but rather need to actively utilize their own abilities to improve their work engagement. As such, the present study showed that psychiatric nurses' ability to self-motivate and empathize were facilitators of work engagement. To develop self-motivation, psychiatric nurses must be made aware of the importance of self-motivation, factors that stimulate motivation (motivators) need to be clarified, and a work environment with easy access to motivators must be established. Regarding empathic ability, an experimental study (Kahriman et al., 2016) demonstrated that empathy-based training was able to improve nurses' empathic skills. Thus, incorporating training on empathic skills into educational programs may be effective in developing psychiatric nurses' empathic ability.

7.2. Limitations

This study selected participants only from private psychiatric hospitals, which have differences in work environments from public hospitals, such as salary and security systems, which may limit the generalizability of our results. Additionally, the current study used a cross-sectional design that does not determine the direction of the relationship between work engagement and other factors.

8. CONCLUSIONS

The present study demonstrated that reward, supervisor support, nurse–physician collaboration, empathic ability, and self-motivation ability positively affect work engagement. Additionally, reward and supervisor support have particularly positive effects on work engagement when psychiatric nurses face

patients' unpleasant attitudes. To enhance work engagement among psychiatric nurses, nursing leaders should consider the patients' attitude toward nurses, improve the work environment and encourage nurses' abilities to self-motivate and empathize.

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Table 1

Factors that reflect work engagement among psychiatric or nonpsychiatric nurses

Influencing factors	Author (year)	Statistically significant	Not significant
(Psychiatric nurses)			
Nursing management	Van Bogaert et al. (2013)	Yes (positively)	
Collaboration with physician	Van Bogaert et al. (2013)	Yes (positively)	
(Nonpsychiaatric nurses)			
A. Job itself			
1. Load			
Working hours	Simpson et al (2009), Poulsen et al (2016)	Yes (negatively)	
	Mauno (2016)	Yes (positively)	
	Peter et al. (2016)		Not
Effort	Wang et al. (2017)	Yes (positively)	
Time demands	Mauno et al. (2007)	Yes (positively)	
Role stress (workload/role ambiguity)	Garrosa et al. (2011)	Yes (negatively)	
Workload	Fiabane et al. (2013)	Yes (positively)	
	Van Bogaert et al. (2017)	Yes (negatively)	
	Bamford et al. (2013)		Not
Job demand (time pressure, physical demand)	Adriaenssens et al.(2015)		No
Satisfaction with task requirement	Simpson et al. (2009)		Not
Emotional labor	Donoso 2015 (2015)	Yes (positively)	
	Mauno et al. (2016)	Yes (negatively)	
Shiftwork	Sawatzky et al. (2012), Poulsen et al. (2016)	Yes (negatively)	
	Adriaenssens et al. (2013)	Yes (positively)	
	Garcia et al. (2016), Dinapoli et al. (2016)		Not
Work schedule type, work schedule control	Peter et al. (2016)		Not
2. Reward	Adriaenssens et al. (2015; 2013), Wang et al. (2017), Fiabane et al. (2013), Bamford et al (2013)	Yes (positively)	
	Jenaro et al. (2011), Simpson et al. (2009), Poulsen (2016)		Not
3. Job control			

Job control	Adriaenssens et al. (2015), Garcia (2016), Mauno (2007), Bamford et al. (2013), Lashinger et al (2012)	Yes (positively)	
Decision latitude/Skill discretion/Decision involvement	Adriaenssens et al. (2011), Van Bogaert et al. (2017), Sullivan et al. (2013)	Yes (positively)	
Shared governance	Shiller et al. (2016)	Yes (positively)	
Decision authority	Naruse et al. (2013)		Not
Autonomy	Simpson et al (2009)		Not
4. Fairness			
Fairness	Bamford et al. (2013)	Yes (positively)	
	Fiabane et al (2013)		Not
Organizational justice	Zhu et al. (2015)	Yes (positively)	
	Gillet et al. (2013)	Yes (as a moderator)	
5. Organizational value, policy, etc			
Value	Fiabane et al. (2013), Bamford et al. (2013)	Yes (positively)	
Person organization fit	Peng et al. (2014)	Yes (positively)	
Work ethic feasibility	Mauno et aln (2016)	Yes (direct positive/as a moderator)	
Work agreement	Adriaenssens et al. (2015)		Not
Satisfaction with organizational policy	Simpson et al (2009)		Not
6. Staff resources			
Staff resources	Sawatzky et al. (2012)	Yes (positively)	
Leader-member exchange	Brunetto et al. (2013)	Yes (positively)	
7. job characteristics	Wan et al. (2018)	Yes (positively)	
Nursing practice environment	Wan et al. (2018)	Yes (positively)	
Organizational acumen	Walker et al. (2013)	Yes (positively)	
B. Social relationship			
1. Support			
Supervisor support	Poulsen et al. (2016), Adriaenssens et ail (2013), Othman et al. (2013), Naruse et al. (2013)	Yes (positively)	
	Pohl et al (2017), Van Bogaert et al. (2017)	Yes (as a moderator)	
Coworker support	Poulsen et al. (2016)	Yes (positively)	
	Othman et al.(2013), Naruse et al. (2013)	No	

Social (Supervisor and coworker) support	Garciaet al. (2016), Adriaenssens et al (2015), Amos et al. (2017)	Yes (positively)	
	Jenaro et al. (2011)		Not
Satisfaction with teamwork	Brunetto et al. (2013)	Yes (positively)	
Organizational support	Gupta et al. (2016)	Yes (direct positive/as a moderator)	
Community	Fiabane et al. (2013)	Yes (positively)	
Feedback on performance	Jenaro et al. (2011)		Not
2. Relation with physician	Van Bogaert et al. (2017), Sawatzky et al (2012)	Yes (positively)	
3. Relation with patient/family			
Hours spent in patient care	Poulsen et al. (2016)	Yes (positively)	
Perceived impact on client	Santos et al (2016)	Yes (positively)	
No opportunity of care provision	Swatzky et al. (2012)	Yes (negatively)	
Patient care	Jenaro (2011)	Yes (negatively)	
Interaction with patients	Garrosa et a. (2011)	Yes (negatively)	
4. Others			
Social capital	Stromgren et al. (2016), Van Bogaert et al. (2017)	Yes (positively)	
Relational coordination	Sullivan et al. (2013)		
Global service climate	Abl.delhadi et al. (2012)		
C. **Superior's management and leadership**			
1. Management			
Nursing management	Sawatzky et al (2012), Wong et al. (2010), Mauno et al. (2007)	Yes (positively)	
2. Leadership			
Transformational leadership	Manning et al (2016), Mauno et al. (2016), Hayati et al. (2014), Salanova et al. (2011)	Yes (positively)	
Authentic leadership	Bamford et al. (2013), Giallonardo et al. (2010), Wong et al. (2010)	Yes (positively)	
Leadership behavior	Kunie et al. (2017)	Yes (positively)	
Transactional/Passive-avoidance leadership/	Manning et al (2016)	Yes (negatively)	
D. Attitude/Recognition			
Job satisfaction	Fiabane et al. (2013), Simpson. (2009)	Yes (positively)	
Turnover intention	Simpson. (2009)	Yes (positively)	

Organization-based self-esteem	Mauno et al. (2007)	Yes (positively)	
Social identification	Wong et al. (2010)	Yes (positively)	
Quality of work life	Gille et al. (2013), Jenaro et a;l (2011)	Yes (positively)	
Overcommitoment/Organizational commitment	Wang et al. (2017), Gupta et al. (2016)	Yes (positively)	
Compassion for care	Mauno et al. (2016)	Yes (positively)	
Passion for nurse	Rivera et al. (2011)	Yes (positively)	
Moral distress	Lawrence et al. (2011)	Yes (negatively)	
Person-organization fit	Peng et al (2014)	Yes (positively)	
E. Ability/Trait			
Empowerment	Dinapoli et al. (2016), Wang et al. (2015), Lashinger et al. (2009)	Yes (positively)	
Critical reflective practice	Lawrence et al. (2011)	Yes (positively)	
Emotional competence	Garrosa et al. (2011)	Yes (positively)	
Optimism	Garrosa et al (2011), Wang et al. (2017)	Yes (positively)	
Hardy personality	Garrosa et al (2011)	Yes (positively)	
Hope	Wang et al. (2017)	Yes (positively)	
Resilience	Wang et al. (2017)		Not
Psychological capital	Shahpouri et al. (2016), Lashinger et al. (2012), Wang et al. (2017)	Yes (positively)	
Self-efficacy	Salanova et al. (2011)	Yes (positively)	
	Wang et al. (2017)		Not
Emotional intelligence	Zhu et al. (2015)	Yes (positively)	
Emotion regulation ability	Donoso et al. (2015)	Yes (positively)	
Self-transcendence	Palmer et al. (2010))	Yes (positively)	
Type A personality	Fiabane et al. (2013)	Yes (negatively)	
Poor mental/physical health	Fiabane et al. (2013)	Yes (negatively)	
	Poulsen et al. (2016)		Not
Goal orientation (mastery-approach)	Adriaenssen et al.(2015)	Yes (positively)	
Goal orientation (performance-avoidance)	Adriaenssen et al.(2015)	Yes (negatively)	
F. Private aspects			
Positive relationship between work and family	Naruse et al. (2013)	Yes (positively)	

Work schedule fit with private life	Peter et al. (2016)	Yes (as a moderator)	
Family mastery	Lu et al. (2011)	Yes (positively)	
Cultural leisure activity	Tuisk et al. (2016)	Yes (positively)	
Work-to-family conflict(	Mauno et al. (2007)	Yes (negatively)	
G. Demographics			
Age	Dinapoli. (2016), Wang et al. (2017)	Yes (positively)	
	Aboshaiqah et al. (2016)	Yes (negatively)	
	Simpson et al. (2009), Gupta et al. (2016), García et al. (2016), Mauno et al. (2016), Poulsen et al. (2016), Zhu et al. (2015), Adriaenssens et al. (2015)		Not
Gender (to male)	Mauno et al (2007, 2016), Adriaenssens et al. (2015)	Yes (postitive)	
	Gupta et al. (2016),, Poulsen et al. (2016), Zhu et al. (2015), Adriaenssens et al. (2015), Aboshaiqah et al. (2016)		Not
Education	Gupta et al. (2016), García et al. (2016), Dinapoli et al. (2016)		Not
Qualification (to higher)	Aboshaiqah et al. (2016)	Yes (positively)	
	Dinapoli et al. (2016)		Not
Type of employment (tenure, etc)	Gupta et al. (2016), García et al. (2016), Mauno et al. (2007)		Not
Marital status (to yes)	Aboshaiqah et al. (2016), Othman et al. (2013)	Yes (positively)	
	García et al. (2016), Poulsen et al. (2016), Zhu et al. (2015)		Not
Children	Poulsen et al. (2016),	Yes (positively)	
	Garcia et al. (2016)		Not
Length of work experience	Poulsen et al. (2016), Bamford et al. (2013)	Yes (positively)	
	Aboshaiqah et al. (2016), Wonder et al. (2012)	Yes (negatively)	
	García et al. (2016), Zhu et al. (2015), Dinapoli et al. (2016)		Not
Work setting (university hospital to military hospital)	Aboshaiqah et al. (2016)	Yes (positively)	

Table 2

Demographics of the sample (*N*=425)

	Mean ± SD or N (%)
Age	42.12 ± 11.43
Psychiatric hospital work experience	11.45 ± 9.13
Gender	
Male	141 (33.18)
Female	284 (66.82)
Qualification	
Registered nurse	356 (83.76)
Licensed practical nurse	69 (16.24)
Type of ward	
Acute	156 (36.71)
Chronic	174 (40.94)
Others	95 (22.35)

SD, standard deviation.

Table 3

Means, standard deviations, scale reliability, and correlations of the study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Age	1												
2 Psychiatric hospital work experience	0.61**	1							.				
3 Reward	−0.14**	−0.18**	1										
4 Job control	0.16**	0.11*	0.30**	1									
5 Supervisor support	−0.10*	−0.11*	0.49**	0.27**	1								
6 Coworker support	−0.14*	−0.12*	0.36**	0.17**	0.39**	1							
7 Collaboration with physician	−0.11*	−0.08	0.31**	0.20**	0.25**	0.33**	1						
8 Patients' attitude toward nurses	−0.13**	−0.14**	−0.10*	−0.21**	−0.06	−0.05	−0.01	1					
9 EI (SEA)	0.11*	0.13**	0.03	0.13**	0.09	−0.06	−0.08	−0.19**	1				
10 EI (OEA)	−0.02	−0.05	0.06	0.14**	0.05	0.03	0.04	−0.12*	0.46**	1			
11 EI (ROE)	0.12*	0.10*	0.17**	0.21**	0.17**	0.16**	0.10	−0.31**	0.38**	0.30**	1		
12 EI (UOE)	0.10*	0.03	0.06	0.17**	0.11*	0.05	0.01	−0.19**	0.38**	0.45**	0.41**	1	
13 Work engagement	0.12*	0.04	0.33**	0.28**	0.29**	0.24**	0.24**	−0.17**	0.18**	0.30**	0.29**	0.45**	1
Response range			7–28	3–12	4–16	4–16	3–12	0–600	4–28	4–28	4–28	4–28	0–6
Mean	42.12	11.45	17.72	8.14	11.57	11.72	8.02	220.14	18.35	17.31	15.45	14.91	2.33
SD	11.43	9.13	2.55	1.47	2.55	1.70	1.72	118.92	3.88	3.71	4.09	4.02	1.00
Cronbach's α			0.64	0.69	0.82	0.94	0.89	0.87	0.89	0.76	0.79	0.81	0.94

*p<0.05; **p<0.01***; p<0.001. SD, standard deviation

EI, emotional intelligence; SEA, self-emotion appraisal; OEA, other-emotion appraisal; ROE, regulation of emotion; UOE, use of emotion

Table 4

Hierarchical multiple regression analysis for work engagement

	Work engagement		
	ΔR	β	SE
(STEP 1)	0.02		
Demographics			
Age		0.01	0.05
Psychiatric hospital work experience		0.03	0.05
Gender (to male)		0.03	0.09
Qualification (to registered nurse)		0.05	0.11
Type of ward (reference: acute)			
Chronic		0.05	0.11
Others		−0.07	0.09
(STEP 2)	0.32***		
Job resources			
Reward		0.20***	0.05
Job control		0.07	0.04
Supervisor support		0.10*	0.05
Coworker support		0.05	0.05
Nurse–physician collaboration		0.13**	0.04
Personal resources (EI dimensions)			
SEA		−0.05	0.05
OEA		0.12*	0.05
ROE		0.04	0.05
UOE		0.35***	0.05
Job demand			
Patients' attitude toward nurses		−0.05	0.04
(STEP 3)	0.06**		
Job resources * job demand interaction terms			
Reward*patients' attitude toward nurses		0.10*	0.03
Job control*patients' attitude toward nurses		0.03	0.04
Supervisor support*patients' attitude toward nurses		0.10*	0.04
Coworker support*patients' attitude toward nurses		−0.03	0.04
Nurse–physician collaboration*patients' attitude toward nurses		0.01	0.04
Personal resources * job demand interaction terms			
SEA*patients' attitude toward nurses		<0.01	0.05

OEA*patients' attitude toward nurses		0.03	0.05
ROE*patients' attitude toward nurses		−0.03	0.05
UOE*patients' attitude toward nurses		0.05	0.05
R^2	0.40^{***}		
Adjusted R^2	0.37		

* $p<0.05$; ** $p<0.01$; *** $p<0.001$.

ΔR, change in explained variance.

SE, standard error.

EI, emotional intelligence; SEA, self-emotion appraisal; OEA, other-emotion appraisal; ROE, regulation of emotion; UOE, use of emotion

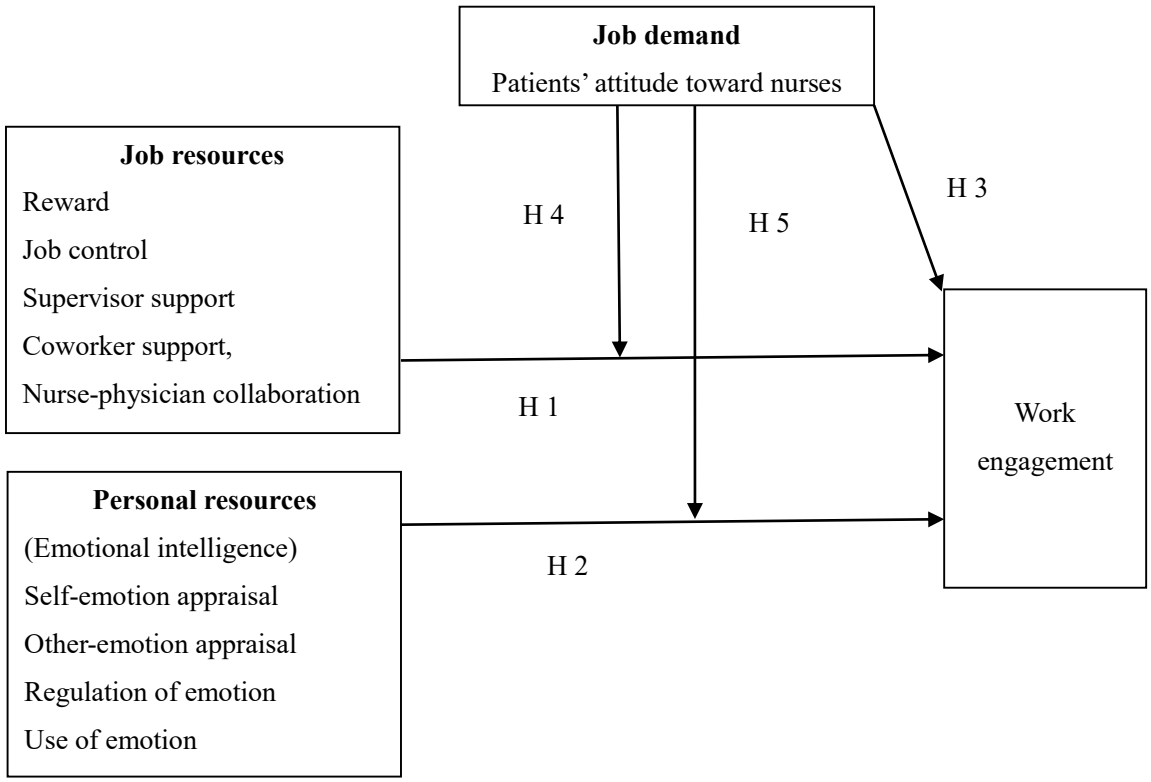

Figure 1

Hypothesized model of factors influencing work engagement among psychiatric nurses

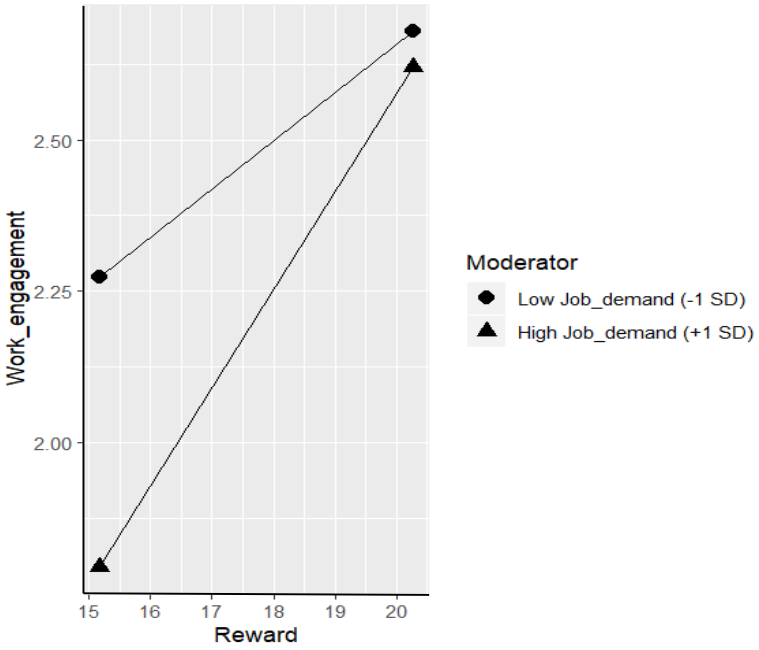

Figure 2

Interaction effect of reward and job demand (patients' attitude toward nurses) on work engagement

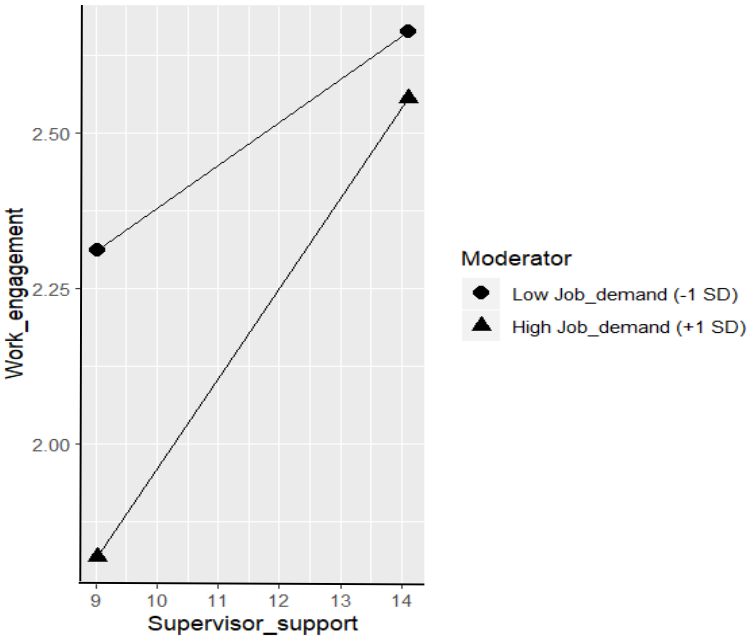

Figure 3

Interaction effect of supervisor support and job demand (patients' attitude toward nurses) on work engagement among psychiatric nurses

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