Job Crafting and Work Engagement of Nurses in Affiliated Hospitals of Harbin Medical University, the People's Republic of China*

การจัดแจงในงานและความผูกพันต่องานของพยาบาลโรงพยาบาลเครือมหาวิทยาลัยการแพทย์ฮาร์บิน สาธารณรัฐประชาชนจีน*

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Abstract

Job crafting and work engagement are important components of the healthcare system to achieve positive organizational outcomes and quality nursing care. This descriptive correlation study aimed to examine the level of job crafting and work engagement among nurses, and to explore the relationship between job crafting and work engagement. The subjects included 408 nurses working in affiliated hospitals of Harbin Medical University, The People's Republic of China. Research instruments consisted of the Job Crafting Scale (JCS) developed by Tims et al. and translated into Chinese by Huang et al. and the Utrecht Work Engagement Scale (UWES) developed by Schaufeli et al. and translated into Chinese by Fong and Ng. The Cronbach's alpha coefficients for the overall JCS and UWES were .97 and .92, respectively. Descriptive statistics and Spearman's rank-order correlation coefficient were used to analyze data.

The results of this study revealed that nurses perceived their overall job crafting at a high level (M = 3.80, SD = 0.80), and their overall work engagement at an average level (M = 3.66, SD = 1.48). There was a significant, positive relationship between overall job crafting and overall work engagement (rs = 0.68, p < .001).

The results of this study could provide understanding of the relationship between job crafting and work engagement leading to the development of appropriate strategies to enhance work engagement among nurses.

Keywords: Job crafting; Work engagement; Nurses; The People's Republic of China

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บทคัดย่อ

การจัดแจงในงานและความผูกพันต่องาน เป็นองค์ประกอบที่สำคัญของระบบดูแลสุขภาพเพื่อบรรลุผลลัพธ์เชิงบวกขององค์กรและคุณภาพการดูแล การศึกษาหาความสัมพันธ์นี้มีวัตถุประสงค์เพื่อหาระดับการจัดแจงในงานและความผูกพันต่องาน และหาความสัมพันธ์ระหว่างการจัดแจงในงานและความผูกพันต่องาน กลุ่มตัวอย่างคือพยาบาล 408 คน ทำงานที่โรงพยาบาลเครือมหาวิทยาลัยการแพทย์ฮาร์บิน ประเทศสาธารณรัฐประชาชนจีน เครื่องมือวิจัยประกอบด้วยแบบวัดการจัดแจงในงาน ที่พัฒนาโดย ทิม และคณะ แปลเป็นภาษาจีนโดย ฮวง และคณะ และแบบวัดความผูกพันต่องาน ที่พัฒนาโดย ช๊อฟเฟลี่ และคณะ และแปลเป็นภาษาจีนโดย ฟง และ โง ค่า Cronbach's alpha coefficient ของแบบวัดการจัดแจงในงานและแบบวัดความผูกพันต่องานทั้งฉบับคือ .97 และ .92 ตามลำดับ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และสถิติ Spearman's rank-order correlation coefficient

ผลการศึกษาพบว่า พยาบาลรับรู้การจัดแจงในงานในระดับสูง (M = 3.80, SD = 0.80) และรับรู้ความผูกพันต่องานในระดับปานกลาง (M = 3.66, SD = 1.48) การจัดแจงในงานและความผูกพันต่องานมีความสัมพันธ์เชิงบวกอย่างมีนัยสำคัญทางสถิติ (rs = 0.68, p < .001)

ผลการศึกษานี้ ทำให้เข้าใจถึงความสัมพันธ์ระหว่างการจัดแจงในงานและความผูกพันต่องาน นำไปสู่การพัฒนากลยุทธ์ที่เหมาะสมในการเพิ่มพูนความผูกพันต่องานของพยาบาล

คำสำคัญ: การจัดแจงในงาน ความผูกพันต่องาน พยาบาล สาธารณรัฐประชาชนจีน

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Background and significance

As the population ages, the increasing demand for healthcare resources poses great challenges for healthcare professionals. Together with the decreasing trend of healthcare employee-to-patient ratios due to the growing burden of lifestyle diseases, these have led to a persistently rising workload in clinics. A previous study has shown that nurses' high workloads could cause higher turnover intention and more nursing shortages (Vermooten et al., 2019). Globally, based on WHO data, nurses and midwives are in low supply by more than 50%, particularly in Southeast Asia (WHO, 2018). Work engagement is suggested as a possible solution to address future nursing shortages.

Vermooten et al. (2019) reported that high nurse turnover intention was significantly reduced by work engagement. If nurses engaged in their work, they would remain in the workplace with intent to stay in the current organization (Eltaybani et al., 2018). Schaufeli and Bakker (2003) defined work engagement as a positive, fulfilling, work-related state of mind that includes three dimensions: vigor, dedication, and absorption. Vigor is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly, and one has difficulties with detaching oneself from work.

Work engagement has shown significant correlations with many factors, such as the meaningfulness of one's work and job satisfaction (Paulík, 2020). Among these factors, employee job crafting is closely and positively related to work engagement (Baghdadi et al., 2021). Job crafting refers to self-initiated changes that nurses make to balance their job demands and resources with their personal abilities and needs to attain and optimize their work goals, including increasing social job resources, increasing structural job resources, decreasing hindering job demands, and increasing challenging job demands (Tims & Bakker, 2010).

Job crafting consists of four conceptual dimensions, which are described as follows. 1) Increasing structural work resources refers to the diversity of resources, opportunities for development, and autonomy. It reflects the self-development desire of employees and a willingness to learn new things, develop competencies, and seek professional skills at work. 2) Increasing social job resources refers to the development of employees' relationships with colleagues and their leaders. These relationships include inspiration, supervisory coaching, social support, and feedback or guidance from leaders and colleagues. 3) Increasing challenging job demands refers to employees who seek more challenges in their work when they feel that a job is not providing them sufficient opportunities to use all their abilities. Employees can add work tasks, take over tasks from their supervisors, or volunteer to undertake new projects to increase their level of job demands. 4) Decreasing hindering job demands refers to the behavior of employees who take the initiative to reduce job requirements when they find that the job

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requirements are beyond their ability. They may decrease hindering job demands by asking for help from their colleagues.

Studies have shown that job crafting could be an effective way to increase work engagement (Baghdadi et al., 2021; Kuijpers et al., 2020). Mróz and Kaleta (2016) reported a lower work engagement level in China compared with other countries. Other than this study, there is very limited research on work engagement and job crafting among nurses in China. Heilongjiang Province is located in the north of China, and has a moderately low economic level. Harbin is its capital city. Nurse shortages can lead to increased workloads for nurses, which cause fatigue and boredom, ultimately affecting the quality of patient care. One study reported that nurses in Heilongjiang Province had a high workload with enormous pressure. They had no passion and no motivation on their job (Tong, 2018). Consequently, there is an urgent requirement to study work engagement and job crafting in nurses in that context.

In Harbin, four hospitals are affiliated with Harbin Medical University (HMU). These are tertiary hospitals that integrate prevention care, medical treatments, teaching activities, and research studies and have the same hospital setting, administration and management, teaching curriculum, and research systems. Thus, we chose two of these hospitals for our study to represent the four affiliated medical university hospitals, with the aim of exploring the current status of work engagement and job crafting among nurses in Heilongjiang Province. The aim was to examine the status and relationship between nurses' work engagement and job crafting to provide evidence for improving their clinical performance and patient care at HMU Hospitals in China.

Objectives

1. To explore job crafting among nurses in Affiliated Hospitals of HMU, China.

2. To explore work engagement among nurses in Affiliated Hospitals of HMU, China.

3. To examine the relationship between job crafting and work engagement among nurses in Affiliated Hospitals of HMU, China.

Conceptual framework

The conceptual framework of this study was based on the concept of work engagement developed by Schaufeli et al. (2002) and the concept of job crafting by Tims and Bakker (2010). Work engagement is defined as a positive, fulfilling, work-related state of mind that includes three dimensions: vigor, dedication, and absorption (Schaufeli et al., 2002). Job crafting refers to self-initiated change at work, which is characterized by higher levels of employee willingness to attain and optimize their personal (work) goals to balance the job demands and job resources (Tims & Bakker, 2010). If nurses are motivated to craft their work, their work engagement is likely to improve. Therefore, job crafting is expected to positively affect employee motivation, dedication, effort level, commitment, and, hence, their level of engagement at work (Crawford et al., 2010).

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Methods

Population and sample

The population for this study included nurses in Harbin, China, the total number of which was 3,154 nurses, including 2,058 and 1,096 nurses from the second affiliated hospital and third affiliated hospital of HMU (HMUSAH and HMUTAH), respectively. Nurses who had worked in the clinical departments for more than one year were selected.

The sample size of this study was calculated as 355 according to Yamane's formula (1973). Taking into account an approximately 20% loss in the sample acquisition process, the final sample size was targeted as 426.

Research instruments

1. Demographic Data Form

The demographic data form was designed by the researchers. The questionnaire included close-ended questions to collect information from participants, such as gender, age, marital status, educational level, work years, income, and clinical department.

2. The Utrecht Work Engagement Scale (UWES)

In the present study, the researcher used the Chinese version of the Utrecht Work Engagement Scale (UWES), originally developed by Schaufeli et al. (2006), and translated by Fong and Ng (2012). We obtained a license permitting the use of the UWES for this study. The UWES has three dimensions and nine items on work engagement: vigor (items 1, 2, and 5), dedication (items 3, 4, and 7), and absorption (items 6, 8, and 9). Each item was rated on a 7-point Likert-type scale ranging from 0 (never) to 6 (every day).

Higher scores indicate higher work engagement. The mean scores were classified into five levels: very low, low, average, high, and very high. Before the survey, the questionnaire's reliability was tested in a preliminary study with 20 nurses from the same hospital, who were then excluded from the main study. The Cronbach's alpha for the UWES was .92. The UWES yielded three subscale scores, and a mean score that ranged from 0 to 6, which was divided into five categories according to Schaufeli and Bakker (2003), as follows:

Level of Work Engagement					
	Very low	Low	Average	High	Very high
Overall	≤1.77	1.78 – 2.88	2.89 – 4.66	4.67 – 5.50	≥5.51
Vigor	≤2.00	2.01 – 3.25	3.26 – 4.80	4.81 – 5.65	≥5.66
Dedication	≤1.33	1.34 – 2.90	2.91 – 4.70	4.71 – 5.69	≥5.70
Absorption	≤1.17	1.18 – 2.33	2.34 – 4.20	4.21 – 5.33	≥5.34

3. Job Crafting Scale (JSC)

We used the Chinese version of the Job Crafting Scale (JSC), originally developed by Tims et al. (2012) and translated by Huang et al. (2020), after obtaining a license permitting its use. It

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has 4 dimensions and 21 items on job crafting: increasing structural job resources (items 1, 4, 7, 9 and 14), increasing social job resources (items 3, 6, 10, 12 and 17), increasing challenging job demands (items 5, 13, 16, 19 and 20), and decreasing hindering job demands (items 2, 8, 11, 15, 18 and 21). Each item was rated on a 5-point Likert-type scale ranging from 1 (never) to 5 (always).

Higher scores indicate better job crafting. The mean scores were classified into three levels: low, moderate, and high. For each subscale of job crafting, scores from 1.00 to 2.33 were considered a low level, scores from 2.34 to 3.66 were considered moderate, and scores from 3.67 to 5.00 were considered high. Before the survey, we tested the questionnaire's reliability in a preliminary study with 20 nurses from the same hospital, who were then excluded from the main study. The Cronbach's alpha coefficient for the JSC was .97.

Ethical considerations

The study protocol was approved by the Research Ethics Committee of the Faculty of Nursing, Chiang Mai University (Approval # 078/2021). All participants volunteered to take part in the study and were free to withdraw from the study at any time. All participants voluntarily signed the informed consent form prior to data collection. The information collected from each participant during the study was kept confidential and anonymous.

Data collection

The data acquisition procedure was as follows.

1. Distribution of the research proposal, the application letter for permission to collect data, and the package of the instruments to the nurse directors of the two hospitals, after receiving approval from the Research Ethics Review Committee of the Faculty of Nursing, Chiang Mai University, and HMU.

2. The researchers informed nurse directors of the purpose of the study and invited them to assign a study coordinator from each hospital to distribute and collect the questionnaires from the nurses.

3. The study participants were selected by random sampling from a list of nurses at each hospital.

4. Researchers and study coordinators distributed data collection packets that included an explanation of study purpose, a consent form, and a questionnaire in an envelope to selected nurses.

5. The research coordinator collected the questionnaires in sealed envelopes from the locked box and returned them to the researcher.

Data analysis

SPSS 22.0 software was used for statistical analysis. The significance level was set as $p < .05$. The demographic data of the nurses were analyzed according to frequency, percentage, mean, and standard deviation (SD), based on the variable. The levels of job crafting and work engagement were analyzed using mean and SD. The Kolmogorov-Smirnov test was used to test the normal distribution of job crafting and work engagement. Spearman's correlation analysis was

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used to examine the relationship between job crafting and work engagement. In the analysis of the relationships between two variables, r < 0.3 was considered as a weak relationship, r = 0.3 to 0.5 reflected a moderate relationship, and r > 0.5 was regarded as a strong relationship.

Results

Demographic data

There were 414 (97.2%) questionnaires returned, 6 of which were incomplete and excluded. Finally, 408 (95.8%) questionnaires were used for the data analysis. Thus, 408 nurses participated in the study. Most of the participants, 384 (94.1%) were female, 207 (59.5%) were aged between 31 and 40 years, and 283 (69.4%) were married. Approximately 79.9% had a bachelor's degree, and most nurses, 240 (58.8%) had 2-10 years of work experience. Nearly half, 176 (43.1%) received a monthly salary of ≥7,001 CNY, and one-third, 137 (33.6%) were in the medical unit.

Job crafting level

The nurses perceived their overall job crafting at a high level (M = 3.80, SD = 0.80). Among the dimensions of job crafting, increasing structural job resources, increasing social job resources, and decreasing hindering job demands were at high levels (M = 3.96, SD = 0.83; M = 3.82, SD = 0.86, M = 3.81, SD = 0.82, respectively), and the dimension of increasing challenging job demands was at a moderate level (M = 3.60, SD = 0.93) (Table 1).

Table 1 Levels of job crafting (n = 408)

Job crafting	Range	M	SD	Level
Overall job crafting	1.00-5.00	3.80	0.80	High
Increasing structural job resources	1.00-5.00	3.96	0.83	High
Increasing social job resources	1.00-5.00	3.82	0.86	High
Increasing challenging job demands	1.00-5.00	3.60	0.93	Moderate
Decreasing hindering job demands	1.00-5.00	3.81	0.82	High

Work engagement level

The nurses perceived their overall work engagement at a moderate level (M = 3.66, SD = 1.48). The three dimensions of work engagement, vigor, dedication, and absorption, were at average levels (M with SD) of 3.59 (1.54); 4.04 (1.52); and 3.34 (1.65), respectively (Table 2).

Table 2 Levels of work engagement (n = 408)

Work engagement	Range	M	SD	Level
Overall work engagement	≤1.77-≥5.51	3.66	1.48	Moderate
Vigor	≤2.00-≥5.66	3.59	1.54	Moderate
Dedication	≤1.33-≥5.70	4.04	1.52	Moderate
Absorption	≤1.17-≥5.34	3.34	1.65	Moderate

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The relationship between overall job crafting and overall work engagement

There was a significant, positive relationship between overall job crafting and overall work engagement (rs = 0.68, p < .001) (Table 3).

Table 3 The relationship between overall job crafting and overall work engagement (n = 408)

	Overall job crafting
Overall work engagement	0.68*

* p < .001

Discussion

The results of this study showed that nurses in HMU hospitals perceived overall job crafting at a high level, which might be due to nurses' understanding of the concept of job crafting and self-initiated application of job crafting in local hospitals. In addition, hospital settings and work environments might also provide nurses with opportunities to develop their professional abilities or actively participate in the decision-making process. Nurse managers could also individually coach nurses to reshape their jobs or provide feedback on job crafting activities.

Varying studies have reported varying levels of job crafting among nurses. For example, Baghdadi et al. (2021) found a high level of job crafting in Riyadh, Saudi Arabia. However, Shaheen and Mahmoud (2021) reported a low level of job crafting among participating nurses at Tanta University Hospital, Egypt. Huang et al. (2020) found that the mean score for overall job crafting was moderate among nurses in Chengdu, China. These different results regarding job crafting among nurses in different areas could be due to distinct hospital settings, work environments, and nurses' characteristics. Nurses who participated in this study could be taking the initiative to change their work requirements, resources, and challenges, thus reducing work hindrances. As a result, overall job crafting was at a high level.

The results showed that nurses in the surveyed hospitals perceived their overall work engagement as being at a moderate level. The results indicated that nurses in this study could focus on their own work and had a strong sense of dedication. Our findings are consistent with those of Cruz et al. (2021), who reported an average level of overall nurses' work engagement in Saudi Arabia. This finding differs from that of previous studies. Another study conducted in a hospital in China demonstrated an average level of work engagement among emergency nurses (Li et al., 2021). Emergency nurses usually have a heavy workload due to the complicated and emergent clinical situations they encounter in the emergency room. They, therefore, need to have more vigor and focus on their work to increase their level of work engagement (Li et al., 2021).

However, in this study, few nurses worked in the emergency room (1.23%) or operating room (9.31%) which resulted in a decline in work engagement. A low level of work engagement

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negatively impacts healthcare quality, nurse motivation and retention, patient mortality, and hospital profitability. Even if the present study reported an average, but not low, level of overall work engagement, nurse managers and hospital administrators should still take it seriously and find areas in which to improve work engagement.

The results showed a significant positive relationship between job crafting and work engagement. This relationship implies that self-initiated adjustments in job crafting can increase nurses' work engagement. In the surveyed hospitals, nurse managers promoted teamwork and encouraged nurses to actively participate in the decision-making process and continuously pursue professional development activities. These strategies appeared to be effective in helping nurses develop their abilities, enhance their commitment to learning new things about their work, and maximize their full capacity with the effective and efficient use of available resources. Therefore, participants in this study had a high level of job crafting and were proactive in mobilizing resources and facing challenges at work.

However, the nurses reported a moderate level of work engagement, indicating inadequate vigor, dedication, and absorption in their work. Given the participants' favorable reports regarding work resources and social identity, nursing leaders should integrate and optimize resources and actively recognize and encourage nurses to improve their work engagement. For example, nursing leaders could organize dayshift and nightshift systems so that nurses have enough rest time to stay active, optimize existing resources, continuously develop new opportunities to help nurses improve themselves, and give nurses appropriate encouragement and recognition so that they are more willing to contribute to their work.

Application of research findings

The results of this study imply that nurse managers who support nurses in fostering skills for job crafting and conducting subsequent job crafting behaviors can witness apparent improvement in terms of nurses' work engagement. Therefore, nurse managers should encourage nursing staff to explore meaningfulness in their routine jobs and transform their work behavior to match their own development goals with those of their organizations. In addition, nurse managers should support nurses' effective and efficient application of related resources at work. This is a useful tactic to encourage nurses to be active in the decision-making process and constantly improve their professional capacity. In this way, a rational working climate can be cultivated to enhance nurses' performance regarding job crafting and work engagement.

Suggestions for further research

According to this study's findings, the researcher proposes the following recommendations:

1. Studies on job crafting and work engagement can be explored in different samples of nurses, including nurse managers, staff nurses, and new nurses.

2. Further studies are necessary to investigate job crafting and work engagement in different types of hospitals and in hospitals in different areas in China.

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3. The predictive study of work engagement can be implemented in China and factors related to work engagement can be conducted in future research.

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