Effect of Job Demands- Resources and Job Crafting on Nurses Work Engagement

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1.ABSTRACT

Job demands at nurses' job need to be balanced with job resources plus supporting nurses to use job crafting techniques to maintain their work engagement. **Aim:** Exploring the effect of job demands-resources and job crafting on nurses work engagement. **Method:** A descriptive correlational design. The present study was conducted at El-Mahalla El-Kubra General hospital on 270 nurses by using three tools: Job Demands- Resources Scale, Job Crafting Scale and Utrecht Work Engagement Scale. **Results:** Positive statistically significant correlation between job resources, job crafting and work engagement and no statistically significant correlation between job demands and work engagement. **Conclusion:** Work engagement was highly related to job resources and job crafting. While, at the opposite side, work engagement had no significant association with job demands. **Recommendations:** Nurses should be developed professionally to cope with their job demands. Nurses' supervisors should support nurses in using job crafting techniques.

Keywords: Job Crafting, Job Demands, Job Resources, Nurses, Work Engagement

2.Introduction:

Nowadays, nurses carry out work of special interest to society, especially to the health system. They are affected by the technological improvements and the socioeconomic changes such as digitalization and globalization. Also, the work of nurses is characterized by high job demands, limited job resources, direct contact with patients, exhausting workdays, night shifts, and limited job control. So that, nurses must acquire, update and master new skills in order to be more engaged in their work (Navajas-Romero, Ariza-Montes, & Hernández-Perlines, 2020 and Huhtala, Geurts, Mauno, & Feldt, 2021). Job crafting approaches in which nurses themselves proactively initiate desired changes to align their job with their goals and preferences for maintaining wellbeing, enhancing performance and having more work engagement (Hulshof, Demerouti, & Le Blanc, 2020). Engaged nurses who are connected to their work environment have sufficient energy to meet the high demands of their job, manage work-related stress, and have low intention to leave (Sasaki et al, 2021).

Job demands are "aspects of the job that require considerable energy investment, such as workload and complex tasks (challenging job demands), as well as bureaucracy and role ambiguity (hindrance job demands)". Job resources are "aspects of the job that have motivational potential, help to reach organizational goals, and can be used to deal with job demands such as opportunities for development at work and performance feedback" (Bakker, 2018). The imbalance between job demands and job resources results in adverse work environment that are related to negative effects to the health of nurses because nurses in this environment experience stress, anxiety, psychosomatic complaints and sleep disturbance. As a result, the work itself and the quality of patient service is affected due to the high rate of sick lives, absenteeism, lower productivity and poor organizational commitment (Hailay et al,2020 and Deng et al ,2021). So that, fitting job demands with job resources in accordance with nurses' personal skills, needs and abilities can improve work environment for nurses (Gordon et al, 2018 and Pan, Chiu, &Wu, 2021).

Job crafting is an advanced job redesign approach that combines the organizational top-down approach and the individual bottom-up approach. The job crafting approach allows administrators and nurses to work mutually for creating a comfortable working climate and practicing administrative policies that enhance nurses' integration with their workplace **(Baghdadi, Farghaly Abd‑EL Aliem, & Alsayed, 2021)**. Job crafting is defined as "employees' self-initiated, proactive behavior aimed at aligning their jobs with their own preferences, motives, and passions" **(Mahmoud, 2017)**. Job crafting requires nurses to 'go the extra mile' and to do more than what is expected by the organization and the given job description. Therefore, nurses need more self-regulatory resources for proactivity behavior, also they need support from organizations and from work colleagues to work as a team to ensure effectiveness of job crafting strategies **(Roczniewska, & Bakker, 2021)**.

Job crafting consists of three aspects, Task crafting, relational crafting, and cognitive crafting. Task crafting is actively changing the range, number and type of job tasks that nurses develop to be compatible with their skills or interests. Relational crafting is making changes concerning relations and communication with others at work such as entering relations with colleagues who possess the same interests or talents. Lastly, cognitive or perceptual crafting that means adapting the purpose of the job and social atmosphere allowing nurses to view their jobs in a different way **(Bindl, Unsworth, Gibson, & Stride, 2019 and Saad, &Ahmed,2020)**. Job crafting strategies help to improve the nurses' job satisfaction, and lower psychological distress resulting in higher work engagement, higher work performance, and organizational commitment **(Iida et al 2021)**.

Work engagement in nursing can be regarded as "a nurse's acquisition and use of appropriate knowledge and skills through the moral values that nurses developed to provide good care by using the autonomy, self‑control and taking responsibility skills inherent in the profession". Nurses with a high level of work engagement are satisfied with their job, provide high quality care, use their creative skills and devote themselves for profession development but nurses who do not have work engagement cannot concentrate adequately on their time, energy, and attention adequately, which negatively affects their profession or the patient care they provide **(Hoşgör, Dörttepe, & Memiş, 2021)**.

Significance of the study:

With global economic and technological developments, there are growing levels of uncertainty, complexity, increasing diversity of the work force leading to increasing job demands. Job demands may act as hindrances which interfere with work-related functioning and obstruct goal-attainment, or act as challenges that have positive effects on motivation and engagement. So, it is important to design flexible jobs and provide resources through job crafting in which nurses can proactively change their tasks and roles **(Tuckey et al, 2017; zhang, & Parker, 2019)**. As well as, work engagement in nursing is becoming strategically important as three important factors converge: a global shortage of nurses who are the largest group of healthcare providers; political resolve to restrain the growth of rising healthcare costs in industrialized nations; and a medical error rate that threatens the health of nations as well as nurses in highly stressful healthcare environments who have a high level of work engagement can ameliorate the consequences of work overload and limited resources. Engaged nurses are expected to be creative, productive and contribute to the organization's success **(Antoinette Bargagliotti, 2012; Dong et al, 2020)**.

2.1Aim of the Study

Aim of this study is to explore the effect of job demands- resources and job crafting on nurses work engagement.

2.2 Research questions: -

1. What are job demands – resources as perceived by nurses?
2. What is job crafting as perceived by nurses?

3. What is the extent to which nurses are engaged with their work?

4. What are the effects of job demands - resources, job crafting on nurses work engagement?

3. Methods

3.1 Research Design:

Correlational design was used.

3.2 Setting:

The study was conducted at El-Mahalla El-Kubra General Hospital, a Public hospital serves El-Mahalla El-Kubra city patients and neighboring countries with 225 beds capacity offering primary, secondary, tertiary care in all specializations, it includes "Emergency, Triage unit and operations, In-patients units, ICU units, Pediatric ICU units, Incubation units, Obstetric and Gynecological operations unit, Orthopedic operations unit, Ear, Nose and Throat Operations Unit, Surgical Operations Unit, Brain and Nerve Operations Unit, Dialysis Unit, Economic Department and Out-patients Units".

3.3 Participants:
All nurses who are working in all above-mentioned settings at El-Mahalla El-Kubra general Hospital and have at least 1 year experience to be able to experience their opinion about their work, and who had willing to participate in the study. Our sample was 300 nurses then 10% of this sample was excluded for pilot study to be done so that, the final sample was 270 nurses working at the different units and departments of the hospital.

3.4 Tools of data collection:
Three tools were used, named as Job Demands- Resources scale (JDRS), Job Crafting Scale (JCS) and Utrecht Work Engagement Scale (UWES).

Tool (1): **Job Demands - Resources Scale:** It consists of two parts;

Part (1) includes personal characteristics of nurses such as (age, gender, marital status, education and years of experience).

Part (2) Job Demands - Resources Scale (JDRS), Which was adopted from **Jackson &Rothmann (2005)** to measure job demands and job resources and includes 42 items cover seven dimensions; work load (8 items), Job insecurity (3 items), Growth opportunities (5

items), Control (4 items), Relationship with colleagues (3 items), Organizational support (15 items) and financial rewards (4 items).

The items were rated on using a Four-point Likert scale ranging from 1 (never) to 4 (always)

Tool (2): Job Crafting Scale (JCS): Which was adopted from **Slemp and Villa-Brodrick (2013)** to measure the extent to which employees engage in job crafting, The (JCS) includes 15 items covering the three dimensions of job crafting; (5 items) for task crafting, (5 items) for cognitive crafting and (5 items) for relational crafting.

The items were rated on using a Six - point Likert scale from 1(hardly ever) to 6(very often)

Tool (3): Utrecht Work Engagement Scale (UWES): Which was adopted from **Wilmar Schaufeli and Arnold Bakker (2006)** to measure the extent to which employees are engaged with their work and includes 9 items reflecting three positive dimensions; Vigor (3 items), Dedication (3items), Absorption (3items).

The items were rated on using a Seven - point Likert scale from 0(never) to 6(always).

The total score of work engagement were divided into three levels on the following cut of points; Low (<50%), Moderate (50%-75%) and High (>75%).

3.5 Validity and reliability:
Study tools were tested for its content validity by five experts in Administration Nursing. Three tools were modified and translated to Arabic language by the researcher. Reliability testing was done and judged by using Cronbach alpha test, The reliability of Job demands, Job resources, Job crafting, and work engagement were 0.70, 0.84, 0.91 and 0,71 respectively.

3.6 Pilot study:
It was conducted on 10% of the study sample (30 nurses) to test the feasibility and clarity of the tools. They were randomly selected and excluded from the study sample. Necessary modifications were done accordingly.

3.7EthicalConsiderations: Ethical approval was obtained from the Research Ethical Committee of Faculty of Nursing, Mansoura University. An official permission to conduct the study was obtained from the responsible administrator of the hospital. An informed consent was obtained from nurses who accept to participate in the study after providing the explanation of nature and aim of the study. All participants were informed that their participation in the study is voluntary and they have the right to withdraw from the study at any time without reasons. All participants were assured about the confidentiality of the collected data and the privacy of the study sample was assured at all phases of the study.

3.8Data collection: Data were collected at the period from June 2021 to August 2021 through self-administrated questionnaire that was distributed for nurses. The aim of the study and how to fill the questionnaire sheets was explained by the researcher. The time required to complete the questionnaire was 30:40 minutes, Returning the questionnaire acts as an indicator of nurse acceptance to participate in the study1 with having the right to withdraw from the study at any time without reasons.

3.9Data analysis: The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 26, SPSS Inc. Chicago, IL, USA). The normality assumption was accepted. Therefore, categorical variables were represented as frequency and percentage. Continuous variables were represented as mean, and standard deviation. Statistically significant was considered as (p-value <0.01&0.05)

4. Results

Table(1) presents the personal characteristics of the studied nurses. It is clear from this table that the highest percentage of the studied nurses were at the age group between 20-30 years (60.4%) with mean age of 30.44 ± 7.22. Additionally, the highest percentage of the studied nurses were female, married and at the technical degree (94.8% ,76.3%, & 45.9% respectively). Also, most of the

studied nurses had experience years between 1-10 years (65.9%) with a mean of 8.84±7.51

Table (2) explain the mean scores of job demands as perceived by the studied nurses. It is clear from this table that, the highest mean score was for work load (27.51±3.81). while, the lowest was for job insecurity (8.51±2.81).

Table (3) illustrates mean scores of job resources as perceived by the studied nurses. It is clear from this table that, the studied nurses had precepted the overall job resources with a percentage of 66.54% with the highest mean percentage for relationship with colleagues (83.41%) and the highest mean score was for organizational support (43.69±8.59). While, financial rewards had the lowest mean percentage (42.63%) and the lowest mean scores of job resources (6.82±3.29).

Table (4) illustrates mean scores of job crafting as perceived by the participant nurses. It is showed from this table that the perception of participant nurses to the overall job crafting was represented by (56.00±12.14) with the highest mean score was for cognitive crafting (20.25±4.92) and the lowest mean score was for task crafting (17.55±4.78). It also obvious that, cognitive crafting had the first rank of job crafting dimensions followed by relational crafting then task crafting.

Table (5) illustrates mean scores of work engagement as perceived by the studied nurses. It is clear from this table and this figure that nurses' perception of overall work engagement was represented by (27.64±10.56) with the highest mean score was for absorption (10.31±3.26) while, the lowest mean score was for vigor (7.94±4.74). It is also obvious that absorption had the first rank of work engagement dimensions followed by dedication then vigor.

Table(6) illustrates relationship between job demands-resources, job crafting and work engagement as perceived by the studied nurses. It is clear from this table that there are positive significant correlations between job resources, job crafting and nurses work engagement where p value <0.001 while, job demands had no statistically significant correlation with work engagement. There is a

negative association between job demands and
work engagement.

Table (1):

Personal characteristicsvariables	N	%
Age years:		
▪ 20-30	163	60.4
▪ 31-40	84	31.1
▪ > 40	23	8.5
Mean±SD	30.44±7.22	
Gender		
▪ Male	14	5.2
▪ Female	256	94.8
Marital status		
▪ Single	58	21.5
▪ Married	206	76.3
▪ Divorced	4	1.5
▪ Widowed	2	0.7
Level of education		
▪ Diploma degree	32	11.9
▪ Technical degree	124	45.9
▪ Bachelor degree	109	40.4
▪ Postgraduate studies	5	1.9
Experience years:		
▪ 1-10	178	65.9
▪ 11-20	71	26.3
▪ > 20	21	7.8
Mean±SD	8.84±7.51	

Table (2): *Mean scores of job demands perceived by the participant nurses (n=270)*

Job demands domains	No of items	Min – Max	Mean±SD	Mean percentages	Rank
Workload	8	8.0-32.0	27.51±3.81	85.97%	1
Job insecurity	3	3.0-12.0	8.51±2.81	70.92%	2
Overall job demands	11	19.0-44.0	36.01±4.70	81.84%	

Table (3): *Mean scores of job resources perceived by the participant nurses (n=270).*

Job resources domains	No of items	Min – Max	Mean ± SD	Mean percentages	Rank
Organizational support	15	18.0-58.0	43.69±8.59	72.82	2
Relationship with colleagues	3	3.0-12.0	10.01±1.81	4183 83.41	1
Financial rewards	4	4.0-16.0	6.82±3.29	42.63	5
Growth opportunities	5	5.0-20.0	11.94±3.15	59.70	4
Control	4	4.0-16.0	10.05±2.76	62.81	3
Overall job resources	31	42.0-113.0	82.51±13.82	66.54	

Table (4): *Mean scores of job crafting perceived by the studied nurses (n=270).*

Job crafting	No of items	Min - Max	Mean±SD	Rank
Task crafting	5	5.0 - 28.0	17.55±4.78	3
Cognitive crafting	5	5.0 – 30.0	20.25±4.92	1
Relational crafting	5	5.0 – 30.0	18.20±4.72	2
Overall job crafting	15	15.0 – 85.0	56.00±12.14	

Table (5): *Mean scores of work engagement of the participant nurses (n=270).*

Work engagement	No of items	Min - Max	Mean±SD	Rank
Vigor	3	0.0-18.0	7.94±4.74	3
Dedication	3	0.0-18.0	9.37±5.75	2
Absorption	3	0.0-18.0	10.31±3.26	1
Overall work engagement	9	0.0-50.0	27.64±10.56	

Table (6): *Relationship between job demands-resources scores, job crafting scores and work engagement scores as perceived by the studied nurses (n=270).*

	Total work engagement scores		Total job crafting scores	
	R	P	R	P
Total job demands scores	- 0.13	0.83	0.23	**0.000****
Total job resources scores	0.24	**0.000****	0.47	**0.000****
Total job crafting scores	0.45	**0.000****	1.0	

** Highly statistically significant (p <0.001)

5. Discussion

Today, the health care system concentrates on improving patient experience and providing good quality care which require at first care of the provider especially nurses as they play a vital role and constituting the largest group of health professionals **(Brigham et al, 2018 and Appelbaum, Lee, Amendola, Dodson, & Kaplan, 2019)**. So, it is important to prevent the negative effects caused by job demands through providing efficient resources **(Falco, Dal Corso, Girardi, De Carlo, & Comar, 2018).** As well as, nurses should craft their job in order to create a comfortable work environment which ensure performing their work effectively while maintaining their health thus still engaged with their work **(Dubbelt, Demerouti, & Rispens, 2019 and Audenaret et al, 2020).**

Accordingly, the present study aimed at exploring the effect of job demands-resources and job crafting on nurses work engagement.

Regarding job demands, the present study revealed that the highest mean score and percentage of job demands was for work load while, the lowest was for job insecurity. it is probably due to the excessive amount of work perceived by nurses that requires physical effort related to the number of activities to be performed in a given time' or mental effort related to the volume of information to be processed in relation to the time available.

This finding is supported by **(Khadhuri, & Eid, 2017)** and **(Elsayed, 2019)**, who stated that, workload had the highest mean score of job demands. In addition to **(Jackson, 2018)** and **(Beyer, 2019)** who added that, work load, only played a significant role in the subjective experiences of job demands and productivity also in the intention to quit while, job insecurity did not play a significant role.

Regarding job resources, the present study revealed that, the highest mean percentage and the first rank of job resources dimensions was relationship with colleagues. It is might occurred due to the perception of nurses that they have great contact with their colleagues either emotionally through good social relationship or instrumentally through their collaboration to achieve common goals. This finding is supported by **(Balinbin et al, 2020)**, who stated that, the positive relationship between work colleagues can buffer the daily work stress and exhaustion. In this same respect, **(Munnangi, Dupiton, Boutin, & Angus, 2018),** ensured that cohesive and supportive coworkers' relationship is a vital determinant of satisfaction in nurses and may reduce job turnover that is usually high in nursing.

Regarding job crafting, the findings of the present study regarding job crafting revealed that, cognitive crafting was the most dimension perceived by nurses followed by relational crafting then task crafting. It has been occurred due to the need for nurses to view their work more positively by making mental attachment between work tasks, values and their own meaningful values and interests. This finding is supported by **(Ahmed, & Abd-ElGhani, 2021)**, who stated that, cognitive crafting had the highest score while, the least mean score was in task crafting. This finding is not consistent with **(Chang, Han, & Cho, 2020)**, who stated that, the cognitive crafting had the lowest score while, the highest mean score was for relational crafting.

Regarding work engagement, the findings of the present study regarding work engagement revealed that, absorption was the highest dimension perceived by nurses. It is probably occurred because of their personal characteristics as the greatest percentage of the study nurses had technical and bachelor degree in nursing also, they were at young adulthood stage. These personal characteristics motivated a high degree of concentration, involvement and absorption in their job. This finding is supported by (Diab, & El Nagar, 2019) who stated that, absorption had the highest mean score for both nurses in a university hospital and teaching hospital. On the other hand, this study result was dissimilar to (Wan, Li, Zhou, & Shang, 2018) and (Li, Li, & Wan, 2019), who revealed that, dedication had the highest mean subscale.

Regarding relationship between job demands and work engagement, the findings of the current study revealed that no statistically significant correlation between job demands and work engagement. This may be happened because job demands drain nurses' energy, leading to exhaustion and negative health outcomes, so those job demands will not lead to work engagement. This finding is congruent with (Ree, & Wiig, 2020) who revealed that, job demands did not correlate significantly with work engagement. On the other hand, this study finding is not congruent with (Khadhuri, & Eid, 2017), who stated that, work engagement had a weak positive correlation with the combined job demands.

Regarding relationship between job resources and work engagement, the finding of the present study revealed that highly significant correlation was found between job resources and work engagement. This may be happened because job resources act as motivators which incentivize and stimulate work engagement also, job resources foster positive organizational outcomes, such as enhanced performance or organizational commitment. This finding is matched with (Ree, & Wiig, 2020) who revealed that, job resources were positively related to work engagement. Additionally, (Ghazawy, Mahfouz, Mohammed, & Refaei, 2021), stated that, job resources were positively and significantly correlated with work engagement.

Regarding relationship between job crafting and work engagement, the findings of the present study revealed that there was positive statistically significant correlation between job crafting and work engagement. This correlation may be caused by the role of job crafting in creating a healthy work environment by proactive redesigning nurses' job to be balanced with their own preferences, needs and capabilities. This finding is supported by (Baghdadi, Farghaly Abd‐EL Aliem, & Alsayed, 2021) who validated that, higher job crafting was associated with higher work engagement.

6. Conclusion

The findings of the present study concluded that, there are positive significant correlation between job resources, job crafting and nurses work engagement while, job demands had no statistically significant correlation with work engagement additionally there are positive statistically significant correlation between job demands and job crafting and positive statistically significant correlation between job resources and job crafting.

7. Recommendations

For nurses:

1-Nurses must use time management skills to manage job tasks to prevent higher work load with its associated negative effects.

2-Nurses should search for opportunities to develop professionally and to enhance their knowledge and skills to be able to face the continuous challenges and demands at the work field.

3-Nurses can use and develop their personality traits such as openness, conscientiousness, extraversion and agreeableness that enables them to deal well with job demands.

For nurses supervisors:

1-Nurses supervisors should plan for scheduled meetings with nurses to talk

and express their feelings about job demands problems so that these problems are addressed and solved.

2- Nurse supervisors should be clear about the role given to nurses and ensure that these roles are compatible with nurses' time, resources and capabilities to avoid role ambiguity and role conflict.

3-Nurses supervisors should be flexible regarding scheduling and work hours.

4- Nurses supervisors should support nurses in using job crafting techniques and ensure that, nurses' goals are aligned with organizational goals.

5-Nurses supervisors should act as a motivational leader help nurses to achieve organizational goals beside considering their wellbeing to promote their work engagement.

For hospital administrators:

1-Hospital administrators should organize training programs to nurses regarding how to overcome stress caused by job demands and regarding the effective and efficient use of resources.

2-Hospital administrators should focus on increasing resources in the work environment that promote work engagement for nurses such as autonomy, social support and feedback.

3- Hospital administrators should organize knowledge and skill development programs for nurse supervisors on how to give support to nurses and motivate them to engage in their work.

For future research:

1-Future research should focus on developing strategies on how to use the job resources effectively and efficiently for attaining the best results on work engagement for nurses.

2-Future research should focus on how to motivate the overall organization to engage in   team job crafting as well as individual job crafting for the benefit of both nurses and organization.

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