

Relationship between Work Design Characteristics and Work Engagement among Staff Nurses

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Abstract

Background: Work design discusses a range of job features, extending from internal and external organizational features to the way responsibilities are systematized, that affect what staff nurses do at work engagement and how successfully they can achieve it. **Aim of the study:** Is to identify the relationship between work design characteristics and work engagement among staff nurses. **Research design:** A descriptive correlational design was used to carry out this study. **Setting:** The study was conducted at Ain Shams University hospital. **Subjects:** The study sample estimated to be (173). **Tools:** Data for this study were collected by using two tools namely: work design characteristics questionnaire and utrecht work engagement scale. **Results:** The findings revealed that more than one third of staff nurses (37.5%) had a moderate perception of work design characteristics and slightly less than half of staff nurses (48.6%) had high engagement level. Also, there was highly statistically significant positive correlation between total work design characteristics levels and their total work engagement among staff nurses. **Conclusion:** There was a highly statistically significant relationship between work design characteristics and work engagement among staff nurses. **Recommendations:** Nurses' managers should receive provide training courses about work design characteristics to support their staff nurses, Managers should constantly evaluate staff nurses engagement levels, develop strategies that encourage staff nurses to adopt good work engagement.

Keywords: work design characteristics, work engagement, staff nurses.

Introduction:

Work design characteristics is a central part of life and society. Staff nurses will typically spend half their waking lives involved in some form of formal work and as the nature of the work staff nurses perform has a tremendous impact on their lives. Work design has considerable practical significance to managers, workers, and organizations who actually have considerable influence and control over work design choices (Pilbeam et al,2022).

Work design refers to the “content and organization of one’s work tasks, activities, relationships and responsibilities and applies to the physical, biomechanical, cognitive, and psychosocial characteristics of the job. The way our work is designed affects how we feel about our job and can influence whether we feel motivated, engaged, bored, or stressed at work .Work design can also impact an organization’s outcomes, with well-designed work contributing to increased productivity,

financial growth, and lower rates of accidents and incidents (Andrei& Parker, 2018).

Work design discusses a range of job features, extending from internal and external organizational features to the way responsibilities are systematized, that affect what staff nurses do at work and how successfully they can achieve it. work design characteristics has backgrounds in psychological study and philosophies of work motivation to improve worker fulfillment and performance and therefore increase organizational productivity and efficiency (Karanikas, Pazell, 2022).

Work design consists of four major dimensions, namely: (task characteristics, knowledge characteristics, social characteristics, and work context). Task characteristics are initially connected to how the work is carried out and the variety and nature of the tasks involved in a given employment. While knowledge characteristics

show the kind of expertise, and ability needed by an individual as a function of what they accomplish in the job. Social characteristics connected to the quantity and nature of interpersonal interactions that nurses must maintain at work. Also, it explained that this is because work context characteristics are connected to the surroundings of the nurses and the tasks that must be completed (**Nugroho, & Azam, 2021**).

Work engagement represents a “motivational process that is driven by the availability of resources”. Both job resources and personal resources may engage staff nurses, who “work hard (vigor), are involved (dedicated), and feel happily engrossed (absorbed) in their work”. Mostly, organizations focus on their nurses to attract, retain and engage them to achieve the organizational goal as well as boost productivity levels. Nowadays, staff nurses engagement is considered one of the most powerful tools to measure the level of outcomes of organizations toward their vision, mission, and core values (**David et al, 2021**).

The term "staff nurses' engagement" refers to a feeling of emotional attachment and dedication on the part of staff nurses. Aside from emotions, the most important motivator for staff nurses' engagement is career potential, with reputation, compensation, the value of the organization to staff nurses, and new ideas rounding out the top five. An organization's culture of engagement is characterized by strong leadership, a focus on results. (**Abdulrahman et al.,2022**).

Staff nurse engagement can involve participation in advisory boards, unit councils, and a range of hospital committees. Wider clinician participation in interdisciplinary and cross departmental activities are believed to help align institutional priorities and policies with patient care requirements by actively engaging those who have the most contact with patients and families. High levels of staff nurse engagement have been linked to better workforce outcomes, including lower staff turnover, lower burnout, and higher reports of job satisfaction (**Ahmed et al., 2020**).

Significance of the Study

Nursing staff is the very important health care providers in any health care system that is currently attacked by challenges, problems, and opportunities. Twenty-four hours a day, seven days a week, whether in all community health centers and hospitals, nurses are the first when there is a need of care (**Yamada, Duffy & Berry, 2018**). These issues highlight the importance for health care organizations to develop an understanding of what drives work engagement so they can take the necessary steps to retain their staff.

Based on finding represented in researches conducted in Egypt, work design characteristics can impact on organization's outcome, improve job satisfaction, improve quality of care and reduce nurses' problems, enhancing motivation, nurses' engagement at the workplace (**Saber, 2019**). Also, it plays an important role to reach the highest level of nurse's performance, motivation, satisfaction and prevent role ambiguity of the work. So, the present study is to identify the relationship between work design characteristics and work engagement among staff nurses.

Aim of the study:

This study aims to identify the relationship between work design characteristics and work engagement among staff nurses through:

1. Assessing work design characteristics as perceived by staff nurses.
2. Assessing level of work engagement among staff nurses.
3. Finding out the relationship between work design characteristics and work engagement among staff nurses.

Research question

Is there a relationship between work design characteristics and work engagement among staff nurses?

Subjects and Methods

The aim of this study is to identify the relationship between work design characteristics and work engagement among staff nurses through assessing work design characteristics as perceived by staff nurses, assessing level of work engagement among staff nurses and finding out the relationship between work design characteristics and work engagement among staff nurses.

The methodology pursued in conducting the study is presented under: technical design, operational design, administrative design, statistical design.

Technical design

The technical design involves a description of the research design, setting, subjects of the study, and tools of data collection.

1. Research design

A descriptive correlational design for this study was used in conducting the study in order to find out the relationship between work design characteristics and work engagement among staff nurses.

2. Setting:

This study was conducted at Ain Shams University hospital which affiliated to Ain Shams University.

Ain Shams University hospital (medical wards & critical care units). This hospital contains 618 beds which provides general and medical services and its specialties which include endocrinology, immunology and allergic disease, tropical medicine, chest disease, ophthalmology and cardiac care unit.

3. The study's subjects:

The subjects of this study consisted of staff nurses who were working at the prementioned setting. The study sample estimated to be (173) staff nurses out of (303) participated in the study. Simple random

sampling technique was used for selection (Thompson, 2012).

$$n = \left[\frac{N \times p(1-p)}{[(N-1) \times (d^2 \div z^2)] + p(1-p)} \right]$$

Thompson, S.K. (2012).

- **N:** Population size
- **P:** The percentage of the Phenomenon existence in the research population it is assumed as 50%
- **q:(1-p)=** 50%
- **d:** Estimated error level= 5%
- **z:** The standard value corresponding to the confidence level 95% which is 1.96
- **n=** Sample size

Data collecting tools:

Data for this study were collected using Two tools namely: work design characteristics questionnaire and Utrecht work engagement scale.

First tool: work design questionnaire

This tool was used to assess staff nurses perceptions toward work design characteristics. This tool adapted from (Frederick, 2015) and modified by the researcher. It consists of two parts as the following:

Part1: personal and job characteristics:

This part was intended to collect data related to personal and job characteristics of staff nurses as age, gender, marital status, scientific qualifications, years of experience in nursing, years of experience in current unit and attending training courses about work design.

▪ Part II: work design questionnaire

This part was intended for assessing staff nurses' perceptions regarding work design characteristics. It had (77) statements under four dimensions as described in the table (1).

Table (1): Dimensions of work design questionnaire.

Dimension	No of items	Examples
1.Task Characteristics	24	▪The job allows me to make my own decisions about how to schedule my work.
2. Knowledge Characteristics	20	▪The job requires that I only do one task or activity at a time.
3. Social Characteristics	19	▪I have the opportunity to develop close friendships in my job.
4. Work context	14	▪The seating arrangements on the job are adequate (e.g. ample opportunities to sit, comfortable chairs, good postural support).

❖ Scoring system:

The responses were scored a scale of 1 to 5 From strongly agree to to strongly disagree on a 5 points Likert scale. Strongly concurring received a "5" while strongly disagreeing received a "1" The scores for negative terms were inverted. the first five dimensions of the present questionnaire. For each dimension and subdimension and for the whole scale, the items were summed-up and the total was divided by the number of the items for giving mean scores. The level of nurses' work design characteristic, was considered high if the score percent was 75% or more & moderate if the score percent was 60% to 74% and low if score is less than 60% (Frederick, 2015).

Second tool: Utrecht Work Engagement Scale (UWES):

It aimed to assess level of work engagement among staff nurses. This scale was developed by (Schaufeli and Bakker, 2004) and adopted from (Abd Elkader, 2017). It consisted of (17) statements under three dimensions as described in the table (2).

Table (2): Dimension of work engagement scale.

Dimension	No of items	Examples
1. Vigor dimension	6	▪ At my work I feel bursting with energy.
2. Dedication dimension	5	▪ I find my work that I do full of meaning and purpose.
3. Absorption dimension	6	▪ Time flies when I'm working.

❖ Scoring system:

The responses of participants were measured on a 5 points likert scale ranged from Always, Usually, Sometime, Rarely, and Never. Always was scored as "5", while Never was scored as "1". All items are summed up and a mean score is calculated. Study subjects had low engagement if total score was less than 60%. While it is considered moderate level if the score was from 60% to 75% and it is considered high Level if the total score was more than 75% (Schaufeli & Bakker, 2004).

Operational Design

The operational design included three phases namely: preparatory phase, pilot study and fieldwork.

A- Preparatory phase

This phases started from July 2022 till August 2022 the researcher reviewed the national and international related literature, the material in the textbooks and scientific journals were used in the study to be acquainted with study subject.

Tool validity

The preliminary form of the data collection tool was presented to a jury group for face and content validation. The jury group consisted of five experts. They were (Three assistant professors from nursing administration department at Ain Shams University) and (Two assistant professors from administration department of Beni Sueif University and Bannah University). The process involved their general or overall opinion about the tools of data collection.

Each tool was assessed for its clarity, comprehensiveness, simplicity, understanding and applicability. According to the jury opinions modifications as rephrasing and adding or omission was performed by the researcher.

Tool reliability:

Reliability of the first data collection tool (Work Design Characteristics Questionnaire) was examined through assessing their internal consistency by Cronbach's alpha coefficient as follow:

Data collection tools	No. of items	Cronbach's alpha
Work design questionnaire	77	0.835
Utrecht Work Engagement Scale	17	0.902

B- Pilot study

It was carried out after modifying the tools and before starting in data collection .This stage took two weeks from the beginning to the middle of November 2022. It was carried out on seventeen staff nurses who representing 10% of the main study sample. They were selected randomly. The aim of the pilot study was served to assess the understandability and applicability of designated tool and test the clarity of its language, in addition to estimate the time needed for filling the sheets .It was ranged between 20-25minutes.The necessary modifications were done, as rephrasing and utilizing simpler semantic for the statements. So, those staff nurses were excluded from the main study sample.

C-Fieldwork

After securing the official approvals for conducting the study. The investigator met the director of the hospital and nursing director to obtain their approval and to determine the suitable time to collect data. The field work of the study took one and half month started at the beginning of December 2022 and was completed January 2023. The investigator met the head nurse of each unit for determining the suitable time to collect the data. The investigator explained the aim and component of the questionnaire sheet to staff nurses in their work setting at different time and attended during the filling of the questionnaire to clarify any ambiguity and answer any questions. Data was collected five days per week at the morning and afternoon shift. Every staff nurse took about 20-25minutes to complete questionnaire sheet. The

researcher checked each filled questionnaire to ensure its completion.

Administrative design:

An official letters requesting permission to conduct the study were direct from the dean of Faculty of Nursing/Ain Shams University to the hospital director and nursing director to obtain their approval to carry out this study. These letters included the aim of the study and photocopy from data collection tools in order to get the permission and help for collection of the data.

Ethical considerations:

Prior to the study conduction, Ethical approval was obtained from the Scientific Research Ethical Committee of the Faculty of Nursing at Ain Shams University. The subjects were informed about their right to participated or not participated on the study and also their right to withdraw from the study at any time without giving any reason and the collected data kept confidential and used for scientific reserach only. Informal consent was obtained from each participant in the study.

Statistical Design

Data collected from the studied sample was revised, coded and entered using Personal Computer (PC). Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, percentages and Mean \pm SD. Chi-square to assess the relations between variables and their characteristics. A correlation coefficient "Pearson correlation" is a numerical measure of some type of correlation, meaning a statistical relationship between two variables .

Significance of the results:

- Highly significant at p-value < 0.01.
- Statistically significant was considered at p-value < 0.05

- Non-significant at p-value ≥ 0.05
- Regression analysis ANOVA

Results:

Table (1): reveals that less than two thirds of staff nurses (61.8%) & (64.2%) were aged less than 30 years old with Mean \pm SD = 29.85 ± 3.32 and were female respectively. Less than two thirds of staff nurses (63.0%) were single and more than half of them (56.6%) had high average diploma. Concerning years of experience in nursing, less than half of them (45.7%) had <10 years of experience with Mean \pm SD is 10.78 ± 1.25 and more than half of them had less than 10 years of experience in the current unit with Mean \pm SD 10.30 ± 10.49 . less than two thirds of the staff nurses (61.8%) are attending training courses about work design.

Table (2): illustrates distribution of staff nurses according to their dimensions of work design characteristic. This table shows that slightly more than one third of staff nurses (40.4%) had moderate perception about task characteristics. More than one third 39.9% have low perception about work context. According to total work design, more than one third (35.3%) of them had low perception about work design characteristic.

Figure (1): shows that more than one quarter of staff nurses (27.2%) had high perception about total work design while, more than one third (35.3%) of them had low perception about work design.

Table (3): demonstrates distribution of staff nurses according to their total work engagement level. This table displays that less than half of staff nurses (48.0%) had high level at vigor dimension& absorption dimension. While more than half of them, (55.5%) had high level at dedication dimension. Less than

half of them (48.6%) have high level of total dimension of work engagement.

Figure (2): illustrates that less than half of staff nurses (48.6%) had high level of total work engagement, more than one quarter of them (25.4%) had low total level of work engagement.

Table (4): portrays that there is a highly statistically significant relation between staff nurses' total work design and the subjects' age, scientific qualifications and attending training courses whereas ($P < 0.01$). Additionally, there is a statistically significant relation between staff nurses' total work design and years of experience in nursing and years of experience in the current unit whereas at $P < 0.05$. On the other hand, it shows that there is no statistically significant relation between studied nurses' total work design and their gender and marital status ($P > 0.05$).

Table (5): shows that there was a highly statistically significant relation between staff nurses' total work engagement and their marital status and gender whereas ($P < 0.01$). Additionally, there was statistically significant relation between staff nurses total work engagement and age, scientific qualifications, years of experience in nursing and years of experience in current unit whereas ($P < 0.05$). On the other hand, it shows that there was no statistically significant relation between studied nurses' total work engagement and attending training courses ($P > 0.05$).

Table (6): presents that there was highly positive correlation between all domains of work design characteristics and work engagement scale at p value $< 0.01^{**}$. Finally, reveals that there was a statistically significant positive correlation between work design characteristics and work engagement ($P < 0.01$).

Table (1): Frequency distribution of participants' demographic characteristics (n=173).

Personal information	N	%
Age		
<30	107	61.8
30-40	42	24.3
>40	24	13.9
Mean ± S.D 29.85±3.32		
Gender		
Male	62	35.8
Female	111	64.2
Marital Status		
Single	109	63.0
Married	59	34.1
Widowed	3	1.7
Divorced	2	1.2
Years of experience in nursing		
<10	79	45.7
10-15	73	42.2
>15	21	12.1
Mean ± S.D 10.78±1.25		
Years of experience in current unit		
<10	92	53.2
10-15	66	38.2
>15	15	8.6
Mean ± S.D 10.30±10.49		
Attending training courses about work design		
Yes	107	61.8
No	66	38.2

Table (2): Total number and percentage distribution of staff nurses' perception regarding to dimensions of work design characteristics (n=173).

Work design characteristic	High		Moderate		Low	
	N	%	N	%	N	%
Task characteristics	52	30.1	70	40.4	51	29.5
Knowledge characteristics	65	37.6	60	34.7	48	27.7
Social characteristics	40	23.1	57	33	76	43.9
Work context	46	26.6	58	33.5	69	39.9

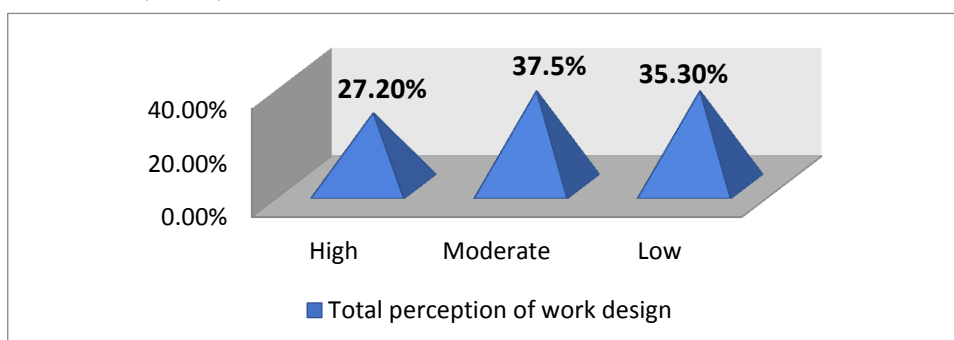
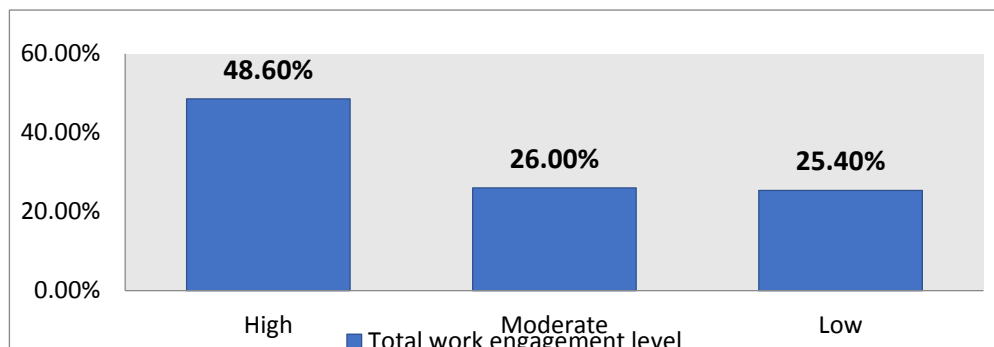
Figure (1): percentage distribution of staff nurses' total perception regarding work design characteristics (n=173).

Table (3): Total work engagement level among staff nurses' (n=173).

	Work engagement level				High		Moderate		Low	
	N	%	N	%	N	%	N	%	N	%
Vigor dimension	74	42.8	48	27.7	51	29.5				
Dedication dimension	96	55.5	45	26.0	32	18.5				
Absorption dimension	83	48.0	41	23.7	49	28.3				

**Figure (2):** Total work engagement level among staff nurses (n=173).**Table (4):** Relation between socio-demographic characteristics of studied staff nurses and their total perception of work design characteristics.

Socio-demographic characteristics		Total work design						X ²	P-Value
		High N=47		Moderate N=65		Low N=61			
		N	%	N	%	N	%		
Age	<30	9	19.1	48	73.8	50	81.9	6.215	.009**
	30-40	18	38.3	14	21.5	10	16.4		
	>40	20	42.6	3	4.6	1	1.6		
Gender	Male	15	31.9	25	38.5	22	33.8	1.672	.066
	Female	32	68.1	40	61.5	39	63.9		
Marital status	Single	31	65.9	35	53.8	42	68.8	1.324	.085
	Married	15	31.9	27	41.5	17	27.9		
	Widow	1	2.1	2	3.1	1	1.6		
	Divorced	0	0	1	1.5	1	1.6		
Scientific qualifications	Diploma	1	2.1	4	6.2	24	39.3	8.102	.005**
	High diploma	16	34.1	47	72.3	35	57.4		
	Bachelor of nursing	30	63.8	14	21.5	2	3.3		
Years of experience in nursing	<10	3	6.4	20	30.8	56	91.8	4.436	.025*
	10-15	30	63.8	40	61.5	3	4.9		
	>15	14	29.8	5	7.7	2	3.8		
Years of experience in current unit	<10	1	2.1	42	64.6	49	80.3	3.957	.036*
	10-15	34	72.3	20	30.8	12	19.7		
	>15	12	25.5	3	4.6	0	0		
Attending Training Courses	Yes	40	85.1	52	80	15	24.6	9.621	.003**
	No	7	14.9	13	20	46	75.4		

*Significant at p <0.05.

**Highly significant at p <0.01.

Not significant at p>0.05

Table (5): Relation between socio-demographic characteristics of studied staff nurses' and their total work engagement level.

Socio-demographic characteristics		Total work engagement level						X ²	P-Value
		High N= 84		Moderate N= 45		Low N= 44			
		N	%	N	%	N	%		
Age	<30	71	84.5	29	64.4	7	15.9	3.598	.032*
	30-40	9	10.7	14	31.2	19	43.2		
	>40	4	4.8	2	4.4	18	40.9		
Gender	Male	57	67.9	3	6.7	2	4.5	9.457	.003**
	Female	27	32.1	42	93.3	42	95.5		
Marital status	Single	73	86.9	32	71.1	4	9.1	9.801	.002**
	Married	10	11.9	12	26.7	37	84.1		
	Widow	1	1.2	0	0	2	4.5		
	Divorced	0	0	1	2.2	1	2.3		
Scientific qualifications	Diploma	5	6.0	5	11.0	19	43.2	4.461	.012*
	High diploma	37	44.0	36	80.2	25	56.8		
	Bachelor of nursing	42	50.0	4	8.8	0	0		
Years of experience in nursing	<10	62	73.8	14	31.2	3	6.8	4.764	.029*
	10-15	20	23.8	26	57.8	27	61.4		
	>15	2	2.4	5	11.0	14	31.8		
Years of experience in current unit	<10	65	77.4	25	55.6	2	4.5	4.301	.023*
	10-15	16	19.0	16	35.6	34	77.3		
Attending Training Courses	Yes	52	61.9	29	64.4	26	59.1	1.162	.061
	No	32	38.1	16	35.6	18	40.9		

*Significant at p <0.05. **Highly significant at p <0.01. Not significant at p>0.05

Table (6): Correlation between work design characteristics and work engagement among staff nurses.

	Task characteristics	Knowledge characteristics	Social characteristics	work context	Total Work design	Vigor dimension	Dedication dimension	Absorption dimension	Total Work engagement
Task characteristics	r. 0.478	0.510	0.701	0.600	0.682	0.677	0.590	0.563	
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	
Knowledge characteristics	r. 0.465	0.602	0.544	0.519	0.607	0.492	0.546		
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**		
Social characteristics	r. 0.700	0.642	0.581	0.601	0.542	0.577	0.577		
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**		
Work context	r. 0.603	0.716	0.512	0.666	0.780	0.780	0.780		
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**		
Total Work design	r. 0.465	0.501	0.680	0.701	0.701	0.701	0.701		
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**		
Vigor dimension	r. 0.561	0.477	0.514	0.514	0.514	0.514	0.514		
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**		
Dedication dimension	r. 0.430	0.499	0.499	0.499	0.499	0.499	0.499		
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**		
Absorption dimension	r. 0.561	0.561	0.561	0.561	0.561	0.561	0.561		
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**		
Total Work engagement	r. 0.563	0.546	0.577	0.780	0.701	0.514	0.499		
	p. <0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**	<0.01**		

**Highly significant at p <0.01.

Discussion:

Work design is considered as a core function of human resource management and it is related to the specification of contents, methods and relationship of jobs in order to satisfy professional, technological and organizational requirements as well as the social and personal requirements of the job holder. Characteristics of job is an important concept to be considered by the hospital administration to improve the characteristics of work, facilitating and enhancing the work settings, motivating the employees make them happy, engaged in their work, improving their performance and reach high positive outcome (Ali et al., 2019).

Work engagement is viewed as a workplace approach designed to ensure that employees are committed to the organization's goals and values, motivated to contribute to organizational success and simultaneously to enhance their own sense of well-being. Engaged employees in the work will help them to be competent and effective (Al-Hamdan & Bani, 2022).

The present study aimed to identify the relationship between work design characteristics and work engagement among staff nurses through assessing work design characteristics as perceived by staff nurses, assessing level of work engagement among staff nurses and Finding out the relationship between work design characteristics and work engagement among staff nurses.

Regarding total work design characteristic, the present study reflected that more than one third of staff nurses had moderate perception about total work design characteristic. As well, more than one third of them had high perception about knowledge characteristics, while more than one third of them had low perception about work context. From the research investigator point of view, this may because the nature of nurses' job that requires higher levels of monitoring, problem solving skills and active information processing.

In this concern, a work design characteristics was developed as a common organizational diagnostic tool for work characteristics; thus, it can be employing in any fields to assess the nature of work or to design and restructure jobs (Morgeson, 2019). This result was compatible with a study conducted by Bagia et al., (2019) who reported that about half of the studied participants had average level of job characteristics. In contrast, Johari et al., (2022) whose study found most of the subjects perceived a high level of job characteristics.

In addition, the current study results contradicted with Ali et al., (2019) who conducted a study about work design and its relation to productivity among staff nurses, stated that the most common predictors for work design were social characteristics while knowledge characteristics were the least predictor. Also, a study carried out by Likujang & Ariyanto, (2020) to analyze influence of work design on employee commitment, and stated that the studied nurses were dissatisfied about work design characteristics as regard to knowledge characteristics, social characteristics and work context, while more than half of nurse managers were satisfied with task characteristics.

As regard total work engagement, the present study findings demonstrated that less than half of staff nurses had high level of perceived vigor and absorption dimensions, while more than half of them had high level at dedication dimension. As well, less than half of them had high level of total perceived work engagement.

Regarding relation between personal and job characteristics of staff nurses and their total perception of work design characteristics, the present study reflected that there was a highly statistically significant relation with the studied nurses' age, scientific qualifications and attending training courses. Additionally, there was a statistically significant relation with their years of experience in nursing and years of experience in current unit. On the other hand, there was no statistically significant relation with their gender and marital status.

This can be explained by staff nurses who have high level of education, attended training courses and have more than 10 years of experience are more likely to have high perception toward work design characteristics. This result agreed with **Othman et al., (2022)** who conducted a study entitled "Effect of Nursing Workload on Work Design as Perceived by Staff Nurses" and mentioned that there was significant relation between perceived work design the studied nurses' age and years of experience.

Likewise, this result was consistent with a study carried out by **Ali et al., (2019)** to assess work design and its relationship to nurses' involvement in decision making and their productivity and stated that there was significant association between work design as perceived by nurses and their age, qualification, years of experience and attending training courses.

According to relation between personal and job characteristics of staff nurses' and their total work engagement level, the current study illustrated that there was a highly statistically significant relation with their marital status and gender. Additionally, there was a statistically significant relation with their age, qualifications, years of experience in nursing and years of experience in current unit whereas. On the other hand, there was no statistically significant relation with attending training courses.

This can be interpreted as nurses who are younger, male, single, have high level of education, have years of experience and attended training courses seem to have higher level of work engagement than others. Similarly, a study performed by **Ghazawy et al., (2021)** stated there was significant relation between level of work engagement and the studied nurses' age, years of experience and attending training courses.

According to correlation between work design characteristics and work engagement among staff nurses, the current study demonstrated that there was highly positive correlation between all domains of work design scale and work engagement scale.

Finally, it reveals that there was a statistically significant positive correlation between work design and work engagement. This can be interpreted as when the nursing staff has an adequate portion of autonomy and freedom in their work setting it will help them to be more immersed in their work, carried away when they work, be happy when they work intensively and very difficult to be detached themselves from their work. Feedback is to tell the employees what they are doing continuously not waiting the annual evaluation report, aiming for improvement, progress, more motivated to perform in an acceptable manner

This result was supported by **Adiarani, (2019)** whose study affirmed that all dimensions of job characteristics had a positive and significant correlation to work engagement and concluded that Individuals with high job characteristics will lead to increased levels of work engagement. Likewise, vice versa, individuals with low job characteristics will cause a decrease in the level of work engagement.

Consistently, **Dissanayake et al., (2019)** who conducted a study about the impact of behavioural elements of job design on employee engagement, and declared that, there was a positive correlation between the all characteristics of job design dimensions and work engagement and concluded that employees can behave in different manners; they might perform little engagement in work not because they did not have positive job characteristics, but because lack of support of health care organization and their supervisors do not help them to do this. It seems that engaged nurses are more motivated to stay in hospitals and work more efficiently.

Conclusion:

In the light of the present study findings, it can be concluded that the staff nurses had moderate level regarding perception of work design characteristics and high engagement level. Also, there was a highly statistically significant positive relation between total work design characteristics and staff nurses' total work engagement. These

findings answer the research question which stated that "is there a relationship between work design characteristics and work engagement among staff nurses".

Recommendation:

The following suggestions are put forward considering the study's results:

- Nurses' managers should receive provide training courses about work design characteristics to support their staff nurses.
- Managers should constantly evaluate staff nurses engagement levels, develop strategies that encourage staff nurses to adopt good work engagement.
- Conduct periodical counseling sessions to help staff nurses verbalize their feelings about their experience.
- Allow staff nurses participate in conferences, workshops, training courses and activities that will increase their level of engagement.
- The hospital administrators should provide staff nurses with resources that enable them to design the nursing care processes.

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