

Work design characteristics as perceived by nurse managers at Assiut University Hospital

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Abstract

Identifying the components of a given job is an integral part of job design. Designing or redesigning jobs encompasses many factors, and a number of different techniques are available to the manager. **Aim of the study:** Assess work design characteristics (task characteristics, knowledge characteristics, social characteristics, and work context) as perceived by nurse managers at Assiut University Hospital. **Subject and method:** A descriptive study design was used in the present study. The study subject consisted of all the nurse managers having bachelor degree of nursing. A self-administered questionnaire was used for data collection. It included two parts. The first was concerned with data about nurse managers personal data as age and years of experiences. The second was work design characteristics questionnaire which consisted of seventy four items. **Results:** Work design characteristics had lowest scores of satisfaction with knowledge characteristics, social characteristics and work context (92%, 74%, and 94%) respectively by studied nurse managers. While, task characteristics had higher score which representing (55%) of the studied nurse managers. The four factors of department, age, years of experience and work context score had a negative relation with the task characteristics scores while knowledge characteristics and social characteristics scores had a positive relation with statistically significant differences. **Conclusion:** The nurse managers 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. **Recommendations:** The findings of the present study have implications for organizations that are attempting to enhance organizational job satisfaction, cost control, and increase productivity through redesigning of the work.

Key words: Work design, Characteristics, Perception, Nurse managers.

I. Introduction

In healthcare organization, human resources and management may go to great lengths to vary the mix of skills required for a job, even implementing job design initiatives and programs to increase skill and task variety. Nurses are typically expected to perform a wide range of duties, simply because of the limited staffing and capacity. **Kemboi, et al., (2013)** asserts that providing employees with an opportunity to take on variety of skills of greater complexity in their current roles enables an employee to learn new tasks in a supporting environment and develop the skills needed to progress in his career. Management can also assess the employee's performance and see how he responds to feedback on the new responsibilities, thus enabling organization executives to devise a job design that is workable and effective.

Garg & Rastogi, (2006) revealed that well designed jobs can have a positive impact on both employee satisfaction and quality of performance. The perceived work demands, job control and social support through job design leads to high productivity (**Love & Edwards, 2005**). Likewise, **Campion et al., (2005)** suggested that nature of work has a substantial impact on an employee's performance and attitude (**Ali & Aroosiya, 2010**).

Work design describes how jobs, tasks, and roles are structured, enacted, and modified, as well as the impact of these structures, enactments, and modifications on individual, group, and organizational outcomes. An example of a traditional work design issue concerns the low level of autonomy that machine operators have over their work methods and task timing. A more contemporary example concerns the high levels of interdependence and time pressure experienced by software designers who collaborate with, and receive feedback from customers, suppliers, and coworkers. In each case, the work can be redesigned, by the organization or in some cases by employees themselves, to alter the structure and content of the work, with the goal of improving outcomes such as employee motivation, performance, and well-being (**Schermerhorn, Hunt, & Osborn, 2005**).

Oldham & Hackman, (2010) identified work design characteristics and classified them into the following: task characteristics, knowledge characteristics, social characteristics, and work context. 1st task

characteristics core classified into five : task variety, task identity, task significance, autonomy, and job-based feedback. 2nd knowledge characteristics classified as follows: 1st task characteristics classified into autonomy , decision-making autonomy, task variety , task significance, task identity , feedback from job , 2nd knowledge characteristics included job complexity, information processing , problem solving , skill variety , and specialization , and 3rd social characteristics included : social support , initiated interdependence , received interdependence , interaction outside organization ,feedback from others. 4th work context included ergonomics , physical demands; work conditions , and equipment use.

In the view of **Garg & Rastogi (2006)**, Skill variety refers to the extent to which the job requires the employee to draw from a number of different skills and abilities as well as upon a range of knowledge (**Ali & Aroosiya ,2010**). According to **Benjamin, (2012)** the theory behind providing skill variety in job design is that it will reduce boredom, thereby increasing job satisfaction and motivation. Involve employees in job design to have the greatest positive impact on motivation and satisfaction.

All jobs are designed, whether consciously or otherwise. In this sense design is simply the process of deciding what goes in and what stays out. Design is, by its very nature, both enabling and excluding. Organizations may seek to divide tasks rationally between different groups of employees in ways that appear to maximize efficiency. Narrowly designed jobs, for example where employees repeat a restricted number of tasks in relatively short cycles, assume high levels of product or service standardization and high levels of predictability in the work environment. A classic example is that of a garment factory making men's underwear for a retail chain such as Marks and Spencer: the design rarely changes, orders are placed in bulk and sewing operations are typically highly specialized so that the cycle time is often little more than two seconds. The machinist's job is to undertake a single operation in which she is fed a continual stream of work (providing tasks are balanced effectively and there are no bottlenecks); she is deliberately excluded from involvement in other aspects of the garment and from active engagement with other machinists. Such jobs are now rare in Europe; the boredom, stress and repetitive strain injuries associated with them have largely been exported to developing countries (**Huys, De Ricke & Vandenbrande,2005**).

In recent years a variety of new health care workers have emerged in patient care delivery models through work redesign efforts in health care settings, yet research on the efficacy of these models is limited. With the changing economic environment in health care, organizations are forced to re-examine how they coordinate patient care overall, how this influences the work nurses are performing, and reassess whether RNs are the appropriate resource to complete that work (**McGillis Hall & O'Brien-Pallas,2000**).

Little is known about the relationship between nurses' work design, how they actually spend their time, and the value and satisfaction they have for the work they are performing. Although theories have been developed that explain the relationship between people and their work satisfaction. Few studies have examined mid-level organizational factors, such as job design, and their effects on satisfaction . Based on these findings several opportunities for nursing work design are evident. Changes to the work roles of the caregiver groups could be explored, particularly in reference to the time spent in non-nursing care professional registered (**Tyler et al.,2006**).

Significance of the study

Work design is a structured approach to understanding what people love and hate about work as well as what can be done to make them love it more. Work design has considerable practical significance to managers, workers, and organizations. Unlike many other organizational aspects such as culture and structure, managers actually have considerable influence and control over work design choices. Managers are often charged with designing or redesigning the work of their subordinates, often needing to customize the work design to the particular competencies of individual workers. Workers are also proactive “crafters” of their work roles, often dynamically redesigning their own work to suit their particular capabilities, interests, or situation. Finally, organizations are concerned about achieving a potentially diverse set of outcomes, including productivity, cost control, innovation, learning, and worker morale. Research on work design provides insight into how to design work to achieve these different outcomes.

II. Aim of the study

Assess work design characteristics (task characteristics, knowledge characteristics, social characteristics, and work context) as perceived by nurse managers at Assiut University Hospital.

Research questions

- Is there a good perception about work design characteristics (task characteristics, knowledge characteristics, social characteristics, and work context) by nurse managers?

- Is there a relationship between work design characteristics (task characteristics, knowledge characteristics, social characteristics, and work context) and socio-demographic characteristics of the studied nurse managers?

III. Subject and Method

Design, setting, and subject

This study was carried out at Assiut University Hospital using a descriptive study design. The study sample consisted of all the nurse managers having bachelor degree of nursing with total number of (n=100) working in inpatient departments of the hospital during the time of the study conduction.

Tool of data collection

A self-administered questionnaire was used for data collection. It included two parts.

- The first part was concerned with data about nurse socio-demographic data as age and years of experiences. The second part was work design questionnaire which developed by (Morgeson, and Humphrey, 2006) and consisted of seventy four items classified as follows: 1st task characteristics dimension includes 21 items classified into six sections as Autonomy (3 items); Decision-Making Autonomy (3 items); Task Variety (4 items); Task Significance (4 items); Task Identity (4 items); Feedback From Job (3 items), 2nd knowledge characteristics dimension includes 20 items classified into five sections Job Complexity (4 items) scored are reversed; Information Processing (4 items); Problem Solving (4 items); Skill Variety (4 items); and Specialization (4 items), and 3rd social characteristics dimension includes 19 items classified into five sections: Social Support (6 items); Initiated Interdependence (3 items); Received Interdependence (3 items); Interaction Outside Organization (4 items); Feedback From Others (3 items). 4th work context dimension includes 14 items classified into four sections as Ergonomics (3 items); Physical Demands (3 items); Work Conditions (5 items); and Equipment Use (3 items).
- The responses of the study tool were on a five-point Likert scale: strongly agree, agree, neutral, disagree, and strongly disagree. The scoring was accordingly from 5 to 1 for each item.
- The scores of the items were summed –up and converted into percent score. The nurse managers were satisfied by work design characteristics if the total percent score was 60% or higher and low if less.
- The study tool was translated into Arabic using the translate-re-translate process. Its' validity was measured by five experts in Nursing Administration reviewed the study tool. The reliability of the study tool was assessed in a pilot study by measuring their internal consistency using Cronbach's alpha coefficient method. This turned to be ($\alpha= 0.951$), thus indicating a high degree of reliability.

Pilot study

The pilot study also served to test the feasibility of the study and the clarity and practicability of the data collection tool. It was carried out on 20 nurses from different inpatient departments at Main Assiut University Hospital. The pilot study sample was excluded from the total sample. Data collected from the pilot study were reviewed and used in making the necessary modifications prior to the finalization of the data collection tool.

Fieldwork

An official permission was obtained from Assiut University Hospital Director, the nursing service director, and the head of each department before embarking on the study. After the finalization of the study tool, the actual data collection was started in August 2014 and ended in September 2014. The researcher met with the eligible nurse managers, explained to them the purpose of the study, and asked for their oral consent to participate. Those who agreed to participate were given the tool and asked to fill it out and return it anonymously in the same setting or at most the next day. The researcher was available for any clarifications.

Ethical considerations

All the relevant principles of ethics in research were followed. The study protocol was approved by the pertinent authority. Participants' consent to participate was obtained after informing them about their rights to participate, refuse, or withdraw at any time. Total confidentiality of any obtained information was ensured. The study maneuver could not entail any harmful effects on participants.

Statistical analysis

Data entry and statistical analysis were done using SPSS 16.0 statistical software package. Data were presented using descriptive statistics. Pearson correlation analysis was used for assessment of the inter-relationships among quantitative variables, and Spearman rank correlation for ranked ones. To identify the independent predictors of job satisfaction, multiple stepwise regression analysis was used after testing for linearity, normality, homoscedasticity, and collinearity, and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

IV. Results

Table (1): Distribution of socio-demographic characteristics of studied nurse managers at Assiut University Hospital (n=100)

Socio-demographic characteristics	No.	%
Department:		
General medical departments	39	39.0
General surgical departments	16	16.0
ICUs	45	45.0
Age: (years)		
< 30	49	49.0
≥ 30	35	35.0
40 +	16	16.0
Mean ± SD		1.66±0.74
Years of experience:		
< 5	45	45.0
5 -	11	11.0
10-	28	28.0
15 or more	16	16.0
Mean ± SD		2.13±1.17

Table (2): Distribution of task characteristics, knowledge characteristics, social characteristics and work context scores as reported by nurse managers at Assiut University Hospital (n=100)

	Frequency	Percent
Task characteristics		
High (60%+)	55	55.0
Low (<60%)	45	45.0
Knowledge characteristics		
High (60%+)	8	8.0
Low (<60%)	92	92.0
Social characteristics		
High (60%+)	26	26.0
Low (<60%)	74	74.0
Work context		
High (60%+)	6	6.0
Low (<60%)	94	94.0

Table (3): Correlation matrix of the scores of task characteristics, knowledge characteristics, social characteristics, and work context among the nurse managers at Assiut University Hospital

Characteristics	Pearson correlation coefficient			
	Scores			
	Task Characteristics	Knowledge characteristics	Social characteristics	Work context
Task characteristics		0.425**	0.452**	0.247*
Knowledge characteristics	0.425**		0.622**	0.650**
Social characteristics	0.452**	0.622**		0.245**
Work context	0.247*	0.650**	0.383**	

(*) Statistically significant at $p < 0.05$

(**) Statistically significant at $p < 0.01$

Table (4): Correlation between the scores of knowledge characteristics, social characteristics & work context and personal characteristics among nurse managers at Assiut University Hospital

Characteristics	Spearman rank correlation coefficient			
	Scores			
	Task characteristics	Knowledge characteristics	Social characteristics	Work context
Age [#]	-0.019	0.136	0.200*	-0.120
Depart.	-0.223*	0.017	-0.171	0.118
Experience years	-0.208*	-0.021	-0.143	0.146

(#) Pearson correlation coefficient

(*) Statistically significant at $p < 0.05$

Table (5): Best fitting multiple linear regression model for nurse managers' work design characteristics scores

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value
	B	Std. Error			
Constant	44.021	10.444		4.215	0.000
Department	-3.008	2.212	-0.138	-1.509	0.123
Age	-3.463	5.705	-0.116	-0.607	0.545
Years of experience	-1.211	3.630	-0.064	-0.334	0.740
Knowledge characteristics score	0.428	0.206	0.291	2.075	0.041*
Social characteristics score	0.420	0.169	0.291	2.493	0.014*
Work context score	-7.535	0.229	-0.040	-0.329	0.743

(*) Statistically significant at $p < 0.05$

Table (1): Shows that nearly to half of the studied nurse managers were from ICUs , aged less than 30 years and have less than 5 years of experience (45% ; 49%; and 45%) respectively.

Table (2): Shows that work design characteristics had lowest scores of satisfaction with knowledge characteristics, social characteristics and work context (92%, 74%, and 94%) respectively. While, task characteristics had higher score which representing (55%) of the studied nurse managers.

The correlations among the scores of task characteristics, knowledge characteristics , social characteristics, and work context revealed that task characteristics had strong positive statistically significant correlations with scores of knowledge characteristics ,social characteristics, and work context scores ($r=0.425$; $r= 0.452$; and $r=0.247$). Meanwhile, as **Table 3** indicates, there were statistically significant independent predictors of the nurse managers task characteristics scores were their scores of knowledge characteristics , social characteristics, and work context.

Concerning the relations with nurse managers socio-demographic characteristics, **Table 4** demonstrates that task characteristics and work context had weak negative statistically significant correlations with age ($r=-0.019$ & $r=-0.120$). While, task characteristics and social characteristics had weak negative statistically significant correlations with department ($r = -0.223$ & $r = -0.171$). There were a weak negative statistically significant correlations between years of experience and study variables except work context ($r = -0.208$; $r = -0.021$ & $r = -0.143$) respectively. Meanwhile, knowledge characteristics had a positive statistically significant correlation with age and department ($r = -0.136$ & $r = 0.017$) and social characteristics had a positive statistically significant correlation with age ($r = -0.200$).In addition, work characteristics had a positive statistically significant correlation with department and years of experience($r = -0.118$ & $r = 0.146$).

Multivariate analysis (**Table, 5**) demonstrated that the statistically significant independent predictors of the task characteristics scores were their scores of knowledge characteristics, social characteristics and work context, as well as their department, age and years of experience. All the six factors had a negative relation with the score of task characteristics except knowledge characteristics and social characteristics had a positive relation with statistically significant differences.

V. Discussion

The topic of work design is concerned with how best to structure people's work tasks to protect and enhance their performance and mental health. Questions such as how much autonomy individuals have and what range of skills they use are addressed in this research. Work design is of increasing relevance given radical changes in today's organizations that significantly impact on people's tasks. There is also more pressure to provide healthy, challenging work to retain employees in an era where talent is a major competitive advantage (**Sharon, 2014**).

The result of the present study show that there were statistically significant independent predictors of the nurse managers task characteristics scores were their scores of knowledge characteristics , social characteristics, and work context (**Table 3**). These result is consistent with **Sharon, (2014)** who clarified that in light of continued large numbers of poor-quality jobs, attention must also be given to influencing practice and policy to promote the effective implementation of enriched work designs. Nevertheless, current and future work-based challenges mean that designing work for motivation is necessary but insufficient. This review argues that perception about work design can be a powerful vehicle for learning and development, for maintaining and enhancing employees' physical and mental health, and for achieving control and flexibility simultaneously; all these outcomes are important given the challenges in today's workplaces.

Job design was the creation of tasks and work settings for specific tools. The best job design is always one that meets organizational requirements for high performance, offers a good fit with individual skills and needs, and provides opportunities for job satisfaction. Job design by scientific management or job simplification standardizes work and employs people in clearly defined and specialized tasks. Distinguishing task from knowledge characteristics acknowledges the fact that jobs can be designed or redesigned to increase the task demands, knowledge demands, or both (Schermmerhorn, Hunt, & Osborn, 2005).

In addition, Edwards et al., (2000) found that complexity is a distinct factor. Because work that involves complex tasks requires the use of numerous high-level skills and is more mentally demanding and challenging, it is likely to have positive motivational outcomes. Some jobs require higher levels of monitoring and active information processing than others (Humphrey, Nahrgang, & Morgeson, 2007). These results were consistent with (Table,2).

In addition, Kemboi et al., (2013) mentioned that this is likely to be true as long as the employee enjoys the skills and perceives the addition and mix of skills to be a benefit to the job. But adding a variety of skills the employee finds stressful, isn't qualified to address, or simply adding basic duties and minimal skills without adding to the intrinsic value of the job could actually have the opposite effect and increase dissatisfaction.

Equipment use reflects the variety and complexity of the technology and equipment used in a job. Although not previously assessed by job design measures, other research has identified the importance of considering the equipment and technology used at work (Harvey, Friedman, Hakel, ; Cornelius, 1988 & Brett and John, 1999). These results is consistent with (Table,2).

As shown in (Tables 3-4-5) results were supported by (Ryan & Deci, 2001; Wrzesniewski, Dutton, & Debebe, 2003) who clarified that job design contexts suggests that social support is critical for well-being, particularly for jobs that are stressful or lack many motivational work characteristics. In addition. Physical ease factor identified by Edwards et al., (1999) and is consistent with the physical demand dimension highlighted by Stone and Gueutal (1985), who focus only on the physical strength, endurance, effort, and activity aspects of the job in addition to the equipment responsibilities and health hazards.

VI. Conclusion

In the light of the study results, the following conclusion can be drawn:

- The nurse managers were dissatisfied about work design characteristics as regard to knowledge characteristics, social characteristics and work context (92%, 74%, and 94%) respectively. While, more than half of nurse managers were satisfied with task characteristics.

Recommendations

In the light of the findings, the researcher recommended that:

- The findings of the present study have implications for organizations that are attempting to enhance organizational job satisfaction, cost control, and increase productivity through redesigning of the work.
- Further research about work design characteristics and its' impact on nurses performance and motivation should be done.

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