

## Effect of Nursing Workload on Work Design as Perceived by Staff Nurses

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### Abstract

**Background:** Staff nurses working continuously twenty four hours during the day and exposing to workload through achieving their tasks that directly influence on their physical and emotional status. Workload at work setting makes staff nurses not able to apply work design that affect the main goal of hospital. **Aim:** this study aims to assess the impact of nursing workload on work design as perceived by staff nurses. **Design:** A descriptive research design was used. **Setting:** the study was conducted at Sohag University Hospital medical, surgical and general intensive care units. **Subjects:** Convenient sample (n=240) nurses. **Tools:** two tools for data collection; 1) **part one** demographic data; **part two** nursing workload questionnaire; 2) work design questionnaire were used for data collection. **Results:** Study revealed that the highest percentage of participants(87.1%) perceived high level of nursing workload, the high mean score of workload was related to work environment( $37.54 \pm 5.21$ ). There was negative correlation with highly statistical significant differences between nursing workload and work design ( $r=-3.753^{**}$ ,  $P=0.00$ ). **Conclusion:** Nursing workload has direct effect on work design. When nursing director manages the nursing workload will lead to improving work design. **Recommendations:** The study recommended that, nurse manager should make continuous meetings with staff nurses and provides continuous feedback to them for their performance, design stress and management programs and organizes workshops for nurses to help reduce high mental stress that will decrease workload and improve work design.

**Key words:** Nurses, Work design & Workload.

### Introduction

Nurses are considered as the largest component of hospital staff and the cost of their nursing care makes up the single biggest part of a hospital's budget. They working twenty-four hours and the direct effect of nurses on patients' quality of care makes accurate prediction of nurse staffing requirements, managing workload and improving work design that vitally important (Burns, & Grove., 2017). During their shifts, they achieve a variety of job tasks as patient admission, transfer, discharge, caring for patients and health education about their conditions (Endsley., 2017). In the same time there are insufficient number of nurses that becoming a major health care problem in the worldwide and will not change in the near future. Higher workload due to nurses' shortage and increases of different activities seems to decrease the patient care quality (Goh, et al 2018).

Workload was defined as the amount of all activities to be done by nurses or group of nurses at a certain time interval (Greaves et al., 2018). Workload is described as the perceived relationship between the amount of mental processing capability or resources and the amount required by the task [(Burns, & Grove., 2017). Also workload can be broken down into "work + load", which refers to the task done with a given load. Workload divided into 1) qualitative workload as nurses perceived there is insufficient ability to complete the work and 2) quantitative workload as excessive amount of tasks (Ihorindeba., 2017).

Many of factors impact nurses' workload as increased ageing population (including both patients and nurses), new diseases, technologies, treatments and the increased throughput of patients, their length of stay at hospital and frequent work interruptions thereby increasing nursing workload (Kraljica et al., 2017).

Workload has worse effect on staff including low morale of staff nurses, delays of work, low team spirit, and no compliance to rules that further affect the organization performance. An increasing in nursing workload leads to a decrease in work satisfaction (Greaves et al., 2018). That causes uneasiness, anger, tension, depression and fatigue of nurses (Magalhães et al., 2017).

These problems reflect in work performance, and in behaviors such as a lowering of concentration, working less efficiently (lower productivity), an increase in making mistakes and bad relationships between colleagues (Nieria et al., 2018). In addition it has an effect on nurses' burnout, absenteeism, intention to leave and on job out-comes. High turnover of nurses results in higher costs for training of new nurses or using temporary staff (Shihundla., Lebes., & Maputle., 2016). Workload management will help improvement of work design that contributes not only to develop human outcomes but also to improve job satisfaction, employee emotion, organizational effectiveness, and thereby accomplishment of the goal of hospital (Latif ., 2018)

Work design is essential for nurses to the success and efficiency of the work and role clarity. Clarity is

one of the biggest reasons every role within work and should be defined via work characteristics. One of the biggest motivating factors in the work setting is clarity of the nurses' role. Nurses know what they are supposed to do and how to do it. There is no ambiguity there is no anxiety. The main goal of work design is to establish role specification and bring best performance abilities (Morgeson., 2019). In the nursing field it is vital to find out, how the nurses view their work, how best their jobs are designed to bring about well-being of the organization and them. So it is vital for nurses to be motivated by participated in decision making and be informed with the objectives of the organization (Rushdy & Morsy., 2016). Moreover, the work design has a significant effect upon increases nurses' productivity itself in various forms as improvements in the quality and quantity of care and services, reduction in the operation costs and training costs and in the turnover. The increase in the nurses' motivation can be created through improving in job satisfaction (Bacon., 2015)

The goal of a work design is to improve quality, to increase job satisfaction, and to solve nurses' problems (e.g., absenteeism, grievances). The end objective is enhancing motivation, reducing dissatisfaction and nurses' engagement at the work setting. Work design is referred to a systematic organization of work-related tasks, responsibilities, duties and functions (Morgeson., 2019). In the work design the job responsibilities will have outlines that are very clearly and also helps in attracting the right nurses to the right job. Further it also makes the work look interesting and very specialized (Olsen., 2017).

Good work design has many benefits as employee training, employee input, work / rest schedules, and adjustments (Rushdy & Morsy., 2016). There are various methods to apply the good work design as the job characteristics approach, human approach, engineering approach. There is a direct relationship between job satisfaction and rewards in the job characteristics approach. In this approach when the nurses are rewarded appropriately for their work they will be committed. It contains five core dimensions that used to describe any job (skill variety, task identity, task significance, autonomy and feedback). There are various factors that affect work design the most appeared one was workload that the nurses facing during their daily work (Morgeson., 2019).

#### Significance of the study

Heavy workload of hospital nurses is a major problem for health care system. Nurses are exposing to workloads continuously due to four main reasons: increased demand for nurses; inadequate supply of nurses; reduced staffing and increased overtime; and reduction in patient length of stay (Padilha et al., 2015).

Nurses' Workload has adverse effect on patient includes: inappropriate patient assessment, inaccurate registration of patients' information and patient adverse events. Also the adverse effects of workload on the nurses' work life include: increase job tension, decrease job satisfaction, increasing the incidence of occupational injury, difficult in decision making resulting in mental tension and job exhaustion, limitation in nursing interrelationships, time limitation leads to ineffective training and supervision of new nursing staff that lead to nurses' dissatisfaction with their own work life and have negative effect on their work design (Esmaili, 2015). Therefore, Investigation on the existing study variables may provide some valuable insights on assess the impact of nursing workload on work design as perceived by staff nurses to propose new dynamic recommendations backed on sound evidence based knowledge, for further nursing administration researches, leading and managing nursing work force and nursing education to improve quality of care.

#### Aim of the study:

Assess the impact of nursing workload on work design as perceived by staff nurses.

#### Research question

To fulfill the aim of the study the following research question was formulated:

- What is the impact of nursing workload on work design as perceived by staff nurses?

#### Subjects & method

**Research design:** Descriptive correlational research design was utilized to conduct this study.

#### Setting:

The study was conducted at Sohag University Hospital at surgical departments which contain (245 beds) that include (general surgical, vascular surgical, plastic surgical and urological surgical units), medical departments (270 beds) include (general medical, coronary care, tropical, dermatology, intermediate care, cardiac catheter, chest, neurological and dialysis units) and general intensive care unit that contains (10) beds.

#### Subjects:

The subjects were convenient sample (n=240) of staff nurses who were working in surgical departments, medical departments and general intensive care unit.

#### Data Collection tools:

Data were collected using two tools:

**Tool I: nursing workload questionnaire:** This questionnaire was developed by (Atwa, 2002) to assess nurse's perception related to their workload it includes two parts: **First part:** includes staff nurse's demographic data as (age, gender, nursing qualifications, marital status & years of experience). **Second part: nursing workload questionnaire** It consists of 46 items divided into two main categories distributed as follows: A) Causes of

nursing workload (28 items) that divided in to: Work Environment (10 items), Work Relationship (5 items), Personal factor (7 items), Supervision pattern (6 items). B) Effects of nursing workload (18 items) that divided in to: Effect on nurses (12 items) and Effect on patients (6 items).

**Scoring system:** The response was based on five point's likert scale, ranged from (1) strongly disagree, (2) disagree, (3) uncertain, (4) agree and (5) strongly agree.

**Tool II: Work design questionnaire:** it was developed by Brooks, (2001) to assess work design. It contains (10 items).

**Scoring system:** the response was based on five point's scale, ranged from (1) strongly disagree, (2) disagree, (3) uncertain, (4) agree and (5) strongly agree.

#### **Validity & Reliability:**

The tools content validity was established by number of five experts in nursing administration field, distributed as three Professors in Nursing Administration Cairo University and two Professors in Nursing Administration from Asuit University. Cronbach's Alpha coefficient test result for modified nursing workload questionnaire was 0.90 & for modified work design questionnaires was 0.87.

#### **Pilot study:**

A pilot study was conducted on 10% of total number of nurses (24), which are excluded from the sample of the study to investigate and measure the objectivity, applicability, clarity, feasibility, adequacy of the study tools and to determine possible problems in the methodological approach or instrument.

#### **Data collection Procedures:**

During data collection the investigator had met the staff nurses on daily bases either as individually or in small groups during morning, evening and night shifts to distribute questionnaires for them, explained how to fill each questionnaire, meeting with each staff and filling the self-reporting questionnaires took from 10-20 minutes, data were collected from units of surgical department that includes (general surgical, vascular surgical, plastic surgical and urological surgical units), units of medical department that includes (general medical, tropical, coronary care, dermatology, intermediate care, neurological, cardiac catheter, chest and dialysis units) and general intensive care unit. Data were collected during the time from (March 2018 to September 2018).

#### **Ethical considerations:**

The investigator obtained an approval to conduct the current study from the ethical committee at the Faculty of Nursing, Cairo University. Also the investigator obtained written informed consent after taken initial acceptance from research ethical

committee, as well as for data collection an official approval was obtained from president of Sohage University. Participation in the study was voluntary and based on the staff nurses agreement to give informed consent. Informed consent signed by participants after reading all of its details. The ethical issue considerations included explaining the purpose and nature of the study. Confidentiality maintained as the information was coded using initials or numbers and used only for the research purpose. Participants had complete right to withdraw at any time without adverse impact on them and also obtaining the study results after its completion.

#### **Statistical analysis:**

After the data were completely collected the investigator was scored, tabulated and analyzed through data entry and analysis by computer using the Statistical Package for Social Science (SPSS) version 20. Also data were analyzed using the descriptive statistics in the form of, percentages, frequencies distribution, means and standard deviations. Also the investigator was used the form of significance such as Pearson correlation coefficient. The P value > 0.05 indicate non significance result while, the \*P value < 0.05 is significant and the \*\*P value < 0.01 is highly significant.

#### **Results**

**Table (1):** Viewed that the majority of the respondents (82.5%) were females, (70.0%) married, (64.6%) aged from 20 to less than 25 years and (60.8%) of them were had less than 5 years' of hospital experience, (47.5%) hold diploma degree in nursing.

**Table (2):** Revealed that, the highest mean and standard deviation of nursing workload was in work environment dimension ( $37.54 \pm 5.21$ ), followed by the effect of workload on nurses dimension ( $36.72 \pm 8.24$ ). The lowest mean and standard deviation of nursing workload was in effect of workload on patient dimension ( $18.87 \pm 6.03$ ) and in work relationship dimension ( $16.66 \pm 3.6$ ).

**Fig. (1)** Revealed that the majority of participants had high level of workload (87.1%), and (8.8%) of participants had average level of workload, while (4.1%) of participants had low level of workload.

**Table (3):** illustrates the study participants perception of work design items, the minority of respondents agreement was on 'There are adequate numbers of qualified nurses (practical or professional) in work setting' (4.6%), and followed by "I am satisfied for my job" (7.5%).

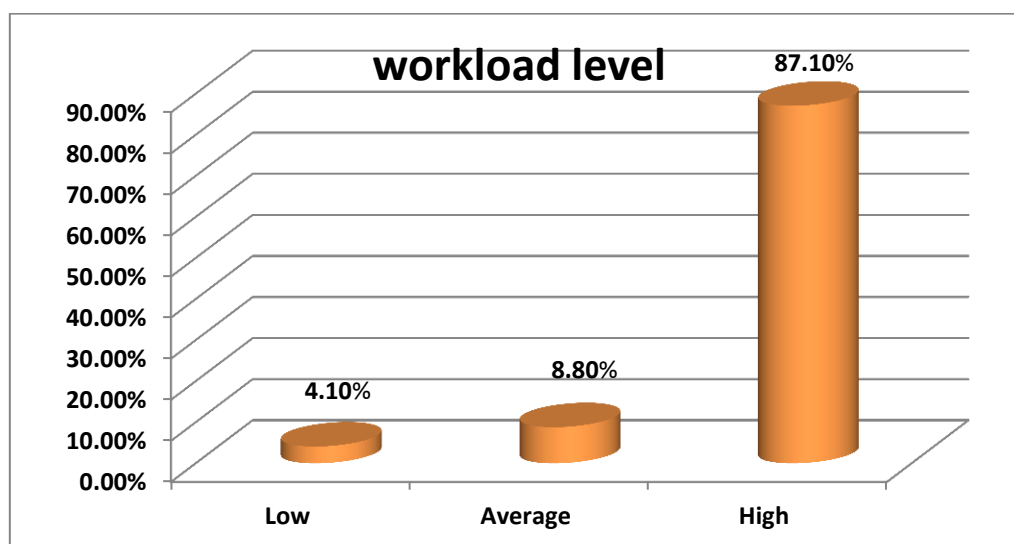
**Table (4):** Indicated that there was negative highly significant correlation between nursing workload and work design ( $r = -3.753^{**}$ ,  $P = .000$ ).

**Table (1) Percentage distribution of studied participants' demographic data (n=240)**

Demographic data	Variables	Study sample	
		No	%
<b>Gender</b>	Male	42	17.5
	Female	198	<b>82.5</b>
<b>Age</b>	20 to < 25 years	155	<b>64.6</b>
	25 to <30 years	64	26.7
	30 to <35 years	10	4.2
	≥ 35 years	11	4.6
<b>Marital status</b>	Single	72	30.0
	Married	168	<b>70.0</b>
<b>Educational level</b>	Holding nursing diploma	114	<b>47.5</b>
	Diploma specialization	99	41.3
	Holding bachelor degree in nursing	27	11.3
<b>Hospital experience</b>	1 to <5 years	146	<b>60.8</b>
	5 to <10 years	41	17.1
	10 to <15 years	42	17.5
	15 years and more	11	4.6

**Table (2) Mean and standard deviation of nursing workload dimensions (n=240).**

Nursing workload Dimensions	Mean ± SD
Work environment	37.54 ± 5.21
Work relationship	16.66 ± 3.6
Personal factor	24.23 ± 5.96
Supervision pattern	20.30 ± 4.82
Effect of workload on nurses	36.72 ± 8.24
Effect of workload on patient	18.87 ± 6.03

**Fig (1) Frequency distribution of nursing workload levels (n=240).**

**Table (3) Percentage distribution of the studied participants' perception of work design dimension items (n=240).**

Work design dimension items		Strongly disagree		Disagree		Uncertain		Agree		Strongly agree		% of respondent Agreement
		No	%	No	%	No	%	No	%	No	%	
1	I have enough time to do my job well	11	4.6	21	8.8	82	34.2	74	30.8	52	21.7	52.5
2	I receive a sufficient assistance from housekeeping workers and nursing assistants	42	17.5	43	17.9	61	25.4	31	12.9	63	26.3	39.2
3	I don't perform any non-nursing tasks	52	21.7	74	30.8	10	4.2	42	17.5	62	25.8	43.3
4	There are adequate numbers of qualified nurses (practical or professional) in my work setting.	115	47.9	63	26.3	51	21.3	11	4.6	0.0	0.0	4.6
5	There are no interruptions of concentration in my daily work routine	62	25.8	61	25.4	42	17.5	54	22.5	21	8.8	31.3
6	Work environment help me to provide high quality nursing care	20	8.3	42	17.5	51	21.3	52	21.7	75	31.3	53.0
7	Workload isn't considered high	84	35.0	74	30.8	41	17.1	21	8.8	20	8.3	17.1
8	I am satisfied for my job	83	34.6	97	40.4	42	17.5	11	4.6	7	2.9	7.5
9	I receive excellent assistance from housekeeping workers and nursing assistants	22	9.2	85	35.4	62	25.8	41	17.1	30	12.5	29.6
10	I have the freedom to take patient nursing care decisions	32	13.3	21	8.8	84	35.0	51	21.3	52	21.7	43.0

**Table (4) correlation between nursing workload and work design (n=240)**

Work design	Nursing workload	
	r	P- value
	-3.753**	.000

\*\* Highly Significant at ( $P < 0.01$ )



## Discussion

Complaints of high workload levels in the nursing profession have considerably increased over the last decade. Nurses are especially exposed to highly complex demands due to the unpredictability of events, missing information, lack of resources and a high frequency of interruptions and multitasking demands. Workload can negatively affect nurses' performance and on nurses' work design **Goh et al., (2018)**.

The study results showed that more than three-quarters of the participants were females, and more than two-third of the participants were married, aged from twenty to less than twenty five years and were had less than five years' experience in the hospital. Slightly less than half of them were hold diploma degree in nursing. This could be due to the fact that male enrollment in nursing program is considerably recent in Egypt.

These results supported by **Greaves et al., (2018)**, study of Nursing workloads and activity in critical care: A review of the evidence. Intensive & Critical Care Nursing who reported that majority of the subjects was females and more than half of participants (57.3%) were married.

The study results revealed that more than three quarters of participants had high level of workload; also less than ten percent of participants had average level of workload, while less than five percent of participants had low level of workload. This may due to bad supervision style inadequate equipment and supplies, absence of staff development opportunities and staff shortage. This study finding was in line of **Magalhães et al., (2017)**, who showed that about two thirds of nurses who participated in this research report that they are overloaded and about one third of them said that they had low workload.

The present study findings viewed that the highest mean and standard deviation of nursing workload was in work environment dimension, followed by the effect of workload on nurses. The lowest mean and standard deviation of nursing workload was in effect of workload on patient dimension and in work relationship dimension. From the research point of view these results may due to poor management and absence of work empowerment. This study finding agreement with **Magalhães et al., (2017)**, who showed that work environment, had high mean and standard deviation scores, while work relationship dimension had low mean and standard deviation scores.

As for work design, nearly all respondents disagree on "there are adequate numbers of qualified nurses (practical or professional) in my work setting", and on "I am satisfied for my job" These conclude the shortage of staff nurses at Sohag University Hospital which really in general an international problem. The study finding compatible with **Morgeson ., (2019)**, in his study of quality of work

life of employees in small scale industries revealed that more than half of nurses felt that there were inadequate nurses in the work setting.

The study results indicated that there was highly negative significant relation between workload and work design which may relate to high nurses' workload that make staff nurses highly exhausted, have stress, physical fatigue and not concentrated in the work that negatively affect nurses and work environment lead finally to lower work design. These study findings supported by **Lai., Chang., & Hsu., (2012)**, who viewed that workload is negatively related to work design because workload affects employees' work environment and also leads employees to job burnout and increases job stress turnover intention and mental stress. Therefore, workload is believed to be a factor detrimental to work design.

## Conclusion

The present study findings revealed that the majority of participants had high level of workload. There was negative correlation and highly significant differences between nursing workload and work design.

## Recommendations

- Take in consideration the staff nurses opinion in making schedule that help them to make balance between their work and family needs.
- Make fixed and continuous meetings with staff nurses to discuss their problems, needs and to share in decision making that belong to their work.
- Provide either financial or non-financial incentives for nurses' good performance.
- Adopt workforce shortage by using one of the staffing pattern strategies as floating, on calling, part time and borrowing method that will help to decrease the workload from the present staff and improve quality of work life.
- Provided more social, managerial, professional and organizational support for staff nurses.
- Adopt of electronic documentation to reduce workload and documentation errors.
- Design stress and management programs
- Organizes workshops for nurses to reduce high mental stress that result from workload.

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