

The Interactive Influences of Time Pressure and Job Conscientiousness on Patient Safety



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1.ABSTRACT

Nowadays organizations are extremely concerned about factors that impact patient safety. Time pressure is an threaten variable for it consequently nurse should have job conscientiousness trait to decrease time pressure and improve patient safety. **Aim:** To investigate the interactive influences of time pressure and job conscientiousness on patient safety among staff nurses at Oncology Center- Mansoura University. **Methods:** Descriptive correlational design was utilized. Three tools were used to gather the data; time pressure questionnaire, job conscientiousness questionnaire and patient safety questionnaire. **Results:** The majority of staff nurses complain of time pressure, had high level of job conscientiousness and had moderate level of perception about patient safety. Also, there is highly statistically significant positive correlation between job conscientiousness and patient safety, while there was no relationship between time pressure level and patient safety level. **Recommendation:** Establishing a favorable work environment by providing sufficient nursing staff and resources to enhance nurses' ability to deal with work demands and workloads. Encouraging nurses to share responsibility in multimodal team that enhances job conscientiousness. Also, Conduct of education programs for staff nurses continuously on patient safety . **Further study:** There is a need for further studies of research about the effect of time pressure and job conscientiousness on organizational citizenship behavior, work life, burnout, turnover and quality of care.

Keywords: Job Conscientiousness, Patient Safety, Staff Nurses, Time Pressure

2.Introduction:

Patient safety is a field that places an emphasis on preventing, decreasing, reporting, and analyzing mistakes in order to improve safety in healthcare and other unnecessary harms that frequently result in negative patient consequences (Fadahunsi, 2019). Time constraints is understood as not having enough time for doing necessary duties that interfere with one's capacity to cope .Time pressure has negative impacts on patient impressions of Confidence, integrity, responsibility, and reactivity of the nurse (Teng, Ching I., Feng Hsio, and Tin Chou, 2010). Consequently, Patient safety is at risk due to time pressure. So, nurses should have some certain personality traits in particular to deal with time pressure .Among these personality traits is conscientiousness which is the most popular term for a personality attribute that is known as dependability, responsibility and confidence of the nurse (Poropat, 2013).

Time is a main issue in healthcare today. Nurses frequently fight to complete a growing number of difficult duties in a limited amount of time (Chan, A., Jones& Wong , 2013). The numerous decisions that must be taken in a short period of time further complicate the nurse's job (Saintsing, David, M. Gibson& Pennington. , 2011). It has been demonstrated that time pressure in particular force nurses to focus only on the most urgent tasks and neglect others. Additionally, nurses are under pressure to fulfill the duties assigned to them at the end of the current shift so that the incoming nurses can begin their shifts with the remaining work (Ebright, R., Urden, Patterson& Chalko , 2004).

Time pressure is the subjective feeling of having inadequate time than is necessary (or seen to be necessary) to perform a task and being motivated to complete the work in the given time is known as time pressure. The

experience of time constraints or a factor related to one's resources is what causes stress and the need to make the most of the available time. It is also described as the belief that there is a lack of time to complete necessary duties (Teng & Huang, 2007).

In competitive organizations, working under time pressure is essential. Being at a moment of "time famine," where nursing staff members perceive a lack of time and a constant feeling of emergency as a result, has an impact on nurses' well-being and professional outcomes. Most nurses face high time constraints, with peaks of intense time constraints, which can lead to stress, fatigue, negative health impacts, and even mortality. Technology allows work to invade on private life even as working hours and overtime work rise, making time pressure a common event in modern multinational culture (Szollos, 2009).

Nursing staff who are under a lot of time pressure suffer information overload, increased information processing, and poor decision-making. Concurrently, time pressure causes physical problems such as raised blood pressure and levels of the hormone cortisol (Wellens & Smith, 2006 and Greiner, et al., 2004). Time constraints affected the nurses' ability to determine the needs of acutely ill patients and their ability to make risk evaluation choices. Time pressure also, develops unpleasant feelings, increases worry, and emotional tiredness (Ilhan, N., Durukan, Taner, Maral & A. Bumin., 2008). Dissatisfaction, burnout, and compassion fatigue may emerge from this (Roussel, Linda, L. Thomas, & James L. Harris, 2020).

One of the five primary components of the Big Five model of personality, often known as the Five Factor Model, along with extraversion, neuroticism, openness to experience, and agreeableness, is conscientiousness. *Extraversion* is characterized by higher levels of self-assurance, good feelings, energy, excitement seeking, and interactions. *Openness to experience* individuals are innovative, spontaneous, creative, intelligent and original (Narooi & Karazee, 2015).

Agreeableness includes these characteristics; Collaboration, honesty, empathy, low self-confidence, high degrees of trust in others, and a tendency to feel pleased and joyful due to their strong interrelations. *Neuroticism* includes these characteristics; nervousness, hostility, discomfort, impulsivity, and sensitivity. High neurotic individuals are characterized by are easily agitated, and more likely to turn to undesirable coping responses, such as interpersonal hostility and have elevated levels of bad feeling. *Conscientiousness* includes these characteristics such as efficiency, arrangement, diligence, self-control, aspire to success and focuses on goals with a high level of reasoning making conscientious individuals capable of evaluating the advantages and disadvantages of a particular events (Grohol & J. M., 2019).

The desire to complete a task well and to take one's responsibility to others seriously is known as job conscientiousness. Instead of being loose-lipped and disorganized, conscientious nurses are *typically* effective and well-organized. They tend to be dependable, act with self-control, do their duty, and strive for success; they show planned rather than impulsive action; It shows itself in typical actions like being orderly and systematic, as well as qualities like being cautious, thorough, and deliberate. (Thompson, 2008).

Conscientious nurses are typically diligent, more dependable, more motivated. They could also be "hard workers," "perfectionists," and compulsion-like in their actions if carried to the limit. They also have lower rates of absenteeism and counterproductive work behaviors such as stealing and fighting with other employees (Roberts, Jackson, Fayard, Edmonds & Meints, et al., 2009). While nurses have low conscientiousness prefer to be unmotivated, unfocused on achievement, and less motivated by success; They are too more ready to participate in unfriendly and illegal activity (Carter, Nathan, Guan, Maples, Jessica L.; et al., 2015).

Self-report measures, peer-reports and outside observation can also be used for evaluation of person's level of conscientiousness. Language-based or statement-based self-report measures are available (Goldberg, L.R.; Johnson, JA; Eber, 2006) Job conscientiousness is a performance predictor, indicating its vital role for patient safety (Della, 2013).

Patient Safety is a medical specialty that grown since healthcare systems have become more complicated and the increase in patient harm that resulted in healthcare facilities. It tries to avoid and lessen risks, mistakes, and harms that patients experience during medical treatment. Continuous improvement based on learning from mistakes and undesirable incidents is a foundation of the patient safety. In order to provide high-quality, valued healthcare, patient safety is essential. Effective, secure, and person-centered health services ought to be made available worldwide, it is widely agreed. To benefit from high-quality healthcare, health services must also be timely, integrated, and effective (Jha AK., Larizgoitia & Audera, 2018).

The definition of patient safety is "the reduction and avoidance of harmful acts inside the health care system, as well as via the implementation of best practices that lead to the greatest patient results. Examining the risk of unplanned adverse events and undesired events that are closely related to the treatment or facilities given to the patient is one method used to assess patient safety. There is accumulating evidence regarding what helps to lower the risk, even if some hazards are unavoidable given what we currently know (Royal College of Physicians and Surgeons of Canada, 2007).

The patient safety problems are categorized according of error; *patient management* (improper delegation, failure in tracking, wrong referral, or wrong use of resources), *clinical performance* (before, during, and after intervention). and *communication* (failures between patient or patient proxy and practitioners, practitioner and nonmedical staff, or among practitioners).

Regarding the domain, or location, in which they happened throughout the range of healthcare providers and settings, the sorts of mistakes and harm are further classified (National Quality Forum, 2004).

The root causes of harm are identified in the following terms :*Latent failure* removed from the practitioner and involving decisions that impact on the organizational policies, procedures, allocation of resources. *Active failure* direct contact with the patient. *Organizational system failure* indirect failures involving management, organizational culture, protocols/processes, transfer of knowledge, and external forces. Finally *technical failure* indirect failure of facilities or external resources(National Quality Forum, 2004).

2.1 Aim of the study

Investigate the interactive influences of time pressure and job conscientiousness on patient safety among staff nurses at Oncology Center- Mansoura University.

2.2 Research Questions:

- 1- Assess the time pressure for staff nurses at Oncology Center- Mansoura University.
- 2- Assess the job conscientiousness level for staff nurses at Oncology Center- Mansoura University.
- 3- Assess the opinions of staff nurses about patient safety at Oncology Center- Mansoura University.
- 4- Find out the interactive influences of time pressure and job conscientiousness on patient safety among staff nurses at Oncology Center- Mansoura University.

3. Methods

3.1 Study Design

Descriptive correlation design was used.

3.2 Setting of the study:

This study was performed at Oncology Center- Mansoura University that provides a wide spectrum of health service at Delta region, with bed capacity (500). There are eight departments (emergency unit, surgical day care unit, medical day care, two surgical units, two medical units, hematology unit,

bone marrow transplantation unit, chemotherapy installation unit and pediatric unit). It also includes three intensive care units and outpatient departments (surgical, medical and pediatric) in addition to five operating rooms.

3.3 Participants

The present study included convenience staff nurses (190) who are ready to participate in the study at the time of collecting data at the aforementioned setting.

3.4 Tools of data collection

Three tools were utilized for collecting data namely; Time Pressure Questionnaire, Job Conscientiousness Questionnaire and Patient Safety Questionnaire.

Tool (1): Time Pressure Questionnaire:

This tool was developed by (Putrevu & Ratchford, 1997) and (Zuzanke & Beckers, 1999), to assess time pressure among staff nurses. It consists of two parts:

Part (1): It encompasses personal characteristics of staff nurses as; age, gender, marital status, educational level and years of experience.

Part (2): It is composed of (10) statements to assess time pressure among staff nurses.

Nurses responses were measured by 5-point Likert scale ranging from 1(Never) to 5 (Always). The total score was calculated and converted into percent score by dividing the total score by the maximum possible score.

Scoring system:

The score of each participant were categorized into two levels; high level $\geq 60\%$ and low level $<60\%$ (Abd El Hameed, 2014).

Tool (2): Job Conscientiousness Questionnaire:

This tool developed by (Jackson, Fayard, Edmonds, G., & Meints, J., 2000) which had modified by (Kirkwood, 2006), to assess job conscientiousness among staff nurses. It consists of (24) statement under (4) dimensions namely; cognitive structure (6 items). orderliness (6 items), endurance (6 items), and deliberateness (6 items).

Nurses responses were measured by 5-point Likert scale ranging from; 1 (strongly disagree) to 5 (strongly agree).

Scoring system:

The score of each participant were categorized into two levels; high level $\geq 60\%$ and low level $<60\%$ (Abd El Dayem, 2016).

Tool (3): Patient Safety Questionnaire:

This tool was developed by (Spence Laschinger & Leiter, 2006) and Canadian Patient Safety Institute, 2007), to assess opinions of staff nurses about patient safety issues. It contains of (49) items under (4) domains as follow; domain (1) related to evaluate the frequency of the following incidents that involved the patient: (6 statements), domain (2) related to nurses activities to avoid, prevent or correct adverse outcomes which may result from the delivery of health care: (31 statements), domain (3) related to activities after major event causing fairly serious harm to patients that result from the delivery of health care: (6 statements), and domain (4) related to nurses actions in unsafe care practice: (6 statements).

Nurses responses were measured by 5-point Likert scale as follow; (1) Never, (2) Rarely, (3) Sometimes, (4) Often and (5) Always.

Scoring system:

The score of each participant were categorized into three levels as; high level $>75\%$, moderate level $60\%-75\%$, and low level $<60\%$ (Abd El Hameed, 2014).

3.5 Validity:

The data collection tools were translated into Arabic and back into English to ensure accuracy and clarity. Face and content validity by a panel of five expertise from different faculties of nursing four from Mansoura University and one from Tanta University who revised the tools for relevancy, clarity, applicability, comprehensiveness, understanding, and simplicity for use and according to their opinion's modifications were made. The modifications were related to rephrasing of some sentences.

3.6 Reliability:

The study tools were tested for its reliability by using Cranach's Alpha test, for three tools, Time Pressure Questionnaire, Job Conscientiousness Questionnaire and Patient Safety Questionnaire, which were (.71), (.70), and (.85) respectively.

3.7 Pilot study:

A pilot study was carried out on 20 staff nurses that stands for (10%) from the total study participants(190) for testing the clarity, feasibility and applicability of the questions, identifying barriers and problems that may be encounter during collecting data and for determining the time required to answer questions and appropriate changes were made based on their comments. The pilot study's staff nurses were not included in the overall number of participants.

3.8 Fieldwork:

The actual fieldwork was carried out through a period of four months that started from June to September 2019. The researcher meeting staff nurses in different three shifts morning, afternoon and night every day, distributing questionnaire to each participant in the study at the end of shift. The study's purpose and how to complete tools were explained by the researcher. The researcher giving each staff nurse her copy to fill it and handed it back to researcher. Give 20-25 minutes to fill the questionnaire sheet. To ensure that all questions were addressed, the staff nurses completed the questionnaire sheet while the researcher was present.

3.9 Ethical consideration:

Ethical approval was gained from the research ethics committee of the Faculty of Nursing – Mansoura University. Official approval had been received from the hospital's administrator before starting the study. The privacy and confidentiality of the obtained data were ensured. The staff nurses were informed that the tool's content would only be utilized for study purposes. Participants were informed that their participation in the study was completely voluntary and that they had the freedom to end it at any time without responsibility.

3.10 Statistical design:

The collected data were arranged, tabulated and statistically examined using SPSS software (Statistical Package for the Social Sciences, version 25, 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. Independent t-test was used to test the difference between two mean of continuous variables. ANOVA-test was used to test the difference between more than two means of continuous variables. Chi-square test was conducted to test the association between two categorical variables. Pearson correlation coefficient test was conducted to test the association between two continuous variables. Simple linear regression was performed to explore independent variable (Colleagues solidarity) of job motivation (dependent variable). Statistically significant was considered as (p-value <0.01 & 0.05).

4.Results

Table (1): Personal characteristics of the studied nurses. This table shows that two thirds of nurses (70.5%) were in age group (20-30) years with Mean \pm SD 28.06 \pm 7.78. Majority of them were female 85.3%. Also, 62.6% were married, 43.2% of nurses having technical degree and 48.9% of them having experience (1-5) years with mean score \pm SD 5.38 \pm 6.03.

Table (2): Nurses' perception regarding time pressure. This table shows regarding the total items of time pressure nearly one third of the studied nurses (32.6%) sometimes complain from time pressure, while the lowest percentage of the studied nurses (4.2%) never complain of time pressure with mean \pm SD 36.08 \pm 6.07. 48.9% of nurses reported always worry because you don't spend enough time with your family and friends", while, 15.3% of staff nurses reported never find that the given time at work is very limited" and (15.8%) reported rarely have insufficient time to finish what you should do at work".

Table (3): Mean score of job conscientiousness dimensions as perceived by

the studied nurses. This table shows that mean score for total job conscientiousness was 70.45 ± 6.68 , also, the highest mean score was 18.74 ± 2.67 for conscientiousness order, while the lowest mean score was 14.61 ± 2.11 for conscientiousness deliberateness.

Figure (1): Levels of job conscientiousness as perceived by the studied nurses. This figure shows that (63.7%) of the studied nurses have high level of job conscientiousness, while (36.3%) have low level of it.

Table (4): Mean score of patient safety domains as stated by the studied nurses This table shows that mean score of total patient safety was 145.78 ± 17.49 . The highest score was 94.22 ± 11.68 for activities to avoid, prevent, or correct adverse outcome, while the lowest mean score was 10.37 ± 5.28 for incidents involved patients.

Figure (2): Correlation between time pressure, and patient safety according to the

Table (1): Personal characteristics of the studied nurses (n=190).

Characteristics	No	%
Age years		
▪ 20-30	134	70.5
▪ 31-40	51	26.8
▪ >40	5	2.6
Mean±SD	28.06±7.78	
Gender		
▪ Male	28	14.7
▪ Female	162	85.3
Marital status		
▪ Single	65	34.2
▪ Married	119	62.6
▪ Divorced	6	3.2
Level of education		
▪ Diploma degree	61	32.1
▪ Technical degree	82	43.2
▪ Bachelor degree	47	24.7
Experience years		
▪ 1-5	93	48.9
▪ 6-10	28	14.7
▪ >10	69	36.3
Mean±SD	5.38±6.03	

nurses that were studied. This figure show there was no statistically significant relationship between time pressure and patient safety.

Figure (3): Correlation between job conscientiousness, and patient safety according to the nurses that were studied. This figure shows that there was positive statistically significant correlation between job conscientiousness and patient safety.

Figure (4): Relationship between time pressure and job conscientiousness. This figure shows that there was no statistically significant correlation between time pressure and job conscientiousness.

Table (5): Linear regression of independent variable affecting patient safety. This table shows that job conscientiousness is dependent variable affecting patient safety, while, time pressure is independent variable.

Table (2): Nurses' perception regarding time pressure (n=190).

Time pressure items	Never		Rarely		Sometimes		Often		Always	
	No.	%	No.	%	No.	%	No.	%	No.	%
I feel very busy at work.	2	1.1	5	2.6	52	27.4	70	36.8	61	32.1
I always feel in a hurry during work hours.	8	4.2	26	13.7	64	33.7	55	28.9	37	19.5
I consider myself a workaholic	7	3.7	11	5.8	47	24.7	62	32.6	63	33.2
I tend to cut back on sleep, when I need time	6	3.2	12	6.3	78	41.1	52	27.4	42	22.1
I have insufficient time to finish what I should do at work	20	10.5	30	15.8	84	44.2	44	23.2	12	6.3
I'm worry because I don't spend enough time with my family and friends	1	0.5	2	1.1	30	15.8	64	33.7	93	48.9
I feel that I am constantly under stress on trying to accomplish more than I can handle	0	0.0	10	5.3	70	36.8	69	36.3	41	21.6
I feel trapped in daily routine.	4	2.1	20	10.5	47	24.7	62	32.6	57	30.0
I often feel under stress, that i don't have enough time.	5	2.6	15	7.9	79	41.6	65	34.2	26	13.7
I find that the given time at work is very limited.	29	15.3	30	15.8	72	37.9	44	23.2	15	7.9
Total	8	4.2	16	8.4	62	32.6	59	31.1	45	23.7
Mean± SD	36.08 ±6.07									

Table (3): Mean score of job conscientiousness dimensions as perceived by the studied nurses (n=190).

Job conscientiousness dimensions	Min - Max	Mean±SD
1. Conscientiousness Cognitive structure	11.0-26.0	18.44±2.47
2. Conscientiousness Deliberateness	11.0-22.0	14.61±2.11
3. Conscientiousness order	11.0-28.0	18.74±2.67
4. Conscientiousness endurance	12.0-27.0	18.65±2.54
Total job conscientiousness	46.0-99.0	70.45±6.68

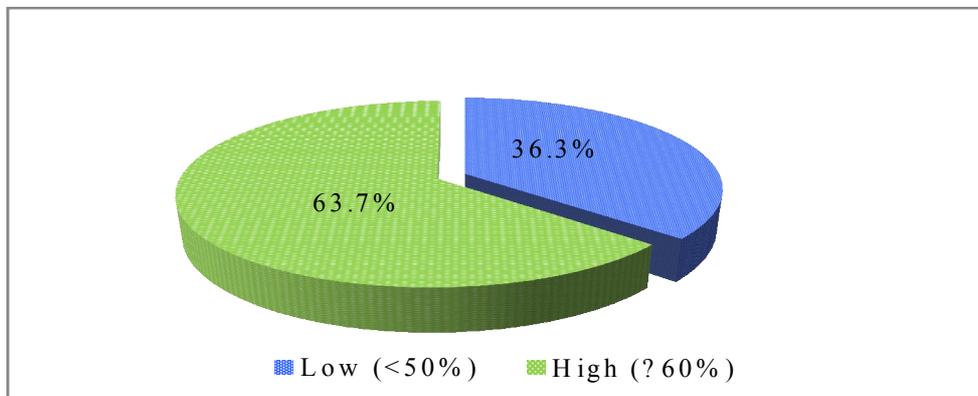


Figure (1): Levels of job Conscientiousness as perceived by the studied nurses (n=190).

Table (4): Mean score of patient safety domains as reported by the studied nurses (n=190)

Patients safety domains	Min – Max	Mean±SD	MeanPercentage
1. Incidents involved patients	0.0 -23.0	10.37±5.28	34.57%
2. Activities to avoid, prevent, or correct adverse outcome	55.0 -129.0	94.22±11.68	60.79%
3. Activities after a major event	10.0 – 30.0	19.47±4.31	64.90%
4. Actions of nurses in unsafe care practice	10.0 – 30.0	21.71±3.12	72.37%
Total patient safety	98.0 – 192.0	145.78±17.49	59.50%

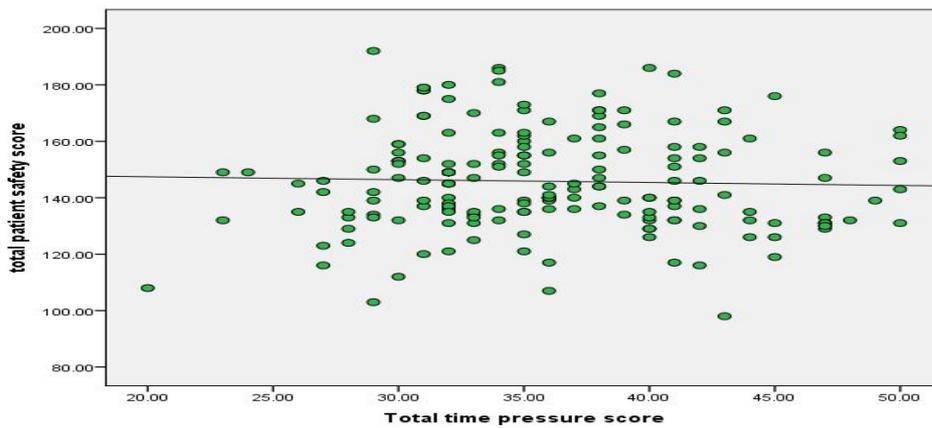


Figure (2): Correlation between time pressure, and patient safety as reported by the studied nurses (n=190)

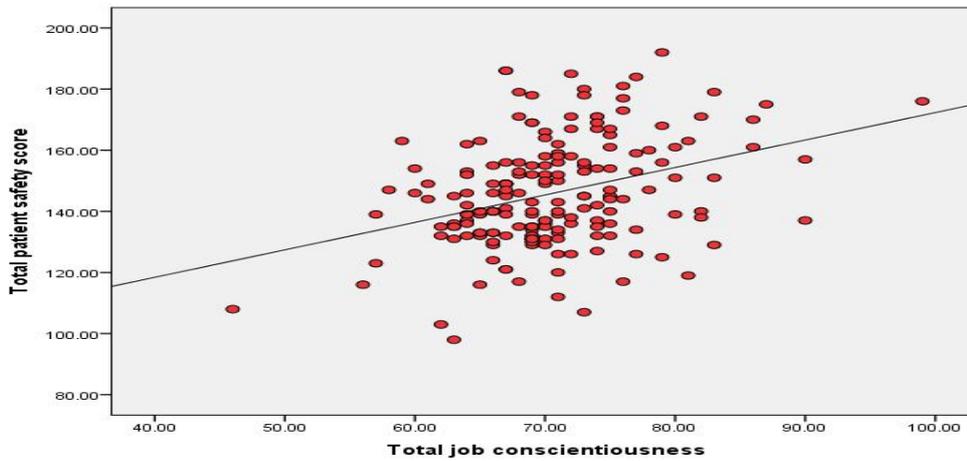


Figure (3): Correlation between job conscientiousness, and patient safety as reported by the studied nurses (n=190)

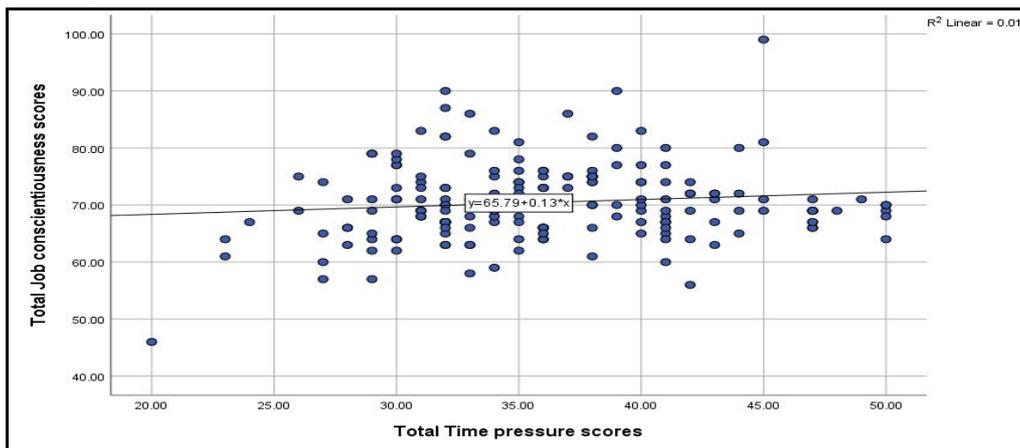


Figure (4): Relationship between time pressure and job conscientiousness as reported by the studied nurses (n=190)

Table (5): Linear regression of independent variable affecting patient safety

Model	Unstandardized Coefficients		Standardized coefficients	t	P value
	B	Std. Error	Beta		
Time pressure	0.22	0.19	0.07	1.11	0.26
Job conscientiousness	0.92	0.18	0.35	5.11	0.000**

** Highly statistically significant (p <0.01)

5. Discussion

working effectiveness and thoroughness are the two key elements of an influential personality trait conscientiousness. Job conscientiousness nurses make sure that their work is done in a perfect manner in a given time. Hence, they can manage time pressure and improves care outcomes and patient safety because it improves job performance (Iqbal, Saeed & Khattak, 2018).

The current research finding revealed that, two thirds of staff nurses sometime and often complain from time pressure, this may be due to insufficient time to end nurses required tasks at work, increase job demands as result of shortage of nurses that don't have time to provide patients care as well as often feel under stress, always feel in a hurry during work, lack of resources, absence of clear job description, excessive workloads and feel trapped in daily routine. Also, nurses reported always worry because they spend insufficient time with their loved ones and friends, because the hospital call her while on day off which makes nurses feel stressed.

This outcome is in line with a research done in Japan by Seki (2008), who evaluated the factors of working conditions linked to time pressure and demonstrated that time pressure rose among nurses. A factor that contributed to increased time pressure and caused nursing service delays owing to busyness was the amount of nurse calls answered. If the nurse doesn't pick up where she left off, it could result in errors of omission since nurses might accidentally forget to do some activities. Along with Foster (2013), who looked into the issue of nurses rationing care due to time pressure in England and discovered that the nurses were unable to provide or finish the care they were providing

to patients because they were exposed to intense time pressure.

Also, the finding is supported by study made in California by Moore & Tenney, (2017), which proved that performance is negatively impacted by time pressure because it restricts one's capacity for exploration and speeds up work at the expense of quality. Additionally, Wahyua & Fajrianti (2019) discovered that time pressure is a job stressor that nurses complain about and that it has a favourable impact on proactive work behavior. In opposite side, a study conducted in Japan by Naruse, (2012), who studied the relation between nurses who provide home visits and their perception of time pressure during visits and burnout and discovered that the lowest percentage of home visiting nurses perceived low time pressure.

Job conscientiousness is essential for clinical judgements. Nursing requires high level conscientiousness and self esteem to provide high-quality healthcare , and these qualities are also crucial for them to successfully manage their time and emotions while at work.(Deneve & Cooper, 2011).

The present study revealed that conscientiousness order has the highest agreement and mean score reported by staff nurses, while the lowest agreement and mean score was for job conscientiousness deliberateness. Conscientiousness order means staff nurses work organized, neat, clean, thrive with schedules and routines, enjoy list-making, like the appearance of orderliness and tidiness, they are good organizers, catalogers, returning things back in their place when the work done. While, the lowest agreement was for job conscientiousness deliberateness, this might be because staff nurses perform several tasks at once without thinking, their actions were without planning, excessive workloads in pressurized time which affect on thinking of

staff nurses and their actions sometimes seem to be hasty .

The finding is confirmed with the research made by **Coruum, R. Matthews, M.D., Seligman & M.E., (2011)** in Pennsylvania Hospital at USA and found that the highest agreement and highest mean score for conscientiousness order. Also, this finding agree with a research conducted in Brazil by **Carvalho, Pianowski & Gonçalves, (2020)**, about personality differences and COVID-19: are extroversion and conscientiousness personality traits engagement with containment measure whom discovered that higher conscientiousness scores were linked to higher levels of hand washing and social distance. While, a study made at Zagazig University by **Abd El Dayem, (2017)**, disagree with the study finding and reported that the highest percentage of agreement for conscientiousness endurance but the lowest percentage and lowest mean score for conscientiousness order.

The present study finding revealed that the studied working nurses own high level of job conscientiousness. This might be because conscientiousness is one of the major dimensions of organizational citizenship behavior and it is regarded as the most important feature that affects how nurses react to various workplace stressors. Perfection can only be attained through job conscientiousness. Such a trait is characterized by a person's diligence, self-control, preservation, and self control. Such a person avoids challenging and difficult work since they are aware of their strengths and skills. High conscientiousness indicates nurses' intent to remain in or keep practicing nursing. (**Chen, R. Matthews, M.D., Seligman & M.E. , 2016**).

The finding is supported with the study done by **Fathi, (2011)** at Mansoura University to identify effects of job conscientiousness on job performance and found that the nurses own high level of job conscientiousness. Also, study by **LIN, MA & WANG, (2015)** The results indicate that conscientiousness has a double-edged effect that both enhances performance and aggravate employees' stress

reactions in stressful conditions. Moreover, **Khan& Saeed, Khattak, (2018)**, who found that conscientiousness is the most important personality trait that affects how nurses react to various workplace pressures also came to the conclusion that conscientiousness acts as a moderator in the relationships between time constraints and organizational citizenship behavior.

In addition to, the finding is agreeing with a research conscientiousness and motivator factors conducted in University of South Africa by **Shrestha& Dangol, (2020)** found that nurses have high level of job conscientiousness. On the other side this finding disagreement with a study conducted by **Guh & Zhang, (2009)** who investigated the effect of accountability on the job conscientiousness for nurses working in ICU units in Islam Abad Hospitals at Pakistan and found that nurses have low level of job conscientiousness.

Conscientiousness is the optional behavior that goes above and beyond the job description (**Muhammad, 2012**). Furthermore, the motivational elements and conscientiousness are linked, and they complement one another. In light of this, the motivational (intrinsic) elements of job satisfaction have an impact on conscientiousness. As a result, conscientiousness is found to be a powerful predictor of elements that motivate employees to perform better at work and hence improve patient safety. (**Tomsik, 2018**).

In addition, the current study revealed that the highest mean score was for activities to avoid, prevent, or correct adverse outcome, while the lowest mean score was for incidents involved patients, this may be due to reduce the risk of injury to which the patient was exposed, patient safety have high priority, presence of punishment policy, good supervision and observation of head nurses, presence of patient safety committee and infection control committee. health care errors sometimes didn't report due to fear of punishment.

The finding is agree with a research conducted at Zagazig University by **Abd El**

Hameed, (2014), about the interactive influences of time pressure and burnout on patient safety, it revealed that the highest mean score of patient safety domains as reported by nurses and head nurses for activities to avoid, prevent, or correct adverse outcome, while the lowest mean score was for incidents involved patients.

The present study found that there was no relationship between time pressure level and patient safety level. This might be because there is patient safety committee and training courses by ongoing learning department about patient safety and time management. So, patient safety may sound not affected by time pressure. The finding is agreed with a study made in Chang Gung University by **Lam & Teng, (2008)**, they reported the relationship between patient safety and time pressure was not statically important for highly conscientious nurses. This may be because in highly pressured situation, job conscientiousness may aid in enhancing performance at work and care outcomes. Thus, highly conscientious nurses who suffer from time pressure at work might improve patient safety.

Moreover, a study conducted at Zagazig University by **Abd El Hamid, (2014)**, disagree with the current study, they reported that there was negative correlation between time pressure and patient safety. This is a result of burnout, which causes staff nurses emotionally fatigued and unable to put in extra work effort in response to time constraints. Sever time constraints and elevated levels of work explosion could exacerbate negative feelings, taking up large space of nurses' working memory and preventing them from making the best decisions for patients.

Whereas, the present study found that it existed highly statically notable positive effect correlation between job conscientiousness and patient safety, this may be because job conscientiousness is the capacity to be dedicated and careful which may help for improving care outcomes subsequently it improve job performance in multiple disciplines indicating its role for improving patient safety.

The finding is concurrence with a study performed at Taiwan University by **Chang, Lan chu & Lam, (2018)**, about the positive significance of conscientiousness and neuroticism on patient safety, they revealed that job conscientiousness was positively related to patient safety and this is if nurses with low levels of neuroticism. This may be due to conscientiousness may provide nurses with perceptual awareness to identify signals of potential threads to patients (signal detection theory). That is how conscientiousness and patient safety are related.

6. Conclusion

Considering the study's results, it was concluded that most of staff nurses sometime and often complain from time pressure and had high level of job conscientiousness while, one third of them reported low level about it. Additionally, activities to avoid, prevent, or correct adverse outcome as a domain of patient safety was the major. Moreover, patient safety was affected by job conscientiousness of staff nurses.

7. Recommendations

Related to time pressure

- Establishing a favorable work environment by providing sufficient nursing staff and resources to enhance nurses' ability to deal with work demands and workloads.
- Assign of qualified nurses with appropriate tasks, redistribute tasks on nurses every shift based on their skills and competencies.
- Assigning flexible scheduling based on nurses needs to decrease the burden of work and maintain life work balance.
- Avoid handling mixture of such diverse concerns which cause emotional exhaustion and often lead to burnout for the nurse .
- Operating as a facilitator of the team's growth and development and helping nurses to become better time managers .

- Using of time management and strategies to reduce the dissatisfier drain of time and open up more opportunities.
- Implementing workshops and on-the-job training evidence-based approaches in time management and self-leadership would provide structure in reaching these objectives.
- Keeping your work environment neat and organized. It can help minimize search time for needed resources.

Related to job conscientiousness:

- Using personality measurement tests to increase the chances of hiring employees that eventually better perform at work.
- Developing trainings modules and seminars that focus on boosting their personal characteristics.
- Involving nurses in continuous educational programs about professional ethics and role of job conscientiousness in nursing.
- Appreciating nurses effort psychologically and financially and listen carefully to their complains.
- Encouraging nurses to share responsibility in multidisciplinary team that enhances job conscientiousness.

Related to patient safety

- Developing acceptable standards for patient safety system and policy for reporting errors to build safer health care system.
- Using an effective way for communication with all health professionals to improve patient safety culture through providing feedback about their evaluation of errors and any system change.
- Involve nursing managers in the safety culture process and plans.
- Making regular meeting with staff nurses to discuss situations about adverse events and errors on a regular basis .
- Constructing a team to improve patient safety by assessment, planning programs for safety, monitoring, evaluation and corrective actions.

- Adopting a collaborative environment for all health workers can share and exchange information about patient safety.
- Engaging in continuing education programs and courses with strong effort to achieve a safer health care environment.

Further study

There is a need for further studies of research about the effect of time pressure and job conscientiousness on organizational citizenship behavior, work life, burnout, turnover and quality of care.

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