Effect of Work Environment on Staff Nurses' Perception of Self-Leadership and Attitudes Toward Safety Culture

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Abstract

Background: The work environment plays a significant role in shaping staff nurses' self-leadership and attitude toward safety. It is essential to recognize the profound impact that the workplace setting can have on staff nurses' ability to exhibit self-leadership qualities and attitudes towards promoting a robust safety culture within the organization. **Aim:** The current study aims to explore the effect of work environment on staff nurses' perception of self-leadership and attitudes toward safety culture. **Research questions:** What are staff nurses' perceptions toward their work environment? What are staff nurses' perceptions of self-leadership? What are staff nurses' attitudes towards safety culture? What is the effect of work environment on staff nurses' perception of self-leadership and attitudes toward safety culture? **Design:** Descriptive-Correlational research design used in this study. **Setting:** The current study was conducted at Al kasr El Ainy and Dar El Fouad Hospitals**. Sample:** Cross-sectional purposive sampling consisted of 200 staff nurse who are working in ICU at governmental and private hospitals. **Tools:** four tools were used for data collection in this study. Tool one: personal and work-related data Sheet, Tool two: work environment questionnaire, Tool three: Self-leadership questionnaire Tool four: Safety Attitudes Questionnaire. **Results:** The staff nurses' was highly perceived their work environment in private hospital (78%) and they low perceived it (36%) in governmental hospital, staff nurses' were highly perceived their self-leadership in governmental hospital (76%) and they moderately perceived it (52%) in private hospital, staff nurses' were highly perceived their attitude toward safety culture in private hospital (96%) and governmental hospital (93%). **Conclusion:** there was a significant statistical positive correlation (r=0.216, p=0.002) between staff nurses' perception toward their work environment, and perception of self-leadership. There was a highly significant statistical positive correlation (r=-0.345, p=0.00) between staff nurses' perception toward their work environment, and attitude towards safety culture. And also, there was a statistically significance positive effect of work environment on staff nurses' perception of self-leadership (R^2=0.05, Beta=0.216, p=0.002) and attitudes toward safety culture (R^2=0.12, Beta=0.345, p=0.00). **Recommendation:** Nurse Manager should focus on providing clear communication channels, supportive leadership, teamwork opportunities, and adequate resources to enhance the workplace environment. Promoting self-leadership skills among nurses through training, feedback mechanisms, and recognition programs can further reinforce nurses' positive attitude toward safety. Also, head nurses should empower staff nurses and provide opportunities for collaboration that can foster self-leadership skills.

Keywords: Work environment, staff nurses' self-leadership, Patient safety

Introduction:

The nursing work environment has received increased attention in recent decades due to its correlations with patient safety culture **(Song, Hoben, Norton & Estabrooks, 2020).** Studies have shown that health care organizations that provide better work environments experience lower mortality rates after complications, higher levels of patient satisfaction, and shorter hospital stays. The nursing work environment refers to the organizational attributes of the workplace that either enable or limit professional nursing practices. **(Lake, Riman, & Sloane, 2020)**

The work environment and working conditions of nurses are significant determinants of patient safety and organizational culture

(Chiang, Hsiao, & Li, 2017). Intensive care units are characterized by high levels of stress, where nurses' work settings might jeopardize patient safety. Factors such as severe workloads and low job satisfaction contribute to a decline in the quality of care and services offered by nurses **(Neck, Manz, & Houghton 2019).**

The work environment of nurses encompasses various factors, including their involvement in hospital issues, the fundamental principles of nursing for ensuring high-quality treatment, the competence of nurse managers in providing leadership and support to nurses, the adequacy of staffing and resources, and the collaborative relationships between nurses and physicians. Enhancing work environments has a positive impact on both nurses' results and patient outcomes. This includes increased job satisfaction, reduced missed nursing care and patient safety issues, decreased burnout, improved quality of care, and enhanced safety of care (**Liu et al., 2019**).

Consequently, the American Association of Critical Care Nurses identified six criteria that foster a positive work environment: authentic leadership, meaningful recognition, appropriate personnel, effective decision-making, and collaboration. Promoting nurse interpersonal relationships, physical and psychological health, and work productivity necessitates exceptional nurse leadership **(Wei, Sewell, Woody, & Rose, 2018).**

Self-leadership is one leadership style that is presently receiving significant attention. Initially, self-leadership was conceived as a substitute for formal forms of leadership (**Bracht, Jungker, &van Dick, 2018**). Self-leadership is a process that involves the ability to influence oneself in order to establish the self-direction and self-motivation necessary for performance. It also enhances purposeful action and has immediate implications for personal development, leadership, and achievement **(Bearden, 2017).**

According to this description, the self-leadership is one of the individual endeavors that can reduce fatigue rates. This leadership style is particularly significant in a collaborative and decentralized work environment, as it prepares individuals to become self-leaders who

are capable of establishing priorities, taking initiative, and resolving issues. The significance of the self-leadership leadership style is further emphasized to enable individuals to independently identify their strengths, weaknesses, and values, thereby promoting positive aspects of their lives rather than attempting to surmount their weaknesses **(Browning, 2018).**

Self-leadership is an essential quality that staff nurses must possess in order to provide care for critically ill patients with autonomous motivation and confidence, utilizing their medical knowledge and abilities to practice **(Jeong, & Park. 2019). Smith-Trudeau (2016)** emphasized the significance of self-leadership in nursing as a means of cultivating the leadership abilities required to facilitate the establishment of a healthy work environment. In the present work environment, it is becoming increasingly necessary for independent individuals to be able to make responsible decisions and take the initiative in environments where they are not always supported (**Van Zyl, Mokuoane, & Nel. 2017**).

Group and individual values, perceptions, attitudes, competencies, and behavior patterns that determine the commitment, style, and proficiency of an organization's health and safety management are the causes of patient safety culture (Hayashi, Shimamoto, & Nagamatsu, 2020). A culture of patient safety has been linked to improved patient outcomes, whether it pertains to the sharing of healthcare providers' perspectives regarding the significance of safe, faithful, and transparent communications or the confidence in the efficacy of preventative measures. It is acknowledged that the continuous enhancement of patient care quality is contingent upon the maintenance of a positive safety culture within healthcare organizations **(Hessels, Paliwal, Weaver, Siddiqui, & Wurmser, 2019).**

Managers and researchers encounter an obstacle in the development and execution of a safety culture within health institutions. Some studies suggest that the safety climate should be evaluated as an indirect indicator of the culture, which can be measured by attitudes that prioritize patient safety **(Sexton et al. 2014).**

The work environment is also influenced by the patient safety culture, which motivates staff nurses to address repeated incidents of missed care by promptly reporting and discussing incidents in order to resolve issues that could potentially escalate into a significant incident if left unidentified. **(Song, Hoben, Norton, & Estabrooks, 2020).**

A hospital's patient safety performance will increase with a positive safety culture, which may help the institution improve its safety results. A high degree of safety control has a direct and positive impact on both physical and mental health. Moreover, there will be fewer negative effects or retaliation for reporting safety issues if safety control is highly perceived **(Sayed, Mohamed, Ali, & Dakrory, 2021).**

The nursing work environment and patient safety culture are important elements that influence nursing care. When health care organizations maintain a positive culture of patient safety, staff nurses who engage in patient safety behavior will be able to effectively handle unexpected or challenging situations while performing their routine nursing duties **(Zeleníková, Jarošová & Janíková, 2020).**

Significance of the study

Global competition in the field of health care is increasing, and hospitals strive to deliver high-quality patient care while also controlling healthcare costs, improving patient safety, and increasing accessibility to health care. Nurses are expected to provide greater patient care and work in fast-paced environments where patients demand more complex treatment, resulting in insufficient staffing, increased workload, and increasing turnover. Each of these variables has a negative impact on nurses' working conditions, performance, and patient outcomes. The absence of critical parts of the work environment impedes the ability to offer high-quality, safe care; it does not provide the nurse with the time or resources needed to perform comprehensive evaluations or patient education, resulting in missed care and other negative consequences. **(Abdullatif & El Sayed, 2020).**

Maintaining a culture that strives toward identifying safety issues and applying workable solutions instead of fostering a culture of guilt, shame, and punishment would help to solve some of the problems. Viewing medical errors as obstacles that have to be conquered, healthcare institutions must build a culture of safety emphasizing on system improvement. Every member of the healthcare team has to help to make the delivery of healthcare safer for patients and professionals **(Helo & Moulton, 2017).**

The influence of the intensive care unit's milieu on the attitudes of staff nurses toward safety culture is not well understood in Arab countries. Furthermore, the nursing practice milieu and self-leadership have been infrequently examined in research **(AL-Dossary, 2022).** Additionally, there is a lack of extensive research on self-leadership, particularly in the context of nurses. The leadership context of the nurses themselves has not received special attention, while studies on leadership continue to concentrate on leaders in a managerial context, specifically the chief/head of the department. Additionally, while there have been a few studies conducted on the patient safety culture and attitudes of healthcare professionals in other countries **(Hong, 2015 and Lee, Wung, & Liao, 2010),** there is a lack of knowledge regarding the attitudes of nurses toward patient safety in Egypt **(Dirik & Interpeler, 2017; Ozdemir & Sahin, 2015).** Consequently, the objective of the present investigation is to investigate the impact of the work environment on the self-leadership and attitudes of staff nurses toward safety culture.

The current study aimed to explore the effect of work environment on staff nurses' perception of self-leadership and attitudes toward safety culture

Research questions

1-What are staff nurses' perceptions of their work environment?

2. What are staff nurses' perceptions of their self-leadership?

3. What are staff nurses' perceptions regarding their attitudes towards safety culture?

4. What is the effect of the work environment on staff nurses' perception of self-leadership and attitudes toward safety culture?

Material and method

Design: a descriptive-correlational research design used in this study. A descriptive- correlational study is a non-experimental research approach that allows for the prediction and explanation of correlations between variables, as well as the investigation of the degree to which these variables are associated (**Serram, 2019**).

Setting: The current study was carried out at Al Kasr El Ainy Hospital which is affiliated to Cairo University Teaching Hospitals. It is a curative healthcare facility with a multidisciplinary approach. The hospital provides unpaid and economic health care services for all medical specialties, with a total bed capacity of 3200 beds. The study was conducted on the first intensive care unit with a total capacity bed (55) and the third intensive care unit with a total capacity bed (19) both units provide mostly the same medical services, and Dar El Fouad Private Hospital which is located in Naser city with total bed capacity 170 beds., Medicine ICU with a bed capacity of 15 beds, Surgical ICU with a bed capacity of 13 beds, and CCU with a bed capacity of 9 beds.

Subjects:

The researchers employed cross-sectional purposive sampling to select nurses who were employed in the Intensive Care Unit (ICU) of both a governmental hospital and a private hospital. The eligibility criteria for participation in this study consisted of nurses who administered direct care interventions to critically ill patients and possessed a minimum of 6 months of experience in the ICU.

Sample size:-

The sample size was calculated according to the following formula (Krejci & Morgan, 1970). $n = x2$ N P $(1 − P) /d2$ (N − 1) $+ x2$ P $(1 − P)$

Where: n = the sample size   N = Population size = 243 nurses   P= Population Proportion= 0.5   d = Error rate, usually it is

set to 0.05 $x2$ =Chi square at significance 0.05 Substituting

n= 80 nurses,

The study requires at least 80 participants; the actual sample size in this study is (200) staff nurses 100 nurses from each hospital distributed as follows: 50 nurses from the first intensive care unit, 50 nurses from the third intensive care unit at Al Kasr El Ainy governmental hospital. 45 nurse from the Medicine ICU, 35 nurses from the Surgical ICU, and 20 nurses from the CCU at Dar El Fouad Private Hospital.

Tools: Tool I: personal and work-related data sheet: this tool was developed by the researcher and intended to collect data related to the characteristics of the study subjects as (age, sex, educational level, work units, current position and years of experience.)

Tool II: Work Environment Scale: This scale was adapted from Park and Kang (2015) to assess staff nurses' perceptions of their work environment. It includes 30 items classified into 4 dimensions namely as follows; Institutional support (12) items; Head nurses' leadership (7) items; work system and resource adequacy (6) items; and relationship with coworkers (5) items. Respondents rate the frequency of each item on a 3-point Likert scale includes (1) for disagree, (2) for neutral, and (3) for agree.

Scoring system:-

The total score according to statistical cut of point was ranged from 30 to 90 mark and was categorized as follow: low perception level < 50 % indicate that staff nurses perceived their work environment as negative and not supportive, moderate perception level 50 % to < 75 % indicate that staff nurses perceived their work environment as average supportive, and High perception level ≥ 75 % indicate that staff nurses perceived their work environment as positive and supportive.

Tool III- Self-leadership scale: This scale was adapted from Houghton and Neck, (2012) to measure nurses' perceptions toward Self-leadership, The scale consists of 23 items classified into six domains: (3) items for self-goal setting, (5) items for self-reward, (3) items

for self-talk, (4) items for visualizing successful performance, (4) items for evaluating beliefs and assumption, and (4) items for natural reward strategies. Respondents rate the frequency of each item on a 3-point Likert scale: (1) for never, (2) for sometimes, (3) for always.

Scoring system:-

The total score according to statistical cut of point was ranged from 23 to 69 mark and was categorized as follow: low perception level < 50 % indicate that staff nurses rarely demonstrate self-leadership, moderate perception level 50 % to < 75 % indicate that staff nurses sometimes demonstrate self-leadership, and High perception level ≥ 75 % indicate that staff nurses always demonstrate self-leadership.

Tool IV - Safety Attitudes scale: this scale was adapted from Sexton and Thomas (2013) to measure staff nurses' attitudes toward safety culture. The scale includes 30 items classified into six domains. Teamwork climate (6) items; safety climate (7) items; job satisfaction (5) items; stress recognition (4) items; perception of management (4) items; Working conditions (4) items. Scoring system, the 3 points Likert scale of nurses' responses ranged from (1) for disagree (2) for neutral and (3) for agree.

Scoring system: -

The total score according to statistical cut of point was ranged from 30 to 90 mark and was categorized as follow: low perception level < 50 % indicate that staff nurses had low attitudes towards safety culture, moderate perception level 50 % to < 75 % indicate that staff nurses had moderate attitudes towards safety culture, and High perception level ≥ 75 % indicate that staff nurses had high attitudes towards safety culture.

Procedures

Once permission granted to proceed with the proposed study, a letter from the faculty of nursing- Cairo University will be sent to the directors of the selected study setting seeking their approval for collecting data. Upon receiving the approval of hospital directors, the researcher contacted with the head nurse of each department to get permission then contact the participant, explained for them the nature and the purpose of the study, invited them to voluntary participate and gain their acceptance by formal written consent. The questionnaire will be distributed individually by the researcher to staff nurses at their work units during different shifts (at their break time) with giving them instructions about how they will fill it. The questionnaire will take twenty minutes to fill it out. The questionnaire will be collected on the second day. Data collection process started at June to November 2023.

Validity and reliability

Content validity of the Arabic and English adapted tools was reviewed by group of three experts in nursing administration, Faculty of nursing, Cairo University; they were asked to assess the data collection tool for its content coverage and appropriateness, clarity of sentences, translation quality, sequence of items, length, format, and overall appearance. Reliability of work environment scale, self-leadership scale and safety attitude scale tested using Cronbach's Alpha co-efficient analysis. Cronbach's alpha correlation coefficient test for tool II reliability co-efficient was (r =86.3) for tool III was (r =81.8) and for tool IV was (r =88.2).

Pilot study:

A pilot study was conducted on 10% (8 staff nurses) to assess the clarity, applicability and time required for data collection. All participants in the pilot study were included in the study subjects, where no radical modification was carried out in the tools as revealed from the pilot.

Legal and ethical considerations

Official approval was obtained by the Scientific Research Ethical Committee Faculty of nursing Cairo- University to carry out the proposed investigation. Before completing the informed consent form, staff nurses were fully informed about the study and their involvement; participation in the study is voluntary. The study's nature and goal were explained, along with the potential of withdrawal at any time, and the material was kept confidential and

unavailable to third parties without the participant's consent, among other ethical considerations.

Results

Table (1) shows that the majority (75%) of staff nurses' age ranged between 20 to 30 years old in governmental hospital while about two thirds(61%) in private hospital. The majority (75%) of staff nurses were male in governmental hospital while more than half (57%) in private hospital. About two thirds of staff nurses in a governmental hospital have bachelor's degree in nursing while more than half of them (51%) in private hospital have the same degree. In a governmental hospital more than two thirds of staff nurses (71%) have experience ranging from one to five years of experience while more than half (59%) have the same years of experience in private hospital. The most of sample (83%) in governmental hospital were staff nurses and the majority of them (77%) also were staff nurses in private hospital. There were significant statistical differences between governmental and private hospital regarding participants' gender ($\chi 2$=10.78, p=0.01), education ($\chi 2$=25.39, p=0.01), and position ($\chi 2$=14.63, p=0.002).

Table (2) concludes that there were significant statistical differences between governmental and private hospital regarding work environment (P<0.05). In private hospital the staff nurses was better perceived their work environment (78.25) than in governmental hospital (65.24).

Table (3) concludes that there were significant statistical differences between governmental and private hospital regarding work environment (p<0.05). Staff nurses in governmental hospital had better self-leadership (60.98) than private hospital (57.94) except one dimension (self-talk).

Table (4) concludes that there were significant statistical differences between governmental and private hospital regarding work environment (p<0.05). In private hospital staff nurses had better attitude toward safety culture (80.84) than governmental hospital (61.88).

Figure (1) illustrates that the staff nurses' was highly perceived their work environment in private hospital (78%) and they low perceived it (36%) in governmental hospital.

Figure (2) illustrates that staff nurses' were highly perceived their self-leadership in governmental hospital (76%) and they moderately perceived it (52%) in private hospital.

Figure (3) illustrates that staff nurses' were highly perceived their attitude toward safety culture in private hospital (96%) and governmental hospital (93%).

Table (6) reveals that there was a significant statistical positive correlation (r=0.216, p=0.002) between staff nurses' perception toward their work environment, and perception of self-leadership.

Table (7) reveals that there was a highly significant statistical positive correlation (r=-0.345, p=0.00) between staff nurses' perception toward their work environment, and attitude towards safety culture.

Table (8) concludes that there was a significant statistical positive effect (R^2=0.05, Beta=0.216, p=0.002) of work environment on staff nurses' self-leadership.

Table (9) concludes that there was a highly significant statistical effect (R^2=0.12, Beta=0.345, p=0.00) of work environment on staff nurses' attitudes toward safety culture.

Table (1): Frequency distribution of staff nurses' personal and work-related data (n=200).

Personal and work-related data	Governmental hospital (n=100)	Private hospital (n=100)	Chi square test	
	No.	No.	χ2	p
Age:　　　　20<30 y	75	61		
30<40 y	20	29		
40<50 y	3	7	4.89	.18
>50 y	2	3		
Mean± SD	28.03±3.25	29.37±3.16		
Gender:　　　Male	75	57	10.78	.01
Female	25	43		
Education:　Diploma nurse	15	10		
Technical nursing	24	39	25.39	.01
Bachelor in nursing	61	51		
Experience:　　1<5 y	72	59		
5<10 y	21	25		
10 to 15 y	1	5	5.78	.12
> 15 y	6	11		
Mean± SD	4.99±.85	4.01±.29		
Position:　　Staff nurse	83	77	14.63	.002
Charge nurse	17	23		

Table (2): Mean and standard deviation of staff nurses' perceptions toward their work environment

Work environment dimensions	Private hospital		Governmental hospital		Independent t test	
	Mean	SD	Mean	SD	t	P
1.　　　Institutional support	30.87	6.11	23.77	8.05	7.02	.00
2.　　　Head nurses' leadership	18.13	3.44	14.78	4.60	5.84	.001
3.　　　Work system and control	15.65	2.54	14.51	3.04	2.88	.03
4.　　　Relationship with coworkers	13.60	1.87	12.18	2.54	4.50	.00
Total work environment	78.25	12.66	65.24	15.92	6.40	.002

Table (3): Mean and standard deviation of staff nurses' perceptions of self-leadership

Self-leadership dimensions	Governmental hospital		Private hospital		Independent t test	
	Mean	SD	Mean	SD	t	P
1.　Self-goal setting	8.50	1.03	8.09	1.34	2.42	.00
2.　Self-reward	13.28	1.66	12.45	2.94	2.46	.00
3.　Self-talk	7.16	1.42	6.96	1.72	.90	.12
4.　Visualizing successful performance	10.20	1.58	10.03	2.12	.64	.002
5.　Evaluating beliefs and assumption	10.91	1.12	10.04	2.14	3.60	.00
6.　Natural reward strategies	10.93	1.39	10.37	2.38	2.04	.00
Total self-leadership	60.98	3.87	57.94	8.29	3.32	.00

Table (4): Mean and standard deviation of staff nurses' attitudes towards safety culture

| Attitude toward safety culture dimensions	Governmental hospital		Private hospital		Independent t test	
	Mean	SD	Mean	SD	t	P
1. Teamwork climate	13.42	7.61	17.52	1.42	5.30	.00
2. Safety climate	14.30	8.31	18.76	2.34	5.17	.00
3. Job satisfaction	10.92	6.42	14.36	1.91	5.14	.00
4. Stress recognition	5.79	4.31	7.68	3.24	3.51	.01
5. Perception of management	8.45	4.93	10.86	1.89	4.57	.00
6. Working conditions	9.00	5.11	11.66	1.30	5.05	.00
Total attitude toward safety culture	61.88	35.29	80.84	6.94	5.27	.00
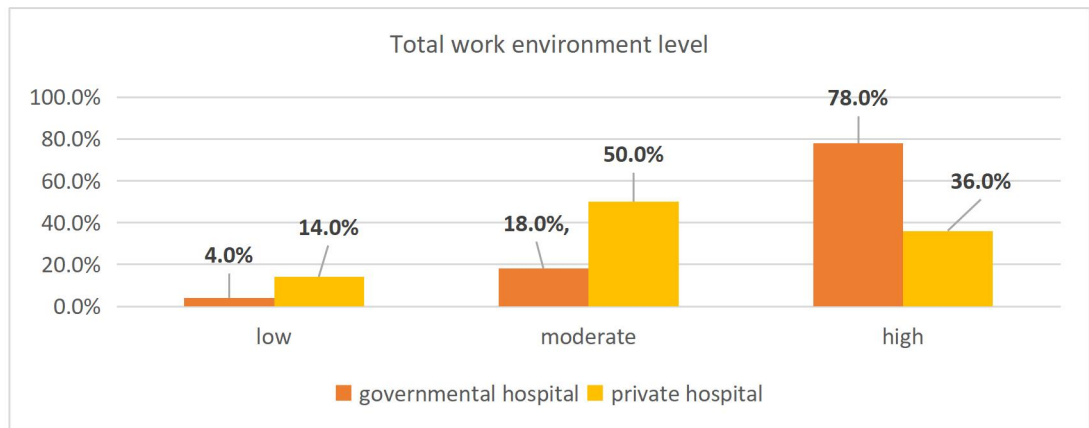
Figure (1): Frequency distribution of staff nurses' total level of perceptions toward their work environment (n=200).
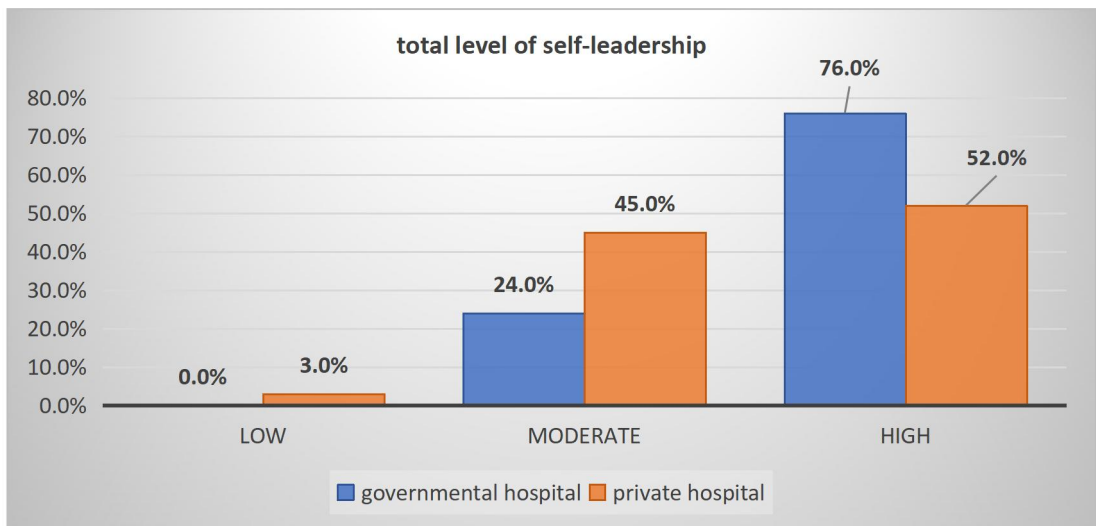

Figure (2): Frequency distribution of nursing personnel's total level of self-leadership (n=200).
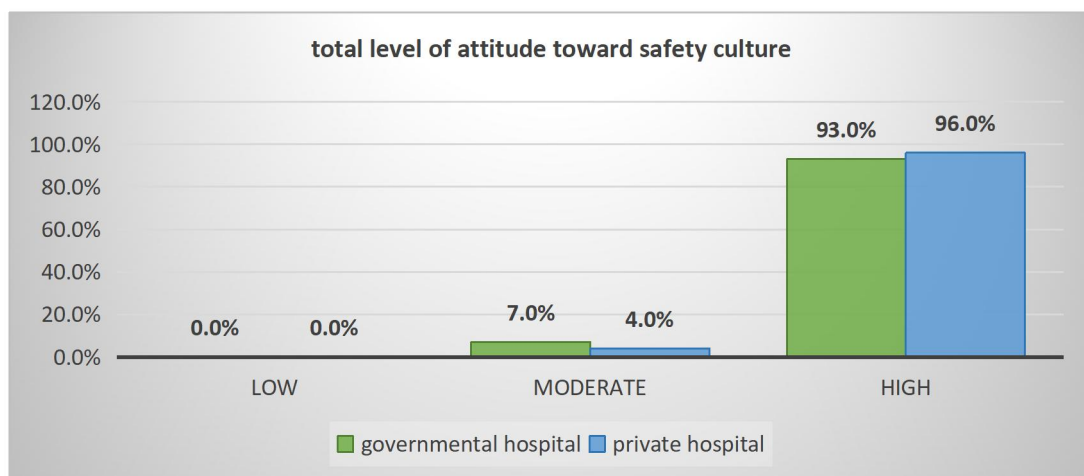
Figure (3): Frequency distribution of staff nurses' total level of attitude toward safety culture (n=200).

Table (6): Relationships between staff nurses' perception toward their work environment, and self-leadership

Pearson's correlation		Institutional support	Head nurse leadership	Work system	Relation coworkers	**Total environment**
Self-goal setting	R	.237	.205	.126	.125	.218
	P	.001	.004	.077	.077	.002
Self-reward	R	.252	.201	.108	.184	.230
	P	.000	.004	.128	.009	.001
Self-talk	R	-.070	-.091	-.129	-.097	-.098
	P	.325	.202	.070	.174	.166
Visualizing successful performance	R	.148	.112	-.014	.041	.109
	P	.037	.116	.844	.564	.123
Belief evaluation	R	.268	.177	.003	.080	.197
	P	.000	.012	.962	.260	.005
Natural reward	R	.160	.117	-.040	.029	.111
	P	.024	.098	.575	.685	.119
Total self-leadership	R	.279	.202	.017	.108	.216
	P	.000	.004	.812	.126	.002

*p value is significant at ≤0.05.

Table (7): Relationships between staff nurses' perception toward their work environment, and attitude towards safety culture

Pearson's correlation		Institutional support	Head nurse leadership	Work system	Relation coworkers	Total environment
Teamwork climate	R	-.318	-.308	-.209	-.330	-.333
	P	.000	.000	.003	.000	.000
Safety climate	R	-.330	-.318	-.217	-.308	-.340
	P	.000	.000	.002	.000	.000
Job satisfaction	R	-.317	-.302	-.207	-.294	-.325
	P	.000	.000	.003	.000	.000
Stress recognition	R	-.272	-.281	-.189	-.316	-.296
	P	.000	.000	.007	.000	.000
Perception management	R	-.286	-.271	-.180	-.293	-.296
	P	.000	.000	.011	.000	.000
Work condition	R	-.303	-.286	-.206	-.293	-.314
	P	.000	.000	.003	.000	.000
Total attitude toward safety culture	R	-.331	-.320	-.219	-.330	-.345
	P	.000	.000	.002	.000	.000

*p value is significant at ≤0.05.

Table (8): Effect of work environment on staff nurses' perception of self-leadership

Linear regression Model	R^2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)	0.05	52.933	2.144		24.693	.000
Total work environment		.091	.029	.216	3.117	.002
Dependent Variable: total self-leadership						

Table (9): Effect of work environment on staff nurses' perception of their attitudes toward safety culture

Linear regression Model	R^2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)	.12	113.892	8.421		13.524	.000
Total work environment		.593	.115	.345	-5.170	.000
Dependent Variable: total Attitude toward safety culture						

Statistical design:

Data entry was done using SPSS v28 computer software package. Quality control was done at the stages of the coding and data entry. Frequency distribution was conducted as descriptive statistics for all study variables. Mean and standard deviation and mean percent were used for description of totals. Pearson's correlation and regression analysis were used to assess the relationships between the study variables.

Discussion:

Part I: Before discussing the results related to these research questions, the light should be directed to the personal and work-related data of staff nurses.

Regarding personal and work-related data, the study results showed that the majority of staff nurses' ages ranged between 20 to 30 years old in governmental hospital while about two third in private hospital. The majority of staff nurses were male in governmental hospital while more than half in private hospital. About two-thirds of staff nurses in governmental hospital have bachelor's degrees in nursing while more than half of them in private hospital have the same degree. In governmental hospital more than two-thirds of staff nurses have experience ranged from one to five years of experience while more than half have the same years of experience in private hospital. The most of sample in governmental hospital were staff nurses and the majority of them also were staff nurses in private hospital. There were significant statistical differences between governmental and private hospital regarding participants' gender, education, and position.

Part II: - Staff nurses' perceptions of their work environment

Regarding staff nurses' perceptions toward their work environment, the study results concluded that the high perception level of total work environment dimensions was better in private hospital than in governmental hospital. The highest positive perception of staff nurses in governmental and private hospital among work environment dimensions related factors was institutional support then head nurse leadership support and autonomy followed by working system and control and finally relationship with coworkers' dimension. This may be due to a supportive management style, a balanced work schedule, professional autonomy, adequacy of resources and collaborative relationship with physician and coworkers.

These findings were consistent with the research conducted by **Abdullatif and Elsayed (2020)** on the perceptions of nurses regarding their work environment. The study revealed that over half of the nurses surveyed perceived an average work environment. The nursing foundations for quality-of-care dimension had the highest perception, followed by nurses' participation in hospital affairs. The lowest perception was for collegial nurse and physician relations, followed by staffing and resource adequacy.

In contradiction with the current study findings **Hegazy, Ibrahim, Shokry, and El Shrief (2022)** in a study about nurses' perception of work environment factors and its relationship with their work engagement showed that two-thirds of studied nurses had a poor perception of work environment factors, the highest poor perception among work environment dimensions related factors was environmental control followed by autonomy then organizational support and relationship between doctors and nurses. Also, **Al Moosa et al, (2020)** indicated that the studied nurses had a moderate level of perception related to their work environment; the highest perception among the studied nurses was related nursing foundation for quality of care, while the lowest perception was for staffing and resource adequacy, and nurse manager ability, leadership, and support of nurses. Moreover, these findings in contradict **Moisoglou et al, (2020)** revealed that the studied nurses perceived an unfavorable work environment. The collegial nurse-physician relation was the most favorable element of the nurses' work environment followed by nurse manager ability, leadership, and support of nurses' dimension, whereas the staffing and resource adequacy dimension had the lowest perception followed by nurse participation in hospital affairs.

Regarding staff nurses' perceptions of their self-leadership, the study results concluded that the high perception level of self-leadership was better in governmental hospitals than in private hospital. The highest positive perception of staff nurses in governmental and private hospital among self-leadership strategies related factors was self-reward then natural reward strategies then evaluating beliefs and assumption followed by vizualizing successful performance then self-goal setting and finally self-talks strategy. This may be due to increased workload and numbers of assigned patients in governmental ICU to staff nurse. When the

workload peaks, nurses tend to use more directive leadership styles and to be more self-independent.

Similarly, **Saed and Alhusban's (2024)** investigation of the link between self-leadership and job performance among Jordanian staff nurses found that staff nurses had a high perceived self-leadership level. Also, Jones, **Lucas**, **Kothari, and Adams (2020)** found that nurses who exhibited higher levels of self-leadership were more likely to take proactive steps to ensure patient safety, such as reporting incidents, engaging in safety-related initiatives, and advocating for necessary changes. Also, **Neck**, **Manz, and Houghton, (2020)** concluded that self-leadership has positive direct associations with problem prevention and psychological empowerment, implying that individuals using self-leadership strategies could effectively control themselves and their work environments. According to **Alshammari, Pasay-an, Gonareles and Torres (2020)** found that training nurses on self-leadership and emotional intelligence is vital to help in the establishment of leadership.

Regarding staff nurses' perceptions of their attitudes toward safety culture the study results concluded that the high perceptions level of attitude toward safety culture was better in private than in governmental hospital. The staff nurses in governmental and private hospital were highly perceived safety climate then teamwork climate then job satisfactions followed by working conditions then perception of management and finally stress recognition. This good perception toward patient safety culture may be due to nurses had training program related aspect of patient safety culture or nursing mangers create nursing work environment that empowers staff nurses, enhance nurses' autonomy, and providing nurses with opportunities for professional development. Nursing managers also share their views on the importance of safety, fidelity, and accountability, and agreed trust in the effectiveness of preventive measures.

In support of these results **Abdullatif and Elsayed, (2020)** in a study about nurses' patient safety culture, highlighted that the majority of the studied nurses had good perception toward patient safety culture, while the highest perception was for communication openness domain followed by response to error, and lowest perception was for manager, or clinical managers' support for patient safety domain followed by feedback and communication about error. In the same context the study of **Ricklin, Hess and Hautz (2019)**, and **Ali et al (2018)** reported that the overall perception of patient safety culture was rated as very good by the studied nurses. Also, **Putri, Nuswantari, and Imam (2018)** addressed that communication openness has a positive and significant effect on the readiness to report patient safety incidents.

These findings disagreed with El-**Sherbiny, Ibrahim and Abdel-Wahed (2020)** reported that the lowest score was for communication openness and concluded that overall, at Fayoum public hospitals, the degree of patient safety is poor. Moreover, **Ghobashi, El-Ragehy, Ibrahim, and Al-Doseri, (2014)** reported that the studied nurses had poor culture less than 50% related the non – punitive response to errors, frequency of event reporting, staffing, communication openness, center handoffs and transitions and needs improvement, whereas the dimensions of highest positivity were teamwork within the center's units and organizational learning.

Part III: Relationships between staff nurses' perception toward their work environment, perception of self-leadership, attitude towards safety culture.

The study revealed that there was a significant statistical positive correlation between staff nurses' perception toward their work environment, and perception of self-leadership. In the same line with the results of current study **Jones, et, al. (2021)** found that positive workplace environments, characterized by clear communication channels, supportive leadership, teamwork, and adequate resources, were strongly associated with nurses' self-leadership. **Chen, Zhang, Liang, and Shen (2021)** found a significant correlation between a positive workplace environment and nurses' self-leadership. Factors such as autonomy at work, collaboration, respect, and trust among team members were positively associated with

self-leadership skills. Nurses who demonstrated high levels of self-leadership were more likely to engage in activities that promoted safety, such as reporting incidents, engaging in safety training programs, and actively participating in safety improvement initiatives.

- Chen, Zhang, Liang, and Shen (2021) revealed that nurses with strong self-leadership skills exhibited a more positive attitude toward safety. They showed greater commitment to following safety protocols, increased vigilance in identifying potential hazards, and a proactive approach to addressing safety concerns. **Shin, and Yeom, (2021)** a study found that nurses with more positive perceptions of the work environment tended to have greater self-leadership. Also, **Jones, et,al (2021)** revealed that there was a significant positive correlation between nurses' self-leadership and their attitude toward safety. Nurses with better self-leadership skills showed higher levels of commitment to safety practices, increased vigilance in detecting potential hazards, and were more likely to follow safety protocols.

The study results revealed that there was a highly significant statistical positive correlation between staff nurses' perception toward their work environment, and attitude towards safety culture. The current study results were supported by **Abdullatif and Elsayed (2020)** showed that work environment correlated positively with patient safety culture. This may be due to staff nurses working in an environment that is characterized by teamwork, effective relationship between health care providers, receiving support from their managers; therefore it influences their patient safety culture. Moreover, **Clark and Lake (2020)** who reported that the good work environment associated with high level of patient safety among nurses, this means nurses' perception of work environment correlated with patient safety culture among nurses in the United States. Also, it in the same line with the study of **Ball and Griffiths (2019),** and **Dirik, and Intepeler, (2017)** indicated that the work environment was linked positively with the patient safety culture among nurses who were working in a university hospital located in Izmir.

Conclusion:

There was a significant statistical positive correlation (r=0.216, p=0.002) between staff nurses' perception toward their work environment, and perception of self-leadership. There was a highly significant statistical positive correlation (r=-0.345, p=0.00) between staff nurses' perception toward their work environment, and attitude towards safety culture. An also, there was a statistically significance positive effect of work environment on staff nurses' perception of self-leadership (R^2=0.05, Beta=0.216, p=0.002) and attitudes toward safety culture (R^2=0.12, Beta=0.345, p=0.00).

Recommendations:-

- Nurse Managers and supervisors should prioritize clear communication routes, supportive leadership, teamwork opportunities, and sufficient resources to improve the workplace environment through the following :-

• Promoting self-leadership skills among nurses can positively impact their proactive involvement in patient safety initiatives and development opportunities that focus on self-leadership.

• Encouraging a positive safety culture through training, feedback mechanisms, and recognition programs can further reinforce nurses' positive attitude toward safety.

• Prioritize the establishment of supportive structures and policies that encourage nurses to engage in safety-related activities.

• Promoting a positive safety culture through ongoing education, training, and mentorship can reinforce nurses' positive attitude toward safety.

• Lead by example and demonstrate self-leadership behaviors.

- Head nurses should empower nurses to take ownership of their work and provide opportunities for collaboration that can foster self-leadership skills.

• Recognize and reward nurse who demonstrate self-leadership.

• Foster a supportive environment that values personal growth and well-being.

Conflicts of interest: There are no conflicts of interest.

References

Abdullatif I., & Elsayed, E. (2020): associations between nursing work environment, patient safety culture, and missed nursing care among staff nurses. Port Said Scientific Journal of Nursing Vol.7, No.3, December 2020, Faculty of nursing, Mansoura university, Egypt1.

Al Moosa, M., Eweis Hassanein, S., Alnems, A., Ahmed Abdrbo, A., Minguez, O., & Anwar Al Ghadheeb, F. (2020). Perception of Nurses Work Environment in Tertiary Care Hospital in Saudi Arabia. *American Journal of Nursing Science*, *9*(1), 23.https://doi.org/10.11648/j.ajns.20200901. 14

AL-Dossary, R. (2022):The effects of nursing work environment on patient safety in Saudi Arabian hospitals.College of Nursing, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.Front. Med. 9:872091. doi: 10.3389/fmed.2022.872091.

Ali, H., Ibrahem, S. Z., Al Mudaf, B., Al Fadalah, T., Jamal, D., & El-Jardali, F. (2018). Baseline assessment of patient safety culture in public hospitals in Kuwait. *BMC health services research*, *18*.131 ,(1).

Alshammari F, Pasay-an E, Gonzales F, Torres S. (2020): Emotional intelligence and authentic leadership among Saudi nursing leaders in the Kingdom of Saudi Arabia. J Prof Nurs; 36(6): 503-9. [http://dx.doi.org/10.1016/j.profnurs.2020.0 4.003] [PMID: 33308547]

Bearden, C. (2017): "Self-Leadership Strategies & Performance Perspectives Within Student Aviation Teams," Doctoral dissertation, Middle Tennessee State University,.

Bracht EM, Jungker NM, van Dick R. (2018): Exploring the social context of self-leadership—Self-leadership-culture. J Theor Soc Psychol.;2(4):119-30.

Browning M. (2018): Self-leadership: Why it matters. Int J Bus Soc Sci.;9(2):14-8.

Chen,,S., Zhang, Y., Liang, L.,&Shen, T., (2021): Does Paradoxical Leadership Facilitate Leaders' Task Performance? A Perspective of Self-Regulation Theory.*Int. J. Environ. Res. Public Health* , *18*(7),

3505; https://doi.org/10.3390/ijerph1807350 5. Published: 28 March 2021.

Chiang HY, Hsiao YC, Li HF. Predictors of hospital nurses' safety practices work environment, workload, job satisfaction, and error reporting. J Nurs Care Qual. 2017;32 (4):359–68. doi:10.1097/NCQ.0000000000000240

Clark, R. R., & Lake, E. T. (2020). Association of clinical nursing work environment with quality and safety in maternity care in the United States. *MCN: The American Journal of Maternal/Child Nursing*, *45*..275-223 ' (3).

Dirik, H. F., & Intepeler, S. S. (2017). The work environment and empowerment as predictors of patient safety culture in Turkey. *Journal of nursing management*, *25*(4), 256-265.

El-Sherbiny, N. A., Ibrahim, E. H., & Abdel-Wahed, W. Y. (2020). Assessment of patient safety culture among paramedical personnel at general and district hospitals, Fayoum Governorate, Egypt. *Journal of the Egyptian Public Health Association*, *95*.4 ,(1).

Ghobashi, M. M., El-Ragehy, H. A. G., Ibrahim, H. M., & Al-Doseri, F. A. (2014). Assessment of patient safety culture in primary health care settings in Kuwait. *Epidemiology, Biostatistics and Public Health*, *11*(3).

Hayashi, K.,Shimamoto, S.,& Nagamatsu, G (2020):Environmental factors for establishment of the dormant state in oocytes. Development, growth and differentiation. Volume62, Issue3. Special Issue: CONTROL AND DESIGN OF BIOSYSTEMS. April 2020.Pages 150-157.

Hayashi, R., Fujita, S., Iida, S., Nagai, Y., Shimamori, Y., & Hasegawa, T. (2020). Relationship of patient safety culture with factors influencing working environment such as working hours, the number of night shifts, and the number of days off among healthcare workers in Japan: A cross-sectional study. BMC Health Services Research, 20(1), 1–9. https://doi.org/10.1186/s12913- 020-05114-8

Hegazy, A. Ibrahim, M., Shokry, W.,& El shrief, H. (2022): Nurses' Perception of Work Environment Factors and its relation with

their Work Engagement.Egyptian Journal of Health Care, 2022 EJHC Vol. 13 No. 1.

Helo & Moulton, (2017):Helo S, Moulton CE. Complications: acknowledging, managing, and coping with human error. TranslAndrol Urol. 2017 Aug;6(4):773-782. [PMC free article] [PubMed] [Reference list]

Hessels, A. J., Paliwal, M., Weaver, S. H., Siddiqui, D., & Wurmser, T. A. (2019): Impact of patient safety culture on missed nursing care and adverse patient events. Journal of nursing care quality, 34.294-217 ,(4).

Hong SJ. (2015): Perception of safety attitude and priority and progress of safe practices of nurses in emergency services hospitals. Adv Sci Lett. 2015;104:156–63. http://dx.doi.org/10.14257/ astl.2015.104.34 (accessed 15 December 2021).

Houghton, J.D., & Neck, C.P. (2012): The Revised Self-Leadership Questionnaire: Testing a Hierarchical Factor Structure for Self-Leadership. Journal of Managerial Psychology, 17,672-691. All rights reserved.

Jeong H, Park MH. (2019): A predictive model on patient-centered care of hospital nurses in Korea. J Korean AcadNurs;49:191-202

Jones, I , Samantha, K., Ka Hong, C., Joshua S. Bourdage,A., & Aleem B.,(2021): Identifying leadership in medical trainees: evaluation of a competency-based approach. Journal online (http://dx.doi. org/10.1136/leader-2020- 000402). ;0:1–10. doi:10.1136/leader-2020-000402

Jones, L, Lucas, R, Kothari,P, &Adams, C, (2020):We are All Leaders: Introducing Self-Leadership Concepts Through the Lens of Improving Diversity in the Health Care Workforce. The journal of teaching and learning resources.https://doi.org/10.15766/mep_2374-8265.11011.

Kim, H. S. (2003):The relationship between self-leadership and job satisfaction of middle school teachers (master's thesis). Seoul, Korea: Soongsil University.

Lake, E. T. (2002): Development of the practice environment scale of the nursing work index. Research in nursing & health, 25(3), 176-188. https://onlinelibrary.wiley.com/doi/abs/10.1002/nur.10032. Lake et al., (2019)

Lake, E. T., Riman, K. A., & Sloane, D. M. (2020): Improved work environments and staffing lead to less missed nursing care: A panel study. Journal of Nursing Management. 0 (2) 1-9. https://onlinelibrary.wiley.com/doi/full/10.1111/jonm.12970

Lee WC, Wung HY, Liao HH, et al.(2010): Hospital safety culture in Taiwan: a nationwide survey using Chinese version Safety Attitude Questionnaire. BMC Health Serv Res. 2010;10:234. doi:10.1186/1472-6963-10-234

Liu, Jiali, Zheng, Jing, Liu, Ke, You, & Liming. (2019): "Relationship between Work Environments, Nurse Outcomes, and Quality of Care in ICUs: Mediating Role of Nursing Care Left Undone," Journal of nursing care quality, 34(3), 250-255.

Moisoglou, I., Yfantis, A., Galanis, P., Pispirigou, A.,Chatzimargaritis, E., Theoxari, A., & Prezerakos, P. (2020). Nurses work environment and patients' quality of care. International Journal of Caring Sciences, 13.112-151 ,(1).

Neck CP, Manz CC, Houghton JD. (2019): Self-leadership: The Definitive Guide to Personal Excellence. 2nd ed. Thousand Oaks, CA: SAGE Publication.

Neck, C. P., Manz, C. C., & Houghton, J. D. (2020). Self-leadership: The definitive guide to personal excellence (2nd ed.). SAGE Publications, Inc.

Ozdemir FK, Sahin ZA. (2015): Perceptions of nurses regarding the patient safety culture: the Kars case. ODU Med J. 2015; 2:139–44 (inTurkish).

Park SH, KangJ. (2015): Development and psychometric evaluation of the Korean nursing work environment scale. J Korean crit Care Nurs; 8:50-61. PMCID: PMC6626229. DOI: 10.1016/j.ijnss.2018.04.010

Putri, E. S. K., Nuswantari, A. T., & Imam, C. W. (2018). Effect of perception of patient safety culture dimensions on the willingness to report patient safety incident. Jurnal Aplikasi Manajemen, 16.147-152 ,(1).

Reis, Paiva & Sousa, (2018):The patient safety culture: a systematic review by characteristics of Hospital Survey on Patient Safety Culture dimensions.Int J Qual Health

Car 2018 Nov 1;30(9):660-677. doi: 10.1093/intqhc/mzy080.

Ricklin, M. E., Hess, F., & Hautz, W. E. (2019). Patient safety culture in a university hospital emergency department in Switzerland–a survey study. *GMS journal for medical education*, *36*(2)

Saed, M.&Alhusban,R (2024).: The Relationship Between Self-leadership and Job Performance Among Staff Nurses in Jordan SEHA Ambulatory Health Care Service, Abu Dhabi, United Arab Emirates ,Nursing Faculty, Zarqa University, Zarqa, Jordan, AHSR 67, pp. 27–34, 2024. https://doi.org/10.2991/978-94-6463-248-4_4

Sayed E., H., Mohamed S., A., Ali, F., A., &Dakrory, H., A.,(2021): Perceptions of Staff Nurses about Patient Safety Culture at Minia General Hospital. Minia Scientific Nursing Journal (Print - ISSN 2537-012X) (Online - ISSN 2785-9797) Vol. (10) No. (1).

Serram, T., (2019): an overview of correlational research, Vol. (91). no 2(176-179).

Sexton J B, & Thomas EJ. (2013): The Safety Climate survey: Psychometric and benchmarking properties. Technical Report 03-03. The University of Texas. Center of Excellence for Patient Safety Research and practice (AHRQ grant# 1PO1HS1154401 and U18HS1116401).

Sexton JB, Berenholtz SM, Goeschel CA, Watson SR, Holzmueller CG, Thompson DA, Hyzy RC, Marsteller JA, Schumacher K, Pronovost PJ. (2014) Assessing and improving safety climate in a large cohort of intensive care units. Critical Care Medicine. May 1;39(5):934-939

Shin, S., and Yeom, H., (2021): The effects of the nursing practice environment and self-leadership on person-centered care provided by oncology nurses.

Shin, Y. Kim M. & Han, Y. (2009):" A Study on the Validation of the Korean Version of the Revised Self-Leadership Questionnaire (RSLQ) for Korean College Students " The Korean Journal of School Psychology, 6(3). pp. 313-340,.

Smith-Trudeau P. (2019): Nursing leadership at all levels: the art of self-leadership; https://d3ms3kxrsap50t.cloudfront.net/uploads/publication/pdf/1399/Vermont_Nurse_Connection_10_16.pdf. Accessed March 15.

Song, Y., Hoben, M., Norton, P., & Estabrooks, C. A. (2020): Association of work environment with missed and rushed care tasks among care aides in nursing homes. JAMA network open, 3(1), e1920092-e.1925592

Van Zyl E, Mokuoane M, Nel P. (2017): The effect of work stress and emotional intelligence on self-leadership among nurses in leadership positions in the Lesotho Ministry of Health and Social Welfare. Afr J Nurs Midwifery. 2017;19:88-104. https://doi.org/10.25159/2520-5293/613

Wei, Sewell, Woody, & Rose, (2018):The state of the science of nurse work environments in the United States: A systematic review.PMID: 31406839

Zeleníková, R., Jarošová, D., Plevová, I., & Janíková, E. (2020): Nurses' Perceptions of Professional Practice Environment and Its Relation to Missed Nursing Care and Nurse Satisfaction. International Journal of Environmental Research and Public Health, 17(11), 3805.