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Relation between Work Environment Uncertainty and Nurses' Readiness for Change

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Abstract

The uncertainty associated with the rapidly changing healthcare system today directly influences nursing practice on a daily basis. Uncertainty has been described as an expected, inevitable feeling resulting from being in an ambiguous situation, and is a behavior or feeling that can be modified. To investigate the relationship between work environment uncertainty and nurses' readiness for change. A descriptive correlational design was used to achieve aim of this study. New General Mansoura Hospital in Mansoura City, Egypt. Simple random sample from nurses (n= 197), selected from the above mentioned setting. Two tools were used; Perceived Environmental Uncertainty in hospitals (PEU-H) scale and Organizational Readiness for Change scale. (51.45%) of studied nurses had a low perception level of work environment uncertainty while (60.5%) of them had a high perception level of organizational readiness for change. There was statistically significant negative correlation between work environment uncertainty and organizational readiness for change. Develop an information system to transmit information in a timely systemic manner to and from all organization management levels in times of uncertainty and before a change initiative to keep all staff involved.

Keywords: Work Environment uncertainty, Nurses' Readiness for Change.

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1. Introduction

The world today is filled with uncertainty and uncertainty in healthcare is no exception. People encountering today's healthcare environment, including patients, nurses, and administrators, all experience an environment that is "not definite or fixed" [1]. Uncertainty is a universal experience. Uncertainty has been described as an expected, inevitable feeling resulting from being in an ambiguous situation, and is a behavior or feeling that can be modified [2]. Uncertainty is a pervasive and important problem that has attracted increasing attention in health care, given the growing emphasis on evidence-based medicine, shared decision making, and patient-centered care [3]. Uncertainty is a dynamic state in which there is a perception of being unable to assign probabilities for outcomes that prompts a discomforting, uneasy sensation that may be affected (reduced or escalated) through cognitive, emotive, or behavioral reactions and changes in the perception of circumstances [4]. Environmental uncertainty is defined as the incapability of the organization to assess the effects of a suitable response to changes in the work environment [3].

Two main dimensions of environmental uncertainty were environmental attributes and individual attributes. Environmental attributes represented by three domains: (a) environmental dynamism or change rate, (b) environmental complexity, (c) environmental dominance, Individual uncertainty refers to individual's perception that critical information about environment is unavailable, which results in inability to accurately predict changes. Individual attributes were represented by need for information [5]. Nurses experience uncertainty in their practice due to fast paced and complex nature of healthcare system. A nurse may experience uncertainty when giving a patient a medication that is unfamiliar, struggling to meet multiple workloads demands concurrently, or adjusting workflow to incorporate changes in documentation requirements [6]. Experience of uncertainty has a negative impact on a patient's quality of life and is associated with symptoms of depression and anxiety. Effects of uncertainty on a nurse in practice have not studied widely, but what little has studied focuses on identifying sources of uncertainty in practice and action nurses take to decrease uncertainty in practice [7].

Nurses may not be able to identify that what they are feeling is uncertainty. In one study, nurses identified other feelings related to uncertainty such as frustration, anger, agitation, and fear [8]. If uncertainty is not coped

with, over time, negative repercussions will occur such as burnout and job dissatisfaction from experiencing a prolonged sense of fear, lack of self-esteem, unclear expectations, and overreliance on others for decision-making and direction [9]. Maintaining an attitude of uncertainty may benefit nurses in practice. Nurses often take comfort in being an expert and having certainty in their practice and knowledge [10]. Uncertainty may be experienced when nurses intentionally put aside their role of being expert with all knowledge and answers to a patient problem. Putting aside preconceived answers or knowledge may benefit a nurse in developing a relationship with patients by allowing for openness in relationship and patient expression [6]. We now live in a global organization environment that is continuously changing, and change has become standard for organizations to maintain their success and existence.

Globalizations of economics, competition, liberalization, deregulation, privatization, mergers and acquisitions, and technological advancements have all contributed to substantial changes in organizational paradigm (Al-Qaralleh et al., 2022). In healthcare settings, organizational readiness for change is a critical component in successful implementation of new policies, programs, and practices. Goal of organizational readiness is to improve efficiency of organization. Nurse's acceptance of change is critical to a change initiative's success and long-term viability [8]. While organizational readiness for change (ORC) widely recognized as necessary to implementation success, its assessment remains challenging [11]. ORC is defined as extent to which organizational members are psychologically and behaviorally prepared to implement change. This definition has since widely adopted in the ORC literature and provides operational definition for much of the work in this area**.** Readiness of an organization is determined by assessing its structure, policies, culture, and leadership style [12]. There are many factors that influence an organization's readiness for change. Organizational readiness has multiple characteristics, many of which are contextual, which means that there are various methods to achieve it, as well as many ways to fail. Organizational culture is one factor that has been shown to have an impact on organizational readiness, although which traits have a beneficial impact depends on context [13]. Additionally, there are three responses to change, namely readiness, commitment and resistance to change. Readiness for change is a cognitive antecedent to behavior of either resistance or support for a change effort, which is reflected in the employee's beliefs, attitudes and intentions regarding the extent to which changes are needed and the organization's ability to successfully complete the intended change [11]. The role of the leader is a key factor in determining the organization's readiness to change. The better the implementation of a decisional role by the leader, the higher the level of organizational readiness to change. The successful implementation of a decisional role by the leader will make organizational members more comfortable during the change process, allowing them to create high commitment, efficacy of change, and improve decisional ability for all leaders so that health organization can through the process of organizational change successfully [14].

1.1. Significance of the study

Nurses are the largest group of professional staff in health care services who offer care directly to patients and their job conditions influence the consequences related to patients [14]**.** Health care settings are facing threatening factors that affect work effectiveness such as lack of experience, lack of resources, lack of information, lack of skills and lack of managerial support. Furthermore, there are challenges that may effect on readiness of nurse for change such as increasing cost of health care delivery, the nursing shortage, rapid advancements in technology and information management. Understanding nurses' perceptions regarding uncertainty in the hospital environment and connecting them to their level of readiness for change in the organization will help us understand the organization's behavior on both micro and macro levels [15]. Thus, strategies for reducing the uncertainty level can be recommended to help nurses become more certain about accepting the changes and be active participants in the reform efforts for organizational development. So the aim of this study was to investigate the relationship between work environment uncertainty and nurses' readiness for change at New General Mansoura Hospital in Mansoura City.

1.2. Aim of the study

The aim of the study was:

To investigate the relationship between work environment uncertainty and nurses' readiness for change and at New General Mansoura Hospital in Mansoura City**,** Egypt.

1.3. Research Questions

1. What is the level of work environment uncertainty as perceived by nurses at New General Mansoura Hospital in Mansoura City**,** Egypt?
2. What is the perception level of nurses' readiness for change at New General Mansoura Hospital in Mansoura City**,** Egypt?
3. Is there relationship between work environment uncertainty and nurses' readiness for change at New General Mansoura Hospital in Mansoura City**,** Egypt?

2. Subjects and Methods

2.1. Research design

A descriptive correlational research design was used to achieve the aim of this study.

2.2. Study setting

The study was conducted at New General Mansoura Hospital in Mansoura City, El-Dakahlya. Governorate, Egypt, which include one building involving seven floors covered different departments such as Emergency department, Internal medicine department, cardiovascular department, E.N.T, Orthopedics department, Operating room, Neonates department, Dialysis and urology department, Gynecological department, I.C.U with total capacity of 528 beds.

2.3. Study subject

A simple random sample from nurses working in the above-mentioned setting according to the following:

- ***Inclusion criteria***
  - The available three categories of nurses were included (bachelor & technical nurses & diploma).

- Both genders.
- Had at least one year of experience.
- Agree to participate

➢ ***Sample size***

Total population size is 700 nurses working in the setting of the study, Sample size calculated using a simplified formula provided by (Yamane, 1967) ($n=N/1+N(e)^2$ [16]. A 95% confidence level and P =0.05 are assumed for Equation. Where „n‟ is sample size. „N‟ is Number of population (total number of nurses in all hospital). „e‟ is Coefficient factor = 0.05. Then, required number of nurses was (n=197).

2.4. Tools of data collection

To fulfill the purpose of this study, two tools were used for data collection as follows:

➢ ***Tool I:*** Perceived environmental uncertainty in hospitals (PEU-H) scale: It consists of two part.

Part one: Personal characteristics of nurses, which include the data about characteristics of nurses such as age, gender, years of experience and educational qualifications.

Part two: It was developed by Salyer (1996) to measure nurses' perceptions level of work uncertainty in the hospital environment. It consists of 22 items grouped under two main subscales namely: individual attributes and environmental attributes. Each of them had 11 items [17].

➢ ***Scoring System***

Nurses' responses to the scale were measured on a three-point Likert scale ranging from 1= disagree, 2 = neutral, 3= agree. The scores of each sub scales were summed and total divided by numbers of items. These scores were converted into percent score. The total perception level of work environment uncertainty among nurses considered:

- Low if the score range from 22-59
- Moderate if the score range from 60-77
- High if the score more than 78-110

➢ ***Tool II:*** Organizational readiness for change scale

It was adapted from Eby et al., (2000) to assess the extent to which nurses are prepared for organizational change. It consists of 28 items grouped under four sub scales as named: organizational support, cultural component, environment component, and employee attitude and behavior. All of them had 7 items [18].

➢ ***Scoring System***

Nurses' responses were measured on three point likert scale that ranging from 1= disagree, 2 = neutral, 3= agree. The scores of each sub scales were summed and the total divided by numbers of items. These scores converted into percent score. Total perception level of organizational readiness for change among nurses considered:

- Low if the score range from 28-69
- Moderate if the score range from 70-97
- High if the score range from 98-140

2.5. Content validity& Reliability

Questionnaire translated into Arabic; and content and face validity established by a panel of five experts at Faculty of Nursing, Zagazig University. Experts requested to express their opinions and comments on tool and provide any suggestions for any additions or omissions of items. According to their opinions, all recommended modifications performed by researcher. Reliability analysis all tools (I, and II) tested for reliability using Cronbach's Alpha Coefficient factor test to determine internal consistency of each scale and all the satisfactory for the work environment uncertainty scale (0.892), Organizational readiness for change scale (0.931).

2.6. Fieldwork

The data collection phase of the study spanned three months. Throughout this period, all data were gathered from the study subjects. In the preparatory phase, individual meetings were conducted with each nurse to provide a comprehensive explanation of the study's objectives, and an invitation to participate was extended. Nurses who verbally provided informed consent given a self-administered questionnaire and received instructions during filling process. The second phase involved researcher personally delivering necessary questionnaire sheets to staff nurses in their work settings to gather their opinions. Data collection occurred three days a week, with the researcher meeting staff nurses during both morning and evening shifts after they had finished their work. Questionnaires completed at time of distribution, taking approximately 10-15 minutes. The researcher meticulously checked each completed questionnaire sheet to ensure inclusion of all necessary information

2.7. Pilot study

A pilot study was conducted on 10% (n=20) of the study subjects to assess applicability, feasibility, and practicability of the tools. Additionally, pilot study aimed to estimate time required for filling in questionnaire sheets. This preliminary study took place one week before data collection, with staff nurses selected randomly. Notably, participants in pilot study were excluded from main study sample.

2.8. Administrative and ethical considerations

The study was approved by ethics committee and dean of the Faculty of Nursing, Zagazig University. Then, a letter containing aim of study directed from the Faculty of Nursing to the medical and nursing administration of the New General Mansoura Hospital requesting their approval and cooperation for data collection. Consent was established with completion of questionnaires. As well, verbal explanation of nature and aim of study had explained to staff nurses included in study sample. Likewise, an individual oral consent was received from each participant in study after explaining purpose of study. Staff nurses given an opportunity to refuse or to participate, and they assured that information would be used confidentially for research purpose only.

2.9. Statistical analysis

Data collected from the studied sample was revised, coded and entered using Personal Computer (PC). Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, frequency's and Mean SD. A correlation coefficient "Pearson correlation" is a numerical measure of some type of correlation, meaning a

statistical relationship between two variables. Chi-square is a statistical test that examines the differences between qualitative data. Linear regression analysis is used to predict the value of a variable based on the value of another variable.

3. Results and discussion

3.1. Results

Table (1): Shows that slightly more than half of the studied nurses (50.3%) range in age from 30 to less than 40 years old with mean 38.3±4.25 years. In addition, more than two thirds of them (67.0%) are females and almost three quarters of them (74.6%) were married. As well, more than half of them (51.8%, 54.3%) have a bachelor nursing degree and have 5 to 10 years of the clinical experience, respectively. Beside, nearly half of them (47.7%) work at ICU and more than two fifths of them (44.2%) work all shifts. Table (2): illustrates that more than half of the studied nurses (54.2%) had a high perception level regarding the individual attributes of perceived environmental uncertainty, and nearly half of them (48.6%) had a low perception level regarding environmental attributes of the perceived environmental uncertainty. Additionally, more than half of them (51.4%) had a low perception level of the environmental uncertainty in hospitals. Figure (1): clarifies that more than half of studied nurses (51.4%) had a the low perception level of work environment uncertainty while less than one fifth of them (18.5%) had a high perception level of the work environment uncertainty.

Table(3) : represents that more than three fifths of studied nurses (63.2% & 64.2%) had a high perception level regarding organizational support and environmental subscales of organizational readiness for change. While, more than one quarter of them (27.1% & 27%) had a moderate perception level regarding cultural component and employee attitude and behavior sub scales of organizational readiness for change. Moreover, about three fifths of them (60.5%) had a high perception level of organizational readiness for change. Figure (2): represents that about three fifths of studied nurses (60.5%) had a high perception level of organizational readiness for change, while less than one fifth of them (15.5%) had a low perception level of organizational readiness for change. Table (4): shows that there is statistically significant relation between studied nurses' work environment uncertainty and their age, educational level and clinical experience years at ($p< 0.05$). Table (5): shows that there is a highly statistically significant relation between the studied nurses' total organizational readiness for change and their age at ($p< 0.01$). Also, there is statistically significant relation with their gender and work unit at ($p< 0.05$). Table (6): Shows that there is a highly statistically significant negative correlation between studied nurses' work environment uncertainty and organizational readiness for change at (p value=0 .000).

3.2. Discussion

Environmental uncertainty is a major problem facing organizations. It is one of the main emergencies that should be taken seriously by companies. It is a major factor influencing the organizational structure and a very important issue in the strategic management literature. Environmental uncertainty is defined as incapability of organization to assess effects of a suitable readiness to changes in work environment [3]. So the aim of this study was to investigate relationship between organizational agility and nurses' steadiness for change. Finding of present study indicated that more than two thirds of studied nurses were female and married. This result could be due to high numbers of students who enter faculty or school of nursing are females and main core of nursing occupation is feminists. Regarding qualification, more than half of nurses had bachelor nursing degree and their experiences at workplace ranged from five to less than ten years, this could be due to bachelor's degree in nursing was very popular until recently. Hence, study sample is a true reflection of nurses working in our community. These results agree with study conducted by Mahmoud, (2022) [18] who studied organizational agility and teamwork as perceived by nursing staff at main Mansoura University and showed more than one -half of studied staff nurses were female, married and had nursing technical institute [19]. Concernind total level of studied nurses' perception regarding work environment uncertainty; results of current study reveal that more than half of studied nurses had a low perception level of environmental uncertainty in hospitals.

This is may be due to nurses reported that their organization encourage employees to discuss their doubts about a work and actively looks for signs that situation is changing., as well lookout for new ideas to address problems, so uncertainty within organization was low. This finding go in same line with Adhikara et al., (2022) who studied Organizational Performance in Environmental Uncertainty on the Indonesian Healthcare Industry hospital health managers: A Path Analysis, and found more than half of study subjects had a low level of Environmental Uncertainty [20]. Concerning percentage distribution of the studied nurses' perception regarding perceived environmental uncertainty. This finding illustrates that more than half of studied nurses had a high perception level regarding individual attributes of perceived environmental uncertainty, while nearly half of them had a low perception level regarding environmental attributes of perceived environmental uncertainty. This is may be due to nurses reported that they are un willing to make a decision based on a hunch, need a detailed plan when working on a job, and need a definite sense of direction for a work. This finding go in same line with Simpkin et al., (2019) who studied communicating uncertainty: a narrative review, and cleared that individual attributes of perceived environmental uncertainty at a high level [21]. Also, a study conducted by Eachempati et al., (2022) who developing integrate multilevel model of uncertainty in health care.

A qualitative systematic review and thematic synthesis, indicated study subjects had a high perception level regarding individual attributes of environmental uncertainty [22]. As regard total level of studied nurses toward organizational readiness for change; the results of the current study clear that about three fifths of the studied nurses had a high perception level of organizational readiness for change.

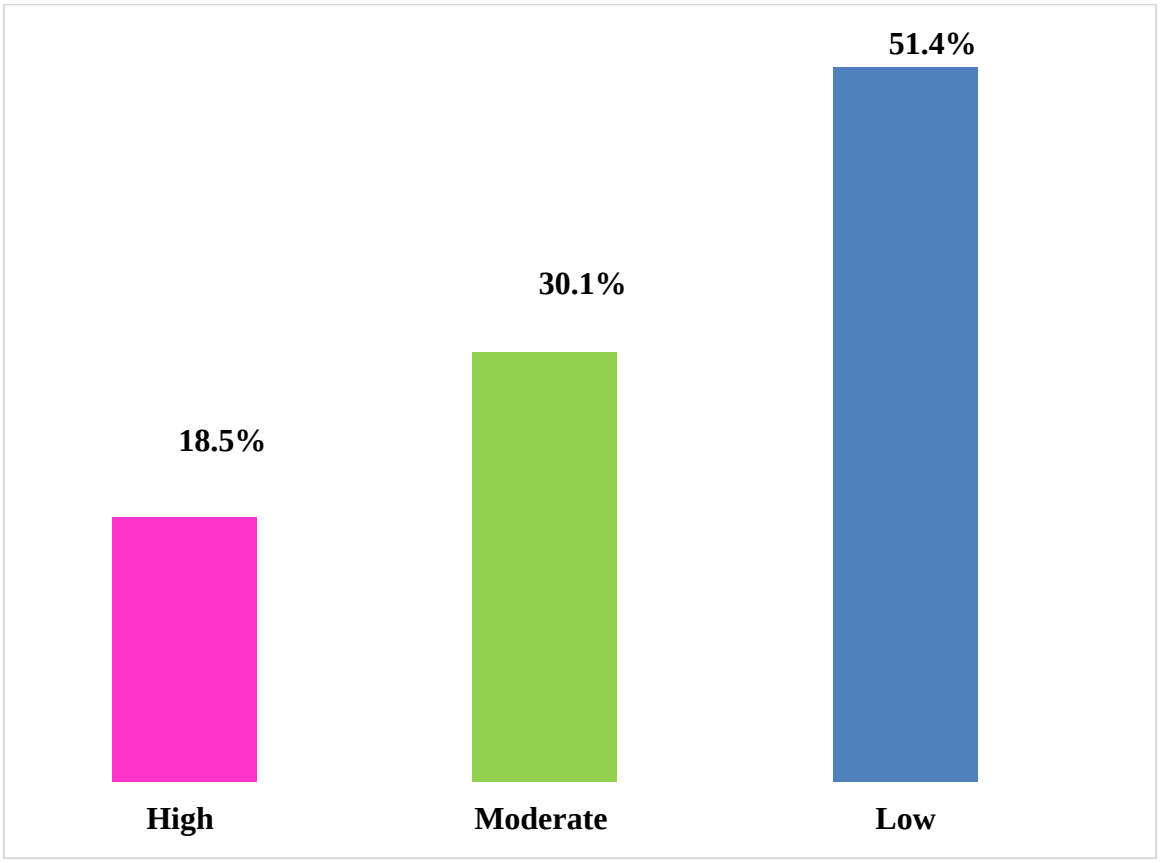

Figure (1): Total level of studied nurses perception regarding work environment uncertainty (n=197).

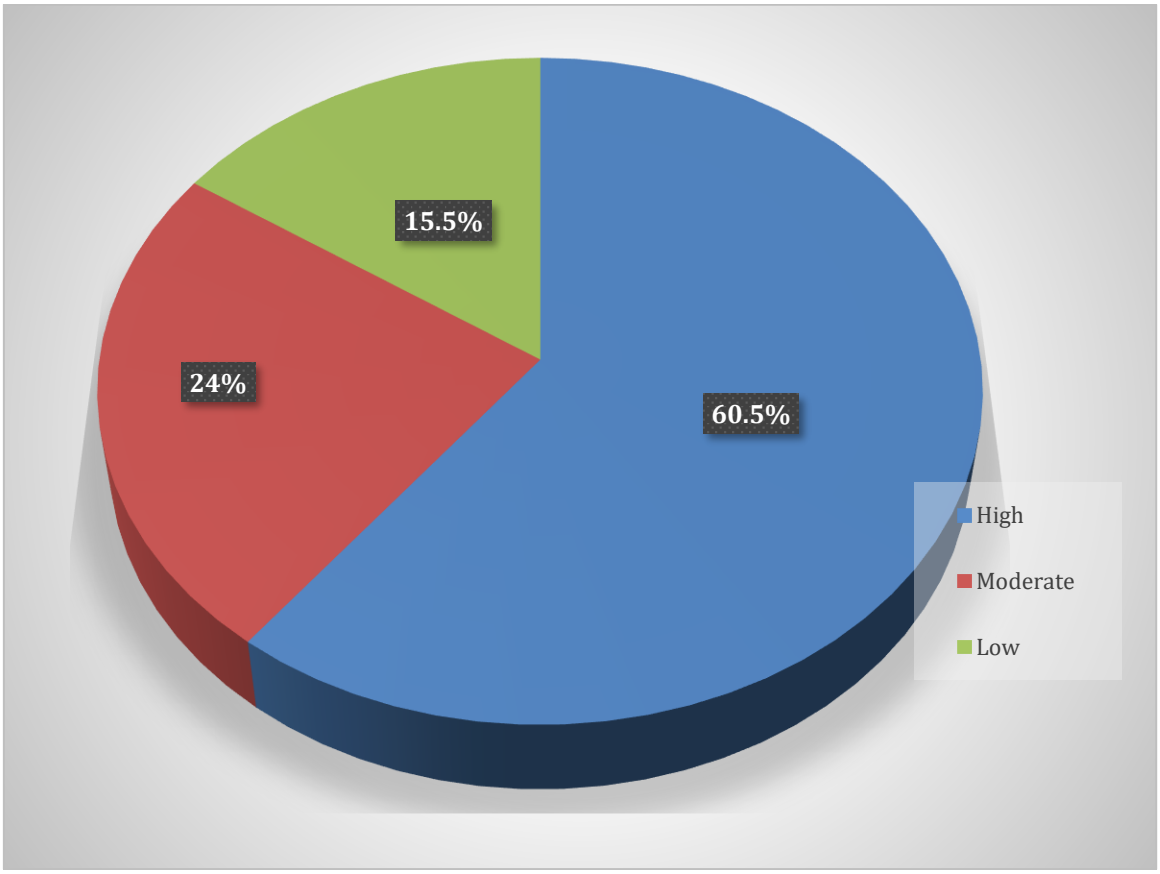

Figure (2): Total level of studied nurses perception regarding organizational readiness for change (n=179).

Table (1): Frequency distribution of studied nurses according to their personal and job characteristics (n=197).

Personal Characteristics	No.	%
Age		
20-<30	58	29.4
30-<40	99	**50.3**
40-<50	37	18.8
50-60	3	1.5
x̄ S.D 38.3±4.25		
Gender		
Male	65	33.0
Female	132	**67.0**
Marital status		
Single	42	21.3
Married	147	**74.6**
Divorced	6	3.0
Widowed	2	1.0
Educational level		
Nursing diploma	27	13.7
Technical institute of nursing	61	31.0
Bachelor nursing degree	102	**51.8**
Master`s nursing degree or higher	7	3.6
Clinical experience years		
<5 years	23	11.7
5-10 years	107	**54.3**
>10 years	67	34.0
x̄ S.D 9.60±0.84		
Work unit		
Inpatient	45	22.8
ICU	94	**47.7**
Operating room	38	19.3
Outpatient clinic	16	8.1
Others	4	2.0
Work shift		
Morning shift	42	21.3
Afternoon shift	37	18.8
Night shift	31	15.7
All shifts	87	**44.2**

Table (2): Percentage distribution of studied nurses perception regarding perceived environmental uncertainty subscales (n=197).

Perceived environmental uncertainty subscales	High		Moderate		Low	
	No.	%	No.	%	No.	%
Individual attributes of uncertainty in hospitals	107	54.2	33	16.8	57	29
Environmental attributes of Uncertainty in hospitals	40	20.3	61	31.1	96	48.6
Total	37	18.5	59	30.1	101	51.4

Table (3): Frequency distribution of studied nurses perception toward Organizational readiness for change sub scales (n=197).

Organizational readiness for change sub scales	High		Moderate		Low	
	No.	%	No.	%	No.	%
Organizational support	125	63.2	42	21.5	30	15.3
Cultural component	113	57.4	54	27.1	30	15.4
Environmental component	126	64.2	40	20.4	30	15.4
Employee attitude and behavior	112	57.1	53	27	31	15.9
Total	119	60.5	47	24	31	15.5

Table (4): Relationship between personal and job characteristics of studied nurses and work environment uncertainty (n= 197).

Items		Total levels of work environment uncertainty						X^2	P-Value
		High		Moderate		Low			
		No.	%	No.	%	No.	%		
Age	20-<30	22	59.5	29	49.2	7	6.9	3.86	0.041*
	30-<40	10	27.0	22	37.3	67	66.3		
	40-<50	5	13.5	7	11.9	25	24.8		
	50-60	0	0.0	1	1.7	2	2.0		
Gender	Male	12	32.4	22	37.3	31	30.7	1.444	0.096
	Female	25	67.6	37	62.7	70	69.3		
Marital status	Single	7	18.9	12	20.3	23	22.8	0.935	0.160
	Married	29	78.4	44	74.6	74	73.3		
	Divorced	1	2.7	2	3.4	3	3.0		
	Widowed	0	0.0	1	1.7	1	1.0		
Educational level	Nursing diploma	10	27.0	12	20.3	13	12.9	3.123	0.05*
	Technical institute of nursing	9	24.3	21	35.6	23	22.8		
	Bachelor degree	17	45.9	25	42.4	60	59.4		
	Master`s degree or higher	1	2.7	1	1.7	5	5.0		
Clinical Experience years	<5 years	10	27.0	7	11.9	6	5.9	4.58	0.031*
	5-10 years	19	51.4	42	71.2	46	45.5		
	>10 years	8	21.6	10	16.9	49	48.5		
Work unit	Inpatient	8	21.6	13	22.0	24	23.8	0.845	0.240
	ICU	17	45.9	29	49.2	48	47.5		
	Operating room	8	21.6	11	18.6	19	18.8		
	Outpatient clinic	3	8.1	5	8.5	8	7.9		
	Others	1	2.7	1	1.7	2	2.0		
Work shift	Morning shift	8	21.6	13	22.0	21	20.8	0.812	0.176
	Afternoon shift	7	18.9	11	18.6	19	18.8		
	Night shift	5	13.5	9	15.3	17	16.8		
	All shifts	16	43.2	26	44.1	44	43.6		

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

Table (5): Relationship b/w personal and job characteristics of studied nurses and total level of organizational readiness for change (n= 197).

Items		Total levels of organizational readiness for change						X^2	P-Value
		High		Moderate		Low			
		No.	%	No.	%	No.	%		
Age	20-<30	21	56.8	15	25.4	22	21.8	7.893	0.001**
	30-<40	12	32.4	27	45.8	60	59.4		
	40-<50	3	8.1	6	10.2	28	27.7		
	50-60	1	2.7	1	1.7	1	1.0		
Gender	Male	19	51.4	20	33.9	26	25.7	4.958	0.013*
	Female	18	48.6	39	66.1	75	74.3		
Marital status	Single	27	22.7	9	19.1	6	19.4	1.256	0.191
	Married	86	72.3	37	78.7	24	77.4		
	Divorced	4	3.4	1	2.1	1	3.2		
	Widowed	2	1.7	0	0.0	0	0.0		
Educational level	Nursing diploma	17	14.3	6	12.8	4	12.9	1.065	0.410
	Technical institute of nursing	37	31.1	14	29.8	10	32.3		
	Bachelor degree	61	51.3	25	53.2	16	51.6		
	Master`s degree or higher	4	3.4	2	4.3	1	3.2		
Clinical experience years	<5 years	13	10.9	6	12.8	4	12.9	2.956	0.058
	5-10 years	64	53.8	26	55.3	17	54.8		
	>10 years	42	35.3	15	31.9	10	32.3		
Work unit	Inpatient	2	5.4	20	33.9	23	22.8	3.759	0.025*
	ICU	18	48.6	20	33.9	56	55.4		
	Operating room	15	40.5	12	20.3	11	10.9		
	Outpatient clinic	1	2.7	6	10.2	9	8.9		
	Others	1	2.7	1	1.7	2	2.0		
Work shift	Morning shift	25	21.0	10	21.3	7	22.6	0.807	0.871
	Afternoon shift	22	18.5	9	19.1	6	19.4		
	Night shift	18	15.1	8	17.0	5	16.1		
	All shifts	54	45.4	20	42.6	13	41.9		

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

Table (6): Correlation between work environment uncertainty and organizational readiness for change (n=197**).**

Variables		Work environment uncertainty
Organizational readiness for change	**r**	**-0.869**
	p	**0.000****

(**) Statistically significant at p<0.01. r Pearson correlation

This finding may be due supportive organizational culture may include ensuring that staff in departments across the hospital feel valued, included in, and informed by management about changes occurring in the workplace and effective communication can allay staff fears and uncertainty regarding the change and can foster confidence in their ability to cope with the change. This finding go in the same line with Ellis et al., (2023) who conduct a study on 153 clinical and non-clinical staff at a hospital in Sydney, Australia to test an explanatory path model for how teamwork culture influences staff attitudes in feeling informed and ready for change, and ultimately leading to reduced staff burnout, and found that most of studied nurses had a high perception level of organizational readiness for change [23]. In same line a study conducted by Negm et al., (2021) to explore relationship between work effectiveness and readiness to change among first line nurse managers at Menoufia University Hospital, Teaching Hospital and El Helal Hospital at Shebin-ELkom, and found that majority of studied nurse managers had a high level of readiness to change [24].

However, this finding dissimilar to a study conducted by Madsen (2018) who studied readiness for organizational change: Do organizational commitment and social

relationships in the workplace make a difference, found low level of readiness for organizational change. Concerning percentage distribution of the studied nurses perception regarding organizational readiness for change; the result of the current study reveals that more than three fifths of the studied nurses had a high perception level regarding cultural component and employee attitude and behavior subscales of organizational readiness for change This is may be due to encouragement from the senior leaders in the form of insufficient resources and information. Besides, support and commitment from senior leaders and top decision makers to implement change in forms of inadequate staff training and development on current issues and trends and, reinforcement of new initiatives. In this respect, Mashhady (2021) stated that when employees received timely, informative, and useful information about an organizational change, they presented a more positive evaluation of the change and demonstrated willingness to cooperate with the change agent and low employees' resistance to change. On the contrary, Visage & Steyn (2015) found that the employee reflected moderate levels of management support.

Also, Clark (2016) indicated in his study about the development of an integrated measure of readiness for change instrument and its application on aeronautical systems command's contracting directorate that the participants demonstrated moderate level concerning the management support. Concerning relationship between personal and job characteristics of studied nurses and work environment uncertainty; the results of the current study clear that there is statistically significant differences between the studied nurses' work environment uncertainty and their age, educational level and clinical experience years. This is may be due to the higher the educational level of nurses, the lower the perceived environment uncertainty (PEU), as indicated by the means of PEU. Administrative nurses had PEU slightly less frequently than bedside nurses. These findings go in the same line with a study conducted by Alsolami et al., (2023) shows that educational level was significantly associated with PEU [5]. Concerning relationship between personal and job characteristics of studied nurses and organizational readiness for change; results of current study show that is a highly statistically significant differences between studied nurses' total organizational readiness for change and their age, gender and work unit.

This is may be due to the organizational readiness change level was higher in nurses in administrative positions because managers were all directly involved in and accountable for the change implementation in the organization; thus, they may have had a better understanding of the change's purpose and had access to resources available. This finding go in the same line a study conducted by Negm et al., (2021), indicated that readiness to change is affected by age, work setting and years of experience in nursing management [24]. The results of this study contradict those of other studies, Storkholm et al., (2019) which did not find significant relationships between any of the demographics and other characteristics and readiness for change [25]. Concerning correlation between the studied variable; the results of the current study clear that that there is there is a highly statistically significant negative correlation between the studied nurses' total work environment uncertainty and organizational readiness for change. This finding may be due to the higher the level of environmental uncertainty that organizations are exposed to, the lower their interest in achieving continuous growth in their organizational agility, With increasing uncertainty and competition in today's environment, organizations focus on agility, thus gaining a competitive advantage and adapting to unexpected technological and market changes.

These findings are in agreement with Alsolami et al., (2023) who cleared that there is a strong correlation between the nurses' readiness for implementing organizational change and nurses' perceptions of work-environment uncertainty [5]. Similarity these findings agree with those of Darvishmotevali et al., (2020) who studied the link between environmental uncertainty, organizational agility, and organizational creativity in the hotel industry, and showed that environment uncertainty has a negative effect on organizational agility [26]. However, these findings disagreement with as study at conducted Cairo by Abdel-Aty and Deraz (2022) who studied the mediating role of organizational agility on the relationship between environmental uncertainty and innovation in hotels, and found that there is statistically significant positive correlation between the studied nurses' organizational agility and work environment uncertainty [27]. Similarity a study conducted by Inman and Green, (2021) who studied environmental uncertainty and supply chain performance: the effect of agility, and found that agile manufacturing was positively affected by environmental uncertainty (EU) [4].

4. Conclusions

Results of the current study concluded that, slightly more than half of studied nurses had a low perception level of work environment uncertainty, and had a high perception level of organizational readiness for change. There is a highly statistically significant negative correlation between the studied nurses' work environment uncertainty and organizational readiness for change**.**

5. Recommendations

Based on the results of this study, the following recommendation can be suggested

The nurse manger and authorities should:

1. Explore and exploit new and existing opportunities in an uncertain environment. Furthermore, they should make agility a key component of their competitive strategy
2. Develop human resources skills, experiences, capabilities, and knowledge so that they are more able to deal with the continuous changes in the uncertain work environment and its challenges.
3. Focus on the components of environmental uncertainty (e.g., the constant changes in the market, and the technological and competitive environment). This helps them to make better strategic and tactical decisions regarding potential risks and to make contingency plans.
4. Analyze these sources before selecting the appropriate strategy (such as a conservative strategy) to successfully cope with the different types of environmental uncertainty, e.g., market shocks and fierce market competition.
5. Organizations must undertake training sessions representing the concepts of change management and how to be a change agent to all hospital staff, including

nurses. In addition to information management, the important aspect of communication is how/ when/ where information is disseminated.

The nurse leader should**:**

1. Encourage employees of the organizations' ability to implement changes, in particular their collective capability to implement a change in healthcare sector .
2. Set strategies to reduce work-environment uncertainty and elevate the organizational readiness to implement change, followed by continued tracking of the change projects to ensure sustainability.
3. Uses multiple communication channels to communicate routinely and effectively with nursing managers.
4. Aware of the forces driving change that exist outside the hospital
5. Able to make decisions and act independently regarding their daily work

The staff nurses should:

1. Included in the change initiative project as a whole and in making decisions on their unit.
2. Re-organize continuously in different team configurations to meet changing requirements and the newly arising challenges.
3. Use abroad range of skills and can be applies to other tasks when needed.
4. Able to meet the levels of service quality demanded by their customers.
5. Inform themselves systematically about information technology innovations.

6. Further research

1. Future studies could examine the relationship between OA and organizational excellence.
2. Future studies could also determine the impact of environmental uncertainty on workforce innovation.

References

[1] J. Chen, W. Shu, X. Wang, M.S. Sial, M. Sehleanu, D. Badulescu. (2021). The impact of environmental uncertainty on corporate innovation: Empirical evidence from an emerging economy. International journal of environmental research and public health. 19(1): 334.

[2] B. Holzner, M. Wagner. (2022). Linking levels of green innovation with profitability under environmental uncertainty: An empirical study. Journal of Cleaner Production. 378: 134438.

[3] I. Laguir, S. Gupta, I. Bose, R. Stekelorum, L. Laguir. (2022). Analytics capabilities and organizational competitiveness: Unveiling the impact of management control systems and environmental uncertainty. Decision Support Systems. 156: 113744.

[4] R.A. Inman, K.W. Green. (2022). Environmental uncertainty and supply chain performance: the effect of agility. Journal of Manufacturing Technology Management. 33(2): 239-258.

[5] A. Alsolami, H. Alkorashy, M. Alfaki, A. Alkarani. (2023). Nurses' Perception of Work-Environment Uncertainty and Readiness for Organizational Change. Makara Journal of Health Research. 27(1): 3.

[6] D. Ramani, M. Soh, J. Merkebu, S.J. Durning, A. Battista, E. McBee, T. Ratcliffe, A. Konopasky. (2020). Examining the patterns of uncertainty across clinical reasoning tasks: effects of contextual factors on the clinical reasoning process. Diagnosis. 7(3): 299-305.

[7] S.K. Kang, L.L. Berland, W.W. Mayo-Smith, J.K. Hoang, B.R. Herts, A.J. Megibow, P.V. Pandharipande. (2019). Navigating uncertainty in the management of incidental findings. Journal of the American College of Radiology. 16(5): 700-708.

[8] C. Pomare, L.A. Ellis, J.C. Long, K. Churruca, Y. Tran, J. Braithwaite. (2020). "Are you ready?" Validation of the Hospital Change Readiness (HCR) Questionnaire. BMJ open. 10(8): e037611.

[9] M.A. Helou, D. DiazGranados, M.S. Ryan, J.W. Cyrus. (2020). Uncertainty in decision making in medicine: a scoping review and thematic analysis of conceptual models. Academic Medicine. 95(1): 157-165.

[10] C. Lee, K. Hall, M. Anakin, R. Pinnock. (2021). Towards a new understanding of uncertainty in medical education. Journal of evaluation in clinical practice. 27(5): 1194-1204.

[11] M.R. Maleki, M.R. Gohari, A. Ghorbanian. (2012). Relationship between structural empowering and nurses'readiness for change. Journal of Nursing, 25 (76), 10-18.

[12] G. Schwarz, D. (2018).Bouckenooghe, Improving our understanding of collective attitudes towards change formation. In *Organizational change*, Routledge:; pp 163-176.

[13] D. Bouckenooghe, G.M. Schwarz, B. Hastings, S.G.L. De Pereny, Facilitating change through groups: Formation of collective attitudes toward change. In *Research in organizational change and development*, Emerald Publishing Limited: 2019; Vol. 27, pp 143-165.

[14] B.J. Weiner, A theory of organizational readiness for change. In *Handbook on implementation science*, Edward Elgar Publishing: 2020; pp 215-232.

[15] M.M. Abrishamkar, Y.A. Abubakar, J. Mitra. (2021). The influence of workforce agility on high-growth firms: The mediating role of innovation. The International Journal of Entrepreneurship and Innovation. 22(3): 146-160.

[16] Y. Yamane. (1967). Mathematical Formula for Sample Size Determination.

[17] J. Salyer. (1996). Development and psychometric evaluation of an instrument to measure staff nurses' perception of uncertainty in the hospital environment. Journal of nursing measurement. 4(1): 33-48.

[18] L.T. Eby, D.M. Adams, J.E. Russell, S.H. Gaby. (2000). Perceptions of organizational readiness for change: Factors related to employees' reactions to the implementation of team-based selling. Human relations. 53(3): 419-442.

[19] G. Mahmoud, H. El-Sabahy, A. Kassem. (2022). Organizational agility and teamwork as perceived by nursing staff at main Mansoura University Hospital. Mansoura Nursing Journal. 9(2): 237-249.

[20] A. Adhikara, M. MF, M.B. Nur Diana. (2022). Organizational performance in environmental uncertainty on the Indonesian healthcare industry: A path analysis. Academic Journal of Interdisciplinary Studies. 11(2): 365-377.

[21] A.L. Simpkin, K.A. Armstrong. (2019). Communicating uncertainty: a narrative review and framework for future research. Journal of general internal medicine. 34: 2586-2591.

[22] P. Eachempati, R.B. Büchter, K.K. Ks, S. Hanks, J. Martin, M. Nasser. (2022). Developing an integrated multilevel model of uncertainty in health care: a qualitative systematic review and thematic synthesis. BMJ global health. 7(5): e008113.

[23] L.A. Ellis, Y. Tran, C. Pomare, J.C. Long, K. Churruca, M. Saba, J. Braithwaite. (2023). Hospital organizational change: The importance of teamwork culture, communication, and change readiness. Frontiers in public health. 11: 1089252.

[24] E.M. Negm, S.M. Allam, A.R. Gaballah. (2021). Relationship between work effectiveness and readiness to change among first line nurse managers. Menoufia Nursing Journal. 6(1): 15-30.

[25] M.H. Storkholm, C. Savage, M.K. Tessma, J.D. Salvig, P. Mazzocato. (2019). Ready for the Triple Aim? Perspectives on organizational readiness for implementing change from a Danish obstetrics and gynecology department. BMC health services research. 19: 1-8.

[26] M. Darvishmotevali, L. Altinay, M.A. Köseoglu. (2020). The link between environmental uncertainty, organizational agility, and organizational creativity in the hotel industry. International journal of hospitality management. 87: 102499.

[27] Y. Abdel-Aty, H. Deraz. (2022). The Mediating Role of Organizational Agility on the Relationship between Environmental Uncertainty and Innovation in Hotels. Journal of the Faculty of Tourism and Hotels-University of Sadat City. 6(2/1).