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Nurses' Perception of Work-Environment Uncertainty and Readiness for Organizational Change

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Abstract

Background: Healthcare organizations have a dynamic work-environment that changes constantly. This study aimed to explore whether there is a relationship between work-environment uncertainty and nurses' readiness to participate in organizational change.

Methods: A cross-sectional study was conducted at two tertiary hospitals. The sample size was 222 nurses. A self-report questionnaire was adopted, translated to Arabic, and used for collecting data; it consists of three scales, personal data sheet, organizational readiness for implementing change scale, and perceived environmental uncertainty in hospitals scale. Descriptive statistics t-test and analysis of variance were used to analyze the data.

Results: The level of agreement with the change efficacy statements with the total mean percentage of nurses' readiness for organizational change (change efficacy) was 67.0%, and it was slightly higher than the commitment statements, in which the total mean percentage of nurses' readiness for organizational change (change commitment) was 64.2%. In addition, one of the work-environment uncertainty dimensions, which is the individual attribute (need for information), positively correlated with the organizational readiness to change.

Conclusions: The organizational readiness to implement organizational change is high. Environmental complexity was highly perceived among nurses as one of the work-environment uncertainty dimensions. An organizational environment considering employee characteristics must be developed to improve their knowledge, skills, and attitude to adapt to change and uncertainty.

Keywords: nurses, organizational change, Saudi Arabia, uncertainty, work-environment

INTRODUCTION

Healthcare organizations go through various challenges. These challenges result in a dynamic work-environment that changes constantly and consequently leads to continuous quality improvement efforts while keeping costs contained. This is an international concern to which Saudi Arabia is not exempted. The Saudi healthcare system, in an active initiative of the national transformational plan (2020) and as part of the Saudi Arabia Vision 2030, is targeting the strategic plans of all sectors to place the Kingdom of Saudi Arabia in the leading position.¹ Moreover, an exclusive aspect of healthcare services in Saudi Arabia is that millions of pilgrims visit Makkah annually, and the Ministry of Health (MOH) provides all necessary preventive and curative health services for visitors. The total number of Makkah pilgrims was approximately 2.5 million in 2018, in which approximately 74.48% of them are foreign visitors. To this

end, the MOH has established 25 hospitals, 8 of which are seasonal. In addition, it has 154 health centers, of which 112 were seasonal. In total, there are 4,998 hospital beds with a rate of one bed per 505 pilgrims. The total amount of personnel is 30,003 (excluding visiting health manpower). Physicians, nurses, and allied health personnel constituted 74.95% of the assigned personnel.² This justifies the efforts of the MOH toward improving healthcare services throughout the Kingdom, and the Makkah region is not exempted to an innovative transformation in the healthcare system.

During reforms, planned and unplanned changes are expected in the dynamic healthcare settings of hospitals; as a result, uncertainty is expected to occur.³ Such expectation has been proved in the literature and confirmed according to the environmental uncertainty theory, in which the complexity in the work-environment and rate of change interaction led to environmental uncertainty.⁴ Moreover, developing and managing communication networks will have a significant role in reducing uncertain conditions in the changing environment.⁵ Work-environment uncertainty not only affects the organization's development but also individuals' health, wellbeing, and satisfaction with the

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organization. Moreover, stressful situations such as lack of job control from rapidly changing environments in the workplace result in an unhealthy work-environment, which can cause up to 125,000 employee deaths annually and costs organizations up to \$130 billion in excess annual costs.⁶ Organizational readiness is a critical prerequisite for the implementation of changes. Thus, the individual and organizational capacity for change along with understanding its importance must be assessed. This is the essence of planned change, which is a conscious decision to increase individual and organizational capability.⁷

Related literature review revealed a research gap with respect to whether the level of organizational uncertainty affects employees' readiness to be active participants in deploying changes planned in their organization. In healthcare-related literature, no studies have explored the relationship between environmental uncertainty and nurses' readiness for organizational change. 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. Thus, strategies for reducing the uncertainty level can be recommended to help people become more certain about accepting the changes and be active participants in the reform efforts for organizational development.

This study aimed to explore whether there is a relationship between work-environment uncertainty and nurses' readiness to participate in organizational change. This aim was achieved by identifying nurses' perception of work-environment uncertainty in the selected study setting, whether a significant difference exists between the selected characteristics of participants and their perceptions of work-environment uncertainty, the extent of nurse's readiness for organizational change, whether a significant difference exists between the selected characteristics of participants and their level of readiness for organizational change, and the relationship between perceptions of work-environment uncertainty and nurses' readiness for organizational change.

METHODS

A cross-sectional descriptive correlational design was used in this study. The study was conducted in two hospitals in the Makkah region. The nonprobability proportional quota sampling technique was used to determine the participants. The sample comprised two main groups. The first group included all first-line nurse managers (head and charge nurses, clinical educator, and quality nurses) who had been working in their current setting and position for not less than 1 year in the nursing administration office (administrative; N = 47). The second group comprised staff nurses working in direct contact with patients (bedside; N = 477). The total number was

TABLE 1. Sample characteristics

| | King Faisal Hospital | King Abdelaziz Hospital | Total |
|----------------|----------------------|-------------------------|-------|
| Administration | 11 | 9 | 20 |
| ICU | 29 | 26 | 55 |
| ER | 32 | 36 | 68 |
| MW | 35 | 44 | 79 |
| Total | 107 | 115 | 222 |

524 in the two hospitals, and the quota set depended on predetermined settings (Table 1).

For this group, staff nurses working in any of the selected settings (ICU, ER, MW, and nursing administration office, nurses have enough opportunity to be exposed to, and involved in, changes in their work-environment), working in their current setting of not less than 1 year, available at the time of data collection, and willing to participate in the study were included. From the accessible population (N = 524), the sample size was calculated using Raosoft. The margin of error was 5%, at a confidence level of 95%, and the result was 222. Since the participants were not included randomly (convenient instead), the sample was further increased by 10% to account for contingencies such as nonresponse and/or potential dropouts, bringing the final sample size to 244 nurses.

This study used three questionnaires which were a researcher-made personal data sheet, the Organizational Readiness for Implementing Change (ORIC) scale, and Perceived environmental uncertainty in hospitals (PEU-H) scale. A researcher-made personal data sheet included information about the participants such as age, sex, years of experience, position, and educational background. The ORIC scale used was developed by Shea *et al.* (2014) and geared toward assessing the extent to which nurses are ready for organizational change. The questionnaire contains 12 items corresponding to two main domains: change commitment (5 statements) and change efficacy (7 statements).⁸ The responses to the questionnaires were assessed on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was previously tested for its reliability of scales ($\alpha = 0.91$ [change commitment] and 0.89 [change efficacy]).⁸ The psychometric evaluation of the PEU-H scale was performed to measure nurses' perceptions of uncertainty in the hospital environment.⁵ The PEU-H is a 14-item scale that includes two main subscales, namely, environmental attributes and individual attributes.⁹

Environmental attributes were represented by three domains: (a) environmental dynamism or change rate, which refers to "the frequency and magnitude of turbulence in the relevant environment"; (b) environmental complexity, which refers to "the number and diversity of factors that must be considered in decision making"; and (c) environmental dominance, which

describes the environmental dominance of individual actions as "being closely related to the locus of control."

Individual uncertainty refers to the individual's perception that critical information about the environment is unavailable, which results in the inability to accurately predict changes.⁹ Individual attributes were represented by the need for information, i.e., "Both content and amount of information affect the perception of uncertainty." Each item was assessed using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The validity of the scale is supported by both content experts and acceptable internal consistency reliability (Cronbach's alpha = 0.83).⁹ For the negatively worded statements within each scale, the scoring was inverted to enable the processing of the data loaded for statistical analysis.

The questionnaire was translated into Arabic. First, the questionnaire was translated from the original language (English) to the target language (Arabic). Then, it was back-translated from the target language (Arabic) into the original language (English) by another translator who was unaware of the original form of the questionnaire.

The official permission (IRB Number: H-02-K-076-0319-107, 24.04.2019) to distribute the questionnaire was obtained from both hospitals, and the researchers approached the available sample to identify the eligible participants for the present study, and the researchers started to contact nurses who met the inclusion criteria. Then, the researchers distributed the questionnaire to all nurses who met the inclusion criteria and agreed to participate in the study. The estimated time for questionnaire completion was approximately 15 min. Questionnaires were collected from participants in all units. Data were collected in 6 weeks.

Internal validity was measured for both ORIC and PEU-H scales using the Pearson correlation test, where a p -value of <0.05 was considered to indicate a correlation between the overall scale and its items; therefore, items measured what they were intended to measure. All items related to ORIC and PEU-H scales were valid and could measure what they intended to measure, since they correlated with the overall scale score and P -values were less than 0.05. The researcher estimated the reliability of both questionnaires; ORIC and PEU-H were tested with Cronbach's α , interitem correlation, and item-total correlation of 0.903.

A pilot study was conducted on 26 nurses to ensure the clarity and applicability of the study measures. No modifications were needed to test the feasibility and applicability of the study tools. Participants of the pilot study were excluded from the actual study.

For data collection, official permission to use the questionnaire was obtained from the authors of the PEU-H scale and ORIC scale. Participants were assured that no personal information would be revealed. They could choose to withdraw from the study at any time without consequences, and confidentiality of the participants' identities was maintained throughout data collection.

A set of descriptive (mean and standard deviation) and inferential statistical tests were used to determine the significant differences and/or associations between and among study variables and groups. Moreover, ANOVA and t-test were used to determine the significant differences between groups. The Pearson correlation coefficient (r) was used to determine the relationship between variables measured on ratio or interval scales. Various methods can be employed to measure correlation and express the relationship between two or more variables. The standard Pearson correlation coefficient (r) measures the extent to which two variables are related. It quantifies the relationship between two variables.¹⁰

RESULTS

This study aimed to explore whether a relationship exists between work-environment uncertainty and nurses' readiness to participate in organizational change. Of the 244 questionnaire sheets distributed, 237 were returned and seven were not returned, 15 were excluded for being incomplete or having invalid data; thus, 222 were used in the statistical analysis. The response rate was 97.1%.

The vast majority (93.2%) of the study participants were female bedside nurses (90.5%). Moreover, 48.6% of the study participants were 20–30 years old, and 45.9% were 30–40 years old. Moreover, the majority (78.4%) of the study participants had a bachelor's degree and attended neither a change-related workshop (71.2%) nor an innovative program (83.3%). In addition, 34.2% of the study participants had 6–9 years of work experience, and 27.5% had 3–6 years of work experience.

The total mean percentage of environmental dynamism as a dimension of environmental uncertainty was 72.4%. The study participants frequently perceived environmental dynamism as a dimension of environmental uncertainty. In this context, 64.4% of the participants agreed with "have no control over the types of patients in my patient care," and 62.2% agreed that if their patients did not have such complex problems, they could do a better job.

The total mean percentage of environmental complexity as an environmental attribute was 80.0%. Most of the study participants very frequently perceived environmental complexity as a dimension of environmental uncertainty. This was clear in the statements by the nurses who agreed that "if they had

more information about their patient's current condition" they could do a better job, with a positive percentage of 77.5%. Moreover, 73.8% of them positively agreed that they "must take a lot of information into consideration when they plan care for their patients."

The total mean percentage of environmental dominance as an environmental attribute was 70.2%. The study participants frequently perceived environmental dominance as a dimension of environmental uncertainty. Moreover, 67.5% of the nurses agreed that they "have to talk to several health care practitioners (such as physicians, social workers, dieticians, etc.) before they can make decisions about patient care," and 43.2% agreed that "frequent discharges from the unit make it difficult for them to do a good job."

The total mean percentage of environmental dominance as an environmental attribute was 70.2%. The study participants very frequently perceived the need for information as an individual attribute in the work-environment uncertainty: 73.4% of the nurses agreed that "if I got feedback about the patient care decisions I make, I could do a better job," and 73.8% agreed that "if I got timely feedback on unit management decisions (e.g., assignments and staffing) I make, I could do a better job."

The total mean of work-environment uncertainty was 3.77, with a positive percentage of 64.4%. Most of the study participants, with a positive percentage of 71.3%, very frequently perceived environmental complexity, with a mean of 4.0, as a dimension of environmental uncertainty and the most perceived environmental attribute. In addition, the individual attribute of the need for information, with a positive percentage of 69.2%, was very frequently perceived with a mean of 3.84.

Nurses' readiness for organizational change commitment. The total mean percentage of nurses' readiness for organizational change (change commitment) was 64.2%. In addition, 48.6% of the nurses agreed that "people who work here will do whatever it takes to implement this change," and 50.9% agreed that "people who work here feel confident that the organization can support people as they adjust to this change."

Nurses' readiness for implementing change. The total mean percentage of nurses' readiness for organizational change (change efficacy) was 67.0%. Moreover, 51.8% of the nurses agreed that "people who work here want to implement this change," and 52.3% agreed that "people who work here are determined to implement this change." The total mean percentage of nurses' readiness for implementing change was 65.8.

The total mean of organizational readiness for implementing change was 3.29, with a positive percentage of 50.0%. Most study participants, with a positive

percentage of 51.8%, very frequently perceived change efficacy. with a mean of 3.35. In addition, change commitment, with a positive percentage of 48.0%, was very highly perceived with a mean of 3.21.

As shown in Table 2, a significant difference was found between the selected characteristics of the participants and ORIC. Table 2 shows that education, working units, job title, and participation in innovation program were significant factors associated with ORIC. Nurses with a master's level of education were more likely to be ready for implementing change compared with nurses with a diploma or bachelor's degree, as indicated by the mean of the total ORIC. Nurses working in emergency department and medical wards had higher levels of readiness for

TABLE 2. Significant difference between the selected characteristics of the participants and organizational readiness for implementing change (ORIC)

| Variables | Mean ± SD | <i>p</i> |
|---|-------------|----------|
| Age (years) | | |
| 20 > 30 | 40.6 ± 12.7 | |
| 30 > 40 | 42.3 ± 11.9 | |
| 40 > 50 | 38.5 ± 14.8 | |
| ≥50 | 36.0 ± 0.01 | |
| Analysis of variance (f-test) (f-value 0.5699) | | |
| Sex | | |
| Female | 39.8 ± 13.5 | 0.683 |
| Male | 38.3 ± 15.6 | |
| t-test for independent samples (t-value -0.409) | | |
| Education | | |
| Diploma | 34.7 ± 15.3 | 0.034* |
| Bachelor | 40.2 ± 13.3 | |
| Master | 44.6 ± 9.8 | |
| Analysis of variance (f-test) (f-value 3.43) * <i>p</i> significant at 0.05 | | |
| Years of experience | | |
| 1 > 3 | 39.8 ± 15.5 | 0.737 |
| 3 > 6 | 38.0 ± 15.3 | |
| 6 > 9 | 40.4 ± 12.1 | |
| + 9 | 40.4 ± 12.7 | |
| Analysis of variance (f-test) (f-value.422) | | |
| Working unit | | |
| ICU | 39.8 ± 13.3 | 0.048* |
| Emergency department | 40.3 ± 13.3 | |
| Medical ward | 40.3 ± 13.0 | |
| Others | 27.2 ± 19.7 | |
| Analysis of variance (f-test) (f-value 2.701) * <i>p</i> significant at 0.05 | | |
| Job title | | |
| Nursing admin | 45.5 ± 11.6 | 0.038* |
| Bedside nurse | 39.0 ± 13.7 | |
| t-test for independent samples (t-value 2.09) * <i>p</i> significant at 0.05 | | |
| Join an innovative program | | |
| No | 40.7 ± 14.0 | 0.002** |
| Yes | 34.4 ± 10.4 | |
| t-test for independent samples (t-value 3.11) ** <i>p</i> significant at 0.01 | | |
| Attend change-related workshop | | |
| No | 40.0 ± 12.9 | 0.594 |
| Yes | 38.8 ± 15.4 | |
| t-test for independent samples (t-value 0.534) | | |

implementing change. In addition, administrative nurses were more likely to be ready for implementing change compared with bedside nurses, as shown by the means of ORIC and ensured by the *p*-value of the t-test for independent variables.

As shown in Table 3, a significant difference was found between the selected characteristics of the participants and perceived environmental uncertainty (PEU). The table shows that educational level was significantly associated with PEU. The higher the educational level of nurses, the lower the PEU, as indicated by the means of PEU. Administrative nurses had PEU slightly less frequently than bedside nurses.

Table 4 summarizes the results of the correlation analysis of the study variables. ORIC significantly and positively correlated with ORIC-CC, ORIC-CE, and PEU-IN. In addition, ORIC-CC significantly and positively correlated with PEU-IN. ORIC-CE negatively correlated with PEU-EDO and positively correlated with PEU-IN. PEU positively correlated with the subcomponents of PEU.

DISCUSSION

Regarding nurses' perceptions of work-environment uncertainty, this study investigated environmental dynamism as an environmental attribute. The result of the study reflects that most study participants agreed that they have no control over the types of patients in their care, and more than half agreed that if their patients did not have such complex problems, they could do a better job. In this study, two-thirds of nurses frequently perceived environmental dynamism in their work-environment. Environmental dynamism or change rate had a high percentage of agreements. This has been normal for the health sector for the past decade. Healthcare changes strategies, systems, and reforms to provide equitable, effective, and efficient care. These changes are applied to all business, clinical, and operation models.¹¹ Likewise, when a human service organization manager was asked about the reason for the need to acquire business, finance, and management skills, the answer was the continual change in their environment.¹² Transformational leadership behavior is better where environmental dynamism is high. This gives us the insight that strategic leadership decisions are based on the work-environment situation. Another study stated that in a more dynamic environment, transformational leadership behavior by CEOs was more beneficial to the pursuit of organizational innovation.¹³

In addition, the present study shows environmental complexity as an environmental attribute. The results of this study reflect that most nurses agree that if they had more information about their patient's current condition,

TABLE 3. Significant difference between the selected characteristics of the participants and perceived environmental uncertainty (PEU)

| Variables | Mean ± SD | <i>p</i> |
|---|-------------|----------|
| Age (years) | | |
| 20 > 30 | 52.5 ± 10.8 | 0.553 |
| 30 > 40 | 53.5 ± 12.1 | |
| 40 > 50 | 54.3 ± 11.2 | |
| ≥50 | 43.0 ± 0.01 | |
| Analysis of variance (f-test) (f-value 0.594) | | |
| Sex | | |
| Female | 52.8 ± 11.2 | 0.448 |
| Male | 55.1 ± 13.7 | |
| t-test for independent samples (t-value 0.760) | | |
| Education | | |
| Diploma | 54.4 ± 10.1 | 0.001** |
| Bachelor | 49.7 ± 15.5 | |
| Master | 43.9 ± 9.8 | |
| Analysis of variance (f-test) (f-value 6.968) ** <i>p</i> significant at 0.01 | | |
| Years of experience | | |
| 1 > 3 | 53.5 ± 12.4 | 0.727 |
| 3 > 6 | 52.0 ± 13.9 | |
| 6 > 9 | 54.0 ± 9.0 | |
| + 9 | 52.3 ± 10.6 | |
| Analysis of variance (f-test) (f-value.436) | | |
| Working unit | | |
| ICU | 53.0 ± 12.1 | 0.195 |
| Emergency department | 54.9 ± 10.3 | |
| Medical ward | 51.0 ± 11.5 | |
| Others | 54.1 ± 12.5 | |
| Analysis of variance (f-test) (f-value 1.650) | | |
| Job title | | |
| Nursing admin | 52.8 ± 11.4 | 0.393 |
| Bedside nurse | 55.0 ± 10.9 | |
| t-test for independent samples (t-value.856) | | |
| Join an innovative program | | |
| No | 53.4 ± 11.3 | 0.267 |
| Yes | 51.1 ± 11.6 | |
| t-test for independent samples (t-value 1.126) | | |
| Attend change-related workshop | | |
| No | 52.3 ± 12.0 | 0.191 |
| Yes | 54.5 ± 9.5 | |
| t-test for independent samples (t-value 1.312) | | |

they could do a better job, as most of them have to consider large data when they plan care for their patients. In this study, all nurses frequently perceived environmental complexity in their work-environment. This is consistent with a finding that was confirmed in the present study, i.e., nurses agreed that environmental complexity had the highest percentage among environmental attributes. Multiple issues came with complexity. Conceptual ambiguity is a type of uncertainty that emerges from complexity, and ambiguity is a strong predictor of turnover intention among new graduate nurses¹⁴ and, as examined, will affect their performance.¹⁵ As presented previously, two-thirds of the participants agreed that if their patients did not have such complex problems, they could do a better job.

TABLE 4. Correlation between work-environment uncertainty and nurses' readiness to implement organizational change

| | ORIC | ORIC-CC | ORIC-CE | PEU | PEU-EDY | PEU-ECO | PEU-EDO | PEU-IN |
|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| ORIC | 1.000 | | | | | | | |
| ORIC-CC | 0.919** | 1.000 | | | | | | |
| ORIC-CE | 0.866** | 0.763** | 1.000 | | | | | |
| PEU | 0.041 | 0.065 | 0.024 | 1.000 | | | | |
| PEU-EDY | -0.122 | -0.092 | -0.140 | 0.515** | 1.000 | | | |
| PEU-ECO | 0.148 | 0.132 | 0.155 | 0.582** | 0.537** | 1.000 | | |
| PEU-EDO | -0.157 | -0.107 | -0.187* | 0.563** | 0.040 | 0.184* | 1.000 | |
| PEU-IN | 0.186* | 0.203* | 0.169* | 0.623** | 0.379** | 0.425** | 0.373** | 1.000 |

*Significant at 5% **Significant at 1% Pearson's correlation coefficient (r)

ORIC: Organizational Readiness for Implementing Change; CC: Change Commitment; CE: Change Efficacy; PEU: Perceived Environmental Uncertainty; EDY: Environmental Dynamism; ECO: Environmental Complexity; EDO: Environmental Dominance

Furthermore, regarding the individual attribute of the need for information, more than half of the nurses said that if they got feedback about the patient care decisions, they think they could do a better job. In addition, if they got timely feedback on unit management decisions (e.g., assignments and staffing) they made, they could do a better job. Most of the analyzed nurses frequently perceived the need for information as an individual attribute in their work-environment. Because of the diversity of factors that nurses must consider regarding patient care decisions from their managers and other practitioners, feedback is an important part of nurses' performance. The results of this study matched those of a study analyzing the relationship between hospital competition and probability of medical arguments, which, according to the social control theory, revealed that feedback has a great influence on hospital staff decisions.¹⁶ In addition, for undergraduates to effectively accomplish their educational objectives, they need informative feedback that is timely and descriptive.¹⁷

In this study, two-thirds of the nurses perceived that people who work in both hospitals will do whatever it takes to implement this change, along with the perception that people who work in the organization feel confident that the organization can support people as they adjust to this change. Moreover, more than half of the nurses agreed that people who work in the organization are committed to implementing the change. In addition, more than half of the nurses studied agreed that people who work in the organization feel positive toward the change efficacy of implementing the change. Change efficacy scored slightly higher than change commitment. The results of the study were incompatible with those of a study conducted at a Danish Obstetrics and Gynecology Department assessing the organizational readiness of all employees for implementing a large-scale change. The results show high commitment and lower efficacy.¹⁸ In another study in hospitals across Switzerland, with a sample of 1,833 registered nurses, change commitment was rated slightly higher than change efficacy.

Study results showed a significant difference in the mean level of nurse's perceptions of work-environment uncertainty and education and a significant difference in the mean level of nurses' readiness for organizational change and education, working unit, and job title. The results of this study contradict those of other studies, which did not find significant relationships between any of the demographics and other characteristics and readiness for change.¹⁸ Along with the significant correlation between education and work-environment uncertainty in the present study, a study found through a focus group interview with a participant that in the context of uncertainty in the organization, the more training and education an employee had, the more they could manage work-environment uncertainty.¹⁹ This was also observed in the present study, as bedside nurses had more work-environment uncertainty than administrative nurses. From the researcher's perspective, this may be due to information sharing and involvement in decision making between frontline staff and nurses' managers. Thus, an uncertainty in a work-environment, especially manager uncertainty, will negatively affect information sharing with frontline nurses. In addition, the readiness level to implement organizational change 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 the resources available.¹⁸ The results of this present study show a strong correlation between the nurses' readiness for implementing organizational change and their components of change commitment and change efficacy and between one another. In addition, a correlation was noted between nurses' perceptions of work-environment uncertainty and components of environmental dynamism, complexity, and dominance.

Even with a complex unpredictable environment and a shortage of information, nurses present with an acceptable readiness to implement organizational change. Correspondingly, a positive and interesting

readiness to implement organizational change among nurses has multiple explanations. First, Saudi Arabia is an eastern country that predominantly has a collectivist national culture according to Hofstede, where people have social tightness and feel that they are a part of a group and tend to look after each other. It makes sense to have a high level of readiness when it comes to implementing organizational change since it reflects both organizational members' shared resolve to execute a change (change commitment) and belief in their group's ability to do so (change efficacy). Second, most of the researched samples are generation Y (millennials), who from their characteristics are optimistic about the future and their ability to overcome challenges and have strong social relationships. They are early adopters of any innovation in the organization.²⁰ Finally, when an organization is going through a large-scale change, its employees gained the perception that change is required. Staff perceived the change as something that "has to" be done but left them with some uncertainties about what "to do" and "how to" do it.¹⁸ Likewise, the Hawthorne effect or, as Paradis and Sutkin start referring to it, "participant reactivity" is defined as "participants' active engagement with the research and its aims, a process that leads to behavioral adaptation that aligns with perceived social norms."²¹ It is important to realize that the organizational work-environment under many changes is presented as follows: going into "transition phase"; complex; fast and uncertain; the organizational change is socialized; and the demands to adjust to these changes are a social responsibility.

The need to have a high organizational readiness to implement organizational change is important in the age of agile organizations and competitiveness. The results of this study could be used by healthcare organization leaders to encourage employees of the organizations' ability to implement changes, in particular their collective capability to implement a change in the healthcare sector. In addition, strategies must be set to reduce work-environment uncertainty and elevate the organizational readiness to implement change, followed by continued tracking of the change projects to ensure sustainability. Moreover, the hospital administration must develop an information system. This is 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. In addition, nurses from the frontline must be included in the change initiative project as a whole and in making decisions on their unit.

The study did not demonstrate the association between PEU-H and ORIC. However, to determine a relation, a study can be replicated with other variables such as information sharing or information quality as predictors for change readiness or environment uncertainty. The generalizability of the findings is limited by the focus on

one setting and one category of participant (i.e., nurses) and results may change from one setting and/or participant category to another. Regarding participant selection, not all those studied were actively involved in developing specific changes in workshops or as participants in working groups. During data collection, the researcher helped the head nurses distribute the survey sheet to their staff; this action may interfere with participant voluntary response, since it may affect their response. Further research can be applied to study both work-environment uncertainty and ORIC among healthcare providers, which will provide a wider picture of organizational environment conditions involving every employee.

CONCLUSIONS

The study findings revealed that the ORIC is high. Moreover, environmental complexity was frequently perceived among nurses as one of the work-environment uncertainty dimensions. The organizational environment must be investigated with consideration of employee characteristics to promote their knowledge, skills, and aptitude toward adapting to change and uncertainty. Supportive efforts between hospital management, nursing directors, and decision-makers are needed to investigate the organizational environment conditions with consideration of employee characteristics and promotion of their knowledge, skills, and attitude to adapting to change and uncertainty in a dynamic complex health service environment. 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.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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