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Future Foresight: Effect of VUCA leadership Educational Program on Nurse Manager's Readiness for Change

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Abstract:
Background: The future foresight used (VUCA leadership) in organizations to becoming more professional and widespread, support strategic management & increase the innovation capacity. **Aim:** Explore the effect of VUCA leadership educational program on nurse manager's readiness for change. **Design:** A quasi-experimental design. **Setting:** It conducted at Assiut University Hospitals **Subjects:** Quota sample was used which includes nurse managers have job experience 10 years and more. **Methods:** Included, personal characteristics for the studied subject, VUCA leadership questionnaire & change readiness scale as regarded assessment phase and Program implementation & evaluation sheet which consisted of outcome of the program & Effectiveness of the program through used a structured questionnaire, **Results:** The highest percentages of nurse managers have low knowledge about VUCA leadership in preprogram assessment, but high knowledge in immediate post and follow up phase. **Conclusion:** There were improvements the nurse manager's knowledge immediately after implementation of the educational program and this improvement was mostly retained after three months (follow up) with a slight decline from immediate post program implementation. **Recommendation:** The top Managers should continue to use (VUCA leadership) as to strategic future foresight at Assiut University Hospitals to encourage changes for all care givers at these Hospitals.

Keywords: Future Foresight, VUCA leadership, Nurse Managers & Readiness for Change

Introduction:
The challenge is intellectual connecting of the strained, tested and innovative to be formed. The strategic future foresight is a tool to thrive in a VUCA World; it is a framework for identifying and evaluating future possibilities and determining the best action. It's an input to strategic planning not an alternative, helping to uncover opportunities and threats that traditional processes might miss **(Future school, 2016 & strategic future foresight, 2016).**

Organizational managers face active and thorough change that is unmatched with the rapidity, strength, and rate of recurrence of change arising quickly to create volatile, 4uncertain, complex, and ambiguous (VUCA) working environments **(Matthysen & Harris, 2018).** VUCA refers to (Volatility, Uncertainty, Complexity and Ambiguity) are complex and variable work circles faced by corporations and individuals. It is a way used to solutions to the problems of our digital and active world **(Ramachandran, 2021 & Wikipedia, 2021).**

The VUCA leadership of Volatility, Uncertainty, Complexity, and Ambiguity will become not as good as in the future. Solvable problems will still overflow, but top managers will deal frequently with dilemmas which have no solutions, yet managers will have to make decisions in any case. Many individuals are already living in a VUCA soup most of the time particularly individuals on the incorrect side of the rich / poor hole **(Gary, & Prahalad, 2018).** Readiness is a ubiquitous term related with change, and yet there is slight understanding of this construct **(Laurie, 2018)**.

VUCA represents a type of change that managers should recognize to deal with the environmental flux without worsening resources due to improper issue identification. Volatile changes are recurrent and cause variability; uncertain changes are those of which managers lack complete information; complex changes are confusing due to the interconnectedness of processes and data; while ambiguous changes are those that need priority **(Bennett & Lemoine, 2019).**

In changing times, managers need to create innovative ideas and involve teams in novel beginnings. There are definite challenges that organizations face in order to help managers move advancing with new options and varieties available to VUCA world. By assumption volatile, uncertain, complex, and ambiguous environment and still outstanding confident involves lot of self-confidence, positivity, bravery, and creativeness **(Chawla & Lenka, 2018).**

The responsibility of VUCA leadership style (volatile, uncertain, complex and ambiguous) is associated with the serious attainment factors essential to succeed in a VUCA and wide-ranging business principles, a firm's agility to answer quickly, tough cooperative networks, invention and moral performs.

These are associated with leadership style, which is a mixture of transformational, servant and authentic leadership **(Sarkar, 2019).**

Diab, et al (2018) reported that, the organizational readiness refers to organizational members' change commitment and change efficacy to implement organizational change and confidence in accumulative abilities to do so. The significance of readiness to change is founded on its power to encourage the organizational members to initiate, exercise effort and demonstration cooperative behavior that leads to successful application of change **(Weiner, 2019).** Attempts to device new programs, practices, or policies in organizations habitually are unsuccessful because managers do not establish enough organizational readiness for change. Organizational readiness is 'the degree to which organizational members are psychologically and behaviorally equipped to device organizational change' **(Armenakis, et al, 2020).**

Staff development is the processes, programs and activities through which every organization develops, enhances and improves the skills, competencies and overall performance of its employees and workers **(Dutta, 2013).** When organizational readiness is extraordinary, individuals are more possible to start change, exercise superior power, display more perseverance and exhibition more supportive behavior, which overall results in more effective execution of the planned change. On the other hand, when organizational readiness is little, individuals are more possible to view the change as unwanted and consequently sidestep, or straight attack, planning for the exertion and sharing in the change progression **(Armenakis & Bedeian, 2020).**

Significance of the study:

While the researchers reviewed of the literatures found that there were three internationally studies published in professional articles and journals, the first one titled by "Leadership in VUCA Environment" reported by **Chawla & Lenka, (2018),** the second study showed by **Sarkar, (2019):** We live in a VUCA World: the importance of responsible leadership. And third study represented by **Weiner, (2019)** "A theory of organizational readiness for change" The researchers noticed that

there were no studies done in National studies about VUCA leadership on Nurse Managers Readiness for Change at Assiut University Hospitals, so the researchers intended to study the phenomenon among nurse managers to improve innovation and readiness for change.

Aim of the study:
Explore the effect of VUCA leadership on Nurse Managers Readiness for Change at Assiut University Hospitals.

Research hypothesis:
- High percent of the nurse managers at Assiut University Hospitals haven't enough knowledge about VUCA leadership.
- Positive correlation among VUCA leadership factors.
- Positive correlation among VUCA leadership style and readiness for change.

Methods:
A quasi-experimental design was utilized for the current study. This study was conducted at Assiut University Hospitals (Main, Productive Woman, Pediatric, El Rajehy, Orman, Neurological and Urological Hospitals. Quota sample was used in the present study which includes nurse managers working in Assiut University hospitals whose have 10 years of experience and more out of the previous nurse managers (No= 120) in assessment phase to assess the nurse manager knowledge regarding VUCA leadership, and selected in randomly form (7-8) participants from every Hospital to participated in program implementation (No. =46).

Data collection:
Study tool (I): Personal characteristics for study subject: It was developed by the researchers, it include questions related to age, gender, marital status, educational qualification, and years of experience.

Study tool (II): VUCA leadership questionnaire: included 20 items classified into four factors which was developed by the researchers, after reviewing the literature **Deaton, (2018)** to assess nurse managers' perception about VUCA leadership factors. The participants were answered the all questions by yes scored (one) or no scored (zero).

Study tool (III): Change Readiness Scale: It was designed to assess readiness level to change in the organization. It was developed by **Work Life Design (2018).** The scale was translated into Arabic and modified by the researchers. It consisted of 20 items. **Scoring system:** The participants were asked to indicate their agreement or disagreement with the questionnaire statements by using a 5-point Likert scale in which response for each item ranging from: "Strongly agree=5" "Agree=4" "Uncertain=3" "Disagree=2" and "Strongly disagree=1" The scores

of each dimension was summed up and then converted into a percent score. The total score was ranged from 20 to 100, and a total score of each dimension is calculated.

Study tool (IV): Program implementation & evaluation sheet it developed by the researchers and which consisted of two parts: **part 1:** Outcome of the program through the use of a structured questionnaire which used to evaluate cognitive skills of program content through pre, immediately post and follow up tests after three months later. The test was completed in about half an hour. **Part2:** Effectiveness of the program through used a structured questionnaire, It covers (16) questions classified into two items as follows; the program content (10 questions) and the appropriateness of the educational programs (6 questions). The nurse managers' responses measured on 5 points Likert scale ranged from (5) excellent, (4) very good, (3) good, (2) pass and (1) poor.

Study procedures:

Official approval from the Dean of Nursing Faculty Assiut University was send to all Directors of Assiut University Hospitals to collect the necessary data for the present study. The actual steps of implementation of the research as; preparatory phase, validity, pilot study, and field work, after reviewing the available literature concerning the topic of the research, which took about one month from the beginning of May 2021 to the beginning of June 2021 to end the proposal of the research. Arabic translation of the research tools was done.

Faced validity was done to assure accurate comprehension of the study tool, which was done through a jury (expert opinions) composed of 3 professors and 2 assistant professors from the Nursing Administration and Community Health Nursing Departments, Faculty of Nursing, Assiut University. Also, **content validity** was checked and analyzed using confirmatory factor analysis test to assure (importance, clearness, and accountability of each items of the study tool) and its result was $\geq$ **1.2** for all items of the study tool (Readiness for change Scale), so all items in the study tool were confirmed.

The pilot study serves to test the feasibility, clarity, and practicability of the data collection tool. It was carried out on 10% nurse managers from different Assiut University Hospitals. The pilot study was collected in June 2021. The research subject was excluded in the pilot study. Data collected from the pilot study reviewed and used in making the necessary modifications prior to the finalization of the research tool for data collection. The program was planned and designed based on the need assessment which were performed prior one week from program planning and actually implementation

of the program. The data were collected by the researchers through distributing questionnaire form for 120 nurse managers. Then the researchers had explained the purpose of the study. The time taking with each participant was from 20-30 minutes. The data obtained from need assessment used as a guide in preparing the program content.

Ethical considerations: Research proposal approved from Ethical Committee at the Faculty of Nursing, Assiut University. The study was followed common ethical principles in clinical research, then oral agreements were taken from all participants to participate in the present study, study participants have the right to refuse/ participate/ withdraw from the study without any rational at any time, confidentiality and anonymity were assured, and study participants privacy was considered during collection of data, all obtained data were used only for research purpose.

Planning and developing in-service education program include formulating program objectives, the program was implemented by the researchers on the representative subject (46) nurse managers for two day, divided into two groups; every group was 23 nurse managers. The total time of the program was 20 hours distributed into 10 sessions for each group, 5 sessions every day.

Data entry and statistical analysis used SPSS 25 statistical software package. Data presented use descriptive statistics in the form of frequency, percentages, mean and standard deviation. Pearson correlation analysis used for assessment of the inter-relationships among quantitative variables, and Spearman rank correlation for ranked ones. Statistical significance considered at p-value <0.05.

Results:

Table (1): Personal characteristics of the studied subject (n= 120).

Personal characteristics	No	%
1- Age		
Less than 40 year	71	59.2
More than 40 year	49	40.8
Mean ±SD	**39.90±4.60**	
Range	**30-52**	
2- Gender		
Male	24	20.0
Female	96	80.0
3 -Education Qualification		
Bachelor degree in nursing science.	87	72.5
Master degree in nursing science.	19	15.8
Doctoral degree in nursing science.	14	11.6
4- years of experience		
Less than 10 year	10	8.3
from 10 -15 year	61	50.8
More than 15 year	49	40.8
Mean ±SD	**14.31±3.01**	
Range	**2-21**	
Marital Status		
Single	10	8.3
Married	108	90.0
Widow	2	1.7
Divorced	0	0

Table (2): Mean Score of VUCA leadership Factors for Studied subject (n=120)

VUCA leadership Factors	Mean ±SD	P. value
1. Volatility	11.53±2.84	0.000
2. Uncertainty	29.81±5.92	0.000
3. Complexity	**42.05±16.75**	0.000
4. Ambiguity	13.9±3.46	0.000

Table (3): Correlation between VUCA leadership factors as perceived by the studied subject

VUCA leadership Factors	P. value	R	Volatility Items	Uncertainty Items	Complexity Items	Ambiguity Items
Volatility		R	1			
		P				
Uncertainty		R	0.057	1		
		P	0.048			
Complexity		R	**0.472**[**]	0.093	1	
		P	0.000	0.312		
Ambiguity		R	**0.413**[**]	-0.160	**0.467**[**]	1
		P	0.000	0.081	0.000	

** Statistically Significant correlation at P. value <0.01

Table (4): Percentage distribution of studied subject responses as regard readiness for change perception (n= 120).

Readiness for change items	Strongly Disagree		Disagree		Uncertain		Agree		Strongly Agree	
	No	(%)	No	(%)	No	(%)	No	(%)	No	(%)
1.Alter ordinarily happens here with a clear picture or vision of the expecting future.	64	53.3	39	32.5	10	8.3	1	0.8	6	5
2.Suitable assets required to create the alter work are apportioned.	56	46.7	45	37.5	12	10	3	2.5	4	3.3
3.The reason or method of reasoning for any alter is clearly communicated to workers.	50	41.7	54	45	11	9.2	1	0.8	4	3.3
4.My manager/supervisor reliably illustrates back for the alter.	41	34.2	61	.8	11	9.2	2	1.7	5	4.2
5.Measures and desires for modern behaviors are set up and communicated amid times of alter.	42	35	67	55.8	4	3.3	3	2.5	4	3.3
6.Communication channels permit for progressing input and/or data sharing between representatives and assigned managers.	38	31.7	67	55.8	10	8.3	1	0.8	4	3.3
7.Individuals affected by alter are effectively included in forming the required future.	36	30	67	55.8	9	7.5	3	2.5	5	4.2
8.Used desires are a clear need and wanted activities are fortified.	38	31.7	**71**	**59.2**	5	4.2	2	1.7	4	3.3
9.Individuals most influenced by the alter are included in recognizing conceivable impediments.	39	32.5	**67**	**55.8**	8	6.7	2	1.7	4	3.3
10. Forms are in put to archive or report on our advance in making alter work.	41	34.2	**68**	**56.7**	5	4.2	3	2.5	3	2.5
11. Communication channels with assigned managers are open for all workers.	36	30	66	55	8	6.7	5	4.2	5	4.2
12. Individuals have a chance to "rehearse" unused activities through hone, recreations, or visualizing the alter.	44	36.7	63	52.5	4	3.3	6	5	3	2.5
13. Representatives frequently know how well they are assembly the alter desires.	44	36.7	60	50	6	5	6	5	4	3.3
14. Key points of reference are recognized with celebrations, rewards, or other affirmation.	44	36.7	58	48.3	7	5.8	6	5	5	4.2
15. Workers have a clear understanding of the guidelines and desires that go with any alter.	67	55.8	42	35	4	3.3	4	3.3	3	2.5
16. Steps are taken to guarantee that representatives influenced by a alter have the information, aptitudes and capacities essential to create the alter work.	57	47.5	55	45.8	2	1.7	5	4.2	1	0.8
17. Directors and other managers make themselves effectively open for replying questions or information-sharing amid times of alter.	49	40.8	63	52.5	2	1.7	5	4.2	1	0.8
18. In the event that the alter includes essentially modifying existing company-wide frameworks or forms, a trial period is conducted some time recently the alter is completely actualized.	46	38.3	65	54.2	2	1.7	6	5	1	0.8
19. Assigned managers effectively look for input from workers concerning challenges, desires, and advancements.	50	41.7	59	49.2	5	4.2	5	4.2	1	0.8
20. Generally, my organization leads, oversees, and bolsters alter in an viable, energizing way.	49	40.8	61	50.8	3	2.5	6	5	1	0.8
Mean ± SD (42.05±16.75)										

Table (5): Correlation between VUCA leadership factors and Readiness for change items (n= 120).

VUCA leadership factors	Readiness for change	
	R	P. value
Volatility	.499**	0.000
Uncertainty	.189*	0.039
Complexity	.601**	0.000
Ambiguity	.467**	0.000

* Statistically Significant correlation at P. value <0.05

Table (6): Score of studied subject as regarded VUCA leadership factors and readiness for change in three period tests of the educational program (n= 46).

Items	Pre	Post	Follow up	P. value	Pre-post P1	Pre- follow upP2	Post –follow up P3
	Mean ±SD	Mean ±SD	Mean ±SD				
VUCA leadership	3.57±1.28	**11.3±0.94**	9.72±0.91	<0.001**	<0.001**	<0.001**	<0.001**
Readiness for change	2.98±1	**9.54±0.5**	7.78±1.01	<0.001**	<0.001**	<0.001**	<0.001**

One way Anova test

Table (7): Correlations Co-efficient between studied subject knowledge VUCA leadership factors and readiness for change in three period tests of the educational program (n= 46).

Correlations		Readiness for change		
		Pre	Post	Follow up
VUCA leadership factors	R	0.201	**394****	-0.068
	P	0.180	**0.007****	0.652

**Statistically Significant Correlation at P value < 0.01

Table (8): Percentage distribution of studied subject opinion's as regards the program content of the educational program (n= 46).

Items	Opinion									
	Poor		Pass		Good		Very good		Excellent	
	No.	%	No.	%	No.	%	No	%	No.	%
1. The program objectives are realistic.	0	0.0	0	0.0	0	0.0	6	13.6	38	**86.4**
2. The program goals are measurable.	0	0.0	0	0.0	0	0.0	10	22.7	34	77.3
3. Balancing between theoretical and practical goals.	0	0.0	0	0.0	2	4.5	7	15.9	35	79.5
4. Appropriateness of the study topics with the timetable.	0	0.0	0	0.0	2	4.5	8	18.2	34	77.3
5. The adequacy of the study topics to achieve the program's objectives.	0	0.0	0	0.0	2	4.5	9	20.5	33	75.0
6. Suitable topics for levels of trainees.	0	0.0	0	0.0	0	0.0	11	25.0	33	75.0
7. Modern of the educational program content.	0	0.0	0	0.0	1	2.3	9	20.5	34	77.3
8. Compatibility of educational activities with the study topics.	0	0.0	0	0.0	1	2.3	13	29.5	30	68.2
9. Educational program content are clear.	0	0.0	0	0.0	0	0.0	36	**81.8**	8	18.2
10. The scientific educational program content was attractable.	0	0.0	0	0.0	0	0.0	35	79.5	9	20.5

Table (9): Percentage distribution of studied subject opinion's regarding the appropriateness of the educational program (n= 46).

Items	Opinion									
	Poor		Pass		Good		Very good		Excellent	
	No.	%	No.	%	No.	%	No.	%	No.	%
1. Date of program Implementation.	0	0.0	0	0.0	2	4.5	11	25	31	**70.5**
2. Time of session Implementation	0	0.0	1	2.3	2	4.5	10	22.7	31	**70.5**
3. The program period.	0	0.0	0	0.0	2	4.5	10	22.7	32	**72.7**
4. Preparation of classroom.	2	4.5	5	11.4	20	45.5	8	18.2	9	20.5
5. Theparticipants, organizing in the Classroom.	1	2.3	0	0.0	8	18.2	19	**43.2**	16	36.4
6. Supportive services (Break, photos).	0	0.0	1	2.3	12	27.3	14	31.8	17	38.6

Table (1): Personal characteristics of the studied subjects showed in table (1). The highest percentage of them were female, have bachelor degree in nursing science, their age less than 40 years old. Also, the table illustrated that were married, and having experience from 10 -15 years (59.2%, 80.0%, 72.5, 50.8% & 90.0%) respectively.

Table (2): This table showed that, the highest mean scores founded as regard items of complexity factor in all setting in the study subject were satisfied **(42.05±16.75).** And there are statistical significant differences among all items **(P. value <0.01).**

Table (3): This table depicted that, the highly positive correlation between Volatility Items & Complexity Items, also positive correlation between Complexity Items and Ambiguity Items, Finally the relationship correlation between Volatility Items and Ambiguity Items in all setting in the study subject were satisfied **(R= 0.472, 0.467, 0. 413)** respectively**.** And there were statistical significant differences among all items **(P. value <0.01).**

Table (4): This table represented that, the highest percentages of the studied subject disagree regarding used desires are a clear need and wanted activities are fortified item, followed Forms are in put to archive or report on our advance in making alter work item and finally, Individuals most influenced by the alter are included in recognizing conceivable impediments item **(59.2%, 56.7%, & 55.8%)** respectively. And this table also depicted that, the lowest percentages of the studied subject were agreed regarding all items of readiness for change.

Table (5): This table represented that, there is a positive correlation between readiness's for change items with all factors of VUCA leadership. There were statistical significant differences among all factors.

Table (6): This table showed that, the highest mean score of study subject knowledge as regarded in both VUCA leadership factors and readiness for change after educational program implementation **(11.3±0.94 & 9.54±0.5)** respectively and there were statistical significant differences among all items **(P, <0.001).**

Table (7): This table showed that, the positive correlation in post phase between VUCA leadership factors and readiness for change **(R = 0.394**)** and there were statistical significant differences in post phase of program implementation among all items **(P, 0.007**).**

Table (8): Studied subject opinion's regarding the program content of the educational program revealed in the table (8). The highest percentage of the studied staff nursing have excellent as regard to terms, the program objectives are realistic and followed educational program are clear item this have very good scores **(86.4% & 81.8%)** respectively.

Table (9): This table depicted that; studied subject opinion's regarding the appropriateness of the educational program. The great majority of studied subject had excellent as regard to the program period and followed items the date of program implementation and the time of session implementation and there have the highest percentage in very good score for item the participants organizing in the classroom **(72.7%, 7o.5% & 43.2%)** respectively.

Discussion

VUCA occurrence, where classical leadership skills are not enough and corrector decisions are made at the point of leadership. VUCA need for managers to overcome doubts plays   a crucial role. Now VUCA is implementing, shows playful, complex and ambiguous structures **(Çiçeklioğlu, 2020)**. The present study was conducted with the aim to explore the effect of VUCA leadership on Nurse Managers Readiness for Change at Assiut University Hospitals.
In the current finding, the highest mean scores founded as regard items of Complexity factor in all setting in the studied subject were satisfied and depicted also, the highly positive correlation between volatility & complexity, also positive correlation between complexity and ambiguity factors in the studied subject were satisfied at all setting in Assiut university hospitals and there were statistical significant differences among all items for these

factors. This finding consistent with **Pearse, (2017)** who reported that, the majority of the respondents identified "managing complexity and contradictions" to be a key role of the manager due to able managers need to definitely turn inconsistencies as chances of improvement.

In present study, the highest percentages of the studied subject disagree regarding used desires are a clear need and wanted activities are fortified item, followed forms are in put to archive or report on our advance in making alter work item and finally, Individuals most influenced by the alter are included in recognizing conceivable impediments item. And this table also depicted that, the lowest percentages of the studied subject were agreed regarding all items of readiness for change. This finding consistent with **Sarkar, (2016)** who reported in his study about 64% respondents believed that the manager's inability to expect changes along with the inability to construct the right team was avoiding them from successfully managing change & 48% of respondents mentioned being in rejection of the changing framework.

In current study, the highest mean score in post phase of the educational program implementation in both VUCA leadership factors and readiness for change and there were statistical significant differences among all items; also the present study reported the positive correlation in post phase between VUCA leadership factors and readiness for change. This finding consistent with **Pearse, (2017)** who reported that, "VUCA atmosphere requires managers to attain an innovative set of change management viewpoints and abilities. Change must be seen as normal and continuing, rather than something that can be planned for as a discrete event. Subsequently, rather than viewing change as something that can be organized and accomplished, managers must hold the actuality of an ever-changing organizational setting and develop organizational abilities that enable ongoing organizational change". In the same line **(Deaton, 2018)** reported that, VUCA is a working environment that is continuously changing in incompatible, spectacular, and unrelenting means to create leadership and organizational encounters**.** And supported by **Çiçeklioğlu, (2020)** who represented **"**VUCA must acquire to familiarize and create the extreme of the status quo" and added " The vital to accomplishment in VUCA times is agility related to the haste of responding to exterior changes and familiarizing with suppleness and also, he showed that " must be possess a worthy aspect at what is fashionable in the outside situation, be the chief to familiarize and change so as to alter VUCA into an chance and accomplish continued economic benefit to remain in advance".

In the present study, the highest mean score of studied subject knowledge as regarded in both VUCA leadership factors and readiness for change after educational program implementation and there were statistical significant differences among all items. This finding consistent with **Mancesti, (2019)** study where who showed that, the profile of the leader needs to develop. Crucial factors (VUCA strategy in leadership), because of their number and the improbability of their effect, comprise the genetic factor of pressure and indefiniteness. So the leader's skill to breakdown the arrangement by taking a caring position and saying an agile strategy is vital. And added the leader's aptitude to release everyone's probable by instilling and encouraging flexibility in others. Reducing individuals' anxiety in the overcome of change by proving that encounters can become chances is going to be a serious enabler of highest performance and a competitive advantage. And **Çiçeklioğlu, (2020)** added in his research findings show that, the firms surveyed placed an growing importance on the top management's role in change programs subsequently learn the VUCA strategy in leadership skills.

This match with **Nimmons, et al., (2019)** who reported that the suitable time of teaching programs had a positive relation with success of the program objectives. This improvement could be assigned to one or more rationales, which include the comprehensive content of the educational training program, the written handout of the program which serves as ongoing reference, study subjects interest and keenness to know and change, consideration of the patterns of adult learning, encouragement of questions, interactive talk with the utilization of multimedia and repetition of the knowledge through a mixture of textiles. Moreover **Batubara, et al., (2021)** who documented that the nurse's mangers were satisfied with the content of the program and they endeavor to apply what learn in leadership with VUCA environment.

Generally, this finding of the study revealed that a highest percentage of the studied nurse's managers had satisfactory knowledge about all content of the educational program immediatlly after implementing of the program. **Lastly,** the fact that the nurses managers didn't continue to use the handouts that received during educational program due to lack of time to read because of the overload in their units, this underscores the importance of continuing education. With this respect **Dutta, (2013)** who emphasized that most forgetting occurred because information in short term memory. However, forgetting can also occur because nurses may lose their abilities to recall information that is in long term memory this agree with the present study.

Conclusions:

This study there was statistically significant differences between pre& post and pre & follow up phase's regarding Nurse Managers' knowledge about VUCA leadership. There were improvements the nurse manager's knowledge immediately after implementation of the educational program and this improvement was mostly retained after three months (follow up) with a slight decline from immediate post program implementation and it was still higher scores when compared with pre implementation level. The highest percentage of Nurse Managers mentioned that educational program contents were excellent and appropriate regarding all items.

Recommendations:

The researchers recommended the following:

1- Encouraging nurses to improve and update their knowledge and allow nurses and head nurses to attend conferences, workshops, and seminars about future foresight and VUCA.
2- Additional researches are wanted to assess the effects of VUCA on enhancing nurse's productivity and organizational resilience.
3- Organizations need to improve a robust culture of leadership and invention to confrontation the VUCA situation more effectively.
4- Keep an attention, keep learning and learn to think out of the box. These abilities help to deal with VUCA.
5- Constantly changing in VUCA ways, leaders require augmenting their abilities, attitudes, and techniques to ensure existence and long life.
6- Leaders and managers should have new leadership skills in order to achieve success in the VUCA world.
7- The top Managers should continue to use (VUCA leadership) as to strategic future foresight at Assiut University Hospitals to encourage changes for all care givers at these Hospitals.

References:

- **Armenakis, A., & Bedeian, A. (2020):** Organizational change: A review of theory and research. Journal of Management,25, 293 – 315.
- **Armenakis, A., Harris, S. & Mossholder, K. (2020):** "Creating readiness for organizational change", Human Relations, Vol. 60, pp. 681-703.
- **Batubara, S., Wang, H., & Chen, K. (2021):** Nurse Leadership Style and Quality of Care in Clinical Setting: a Systematic Review. Nurse Line Journal, 6(1), 45-58.
- **Bennett, N., & Lemoine, G. (2019):** What a difference a word makes: Understanding threats to performance in a VUCA world. Business Horizons, 57, 311–317. doi: 10.1016/j.bushor.2014.01.001
- **Chawla, S. & Lenka, U. (2018):** Leadership in VUCA Environment In book: Flexible Strategies in VUCA Markets (pp.213-224)DOI: 10.1007/978-981-10-8926-8_16
- **Çiçeklioğlu, H. (2020):** VUCA Concept and Leadership In book: MANAGEMENT & STRATEGY (pp.229-244)
- **Deaton, V. (2018):** VUCA tools for a VUCA world: Developing leaders and teams for sustainable results. Lexington, KY: Da Vinci.
- **Diab, G., Bakeer, H., & Saffan, S. (2018):** Organizational change readiness and manager' behavior in managing change March 2018, Journal of Nursing Education and Practice 8(7):68. DOI:10.5430/jnep.v8n7p68
- **Dutta, P. (2013):** What is The Definition of Staff Development? by Demand Media,. Available at: http:// www, books Google. com.eg.
- **Futures School, (2016):** Strategic foresight is the framework behind the Futures School programmed in California. For more information, see: http://www.thefuturesschool.com/locations/los angeles/
- **Gary, H. & Prahalad, C. (2018):** Competing for the Future, Boston: Harvard Business School Press, 141.
- **Laurie, N. (2018):** Blackwell Publishing Ltd, Journal of Advanced Nursing, 42(2), 108–117
- **Mancesti, M. (2019):** Is VUCA the end of strategy and leadership? In the current era of volatility, unpredictability, complexity and ambiguity, managers need to adapt the way to navigate
- **Matthysen, M. & Harris, C. (2018):** The relationship between readiness to change and work engagement: A case study in an accounting firm undergoing change. SA Journal of Human Resource Management, 16, 1-11. doi:10.4102 /sajhrm. v16i0.855
- **Nimmons, D., Giny, S., & Rosenthal, J. (2019):** Medical student mentoring programs: current insights. Advances in medical education and practice, 10, 113.
- **Pearse, N. (2017):** Change management in a VUCA world in Visionary Leadership in a Turbulent World. Emerald Publishing Limited.
- **Ramachandran, R. (2021):** Leading in a VUCA World. January 2021Ushus - Journal of Business Management 20(1):89-111
- **Sarkar, A. (2020):** We live in a VUCA World: the importance of responsible leadership, Development and Learning in Organizations 30(3):9-12 DOI: 10.1108/DLO-07-2015-0062

- **Strategic Foresight Primer (2016):** Unlock the Futurist Mindset Kedge. http://www.kedgefutures.com/
- **Weiner, B. (2019):** "A theory of organizational readiness for change", Implementation Science, Vol. 4 No. 1, p. 67.
- **Wikipedia, (2021):** Future foresight, Foresight (futures studies) 12 December 2021.
- **Work Life Design, (2018):** How to assess change readiness. Change Readiness A Multilevel Review January, Journal of Management 39(1):110-135 DOI: 10.1177/014920631245741