

The Effect of Nurse Managers' Human Resource Maintenance Awareness on Staff Nurses' Career Development and Organizational Resilience

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Abstract: Proper management of human resources is critical in providing a high quality of health care. A refocus on human resources maintenance in health care and more researches are needed to improve career development, decrease stress and burnout and improve the resilience of staff nurses. Effective human resources maintenance functions are greatly needed to achieve better outcomes from and access to health care around the world. **Aim:** Evaluate the effect of nurse managers' human resource maintenance awareness on staff nurses' career development and resilience. **Research hypothesis:** There is a positive effect of nurse managers' human resource maintenance awareness sessions on staff nurses' career development and resilience. **Methodology:** Quasi-experimental design was utilized, the study was conducted at a governmental hospital in Alexandria city-Egypt, and participants were composed of 33 nurse managers and 381 nurses. **Tools:** Human Resources Maintenance Knowledge Questionnaire (HRMKQ), Career Development Questionnaire (CDQ), and Organizational Resilience Questionnaire (ORQ). **Results:** There was highly significant difference between personal factors, job-related factor, and organizational factors scores of nurses at pre, post and three months after awareness sessions' intervention with p value <.01. Also, organizational resilience mean score at pre, post and three months later sessions' intervention were (44.96±12.3) (72.4±15.6) and (69.1±13.7) respectively. Also, there was a highly positive correlation between human resources maintenance, career development and organizational resilience at p value <.01. **Conclusion:** The present study concluded that there was a significant improvement in the overall nurse managers' knowledge regarding human resource maintenance after attending the awareness sessions. Besides, it was revealed that the nurse managers' human resource maintenance had a positive effect on staff nurses' career development and resilience. Also, there was a positive correlation between staff nurses' resilience and career development. **Recommendations:** Hospital administration should allocate adequate equipment, supplies, and budgets to improve the concept of human resource maintenance to achieve effective nursing outcomes. Continuous education program for nurse managers regarding human resources maintenance.

Keywords: Human Resource Maintenance, Career Development, Organizational Resilience, Nurse Manager, Staff Nurse.

I. INTRODUCTION

Within many health care systems worldwide, increased attention is being focused on Human Resources Maintenance (HRM). Specifically, human resources are one of three health system inputs, with the other two major inputs being physical capital and consumables. As well as the balance between the human and physical resources, it is also essential to maintain an appropriate mix between the different types of health promoters and caregivers to ensure the system's success. Human resources in health sector reform also seek to improve the quality of services and patients' satisfaction *Ahammad, Glaister & Gomes, (2020)*.

Human resource maintenance begins with a corporate business strategy to retain employees in the workplace and develop them into personnel who generate results and whose capabilities can be utilized effectively. This is done through implementing HRM's functions such as Work orientation, Physical working condition, motivation, performance evaluation, compensation administration, and management-labor relations and movement *Bartleby, (2020)*. Research on strategic human resource utilization has been conducted globally and many results have been reported *Boella & Goss-Turner, (2019)*. In recent years, research on human resource development in nursing has been conducted in various countries. There have been reports that nursing organizations should establish strategies based on financial and managerial resources, managerial positions, and organizational culture. Nursing organizations have also accepted that strategic management of personnel is important *Aburumman et al., (2020)*.

Hospitals are struggling to deal with the shortage of nurses. The scarcity of nurses nationwide has been documented. As population increases, there is an increase in hospitals' strains, thereby creating difficulty to find and keep good and qualified staff nurses. Job satisfaction of nurses and assurance has been an essential concern for hospital management *Sarma & Barua, (2018)*. High staff absence and turnover affect the hospital management which takes a toll. Satisfied nurses tend to be more fruitful, innovative, and dedicated to hospitals. The general models of job satisfaction focus on the view that a person has about his/her work. Job satisfaction or dissatisfaction not only depends on the type of work, but also on the perception of a job as well as the career as a whole *Dayel, Debrah & Mulyata, (2020)*.

Career planning is a dynamic process that changes and adapts to changes in the nurse and in the world in which they live and practice. Yet many nurses need and want help with this important part of their development. Nurses have dreams, goals, and ideas about their futures, but they need a process to guide them in the achievement of those futures *Tucker, Gallagher-Ford, Baker & Vottero, (2019)*.

Career development is an iterative rather than a linear process. It requires individuals to understand the environment in which they live and work, to assess their strengths and limitations and validate that assessment, to articulate career vision, to develop a plan for the future that is realistic for them and then to market themselves to achieve their career goals *Wang, Shaoyu, Chen & Zhang, (2017)*. Simply put, it is a focused professional development strategy that helps nurses take greater responsibility for themselves, and their career and prepare for ever-changing political, social, health care and workplace environments. As a nursing professional must work in an area that motivates and holds interest *Kim, (2016)*. Nurse managers should offer tools that help nurses discover the kind of work that will best meet unique needs and skills. Discover strengths and styles of communication, of learning and of leadership *Choi & Jung, (2018)*.

Effective nurse managers recognize the important role that planning plays in implementing effective strategies and accomplishing organizational goals. Planning can also be a critical component in building and maintaining an experienced and stable team of nurses with the right mix of skills, knowledge, and abilities whose attitudes and values are a good fit for the job and the organization. Nurse managers should develop a plan and process for soliciting input from employees regarding key human resources issues and for resilience which has become crucial for organization survival *Warshawsky & Cramer, (2019)*.

Resilience defined as selfhood, flexibility, faith, self-confidence and creativity, empathic and humanistic approach, and developed insight about responsibilities and roles, good physical health to contribute to mental wellness, good social network, and hobbies. Another characteristic of resilience is inner energy or life power to help an individual to persist. Researchers stated that resilience could be defined as being related to every type of word which is a positive component of the process for adapting to difficulties. Studies carried out accordingly have tried to define resilience mostly by dealing with stress, competence, emotional intelligence, and optimism, sense of humor, patience, tolerance, belief, and self-esteem. It was also mentioned that cognitive and problem-oriented coping skills are important precursors of resilience *Liu et al., (2019)*.

Resilience is a protective factor and consists of certain characteristics, such as a sense of carrying on, enduring values, problem-solving, appreciation for interaction with others, and comfort with some degree of aloneness. A different source defined resilience as an individual's not feeling alone while going through a hard time in life, accepting the situation, being able to go for his/her own choice among limited choices, and seeing this as an opportunity to get better chances, being hopeful, spiritual, optimistic and faithful, making sense of his/her life, and having meaningful relationships *Grimes et al., (2020)*.

Stressors that nurses faced daily cause both physical and mental problems, such as fatigue, irritability, lack of concentration, unhappiness, depressive sensation, depersonalization, and emotional exhaustion. Negative stress-related causes not only have an impact on nurses' wellness, but also their caregiving to patients. In this respect, it is possible to say that resilience is a protective agent with nurses' physical and mental wellbeing *Mealer, Jones, & Meek (2017) & Guo et al., (2018)*. Resilience is an important protective factor against emotional exhaustion. Furthermore, a source defines resilience as a supportive factor that helps nurses to adapt to their profession's difficult physical, mental, and emotional nature. Resilience considered as a protective factor besides being an individual characteristic that helps nurses struggle with their professional difficulties *Babanataj et al., (2019)*.

II. SIGNIFICANCE OF THE STUDY

Effective understanding and practice of human resources maintenance through nurse manager will be a reason to reduce the workload, the stress of nurses and improve flexibility when dealing with the problems that face daily, also provide the nurse an opportunity to improve performance, continuing education which develops the nursing field, nursing career development and this is reflected in the nursing service provided to the patient *de Lange et al., (2019)*.

The study aimed to:

Evaluate the effect of nurse managers' human resource maintenance awareness on staff nurses' career development and resilience.

Research hypothesis:

Hypothesis 1: Nurse managers' knowledge will be significantly increased by their participation in human resource maintenance awareness sessions. Hypothesis 2: There is a positive effect of nurse managers' human resource maintenance awareness sessions on staff nurses' career development and resilience.

III. MATERIALS AND METHOD

Design:

A quasi-experimental design was utilized.

Setting:

The study was conducted in all In-patient medical and surgical units at Governmental Hospital which is affiliated to Alexandria University-Egypt, which provide nonpaid comprehensive healthcare services for all patients including medical, surgical, intensive care, emergency care, and multispecialty care. The hospital equipped with 1724 beds. The capacity of Medical units was 951 beds and 773 beds in surgical units. The number of inpatient units included in the study was 38 units: 23 medical units and 15 surgical units.

Participants:

The study subjects included convenience sampling of nurse managers and staff nurses who had been willing to participate in the study in the previously mentioned units and available at the time of data collection. They were divided as follows: nurse managers (n =33) and staff nurses (n=381) with more than one year of experience. The sample size was calculated using the "Epi info program version 7", it was based on a variance of 5%, confidence level of 95% and power of 0.80.

Tools: Three tools were used in the recent study:

Tool I: Human Resources Maintenance Knowledge (HRMK):

It was developed by the researcher based on a review of related literature (*Aburumman et al. 2020, Bartleby 2020, Alker L & McHugh D 2000*) to measure nurse managers' knowledge about human resource maintenance. It includes 10 items in the form of open ended questions such as meaning, functions, benefits of human resources maintenance, the purpose of personnel records & audits, policies of compensation & benefits opportunities, need for labor welfare activitiesetc. Responses were measured on three cut points ranging from (2) complete correct (1) incomplete correct (0) incorrect. The overall score will range from (0-20).

Tool II: The Career Development Questionnaire (CDQ):

It was developed by *Ismaiel, (2013)* and it was used to assess staff nurses' perception of career development. The questionnaire includes three dimensions measured by (88 items): It was distributed as *personal factors dimension (50 items)* as *personal behaviors* (13 items), *satisfaction* (13 items), *empowerment* (12 items) and *nurses' career development practice* (12). The *job-related factors dimension (27 items)* encompasses *autonomy* (14 items), *supervisory support* (13 items). In addition, the *organizational factors dimension (11 items)* containing *management support* (6 items) and, *the career developmental plans* (5 items).

Responses were measured on a five-point Likert scale ranging from "1" strongly disagree to "5" strongly agree. Scores were determined by summing and averaging the items in each factor.

Tool III: Organizational Resilience Questionnaire (ORQ):

It was adapted from *Liu et al (2019)* and it was used to assess staff nurses' perception of organizational resilience. The questionnaire includes five dimensions measured by (18 items): It was distributed as *shared vision dimension* (four items), *willingness to learn* (four items), *Adaptation ability* (three items), *Cooperative awareness* (four items) and *work enthusiasm* (three items). Responses were measured on a five-point Likert scale as follows: 5 = strong, 4 = good, 3= general, 2= fairly weak and 1= weak. A total dimension score was created by summing and averaging the factors' items in each dimension.

In addition, demographic characteristics of studied nurse managers and staff nurses developed by researcher included age, gender, marital status, qualification, and years of experience.

Validity and Reliability:

The study three tools were translated into Arabic language, and ascertained by a group of experts (n=three) in the Administration Nursing Department. Their opinions elicited regarding the format, layout, accuracy, relevancy and the content of the tools; accordingly little modifications were done in some words. Also, questionnaires were examined to test the reliability using Cronbach's Alpha coefficient test to measure the internal consistency for all tools; human resource maintenance knowledge was .714 and career development was = .806 while organizational resilience was = .834

Pilot study:

The pilot study was carried out on 38 nurses and five nurse managers those represent

(10%) of subjects at the previously mentioned setting to test the applicability and clarity of the constructed tools; it also served to estimate the time needed for each subject to fill the questionnaires, and to identify obstacles and problems that may be encountered during data collection, with no modifications occurred.

Data collection:

Written approval was obtained from the administrator of the identified setting after an explanation of the purpose and the method of the data collection. It took a period of three months from the end of April to the end of July 2019.

Awareness Sessions: There were implemented for nurse managers to provide them with excessive knowledge and to increase their awareness about human resource maintenance. There were three phases for intervention: a- Assessment phase, b- Intervention phase; (it included four sessions), and c- Evaluation phase.

First: Assessment phase:

The researcher conducted the study regarding the results obtained from the needs assessment of nurse managers. The questionnaire for human resource maintenance knowledge distributed on nurse managers. Career development and organizational resilience questionnaires distributed for staff nurses (pre sessions' intervention). The awareness sessions prepared and designed according to the nurse managers' human resource maintenance knowledge level.

Second: Intervention phase:

Nurse managers divided into two groups, each group trained at four sessions in the form of conference and discussion sessions with the researcher. The awareness sessions were held four hours (9 am – 1 pm) / two days/week for two continuous weeks were as follows:

- **First session:** The participants were introduced to each other and were notified about the method and structure of the sessions. The subjects' expectations from the sessions were identified, and the questionnaire was completed by the group.

- **Second session:** Meaning, purpose, benefits of human resource maintenance, and nurse managers' role were explained and discussed. Through using illustrative methods such as PowerPoint, role play, group work activities, and videos.
- **Third session:** The participants were acquainted with the function of human resource maintenance and discuss how to implement three out of six functions of it as 1. Worker orientation, 2. Physical working conditions, 3. Motivation through using illustrative methods as PowerPoint, role play and videos and allow them to ask questions and give examples and feedback.
- **Fourth session:** At this session, the researcher discussed the rest three functions of human resource management as 4. Performance evaluation, 5. Compensation administration, and 6. Management-Labor relations and movement using the same methods as mentioned before. Then, they were asked to fill out the questionnaire immediately after the sessions' intervention.

Third: Evaluation Phase:

The evaluation phase was stressed using all study tools to assess the effect of awareness sessions on staff nurses post and three months later sessions' intervention. To evaluate the effect of nurse managers' human resource maintenance awareness on staff nurses' career development and organizational resilience.

Ethical Considerations

Voluntary participation in the study was maintained by explaining to the participants the right to enroll in the study and withdraw at any time of the study. The human rights to anonymity and confidentiality were protected as the nurses were not required to reveal their names. The researcher declared to the participants that there is no benefits nor risk from participation to the study. The privacy of the data collected was granted.

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 mean and SD, Friedman test used to compare means pre, post, and three months later sessions' intervention. The correlation coefficient is a statistical measure of the strength of the relationship between the relative movements of two variables.

IV. RESULTS

Table (1): Demographic Characteristics of Studied Staff Nurses and Nurse Managers

represented that the mean age of staff nurses was (33.6 ± 5.1) , 41.2% of staff nurses were in the age group 30 – 40, while the mean age of nurse managers was (38.7 ± 8.3) years, 60.6% of them were in the age group >40. According to gender, 73.5% of nurses and 87.9% of nurse managers were female and 63.3% of staff nurses were married. Regarding qualification, 42.5% of staff nurses had a technical nursing degree, while 69.7% of nurse managers had bachelor nursing degree. Related to years of experience the total mean of staff nurses was (7.98 ± 3.6) , 44.1% of them had 5-10 years of experience, while, the total mean of nurse managers was (8.9 ± 2.7) , 57.6% of them had >10 years of experience. **Table (2): Nurse Managers' Knowledge Pre, Post and Three Months Later Awareness Sessions' Intervention of Human Resource Maintenance** revealed that there was a highly significant difference between nurse managers' knowledge level regarding all items of human resources maintenance at pre, post and three months later at p value <.01 except for "Need for labor welfare activities" item it was slightly differed at p value <.05. Besides, the highest mean scores three months later (1.84 ± 0.39) , (1.79 ± 0.28) and (1.75 ± 0.96) were for "Importance of human relations maintenance", "Employee's health and safety responsibilities" and "Purpose of personnel records and audits" respectively. As for the total mean score, it was revealed that the highest mean (17.32 ± 3.6) was at the post stage compared with (8.22 ± 2.31) pre sessions' intervention. **Table (3): Staff Nurses' Perception of Career Development Pre, Post and Three Months Later Sessions' Intervention** revealed that there was a highly significant difference between personal factors, job related factors, and organizational factors scores of staff nurses at pre, post and three months later with p value <.01. As regards personal factors dimension, it was found that the highest mean score (51.4 ± 8.7) was for personal behaviors three months later compared to (35.3 ± 10.4) pre sessions' intervention. Also, it was found that the total highest mean score was

(193.2±24.3) post sessions' intervention. While the lowest mean score (20.1±7.3) was for a career development plan. For job related factors dimension, the highest mean (49.1±15.4) was for autonomy post sessions' intervention. Regarding organizational factors dimension, it was found that the highest mean (23.2±8.1) was for containing management support post sessions' intervention compared to (21.5±9.2) three months later sessions' intervention. **Figure (1): Total Mean Score of Staff Nurses' Perception of Career Development at Pre, Post and Three Months Later Sessions' Intervention** illustrated that the total mean score of career development of nurses at pre- intervention was (237.7 ± 40.5), while post-intervention was (332.2 ± 30.2) and 3 months later sessions' intervention was (319 ± 34.3). **Table (4): Staff Nurses' Perception of Organizational Resilience Pre, Post and Three Months Later Sessions' Intervention** revealed that there was a highly significant difference between all domains of organizational resilience of nurses at pre, post and three months later program intervention with p value <.01. Additionally, the mean score of total scale at pre, post and three months later intervention were (44.96±12.3), (72.4±15.6) and (69.1±13.7) respectively. **Table (5): Correlation between Nurse Managers' Human Resource Maintenance and Staff Nurses' Perception of Career Development & Organizational Resilience** revealed that there was a highly positive correlation between human resources maintenance, career development, and organizational resilience at p= 0.002, 0.005 respectively. Also, there was a highly positive correlation between career development and organizational resilience at p=0.004. **Table (6): Multiple Linear Regression Model of Nurses' Demographic Characteristics & Organizational Resilience, and Nurse Managers' Human Resource Maintenance In Relation to Staff Nurses' Career Development** revealed that there was high predictors effect of qualification, experience, and human resource management on career development at p value <0.01. While there was slight effect of gender and organizational resilience on career development at p value <0.05. But age and marital status had no effect on career development at p value >0.05. **Table (7): Multiple Linear Regression Model of Nurses' Demographic Characteristics & Career Development, and Nurse Managers' Human Resource Maintenance In Relation to Staff Nurses' Organizational Resilience** revealed that there was high predictors effect of qualification, experience, career development and human resource management on career development at p value <0.01. While there was slight effect of age on organizational resilience at p value <0.05. But gender and marital status had no effect on organizational resilience at p value >0.05.

Table (1): Number and Percentage Distribution of Studied Staff Nurses and Nurse Managers According to Demographic Characteristics (N=414).

Demographic Characteristics	Staff Nurses (N=381)		Nurse Managers (N=33)	
	N	%	N	%
Age				
<30	94	24.7	4	12.1
30 – 40	157	41.2	9	27.3
>40	130	34.1	20	60.6
\bar{x} S.D	33.6±5.1		38.7±8.3	
Gender				
Male	101	26.5	4	12.1
Female	280	73.5	29	87.9
Marital Status				
Married	241	63.3	6	18.2
Not married	140	36.7	27	81.8
Qualification				
Diploma	92	24.1	0	0
Technical nursing degree	162	42.5	3	9.1
Bachelor nursing degree	121	31.8	23	69.7
Higher education	6	1.6	7	21.2
Years of Experience				
<5 years	80	21	3	9.1
5 – 10 years	168	44.1	11	33.3
>10 years	133	34.9	19	57.6
Mean SD	7.98±3.6		8.9 ±2.7	

SD: Standard Deviation

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Table (2): Mean Distribution of Nurse Managers' Human Resource Maintenance Knowledge Pre, Post and Three Months Later Awareness Sessions' Intervention (N=33).

Human Resource Maintenance Nurse Managers' Knowledge	Pre Mean ± SD	Post Mean ± SD	Three Months Later Mean ± SD	Friedman test	P
Meaning of human resource maintenance	.71±0.80	1.7±0.94	1.5±0.86	6.475	.007**
Human resource maintenance functions	.82±0.74	1.8±0.97	1.7±0.59	5.923	.008**
Benefits of human resources maintenance	.68±0.64	1.66±0.8	1.61±0.73	6.886	.005**
Purpose of personnel records and audits	.74±0.38	1.82±1.1	1.75±0.96	6.417	.006**
Policies of compensation and benefits opportunities	.94±0.70	1.34±0.92	1.28±0.82	5.083	.006**
Need for labor welfare activities	.67±0.47	1.92±0.88	1.61±0.72	6.036	.005*
Value of intradepartmental communication	.82±0.81	1.64±0.69	1.39±0.54	5.092	.007**
Importance of human relations maintenance	1.02±0.38	1.95±0.42	1.84±0.39	4.993	.009**
Employee's health and safety responsibilities.	0.97±0.46	1.80±0.51	1.79±0.28	4.782	.009**
Role of nurse managers in human resource maintenance	0.85±0.55	1.69±0.43	1.60±0.31	6.332	.005**
Total	8.22±2.31	17.32±3.6	16.07±2.9	9.061	.000**

SD: Standard Deviation

*Significant at level P< 0.05; **highly significant at P<0.01

Table (3): Mean Scores of Staff Nurses' Perception of Career Development Pre, Post and Three Months Later Sessions' Intervention (N=381).

Career Development	Pre Mean ± SD	Post Mean ± SD	Three Months Later Mean ± SD	Friedman test	P
Personal factors dimension					
Personal behaviors	35.3±10.4	54.6±9.9	51.4±8.7	10.022	.002**
Satisfaction	31.7±10.9	48.8±11.2	46.2±11.8	11.945	.001**
Empowerment	30.6±11.0	42.3±8.6	40.5±9.6	9.144	.004**
Nurses' career development practice	33.9±9.6	47.5±10.7	46.1±7.8	11.020	.002**
Total	131.5±28.8	193.2±24.3	184.2±27.4	14.75	.000**
Job related factors dimension					
Autonomy	39.5±13.1	49.1±15.4	47.7±12.6	7.614	.006**
Supervisory support	32.0±10.5	46.6±11.2	45.1±13.3	8.936	.005**
Total	71.5±19.6	95.7±20.4	92.8±18.7	12.681	.000**
Organizational factors dimension					
Containing management support	16.9±7.8	23.2±8.1	21.5±9.2	7.861	.005**
Career developmental plans	17.8±6.3	20.1±7.3	20.5±8.3	5.617	.009**
Total	34.7±10.0	43.3±12.5	42±11.7	15.91	.000**

1SD: Standard Deviation **highly significant at P<0.01

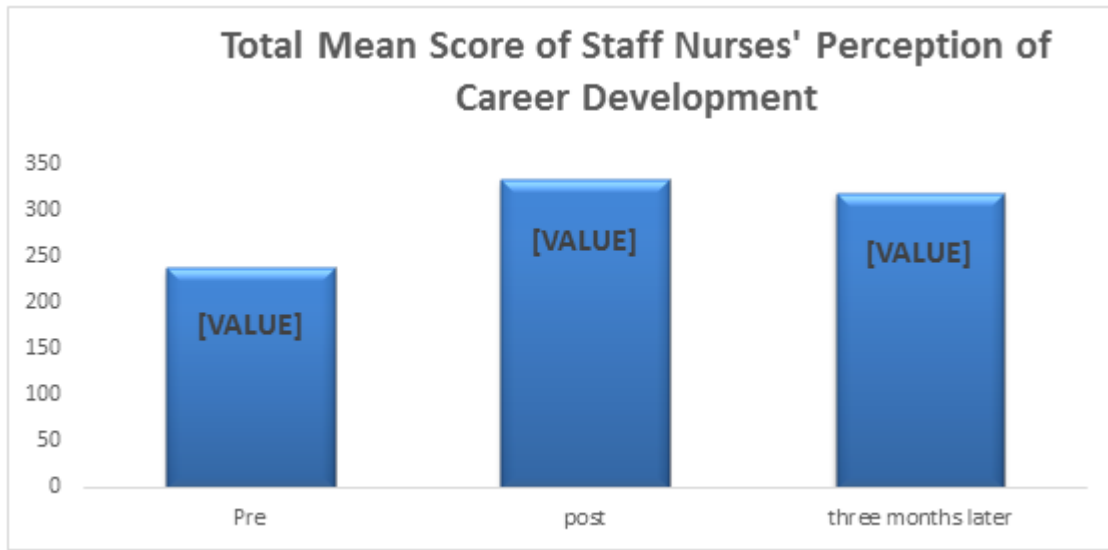


Figure (1): Compare Total Mean Score of Staff Nurses' Perception of Career Development at Pre, Post and Three Months Later Sessions' Intervention (N=381).

Table (4): Mean Score of Staff Nurses' Perception of Organizational Resilience Pre, Post and Three Months Later Sessions' Intervention (N=381).

Organizational Resilience	Pre Mean ± SD	Post Mean ± SD	Three Months Later Mean ± SD	Friedman test	P
Shared vision	8.94 ± 4.3	15.8±6.1	14.9±5.2	8.612	.004**
Willingness to Learn	9.8±3.6	15.3±5.2	15.1±4.8	7.845	.006**
Adaptation Ability	8.21±2.8	12.2±4.9	11.7±4.6	8.330	.005**
Cooperative Awareness	10.11±3.0	16.7±5.3	15.6±3.9	9.011	.005**
Work Enthusiasm	7.9±2.5	12.4±3.1	11.8±3.8	10.202	.003**
Total	44.96±12.3	72.4±15.6	69.1±13.7	15.654	.000**

SD: Standard Deviation, **highly significant at P<0.01

Table (5): Correlation between Nurse Managers' Human Resource Maintenance and Staff Nurses' Perception of Career Development & Organizational Resilience.

Variables		Human Resource Maintenance	Career Development	Organizational Resilience
Human Resource Maintenance	r.		.648	.583
	p.		.002**	.005**
Career Development	r.	.648		.597
	p.	.002**		.004**
Organizational Resilience	r.	.583	.597	
	p.	.005**	.004**	

**highly significant at P<0.01

Table (6): Multiple Linear Regression Model of Nurses' Demographic Characteristics & Organizational Resilience, and Nurse Managers' Human Resource Maintenance In Relation to Nurses' Career Development

	Unstandardized Coefficients		standardized Coefficients		
	B		β	T	P
Age	.015		.101	0.714	.086
Gender	.218		.326	2.848	.023*
Qualification	.569		.488	6.134	.006**
Marital status	.028		.650	0.614	.168
Years' experience	.427		.581	5.269	.009**
Organizational resilience	.399		.423	4.800	.011*
Human resource maintenance	.430		.511	5.998	.007**
Model summary					
Model	df		F	P value	
Regression	6		4.869	.011*	

SE: Standard Error; T: t-test value. *Significant at level $P \leq 0.05$; **highly significant at $P \leq 0.01$

a. Dependent Variable: career development

b. Predictors: (constant) age, gender, qualification, marital status, years' experience, organizational resilience, and human resource maintenance

Table (7): Multiple Linear Regression Model of Nurse Managers' Demographic Characteristics & Human Resource Maintenance and Nurses' Career Development In Relation to Nurses' Organizational Resilience

	Unstandardized Coefficients		standardized Coefficients		
	B		β	T	P
Age	.236		.255	2.686	.032*
Gender	.025		.109	0.416	.177
Qualification	.461		.399	6.101	.007**
Marital status	.018		.158	0.609	.074
Years' experience	.357		.471	5.043	.009**
Career development	.561		.622	7.159	.002**
Human resource maintenance	.587		.638	8.275	.000**
Model summary					
Model	df		F	P value	
Regression	6		5.176	.009**	

SE: Standard Error; T: t-test value. *Significant at level $P \leq 0.05$; **highly significant at $P \leq 0.01$

a. Dependent Variable: organizational resilience

b. Predictors: (constant) age, gender, qualification, marital status, years' experience, career development and human resource maintenance.

V. DISCUSSION

According to the characteristics of studied participants, the current study revealed that the mean age of nurses was (33.6±5.1), while nurse managers was (38.7±8.3) years. According to gender, about three-quarters of nurses and most of the nurse managers were female. Regarding qualification, less than half of nurses had a technical nursing degree, while more than two-thirds of nurse managers had bachelor nursing degree. Related to mean years of experience of nurses was (7.98±3.6) while nurse managers was (8.9 ± 2.7). This result is consistent with the study conducted by *Aly, Tamer &*

Hassan, (2016) titled in “Role of head nurses in managing the safety of high alert medications in critical care units”, who reported that more than two-thirds of head nurses had experienced more than 10 years. Also, supported by the study conducted by *Abd Elhamed, Morsy & Mohamed, (2019)* about “Relationship between head nurses’ self-efficacy and job performance”, who detected that more than three-quarters of head nurses had a university education and most of them were female. But, this result in disagreement with the study by *Abd El Hamid, El Mola & Mohamed, (2018)* titled in “Staff nurses expected role versus actual role at South Valley University”, who reported that slightly more than half of the nurses have less than 5 years of experience.

Regarding the nurse managers’ knowledge related human resource maintenance, there was a highly significant difference between the knowledge level of all items of human resources maintenance at pre, post and three months later intervention. From the researcher’s point of view, this improvement due to nurse managers’ desire to obtain information about the concept and benefits of human resource maintenance functions, also they were interested to gain more information about their role for maintaining manpower in their workplace. This result is regular with the study conducted by *Matsumoto, (2019)* titled in “Effective human resource management strategy for hospital nursing organizations”, who reported that improvements in the head nurses’ knowledge was related to implementing strategies of human resources management after the workshop. Also, it was consistent with the study conducted by *Sumah & Baatiema, (2019)* about “Decentralization and management of human resource for health in the health system of Ghana”, who reported that high significant difference of knowledge was related to understanding, applying functions of human resources maintenance post-training program.

Related to staff nurses’ career development dimensions, the current results revealed that there was a highly positive correlation between personal factor dimensions, job related factor and organizational factors scores of nurses at pre, post and three months later sessions’ intervention. These results may be due to valuable knowledge acquired by nurse managers’ reflected in increasing the awareness about how to motivate, empower nurses, moreover they maintaining management support which in turn enhance nurses’ abilities to develop self-improvement plan. These results supported by *Rahimi, Aazami & Mozafarim (2019)* study titled in “Preparing career development model of Iranian nurses using Delphi Technique”, who detected that following the intervention, career development scores were higher in comparison with the pre-intervention.

According to the organizational resilience of staff nurses, the present study demonstrated that there was highly improvement regarding all domains of organizational resilience at pre, post and three months later nurse managers awareness sessions’ intervention. These results may be due to increased nurses’ readiness after sessions toward sharing knowledge, skills, power, seeking help in difficult situations, and working together to achieve common goals. This is because of the direct and positive effect of nurse managers on nurses’ willingness to be more flexible and more responsible. These results are in an agreement with the study by *Bonamer & Aquino-Russell, (2019)* titled in “Self-Care strategies for professional development: transcendental meditation reduces compassion fatigue and improves resilience for nurses” and *Razmpush et al., (2019)* study about “The effect of acceptance and commitment training on quality of life and resilience of nurses” who revealed that there was an improvement at nurses’ resilience post intervention of the in-service training-program.

Related to the correlation between studied variables, there was a highly positive correlation between human resources maintenance, career development, and organizational resilience. These results may be due to the enhancement of nurse managers’ knowledge about how to maintain human resource as it is considered one of the main manager’s roles in health care field; through providing nurses with proper compensation, benefits, maintain positive working conditions and giving nurses immediate and effective feedback. This result was inconsistent with *Mache et al., (2014)* about the “Exploring the impact of resilience, self-efficacy, optimism and organizational resources on work engagement”, who found that there was a slight correlation between resilience and human resources maintenance. But this result is supported by *Branicki, Steyer & Sullivan-Taylor, (2019)* titled in “Why resilience managers aren’t resilient, and what human resource management can do about it”, who reported that there was a positive correlation between human resource maintenance and resilience. Moreover, the result was in the line with *Wang, Shaoyu, Chen & Zhang, (2017)* about the “Main influencing factors of career development for nurses: a Meta-analysis” who revealed that career vision and improvement have a close relationship with human resource maintenance.

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Related to a linear regression of career development, the current study detected that, there was a high predictors effect of qualification, experience, and human resource management on career development. While there was a slight effect of gender and organizational resilience on career development. But age and marital status had no effect on career development. These results were inconsistent with *Kim, (2016)* study about the “Effect of career development and career plateau on career satisfaction of nurses” who revealed that age and education level had an impact on career development.

Regarding a linear regression model of organizational resilience, the present study revealed that there was a high predictors effect of qualification, experience, career development, and human resource maintenance on career development. While there was a slight effect of age on organizational resilience. But gender and marital status had no effect on organizational resilience. These results were irregular with the study conducted by *Mealer, Jones & Meek, (2017)* about “Factors affecting resilience and development of post-traumatic stress disorder in critical care nurses” who demonstrated that marital status and age had a high impact on organizational resilience.

VI. CONCLUSION

The present study concluded that there was a significant improvement in the overall nurse managers’ knowledge regarding human resource maintenance after attending the awareness sessions. Besides, the current study revealed that nurse managers’ human resource maintenance had a positive effect on staff nurses’ perception of career development and resilience. Also, there was a positive correlation between staff nurses’ perception of organizational resilience and career development.

VII. RECOMMENDATIONS

According to the results of the current study, the following recommendations are suggested:

- Hospital administration should allocate adequate equipment, supplies, and budgets to improve the concept of human resource maintenance to achieve effective nursing outcomes.
- Continuous education program for nurse managers regarding human resources maintenance.
- Assess environmental stressors and its effect on nurses’ perception of organizational resilience.
- Integration of topics about human resources maintenance in the nursing curriculums for different categories (diploma – technical- bachelor).
- Further research: The relationship between human resource maintenance and nurses’ job outcomes.

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