

Knowledge Management as a predictor of Organizational Resilience and Agility

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Abstract

Background: Organizations have faced significant changes since the beginning of the twenty-first century; these unpredictable changes, as well as today's competitive world, require organizations to have different competitive features such as resilience and agility, which are closely interrelated concepts with knowledge management and help organizations adapt quickly to environmental shifts and affect their performance survival. **Aim:** The present study aimed to explore the possibility of knowledge management as a predictor of organizational resilience and agility as reported by studied nursing staff. **Research Design:** An exploratory descriptive design was utilized. **Setting:** In-patient medical, surgical, and intensive care units were all included in the study at Benha University Hospital. **Subjects:** A simple random sample of 366 nursing staff were composed of 3 supervisors, 43 head nurses, and 320 staff nurses who had at least a one-year experience in the study setting, approved their participation in the study in the previously mentioned units, and who are available at the time of data collection. **Tools for data collection:** Three tools were used: Knowledge Management Questionnaire, Organizational Resilience Questionnaire, and Organizational Agility Questionnaire. **The results** revealed a moderate level of knowledge management (65.8 percent). In addition, nursing staff reported moderate levels of organizational resilience and agility (54.1 percent and 60.4 percent, respectively), and a highly positive statistically significant correlation between total knowledge management and total levels of organizational resilience and agility (p-value.01). **Conclusion:** The study concluded that knowledge management was a highly significant predictor of organizational resilience and agility. **Recommendations:** According to the findings of the current study, hospital administrators should support or adapt organizational culture in order to enable the successful implementation of knowledge management technologies and practices, as well as lead organizational efforts to change organizational culture in order to maintain organizational resilience and agility.

Keywords: Agility, Knowledge Management, Predictors, and Organizational Resilience.

Introduction

The COVID-19 pandemic was one of the deadliest calamities of the twentieth century, wreaking havoc on people all around the world. Every company must accept the new reality and adopt methods to efficiently manage the fast-changing environment. Knowledge management is a critical component in assisting organizations in being more resilient and agile in the face of a disaster (Chaudhuri & Manikoth, 2020).

Knowledge is regarded as a valuable resource for the development of individuals and organizations, and it is difficult, if not impossible, to deliver high-quality, cost-effective products and services without properly utilizing and managing this resource (Karamitri, Kitsios & Talias, 2020).

Knowledge is a significant asset and a valuable organizational resource. Personal judgment, values, competencies, capabilities, know-how, and techniques are combined (Mirzaie, Javanmard & Hasankhani, 2019).

Knowledge management encompasses all activities that make use of knowledge to achieve organizational goals and address environmental challenges. It is a necessary management activity for maintaining competitive advantage and enhancing organizational performance. (Mansouri, Singh & Khan, 2018). Furthermore, knowledge management enables organizations to broaden their capabilities by leveraging their employees' intelligence and skills (Rana & Goel, 2017).

Implementing knowledge strategies and procedures in an organization to increase the efficacy and efficiency of organizational processes, achieve knowledge strategy, and maintain organizational performance is referred to as knowledge management (Mahdi, Nassar & Almsafir, 2019). Moreover, it is an integrated process that collects, stores, and shares knowledge to prepare employees and pave the way for innovation. It is beneficial to present new ideas and learn from the experiences of others to ensure organizational sustainability (Al-Qatawneh, Al-Tarawneh & Al-Adaileh, 2019). Knowledge management processes make acquiring, sharing, and storing knowledge easier to improve one's position. These activities are equally crucial for responding effectively to unusual events such as disasters (Corfield & Paton, 2016 and Acar et al., 2017).

The process of recording and acquiring knowledge via interactions between employees, suppliers, customers, and consultants in order to discover and close knowledge gaps inside a company is known as knowledge acquisition. (Liu & Deng, 2015 and Dang & McKelvey, 2016). Knowledge acquisition enhances an organization's ability to acquire knowledge, which improves problem-solving and decision-making processes and helps it reach its goals. (Pandey, Dutta & Nayak, 2018).

The next step is *knowledge creation*, which entails building new competencies (knowledge, abilities, and skills) and expertise within the organization (Dzenopoljac et al., 2018). Following that, *the transfer and exchange of competencies (knowledge, talents, and skills) between individuals, groups, and organizations is known as knowledge sharing.* (Shujahat et al., 2019). Knowledge dissemination between parties and important activities like as problem-solving, decision-making, uniqueness, leadership, efficiency, and innovation may strengthen the organization's capabilities. (Sangari, Hosnavi & Zahedi, 2015 Henttonen, Kianto & Ritala, 2016).

Finally, knowledge storage is defined as the process of selecting and structuring people's knowledge and expertise, as well as the organization's plans, methods, and manuals, in order to save them in the repository.

(Ceptureanu et al., 2018). Knowledge storage facilitates the transformation of tacit knowledge into explicit knowledge, as well as the transformation of tacit knowledge into an organizational resource accessible through proper databases, networks, and information technology tools. (Sirorei & Fombad, 2019). Knowledge is acknowledged as a vital aspect in supporting businesses in enhancing their chances of survival by providing enough knowledge resources for improving resilience capabilities (Fani & Fard, 2015).

The concept of resilience, originating from the Latin *resilire* 'to leap back,' emerged in physics in the late 1960s and early 1970s. It refers to responding to situations and adapting to creating new solutions (Anel & Karl, 2018). The concept of resilience began to pervade the area of ecology in the mid-1880s. In addition, Weick (1993) defines resilience as a set of "coping skills" supported by "improvisation," while Kendra and Wachtendorf (2003) define resilience as a set of attitudes about desirable organizational activities as well as generating new capacities. Resilience in organizations refers to the ability to restore old processes while also generating new ones when the old ones are no longer feasible. (Suryaningtyas et al., 2019).

Organizational resilience (OR) is defined as the ability to foresee potential dangers, respond well to unexpected events, and learn from those events, resulting in a dynamic capability built to support organizational transformation. (Duchek, 2020). In times of crisis, an organization can absorb and adapt to a changing environment and survive and strengthen (ISO, 2017). It primarily entails continuously assessing determinants to identify weak points early on to implement appropriate security measures to strengthen them (Gonçalves et al., 2019).

According to Morales et al. (2019), resilient leadership, organizational culture, organizational and managerial capabilities, and adaptation capacity are critical driver factors related to the development of OR at the organizational level. *Resilient leadership highlights the significance of variables connected to the development of OR, which have a substantial impact on organizational*

culture and are aligned with the development of values, attitudes, technical capabilities, awareness, and compromise for people's progress.

A resilient organizational culture promotes the development of a sense of community among organizational members, which can aid in the survival of organizations. To build cultural resilience, we must implement an excellent culture. The ability to organize and manage operations directly related to the development of resilience is referred to as *adaptation capacity* (Chen, Xie & Liu, 2021).

To grow and succeed in today's uncertain and ambiguous environment, healthcare organizations must respond quickly to high-tech and environmental challenges (Cai et al., 2019). Organizational agility (OA) is a subset of intellectual agility and is described as the ability to transfer and retrieve information from one context to another. (Pereira et al., 2018). The organization has tried to present structures for achieving agility (Wahyono, 2018).

Organizational agility (OA) helps organization adapt with a constantly changing environment. It is described as the capacity to recognize and capture market opportunities by putting together the appropriate assets and knowledge. Furthermore, the organization can adapt to changes in its environment, which are frequently unexpected, and capitalize on those changes as opportunities for development and growth through quick and innovative responses (Marhraoui & El Manouar, 2018).

Sensing agility, decision-making agility, and acting agility are the three dimensions of organizational agility. Sensing agility is an organization's ability to inspect and monitor events and changes in the surrounding environment in real time (customer preferences changes, new competitor movements, new technology), which includes a variety of activities such as gaining access to information about events that show environmental change on the one hand, and getting rid of trivial information on the other, all while adhering to a set of rules. (Nafei, 2016).

Decision-making Agility is defined as the capacity to obtain, organize, and assess

important data from a variety of sources in order to recognize opportunities and risks, as well as generate action plans that guide resource reconfiguration and new competitive procedures. (Dubois, 2018).

Acting agility entails activities such as reassembling organizational resources and changing business processes based on work principles derived from decision-making in response to changes in the environment. It's the action stage, and it comprises putting any decisions you've made into action. The most important indicator of organizational agility is this stage. Whatever is viewed as a challenge must be corrected, and it has been accepted that this must occur at the decision-making level. (Park, 2011).

Indeed, the prevailing paradigms of the third millennium are resilience and agility, which are the best options for organizational survival. As a result of this thought, several measures to achieve the necessary level of organizational resilience and agility have been developed. (Ismail & Al-Assa'ad, 2020).

Significance of the Study:

The health care organizations critical situations such as the Covid-19 pandemic provide greater criticalities to organizations concerned about their survival and sustainability, which can be overcome, as much as possible, the ever-changing competitive and uncertain global environment. New ways or tactics are needed to effectively develop and transmit information, assist in the management of skills and expertise, and use it in a way that improves organizational resilience and agility. (Channa et al., 2021).

However, few studies have empirically investigated predictors of organizational resilience and agility at healthcare organizations. In addition, little empirical evidence exists about the role of knowledge management in maintaining and predicting healthcare organizational resilience and agility. To bridge this gap in the literature, the current study was carried out to explore the possibility of considering knowledge management as a predictor of organizational resilience and agility.

Aim of the Study

The present study aimed to explore the possibility of knowledge management as a predictor of organizational resilience and agility as reported by studied nursing staff.

Research Questions

The following questions were formulated to guide the research study:

1. What is the level of knowledge management at Benha University Hospital from the studied nursing staff's viewpoint?
2. What are the organizational resilience and agility levels of Benha University Hospital as reported by studied nursing staff?
3. Is knowledge management a significant predictor of organizational resilience and agility?

Subjects and Method

Research Design

An exploratory descriptive design was utilized for achieving the aim of the current study.

Study Setting

The study was executed in all In-patient medical, surgical, and intensive care units at Benha University Hospital, Qaluobyia Governorate, Egypt. It provides free and economic services to all patients with a wide range of ambulatory care services such as outpatient clinics, Pharmacy, Emergency, X-ray, Physiotherapy, and Paramedical Services as Dietary, Laundry, and Maintenance, equipped with 880 beds. The capacity of the medical building was 478, 384 beds in the surgical building and 18 beds in the ophthalmology building. The number of inpatient units included in the study was 43 units divided into; 14 medical, 11 intensive care units and, 18 surgical as the following; firstly, Medical 14 units divided into; General medicine "5 units", Cardiology "1 unit", Thoracic "2 units", Rheumatology "1 unit", Neurology and Psychiatric "2 units", Pediatric "3 units". Additionally, Intensive care 11 units divided into; General Intensive Care Unit (ICU) (1unit), Medium ICU(1unit), Emergency ICU (1unit), Hepatic ICU(1unit), Coronary Care Unit (CCU) (1unit), Chest ICU(1unit), Chest and Heart ICU (1unit), Pediatric ICU (1unit), Dialysis ICU (2units) and Psychiatric ICU (1unit). Finally, Surgical 18 units divided into; Emergency (ER) "5 units", Female surgery "2 units", Male surgery "2 units",

Urology "2 units", Ear, Nose, Throat (ENT) "1 unit", Orthopedic "2 units", Surgical Laparoscopy "1 unit", and Obstetric "2 units".

Subjects

Subject Size

The study subjects included a simple random sample of nursing staff who met inclusion criteria "having at least a one-year experience in the study setting, approved to participate and available at the time of data collection," whose total number was 1220.

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. The final number of study subjects included in the study was (366) that composed of 3 supervisors, 43 head nurses, and 320 staff nurses who distributed as the following: Medical departments (n=120), Surgical departments (n=126), and Intensive care units (n=120)

Study Variables

- Independent variable: knowledge management.
- Dependent variable: Organization resilience and agility.

Tools of Data Collection

Three tools were used to collect the data of this study:

Knowledge Management Questionnaire

It consisted of two parts:

Part I: Concerned with personal data of nursing staff such as; Code, age, gender, marital status, educational qualification levels, job position, and experience years.

Part II: It was developed by **Mafabi et al. (2012)** based on **Darroch (2003)**, and the researchers modified it to assess the level of organizational knowledge management from the nursing staff's viewpoint. It consisted of 19 items clustered into four domains: knowledge creation "4 items", knowledge acquisition "5 items", knowledge sharing "5 items", and knowledge storage "5 items".

Scoring System: Responses were graded on a five-point Likert scale ranging from strongly disagree to strongly agree (1-5), which was transformed into three points for presentation; nursing staff responses were scored as follows: agree (3), neutral (2), and disagree (1). Each domain's score was added up and converted to a percentage, which ranged from 19 to 57. The cut point was made at 60%

= 34. Accordingly, knowledge management level was considered "High level" if the percent $\geq 75\%$ that equals ≥ 43 points, "Moderate level" from 60% to less than 75% equal to 34 - < 43 points, and "Low level" < 60 % those equals to < 34 points.

Organizational Resilience Questionnaire

It was developed by **Morales et al. (2019)** to assess the level of organizational resilience from nursing staff viewpoints. It consisted of 36 items which classified into four domains which are: **Resilient leadership** "11" items divided into three subdomains as follows; Vision sharing "3" items, leadership "4" items, and management of change "4" items. **Organizational culture** "8" items are divided into two subdomains: Perspective network "5" items, and compromise and involvement "3" items. **Organizational capacity and management** "7" items are divided into two subdomains as follows: Functions and responsibilities "4" items, and innovation and creativity "3" items. Finally, **adaptation capacity** "10" items.

Scoring System: Responses of the studied nursing staff were measured by using a three-point Likert scale as follows: Always "3", sometimes "2" and never "1". After carefully reading and understanding, each member of the nursing staff selects one response. Finally, each domain's score is added up and converted to a percentage. The scores ranged from 36 to 108, with a cut point set at 60 percent = 65. In this respect, the level of organizational resilience from nursing staff viewpoints was categorized as the following: "High level" if the percent $\geq 75\%$ that equals ≥ 81 points, "Moderate level" from 60% to less than 75% equals 65 - < 81 points and "Low level" < 60 % those equals to < 65 points.

Organizational Agility Questionnaire

It was adapted from Jaworski and Kohli (1993) to assess the level of hospital agility from nursing staff viewpoints. It consisted of 15 items which distributed as three dimensions, namely: Sensing agility "3" items, decision-making agility "5" items, and acting agility "7" items.

Scoring System: The comments of nursing staff were assessed using a five-point Likert scale ranging from "1" strongly disagree to "5" strongly agree, which was transformed into three points as follows: Agree (3), Neutral

(2), and Disagree (1). (1). Scores were calculated by adding and average the items in each dimension, and they varied from 15 to 45, with a 60 percent = 27 cut point. Accordingly, scores that reflect the level of organizational agility was categorized as the following: "High level" if the percent $\geq 75\%$ that equals ≥ 34 points, "Moderate level" from 60% to less than 75% equals 27 - < 34 points, and "Low level" < 60 % those equals to < 27 points.

Data Collection Procedure

Administrative Approval

Official permission was issued from the Dean of the Faculty of Nursing, Benha University, to the Director of Benha University Hospital to obtain the approval for data collection to conduct the current study.

Before beginning the study, researchers met with nursing staff to explain the nature and purpose of the study, as well as to inform them that participation in the study is completely optional, and that they can leave at any moment with no repercussions. The questionnaire papers were also coded to ensure complete confidentiality of the information received. The study will have no impact on the job and will not risk patient care. To acquire their agreement and participation, the time for data collection was set based on their opinions and workload. The findings and recommendations from the study will be forwarded to the hospital management for consideration.

Operational design

From the beginning of February through the end of July 2020, the operational design covers the planning phase, the pilot study, and the fieldwork.

Preparatory phase

The preparatory phase lasted three months, from the beginning of February to the end of April 2020, and included the following activities: Using journals, magazines, periodicals, textbooks, the internet, and theoretical understanding of the many parts of the study's issue, reviewing national and international related material. The material of the three tools was created, then translated into Arabic and tested for content validity and dependability.

Tool Reliability and Validity

The contents of the tools were designed and validated for content validity by five Nursing

Administration experts. The tools' validity was determined by evaluating their clarity, comprehensiveness, relevance, simplicity, and accuracy. Minor changes were made based on their suggestions, and the researchers generated the final validated version of the instruments. Cronbach's alpha coefficient was used to assess internal consistency. Cronbach's alphas for the Knowledge Management Questionnaire, Organizational Resilience Questionnaire, and Organizational Agility Questionnaire, respectively, were ($= 0.946, 0.907, \text{ and } 0.925$), indicating that the tools were internally consistent.

Pilot Study

The redesigned questions were piloted with 10% of the total subjects (37 nursing staff) in May 2020, prior to data collection, to test the clarity of the questionnaires and to assess the feasibility and usefulness of the suggested instruments. In addition, to estimate the amount of time it will take to complete the questionnaire sheets. There were no changes made, and nursing personnel that participated in the pilot trial were included in the main study.

Fieldwork

The actual data collection took about two months, from the beginning of June to the end of July 2020; the researchers collected data from nursing staff before and between their work hours according to their availability through three days per week (Saturday, Monday, and Wednesday) from 9.0 a.m. to 2.00 p.m. The average number of filled sheets was between 15 to 16.

The time required to fill the questionnaires sheet ranged from 10-15 minutes for the knowledge management questionnaire and organizational agility questionnaire, from 25-30 minutes for the organizational resilience questionnaire. The filled forms were collected in time and revised to check their completeness to avoid any missing data. Finally, the researchers thanked the participants for their cooperation.

Limitation of the Study

Sometimes, the data collection was interrupted and delayed due to workload and noise that required more time and effort.

Statistical analysis:

Before entering the data into the computer, it was double-checked. Data analysis and tabulation were performed using the Statistical

Package for Social Sciences (SPSS version 26.0). Demographic characteristics were described using frequency and percentages. For measuring variables under the investigation, arithmetic mean and standard deviation (SD) were used as central tendency and dispersion measures, respectively. The Pearson correlation coefficients (r) analysis was performed to examine the nature of the link between the research variables, while one-way analysis of variance (ANOVA) (F) test was employed to compare the mean scores. R linear regression and Tukey test were used to assess the analytical statistics.

Results

Table 1: Indicates that the mean age of nursing staff was 38.34 ± 9.23 , slightly more than two-fifth of them (41.0%) were aged between 30-40 years, and the highest percentage of them (90.2% & 77.0%) were female and married, respectively. Nearly half of nursing staff (49.2%) had an Associated Degree of Nursing regarding educational qualification levels. For years of hospital working experience, the total mean was 7.98 ± 4.60 , and 45.9% of them had 5-10 years of experience. Regarding job positions, the highest percentage of nursing staff (87.5%) worked as staff nurses while 0.8% worked as supervisor nurses.

It is evident from **Figure (1)** that the knowledge management level was moderate (65.8%). Moreover, the level of organizational resilience and agility were moderate (54.1%, 60.4%), respectively, as reported by nursing staff.

Table 2: Shows that the total mean score and standard deviation of knowledge management among nursing staff was 39.75 ± 4.76 , and the highest mean score of knowledge management domain was 12.52 ± 2.12 related to knowledge sharing. In contrast, the lowest mean score was 9.01 ± 2.61 related to knowledge acquisition. Concerning organizational resilience, the total mean score was 66.58 ± 8.29 , and the highest mean score was related to the adaptation capacity domain 21.21 ± 6.23 . Otherwise, the lowest mean score was 17.40 ± 2.81 related to resilient leadership. Regarding organizational agility, the total mean score was 26.98 ± 5.36 , and the highest mean score was 6.48 ± 2.14 related to the sensing agility domain, while the lowest mean score was 7.61 ± 2.17 related to decision-making agility.

Table 3: Illustrates that there was a highly positive statistically significant correlation between total knowledge management level and total levels of organizational resilience and agility at (p-value <0.01).

Figure 2: Scatter plot of the correlation between total level of knowledge management and total level of organizational resilience showed a linear positive direct correlation.

Table 4, 5, and 6: From the linear regression analysis results, we can predict organizational resilience from the total score of knowledge management. The following equation can be formulated: Organizational resilience = (44.918+0.545).

It is evident that knowledge management was a highly significant predictor of organizational resilience at (p-value <0.01),

F (39.563), R2 value was (0.098), the adjusted R2 value of (.096).

Figure 3: Scatter plot of the correlation between total level of knowledge management and total level of organizational agility showed a linear positive direct correlation

Table 7, 8, and 9: From the linear regression analysis results, we can predict the organizational agility from the total score of knowledge management. The following equation can be formulated; Organizational agility = (16.478+0.264).

It is evident that knowledge management was a highly significant predictor of organizational agility at (p-value <0.01), **F (21.200), R2 value was (0.055), the adjusted R2 value of (0.052).**

Table 1. Frequency distribution of personal data of studied nursing staff (n=366)

Personal data	No.	%
Age (years)		
- < 30	121	33.0
- 30- 40	150	41.0
- > 40	95	26.0
Mean ± SD	38.34 ± 9.23	
Gender		
- Male	36	9.8
- Female	330	90.2
Marital Status		
- Married	282	77.0
- Un-married	84	23.0
Educational qualification levels		
- Nursing Diploma	90	24.6
- Associated Degree of Nursing	180	49.2
- Bachelor of Nursing Science	86	23.5
- Other post-graduate qualifications	10	2.7
Experience years		
- < 5	65	17.8
- 5- 10	168	45.9
- > 10	133	36.3
Mean ± SD	7.98 ± 4.60	
Job position		
-Supervisor nurse	3	0.8
-Head nurse	43	11.7
-Staff nurse	320	87.5

SD: Standard Deviation

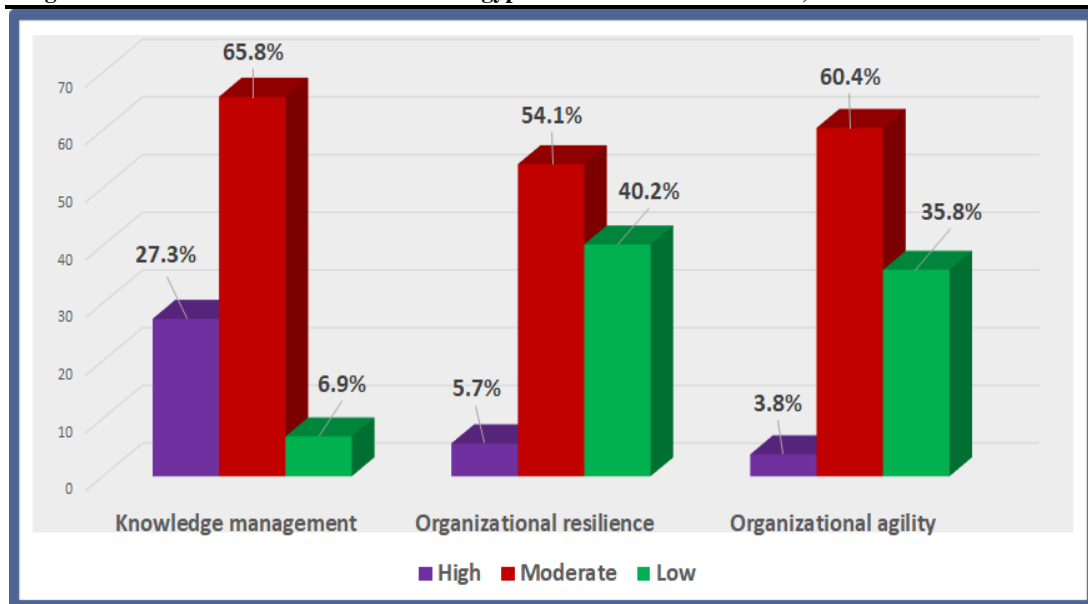


Figure 1. Comparison of levels of knowledge management, organizational resilience, and agility at Benha University Hospital as reported by study subjects

Table 2. Mean and standard deviation of knowledge management, organizational resilience, and agility at Benha University Hospital as reported by study subjects (n=366)

Variables	Maximum Score	Mean±SD	Mean%
- Knowledge acquisition	15	9.01±2.61	60.0
- Knowledge creation	12	7.63±2.56	63.6
- Knowledge sharing	15	12.52±2.12	83.5
- Knowledge storage	15	10.59±1.95	70.6
Total Knowledge management level	57	39.75±4.76	
- Resilient leadership	33	17.40±2.81	52.7
- Organizational culture	24	14.20±2.37	59.2
- Organizational capacity and management	21	13.75±3.46	65.5
- Adaptation capacity	30	21.21±6.23	70.4
Total organizational resilience level	108	66.58±8.29	
- Sensing Agility	9	6.48±2.14	72.0
- Decision-making agility	15	7.61±2.17	50.7
- Acting Agility	21	12.89±3.15	61.4
Total organizational agility level	45	26.98±5.36	

SD: Standard Deviation

Table 3. Correlation between knowledge management level, organizational resilience, and agility levels at Benha University Hospital as reported by study subjects (n=366)

Variables		Total organizational resilience	Total organizational agility
Total knowledge management	r	.313	.235
	P	.000**	.000**

**highly significant at $P < 0.01$ r: Pearson coefficient

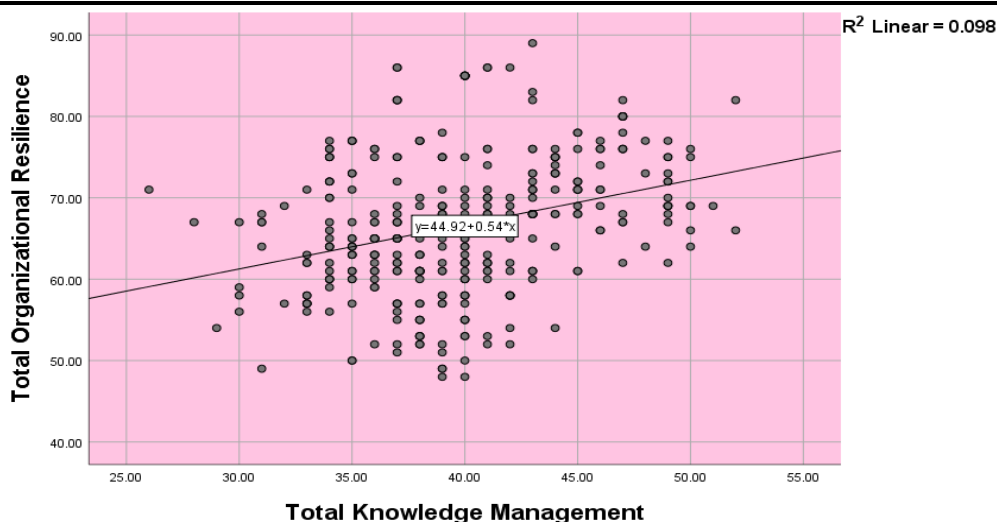


Figure 2. Scatter plot of the correlation between total knowledge management and organizational resilience

Table 4. Standardized and unstandardized simple regression coefficients of knowledge management predicting organizational resilience level (n=366)

Variables	Unstandardized Coefficients		Standardized Coefficients	t	P-value
	B	Std. Error	B		
(Constant)	44.918	3.469		12.949	.000
Total knowledge management	.545	.087	.313	6.290	.000

**highly significant at P<0.01 T: t-test value

a. Dependent Variable: Organizational resilience

b. Predictors: (constant) knowledge management

Table 5. Model summary of R square and adjusted R square test

Model	R	R Square (R2)	Adjusted R Square	Std. The error of the Estimate
1	.313a	.098	.096	7.88566

a. Predictors: (Constant): Total knowledge management level
 b. Dependent Variable: Total Organizational resilience level

Table (6): Regression and ANOVA test

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2460.183	1	2460.183	39.563	.000b
	Residual	22634.858	364	62.184		
	Total	25095.041	365			

a. Predictors: (Constant): Total knowledge management level
 b. Dependent Variable: Total Organizational resilience level

F: ANOVA

**highly significant at P<0.01

DF: degree of freedom



Figure 3. Scatter plot of the correlation between total knowledge management and organizational agility

Table 7. Standardized and unstandardized simple regression coefficients of knowledge management predicting organizational agility level (n=366)

Variables	Unstandardized Coefficients		Standardized Coefficients	t	P-value
	B	Std. Error	B		
(Constant)	16.478	2.298		7.171	.000
Total knowledge management	.264	.057	.235	4.604	.000

**highly significant at P<0.01 T: t-test value

a. Dependent Variable: Organizational Agility

b. Predictor: (constant): Knowledge Management

Table 8. Model summary of R square and adjusted R square test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	578.527	1	578.527	21.200	.000 b
	Residual	9933.375	364	27.289		
	Total	10511.902	365			

a. Predictor: (Constant): Total Knowledge Management level
 b. Dependent Variable: Total Organizational Agility level

Table 9. Regression and ANOVA test

Model	R	R Square(R2)	Adjusted R Square	Std. The error of the Estimate
1	.235a	.055	.052	5.22393

a. Predictors: (Constant): Total Knowledge Management level
 b. Dependent Variable: Total Organizational Agility level

F: ANOVA

**highly significant at P<0.01

df: degree of freedom

Discussion

The most critical process in organizations nowadays is the process of managing knowledge. Adequate knowledge greatly influences healthcare sector management. It is the ability to create, share, utilize and manage knowledge and information available in the organization (**Sharma, 2019**). Resilience is the ability of an organization to adapt and recover, enabling its survival and sustainable development. Agility also plays a vital role in the operational performance to meet the dynamic demands of Covid-19 hospitals (**Stachowiak & Pawlyszyn, 2021**).

The present study aimed to explore the possibility of considering knowledge management as a significant predictor of organizational resilience and agility from the viewpoint of nursing staff. To accomplish the aim of the study and answer the research questions, the research findings will be illustrated as:

Regarding knowledge management level, the findings of the study result revealed that knowledge management level at Benha University Hospital, as reported by slightly less than two-thirds of the studied nursing staff, was moderate. This result might be due to scientific collaborations between Benha University Hospital, Faculty of Medicine, and Faculty of Nursing, which involve the hospital in their educational activities such as annual scientific conferences, workshops, seminars, and training services which facilitate various aspects of managing knowledge such as creating, communicating, and sharing knowledge. In addition, the hospital itself has a "Continuous Learning and Training Unit" for regularly providing learning and training services for the hospital staff.

This result is in the same line with **Anvari et al. (2011)**, who reported that the average score of KM was moderate. On the contrary to the current study findings, the previous study conducted by **Sharifian et al. (2015)** indicated that knowledge management processes in teaching hospitals of Shiraz University were poor. **Mirghafori (2010)**, claimed that the Knowledge management processes in Yazd healthcare centers were

lower than the average. Also, **Chen (2008)**, stated that the knowledge management process in the Healthcare centers of Hong Kong is lower than the average. Similar findings were also reported by **Sharma and Mahajan (2014)**, through their study, found that knowledge management was not officially implemented.

This part of the discussion answered the 1st research question; what is the level of knowledge management at Benha University Hospital from the studied nursing staff's viewpoint?

Regarding organizational resilience level, the present study results showed that the level of organizational resilience at Benha University Hospital, as reported by more than half of the studied sample, was moderate. This result can be interpreted as Benha University Hospital being prepared to be accredited and has a Crises Management Unit and Quality Management Unit; the teams of those units conduct activities that help maintain hospital resilience. Moreover, the geographical location of Benha University Hospital in the capital of the kalubyea governorate makes it a prominent center for providing medical care services. Since the global COVID-19 pandemic, the hospital had converted to an isolation hospital for infected cases. So, the hospital management had to restructure itself to deal with the critical situation positively.

This opinion is supported by **Channa et al. (2019)**, who stated that the COVID-19 pandemic forces organizations to perform special efforts to strengthen their resilience, fight against it and turn the difficulties caused by the pandemic into opportunities. This result was in similarity with the result of the study conducted by **Elsayed and Abdel-Ghani (2020)**, they assessed the level of organizational resilience in Mansoura Oncology Center, and they found that the resilience level was high. The previous findings were dissimilar to the study of **El-Gilany. et al. (2020)**, reported that the resilience domain was low.

Regarding organization agility level, the present study results demonstrated that the level of organizational resilience at Benha University Hospital, as reported by more than

half of the studied sample, was moderate. This result may be interpreted by efforts of the hospital management to maintain resilience, deal with the COVID-19 pandemic, and quickly adapt to environmental demands, such as making modifications to the existing work practices and processes.

This result follows the study conducted by Al-Taweel and **Al-Taweel and Al-Hawary (2021)**, who indicated that the general level of agility of the corporations was moderate. Also, these results were supported by findings of some previous studies performed by **Khaddam (2020) and Clauss et al. (2021)**.

This part of the discussion answered the 2nd research question; what are the organizational resilience and agility levels of Benha University Hospital as reported by studied nursing staff?

The current study findings illustrated a highly positive statistically significant correlation between total knowledge management level and total levels of organizational resilience and agility. It also confirmed that knowledge management was a highly significant predictor of organizational resilience and agility. From the researchers' viewpoint, this result may be interpreted by acquiring, sharing, and applying the new knowledge to create the right environment to encourage staff to participate in proactive, adaptive, resilience, and agility activities.

This was supported by **Al Mahamid (2018)**, who stated that knowledge management processes enable organizations to develop various valuable, rare, imitable capabilities and allow organizations to arrange and reorganize their processes and activities to respond to threats transform into opportunities.

In unity with the studies conducted by **Fani & Fard (2015) and Umoh & Amah (2013)**, this result showed a positive and significant relationship between knowledge management and organizational resilience. Also, this result comes in line with, **Mafabi et al. (2012)**, who found a significant positive correlation between knowledge management and organizational resilience.

Additionally, the study conducted by **Sharma (2019)**, stated that knowledge

management positively influenced organizational resilience in the healthcare sector in Northern India. **Fani, Fard, and Yakhkeshi (2017)**, showed a significant relationship between knowledge management and organizational resilience in the same line also, that the regression of organizational resilience on knowledge management indicated that knowledge management has considerable predictive power of 36.4 percent ($AR^2 = 0.364$, $p < 0.05$).

Regarding the relationship between knowledge management and organizational agility, the current study's result follows the study conducted by Salavati and **Reshadat (2014)**, which indicated a significant positive relationship between knowledge management and organizational agility. In the same line, the study conducted by **Mehdibeigia, Dehghanib, and Yaghoubi (2016)**, showed that knowledge management positively affects organizational agility.

This discussion part answered the 3rd research question; is knowledge management a significant predictor of organizational resilience and agility?

Conclusions

Based on the current study's findings, it was concluded that slightly less than two-thirds of nursing staff reported that the knowledge management level was moderate. Also, more than half of them reported that the organization's resilience and agility levels were moderate. There was a highly positive statistically significant correlation between total knowledge management level and total levels of organizational resilience and agility. Otherwise, the knowledge management was high significantly Predictor of organizational resilience and agility

Recommendations

The following suggestions can be made based on the findings of the current study:

- 1- Hospital administration should support and adopt the organizational culture to successfully implement knowledge management technologies and practices.

- 2- Hospital administration should invest in knowledge management infrastructure and technologies.
- 3- Hospital administration should strengthen nurses' knowledge management practices in everyday activities.
- 4- Hospital administration should include organizational resilience training in their daily practices.
- 5- Conducting organizational efforts for organizational culture change to maintain organizational resilience and agility.
- 6- Developing and promoting trust among the organization's employees.
- 7- Improving self-awareness and ensuring that organizational tactics can generate resilience to deal with day-to-day issues.
- 8- To develop a proficient workforce capable of dealing with unforeseen disruptive events, continuous technical training is essential.
- 9- Creating a unique resilience framework relies on future uncertainty, threats and stresses, livelihood, and governance.
- 10- To maintain agile organizations, administrations must develop specialist teams and hold seminars and lectures in order to achieve speed, flexibility, reactivity, and adaptability.
- 11- For the development of organizational agility, management commitment and support are essential.

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Conflict of Interest

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