

Using the Internet as a modern communications technology tool and its role in improving health services

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Abstract:

This study aims to reveal the role of communication technology in improving the health service via the Internet, which is the most widely, used modern means of communication. Our reliance on the descriptive approach widely used in social and human research. We relied on data collection on a sample of health service providers. Results: The Internet contributes to improving the health service. It also drew the attention of a large number of patients in the hospital through the patients' communication with the health institution via the websites. The hospital carefully respects the privacy and data of patients in the process of communicating via the Internet.

Keywords: Health, Improving, Internet, Communication, Modern

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I- Introduction :

The world witnessed a real revolution in the field of information and communication technology during the last period. Where modern communication technologies are a reflection of the extent of progress and development in societies in the 21st century. With the integration of science with technology, there have been several changes in all aspects of economic, political and social life... etc. As well, modern telecommunications technology has had a significant impact on health, as we have found an evolution in ICT systems, which have brought distances closer by removing the factor (time-place). This is through the spread of diagnostic and telemedicine techniques through Internet platforms and networks. This poses a challenge to the privacy of patients' data on the one hand and their willingness to use modern communication technology on the other. Despite this, modern communication technology has contributed to the early detection of diseases and epidemics through modern digital imaging devices...etc. In addition, modern communication technology has contributed to reducing medical errors. Therefore, it has become imperative to introduce modern information and communication technology to hospital institutions. So that will witness its contribution to raising the level of quality of health services provided to patients, whether in the process of diagnosis or treatment or in coordination within the units and departments of hospital institutions in general.

1. The problem of studying:

- Does Internet use by hospital health providers contribute to improving patients' health services?

Sub-questions:

- Is the Internet one of the most widely used modern means of communication for health providers?
- Does Internet use contribute to improving patients' health services?

2. Hypotheses:

- The Internet is one of the most widely used modern means of communication for service providers in a health institution.
- The use of the Internet contributes to the improvement of the health services provided by the health institution to patients.

3. Objectives of the study:

- Disclosure of the availability of modern communication technology available in the health institution in general and in the public hospital institution in particular.
- The extent to which health service providers use the Internet as a modern means of communicating with the health institution in general and the hospital institution in particular.

- Identify ways to protect patient data by health service providers when using the Internet.

4. The importance of studying:

Highlighting the benefit of activating modern communication technology in health institutions and its impact on the health service, in addition to the importance of health services in general for society and health service providers, and the administrative and medical staff in particular.

And with the wide spread witnessed by modern communication technologies and the extent of their exploitation in saving time and effort, in addition to their role in improving the quality of health services provided to patients, increasing the efficiency of service providers in health institutions in hospitals, and their role in avoiding or reducing medical services. Errors in hospital institutions.

5. Previous studies:

- **The first study: Dr Mayank Trivedi, Dr Anuradha Joshi. 2008 (August)** “Computer and Internet Use by Health Care Professionals in a Rural Medical College in India,” The survey found that while computer use was high at the two institutions, computers were being used by clerical staff for writing official letters, rather than being used by health care professionals for academic purposes.
- **Second study: Kruse, R. L., and others (2012). Internet Use by Primary Care Patients : Where Is the Digital Divide ?** We examined how primary care patients use the Internet, particularly patient characteristics associated with Internet use. **METHODS :** We surveyed patients in five primary care clinic waiting rooms. Patients who had used email or the Internet in the past month (Internet users) were asked how often they used a computer for a variety of tasks. Participants who reported not using the Internet were asked about several potential barriers to Internet use. **RESULTS :** We approached 713 patients, and 638 (89.6%) completed questionnaires ; 499 (78%) were Internet users and 139(22%) were non-users. **CONCLUSIONS :** Internet use was high among our primary care patients.
- **The third study: Miller, E. A., & West, D. M. (2009). Where’s the Revolution? Digital Technology and Health Care in the Internet Age :** This research uses a national public opinion survey to examine the degree to which health care consumers communicate through conventional, face-to-face consultation, telemedicine, or digital technology, and the relationship between these means of communication and respondent characteristics. Results indicate that few people are using digital technology to get information, communicate with health personnel, or make online medical purchases.
- **Fourth study Baker, L., Wagner, T. H., Singer, S., Bundorf, M. K. (2003). :Use of the Internet and E-mail for Health Care Information Results From a National Survey:** Objectives To measure the extent of Internet use for health care among a representative

sample of the US population, to examine the prevalence of e-mail use for health care, and to examine the effects that Internet and e-mail use has on users' knowledge about health care matters and their use of the health care system. Results Approximately 40% of respondents with Internet access reported using the Internet to look for advice or information about health or health care in 2001. Six percent reported using e-mail to contact a physician or other health care professional.

- **Fifth study** :Venkatesh, V., Zhang, X., Sykes, T. A. (2011). "Doctors Do Too Little Technology": A Longitudinal Field Study of an Electronic Healthcare System Implementation A longitudinal study of an e-healthcare system implementation, with data gathered from doctors, paraprofessionals, administrative personnel, patients, and usage logs lent support to the hypotheses that: (1) ingroup and outgroup ties to doctors negatively affect use in all user groups; (2) ingroup and outgroup ties to paraprofessionals and administrative personnel positively affect use in both those groups, but have no effect on doctors' use; and (3) use contributes positively to patient satisfaction mediated by healthcare quality variables—i.e., technical quality, communication, interpersonal interactions, and time spent. This work contributes to the theory and practice related to the success of e-healthcare system use in particular, and information systems in general.

5. Define theoretical and practical concepts:

- **Communication technology:**

"According to UNESCO ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters". (K. Ratheeswari p45)

Communication technology is all modern communication means such as telephone, internet, etc. that are available in the hospital health institution and used by health service providers and which are used as one of the types of official means of communication in the organizational hierarchy in order to improve services.

- **Internet:**

The technical history of the internet can be briefly summarised. The internet began as a small, publicly owned computer network established in 1969 in the United States. This network expanded with the development of a shared computer language and set of protocols. E-mail (or network mail, as it was first called) was introduced in 1972. The term 'internet' emerged in 1974 as a simple abbreviation for internetworking between multiple computers. The 1980s and 1990s saw the internationalisation of internet development that had previously been centred mainly in the US. A key moment of change came when CERN, the European Organization for Nuclear Research, adopted IP for its internal network of computers in 1985, and opened its first external IP connections in 1989. (James Curran. p35)

The Internet used by the employees of the hospital institution, whether it is from the administration to the employees or vice versa. By e-mail and the like, in addition to the website, knowing that the health administration's use of the Internet is not limited to employees or patients, but rather with many institutions that have a relationship with the health institution.

- **Health:**

." To some people, health is a general sense of well-being, "feeling good." For others, health includes the expectations that they will not become ill or will be able to recover quickly. For most, health involves the ability to do what they want to do, with one's body not presenting difficulty in normal activities"(WINKELMAN, 2008, p. 14).

Health services provided to all individuals and patients within the hospital institution. These services depend on material and human resources, including workers, administrators, and medical staff, using modern means and methods of communication for patient care and care. While health service providers: mean all health users - employees - who deal with patients directly, such as nurses, management in terms of diagnosis - guidance - treatment and indirectly health service providers, pharmacist in clinic, data storage assistant, reception assistant ... etc.

II- Methods and Materials:

Study method:

Our study attempts to provide a clear and accurate visualization that allows us to know the use of the Internet in the health institution. In addition to. This type of study also aims to test the relationship between the independent variable and the dependent variable, within the limits of the problem and the research objectives to reach. This approach also allows us to describe and interpret the data we obtained from the research sample. They are health service providers - health service users -, which were processed using SPSS software to validate the two hypotheses.

- ✓ Fields of study: The study conducted within the scope of the study.
- ✓ The human domain: health service providers in a health institution.
- ✓ Time domain: This study was conducted during 2021.Spatial domain: at the Hospital Foundation for Ophthalmology in El - Oued State, Cancer Control Center.

The sample:

A sample of health service providers in the two former institutions (staff, administrators, doctors and nurses) selected due to overlapping tasks between administrative staff and medical staff in providing health services at the hospital institution. An intended sample of administrative and medical personnel represented by health service providers identified, and the questionnaire based on data collection, with 120 forms distributed and 100 forms retrieved, at an average of 83 %.

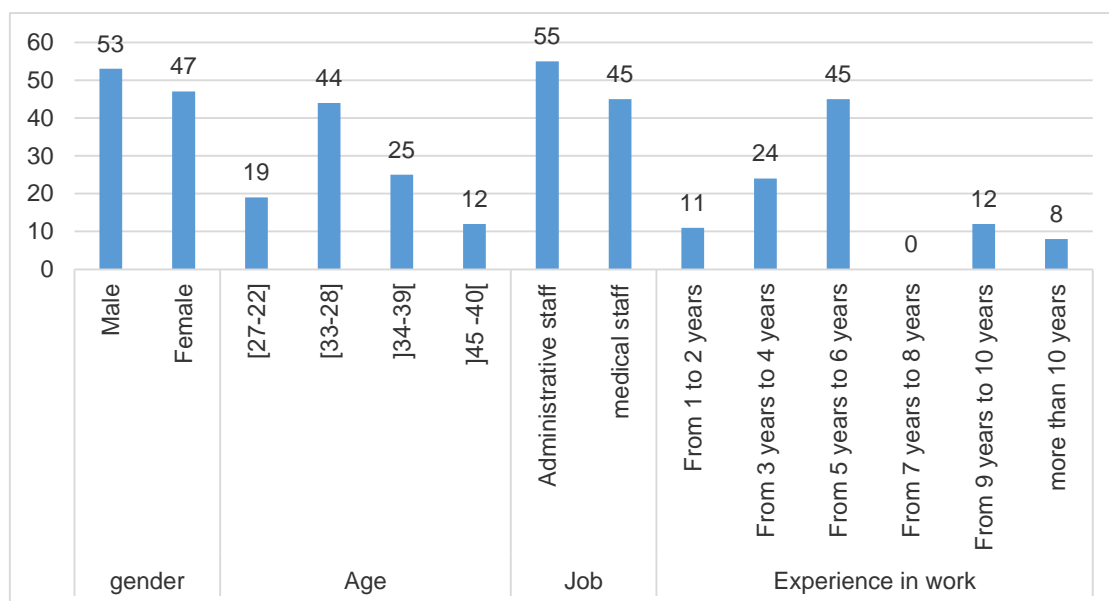
Data collection tools:

The questionnaire relied on as a basic tool for data collection, and the questionnaire divided according to the objectives and hypotheses of the study through closed questions, semi-open questions and open questions, allowing the respondents to answer freely and express their opinions as it helps in the analysis process.

The first axis: personal data. The second axis: the use of the Internet by health service providers. The third axis: The Internet contributes to improving the health service. The questionnaire distributed and collected in two phases, on March 1 to June, about 90 questionnaires. The second stage, in September, was about 10 questionnaires.

III- Results and discussion :

Figure No1.: Results of the personal data of the study sample:

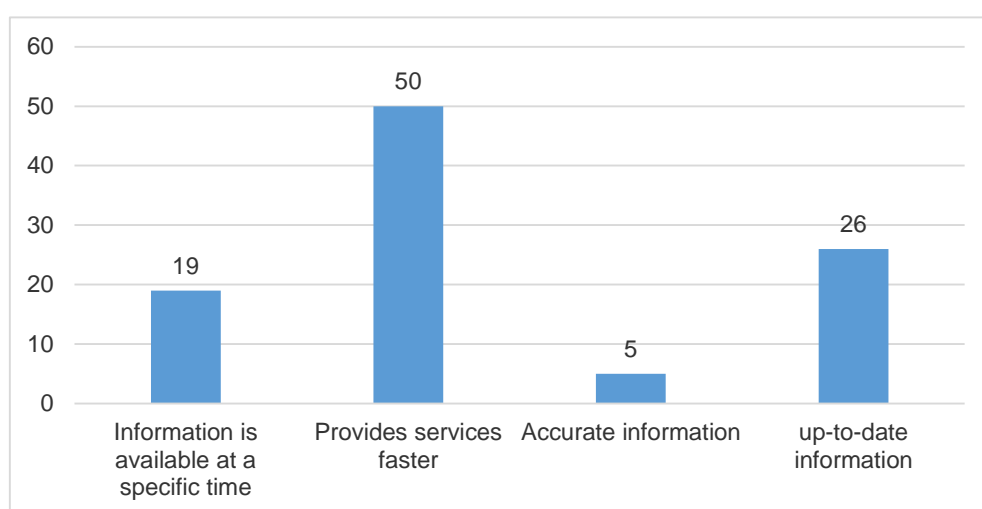


Source: prepared by the two researchers

The results of the field study by gender variable showed that the research sample amounted to 53% of the workers males compared to 47% females, and this percentage is close. As for the age groups, the highest percentage recorded in the 33-28 degree category, estimated at 44%. Followed by the percentage of the age group 34-39, which estimated at 25% of the total research sample. Then came the percentage of the age group 27-22, which estimated at 19% of the total research sample. In addition, the age group 40-45 and over by 12%. While the profession showed 55 administrative staff and 45 medical staff, it included a number of specializations, where we find a major

administrative assistant. Administrative Assistant - Office Assistant - Administrative - Reception and Orientation Assistant - Chief Administrative Accountant - Medical Engineering - Translator - Radio Operator - Media Technician - Specialist Doctor - Nurse - Physician Assistant - Pharmacist...etc. As for the experience of the research sample, the largest percentage was 45% for the category of 5 years to 6 years. While we find that 24% have of 3 years' work experience. While the category is less than 3 years. That is, from one to two years it was 11%. As for the 9-10 year category, it was 12%. In addition, 8% came for more than 10 years of professional experience. Although the two institutions are relatively recent. However, the experience of employees more for their work in other institutions previously.

Figure No2.: shows the reasons for using the Internet in the health institution.



Source: Prepared by the two researchers.

We note from the above figure that 50% of the respondents stated that one of the reasons for using the Internet in a health institution is that it provides faster services. While 5% of the research sample stated that, it provided accurate information. As for the Internet. Usage because it provides updated information showing that 26% according to the opinion of the research sample. This is because one of the characteristics of the Internet is the novelty in providing information. Hence, 19% of the reasons for using the Internet in a health institution are that they provide information at a specific time.

Table No. 1: Shows the process of holding meetings through the Internet (live broadcast).

Holding meetings	Frequency	percent
Yes	45	45 %
No	55	55 %

The total	100	100 %
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Source: Prepared by the two researchers.

The above table shows the viewpoint of the research sample in the process of conducting meetings via the Internet, where we found that 55% answered no, while 45% answered yes, this technique is still not common in organizations. Most of them prefer formal communication such as face-to-face meetings. Perhaps make the circumstances of the current period focus on the use of this technique.

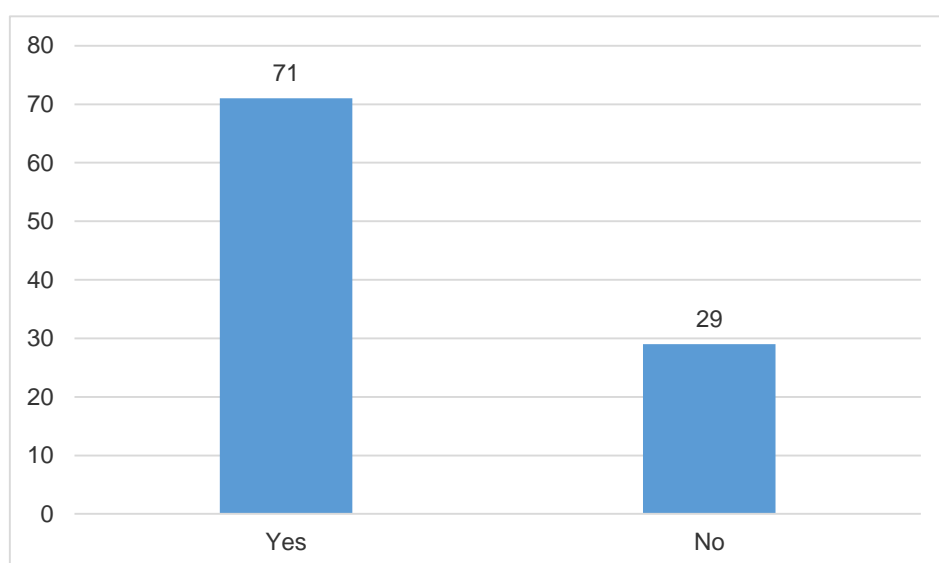
Table No. 2: Shows the problems of the internet used and available.

Internet problems	Frequency	Percent
Yes	47	47 %
NO	53	53 %
The total	100	100 %

Source: prepared by the two researchers.

The above table shows the opinion of the research sample's answers about the problems of the Internet used and available in the health institution. Where we find that 53% said yes that they find problems in using the Internet in the health institution. While we find that 47% do not have problems using the Internet. This is because the Internet characterized by its ease of use.

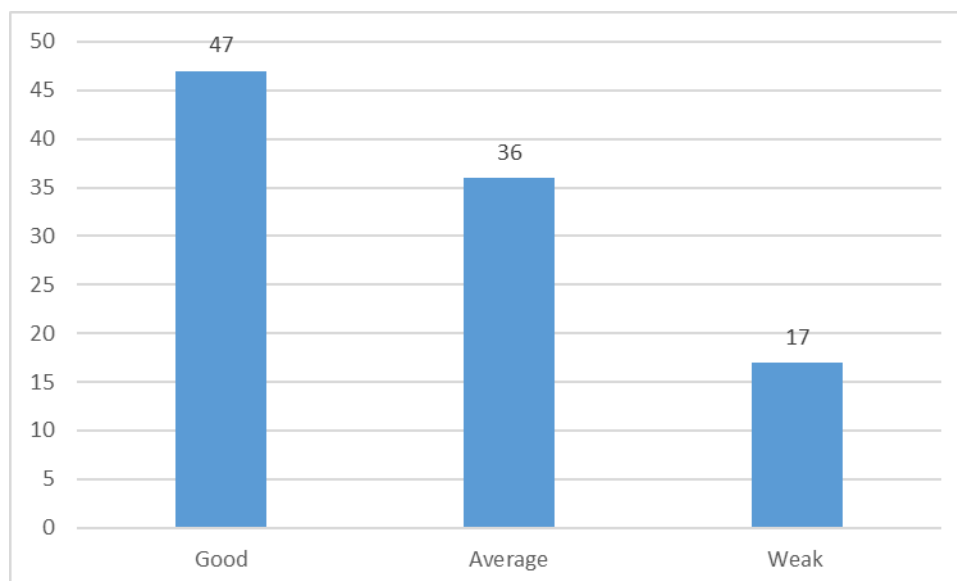
Figure No. 3: Shows the use of e-mail to communicate with workers in the establishment.



Source: Prepared by the two researchers.

We note from the above figure that the opinion of the research sample on the use of e-mail to communicate with workers, as we find that 71% said yes, while we find that 29% of the research sample do not use e-mail.

Figure No. 4: shows the evaluation of the level of the Internet.



Source: prepared by the two researchers.

We note from the above figure that the evaluation of the level of the Internet according to the answer of the research sample. Stated 47 % that it is good. While we find by 17% of the respondents from the research sample that the level of the Internet is weak. We find that the level of the Internet is an average of 36%. The availability of the Internet is due to the hospital institution's keenness to improve the health sector and provide material resources such as electronic devices to improve the performance of health service providers.

Table No. 3: Shows the conduct of training courses to use the means of modern communication technology.

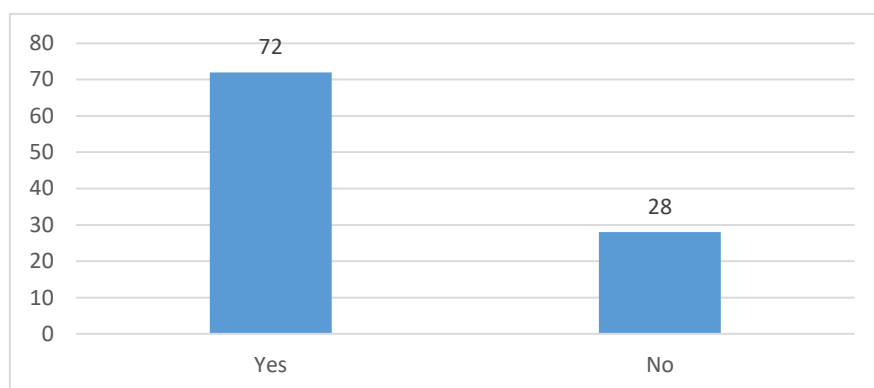
Conducting training courses	Frequency	Percent
Yes	40	40 %
No	60	60 %

The total	100	100 %
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Source: prepared by the two researchers.

The above table shows the opinion of the research sample members in conducting training courses in the health institution to use the means of modern communication technology. Where 60% of the research sample reported that they did not receive any training courses. While 40% of the research sample said that, they did not receive any training courses. The members of the research sample stated that they received training on easy-to-use technology, while this is due to the ease of use and technology as it is available in all institutions.

Figure No. 05: Shows whether the use of communication technology is a successful method in light of the Corona virus epidemic.



Source: prepared by the two researchers.

We note from the above figure that the opinion of the research sample and the means of communication technology is a successful method in running the institution in light of the Corona virus epidemic, where we find that 72% said yes, while 28% of the research sample answered saying no.

Table No. 4: Shows the availability of the site and the content provided to patients.

Response	Frequency	Percent	Content	Frequency	Percent
Yes	83	83 %	Performing operations and examinations	38	38 %
			Medical appointments, meetings	31	31%
NO	17	17 %	General information about prevention	14	14 %

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			No	17	17 %
The total	100	100 %	The total	100	100 %

Source: prepared by the two researchers.

It shows that the members of the research sample are aware of a website via social media of the health institution, where we find 83%, while we find that 17% are not aware of the website and its content 38 percentage, while information about preventions estimated at 14%, followed by medical appointments and meetings, by 31%. Perhaps publishing about the success of operations or information about examinations is due to reassure the patient.

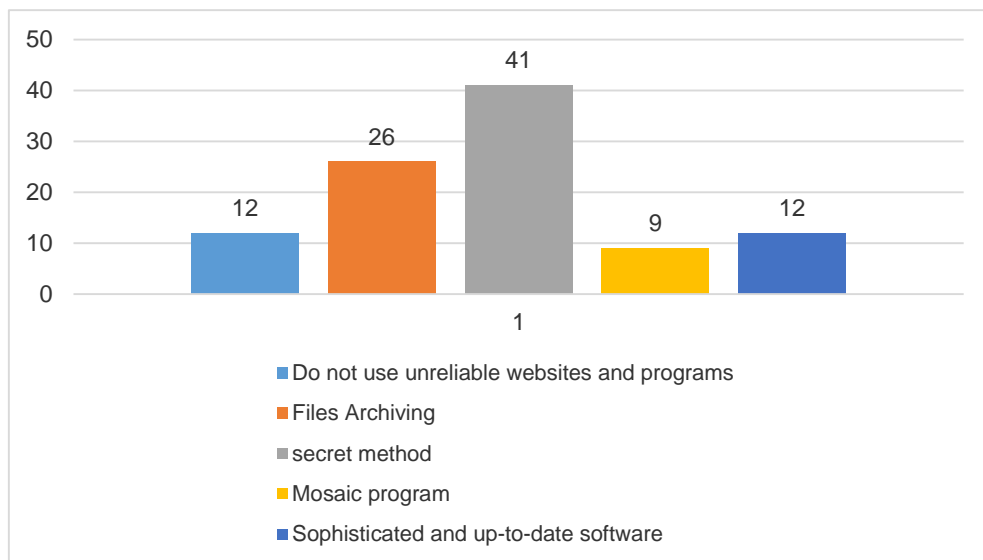
Table No. 5: Shows whether the administration receives inquiries from patients through means of communication.

Response	Frequency	Percent
E-mail	7	7 %
the phone	70	70 %
Website	23	23 %
The total	100	100 %

Source: Prepared by the two researchers.

We note from the above table that 70% of the research sample members use the phone as a means of communication with the administration, while we find 7% of the answers of the research sample patients inquire through e-mail, and 23% communicate through the website.

Figure No. 06: Shows ways to protect patients' information according to the opinion of the research sample.



Source: Prepared by the two researchers.

We note from the table above the sample members' methods and suggestions for protecting patient information. The confidential research sample suggested using patient information in particular. We found 41% while 9% of respondents suggested a special program for keeping patient information. Patient information known as (Mosaic). File archiving followed 26%. While 12% did not use untrusted sites and software. Moreover, 12% found that respondents rely on advanced patient software.

Results of the first hypothesis:

The use of the Internet, according to the opinion of the research sample, has several purposes, the most important of which is providing services that are 50% faster. This is because the Internet is one of its most prominent characteristics in the speed of information. It characterized as providing up-to-date information by 26%. As for the use of e-mail, the research sample reported that the Internet is one of the means of communication used by workers. Where the percentage estimated at 71%, especially since employees of the institution reported the presence of private mail. For administrative workers to facilitate communication between them. In addition, according to the Internet's assessment of the performance of tasks in the hospital, it is 47% good. This is because the two institutions are modern in addition to the interest in maintaining the Internet. This percentage considered good because you know that the interruption is not in the health sector, but in the whole world. While we find that, there is a lack of training. Of 60%, the research sample said that they did. Not receiving training on modern communication technology means. The research sample showed that the means of communication technology is one of the technical tools that contributed to improving the performance of the institution by 72% during the epidemic period. Where all state sector institutions used communication technology to communicate in order. To prevent and facilitate the elimination of problems. Workers in the current period. In light of the previous results,

we find that the Internet hypothesis is one of the most prevalent modern means of communication among service providers in the health institution.

The results of the second hypothesis:

Regarding the contribution of the Internet to improving, the health service provided to patients. The research sample learned that the health institution has a special website on the social network, with a rate of 83%. It is worth noting that the health institution receives patients' inquiries through the means of communication via the phone by 70%. While we find that, the institution receives inquiries, according to the opinion of the research sample, 23% through the communication sites. The health administration in the health institution also protects the patient's information, as the research sample suggested relying on confidentiality of information by 41%, while the members of the research sample suggested using the Mosaic program, and the research sample stated using modern programs to improve the service provided to patients in the health institution. Through the foregoing results, we find that the hypothesis about the contribution of the Internet to improving the service in the health institution provided to patients achieved through the results, as electronic means there is a use of communication technology that serves patients.

IV- Conclusion:

Based on the foregoing, we find the Internet as one of the necessary means of communication technology in the health institution, as it plays an important role in communication between employees. It contributed to improving communication between the departments of the health institution. Where it considered a link between employees with e-mail and telephone. In addition. The two institutions benefited from the advantages of the Internet in terms of speed in completing work and organizing administrative work. This is what distinguishes the Internet from other means of communication. As for its role in improving the service provided to patients in the health institution, we find that the health administration relies on the use of the telephone to communicate with patients. However, we find that it is currently working on improving its services by providing patients with all information about topics that serve their condition, and this may be because the means of telephone communication no longer meets the current needs of community members. In addition to the current era and with the emergence of new media and communication, means of communication have emerged that are more interactive. Therefore, the use of the phone considered resistance to change, as the human being by nature refuses to renew, and this does not include the Internet. Acceptance of the use of technological means where there is communication through the websites of the health institution.

Recommendations and suggestions:

- Health institutions conduct training courses and forums on the importance of modern technology in diagnosis and treatment, and not only on the administrative side.
- Providing all departments in the health institution with advanced communication networks.
- Exploiting digital in building and developing an information system to improve services in the health sector.

- Update hardware and technical software to protect data from penetration.
- Creating secure websites for health institutions that interact with patients and communicate with them.
- Relying on the electronic record (electronic medical file) to improve the health service provided to patients.
- Raising awareness and educating patients about the importance of communicating with doctors and health institutions through the Internet.

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