An approach to find dental and medical care via internet pages

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Abstract

Currently, due to easy access, when thinking of acquiring some details about anything, the first thing a human mind wants to use is internet pages. It is the first thing we use to know about our health, work, and overall life. It is critical to evaluate how patients are applying the internet for gaining knowledge about their diseases, follow up on cases and even acquire enough information on the drug leaflets. Hence, Sulaimani city in the north of Iraq is chosen to conduct this investigation that includes recording data on the awareness of our local patients to measure how much aware or interested are our local patients in using the internet to access or at least get some information about their dental and medical problems and even about their drug prescriptions. Depending on our work it seems that our local patients are mostly interested in checking their health problems online before meeting the physician, but a relatively lower number was practically using internet pages for such purposes. This might be due to the lack of patients' skills in using the internet or could be due to certain economic reasons. Also from the result it has been noticed that only 22% of patients who are suffering from chronic diseases were searching for their cases online, while, 78% of patients who face acute diseases were seeking their medical health through the internet.

Keywords: *Mobile Network Internet usage, smart devices, health care, medical information, pharmaceuticals.*

1. Introduction

The Internet is terminologically described as "a portmanteau of interconnected network" is the world's system of interconnected computer networks that uses the Internet protocol suite (TCP/IP) to link devices worldwide [1]. A long time ago many scientists anticipated the importance of the existence of an international network of information and at that time no technology existed which could create the internet. Fortunately, in the early last century (1930s – 1940s), visionary thinkers Paul Otlet and Vannevar Bush were establishing an equipped machinery that would act as searchable storage systems for media and books. Back to 60 years ago from now, in the history of mankind, a miracle discovery was achieved by MIT's J.C.R. Licklider who generalized the Intergalactic Network concept of computers. This resulted in the schematic for the internet for the first time in human records. Moving forward, the idea of packet switching was well expanded on by computer scientists. It was a method for transmitting electronic data and information effectively [2,3]. This later became a major success in and a great building block for the internet. This investigation and developments continued until the early 1980s where the modern internet was developed by the researchers who commenced to assemble the network of networks. This resulted in the birth of the first online world in 1990 and immediately became more developed and recognizable by Tim Berners-Lee who invented the World Wide Web which is an accessing tool to get data online in the form of websites and hyperlinks [4,5]. At present, connecting the modern internet to the present-day smart devices like the smartphone, laptop, disk top computer, tablet and others is

growing rapidly for many vital applications that makes the human life easier, simpler and helps carry out important work faster. In general, the internet network has supported many fields of life including developments in science, technology, higher education sectors, research, business, pharmaceutical industry investigations, as well as hospitalization, progress in modern medicine and the health care network. Typically, for serving medical health care, using information online is remarkably becoming an up-to-date subject and very important for the patients, as conventional methods of medical decision making which was conducted by the doctor for treating patients is not as interesting [6,7]. This role has been changed for patients because the patients themselves want to take up a substantial role in the management of their health and medical care [7]. This can be performed by easily accessing health related information via the internet. This can be information about their self-care, cause of diseases also cases of illness and types of drugs and pharmaceuticals that are prescribed. Emphatically, this brings a realistic opportunity for the patients to be sympathetic about their medical conditions. This modern style of health medical care in which the patients have sufficient health-related information from online is a significant element to define the degree of patients' involvement in health care [8,9,10]. Therefore, internet is an important resource for patients to receive information from. There are some research examples, for instance, based on an article published in 2008 which reported that 5% to 45% of patients in Scotland, Korea, Germany, Netherlands, Britain, Greece, and Cyprus were using the internet to seek information on their cases. Interestingly, of this population, people who used the internet used it approximately 56% for medical information. After 2014, internet users' research for medical health care reached 79% in American and European communities. Throughout the world, this rate dramatically increased over time. [11,12].

This work was conducted across several hospitals and medical health centers of Sulaimani city located in the north of Iraq. In these infirmary centers, a number of different patients suffering from several illnesses including epidemic diseases, heart disease, diabetes, blood pressure problems, oral and maxillofacial diseases such as dental caress, oral ulcers, periodontitis, gingivitis, Tempo mandibular joint disorder, malocclusions and dental anomalist were diagnosed or were receiving treatments. The aim of this investigation was to estimate the use of smart devices connected to the internet by the patient population in the hospitals and medical health centers of Sulaimani city, aimed to assess how well the patients were either aware of using online tools self-diagnose or for identifying the medical condition that they had or someone they knew had as well as to evaluate the extent to which patients collect more information online on types of medications and pharmaceuticals they were prescribed by physicians to treat their diseases or control their cases.

2. Methodology

2.1 Study design (Sample size estimation)

Study on internet usage for check-up of dental and medical care via online information was performed using a questionnaire which consisted of 8 yes / 8 no questions plus gender, age, address, mobile number, reason for coming to the hospital, type or types of pharmaceuticals used, how skillful are you with a smart device, etc. 100 questionnaires were distributed to the patients of seven health centers, and hospitals in Sulaimani city. The questions were filled by consecutive patients in the waiting rooms of seven infirmaries in the central district of Sulaimani. In each section of collecting information, a short speech for the patients was presented, attending the interview stating that it was not compulsory for the patients. The questionnaire asked the subject what was the reason for their visit to the

respective hospital, was there any chronic disease, was there any long-term use of pharmaceuticals, any allergy to any specific pharmaceutical or weather condition, whether they had ever looked-for health information on the Web or visited health-related web sites before visiting the doctor.

2.2 Questionnaire development

The methodology of this work depended on certain criteria, one of the first steps of this research was to understand the Web surfing patient as a systematic review, to investigate the patient's attitude towards health-related information on the internet. In the first component of this questionnaire, the interviewees were asked to provide their name (it was not compulsory), gender, age, education (it was not asked because many people do not like to be asked their level of education), Internet access, and Internet use. Internet use was defined as the use of the Internet for researching health relate topics such as what kind of chronic diseases they were suffering with, types of medications they had used. The second part of this questionnaire was related to the search of health and medical care related information online. Specifically, they were asked about the following:

1- The access to smart devices such as smart mobile, laptop, desktop, tablet iPad: Do you have skills in using the smart device available in the markets of Sulaimani city (question 5).

2- In particular, what smart device do you use, and multiple choices were provided as mobile, laptop, desktop, tablet IPad (question 6).

3- The access to the internet: do you have internet access to get information on online web page (question 7)

4- The skill in using the internet to get information on health care medical problem:
   A- Do you use the internet to get online information on oral and dental problems (question 8).
   B- Do you use the internet to get online information on medical problems such as heart diseases, diabetes, blood pressure (question 9).

3. Result and Discussion

3.1 General information about the patients

A hundred patients participated in filling the questionnaire, those participants had come to ten outpatient clinics of hospitals and health centers of Sulaimani city to meet with doctors. Out of a hundred patients, 98% filled the questionnaires, 1% unanswered and 1% missed. This means almost all the patients were highly cooperative in getting engaged. This may mean that the patients would believe the questionnaire could give them more interest and encouragement to go online and seek to follow their medical health and condition.

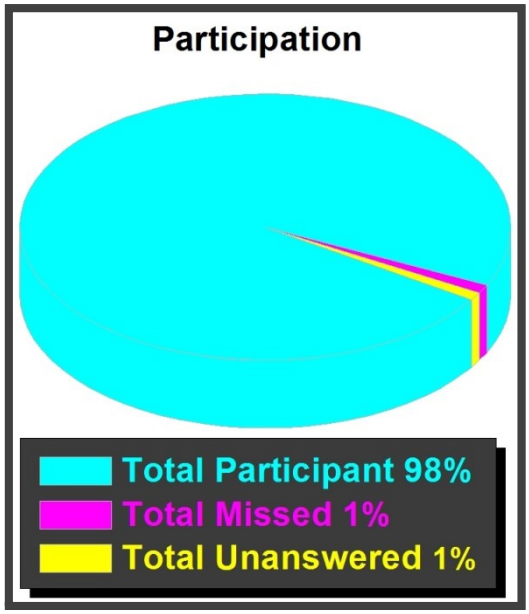

Figure.1: Percentage of Patients who filled the questionnaire

After data analysis from preliminary results, it was found that the rate of a females who took part in filling the questionnaire in this investigation was just over 50%, while the male proportion in this work was approximately 45% (more detail can be presented in Fig.2).

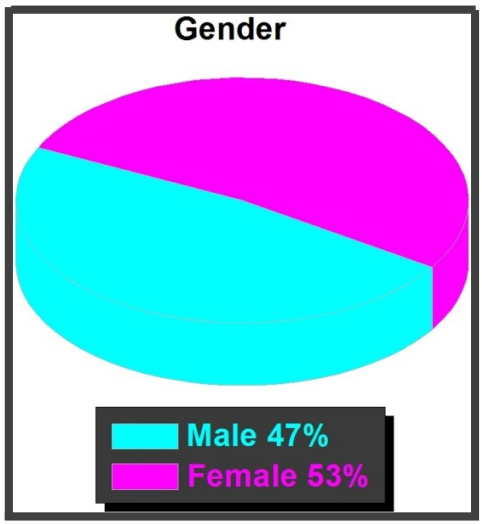

Figure.2: Rate of both genders involved in the questionnaire

According to the age range of patients, percentage of participants (including both genders) were 68% for age ranged from 20 to 40 years old, 16% for age ranged from 40 to 60 years, 13% for age range between 5 and 20 years and finally, the least and last age range is 3% for age ranged from 60 to 80-year-old, (information is given in pie chat of Fig.3). This indicates that the majority participation came from the age range between 20 and 40 years old.

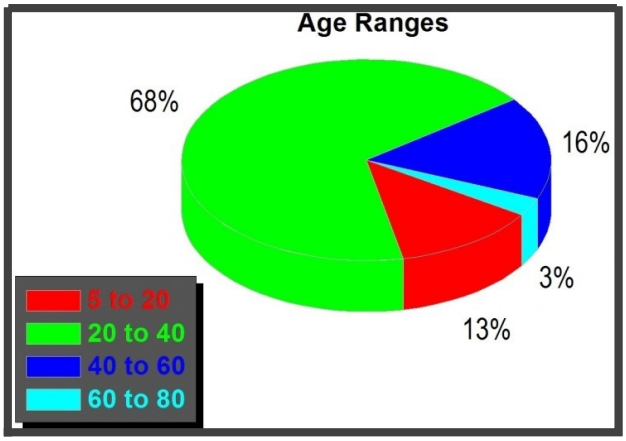

Figure.3: Age range % of patient participants

Figure 4 revealed the percentage of patients who had chronic diseases versus non-chronic ones. Around three-quarters of the participants in this study had no chronic disease. In contrast, only about 20% of the participants had any acute illness.

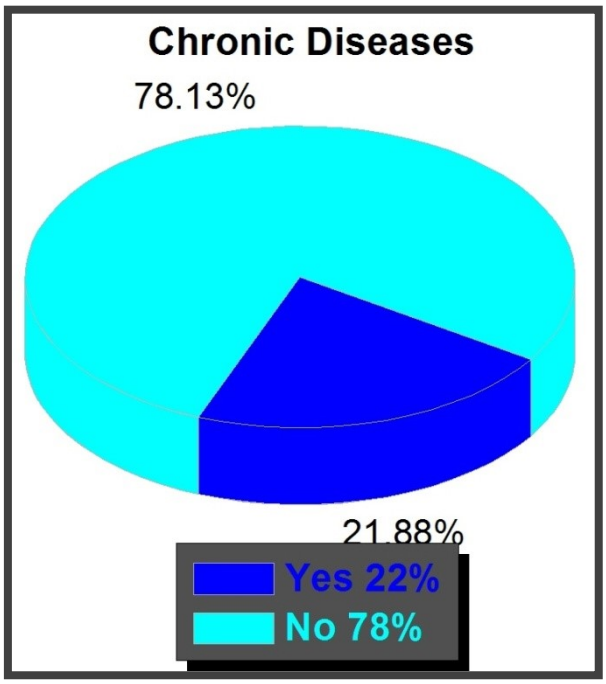

Figure.4: Patient% who are suffering from chronic diseases

3.2 Using pharmaceuticals

All information presented in this part of the study was calculated for the 100 patients who comprised of 99% of all patients. As the data is drawn in Fig.5 it is noticed that 38% answered as no pharmaceutical allergen and 44% had no chronic diseases, 23% responded yes to the pharmaceutical allergen and 31% gave yes to chronicle diseases. Under 10% gave no response to having an allergy to any specific pharmaceuticals, approximately 20% left blank

response to chronic diseases. Based on the overall calculation it appears that the total for pharmaceutical allergen was 70% and for chronic disease was 96%.

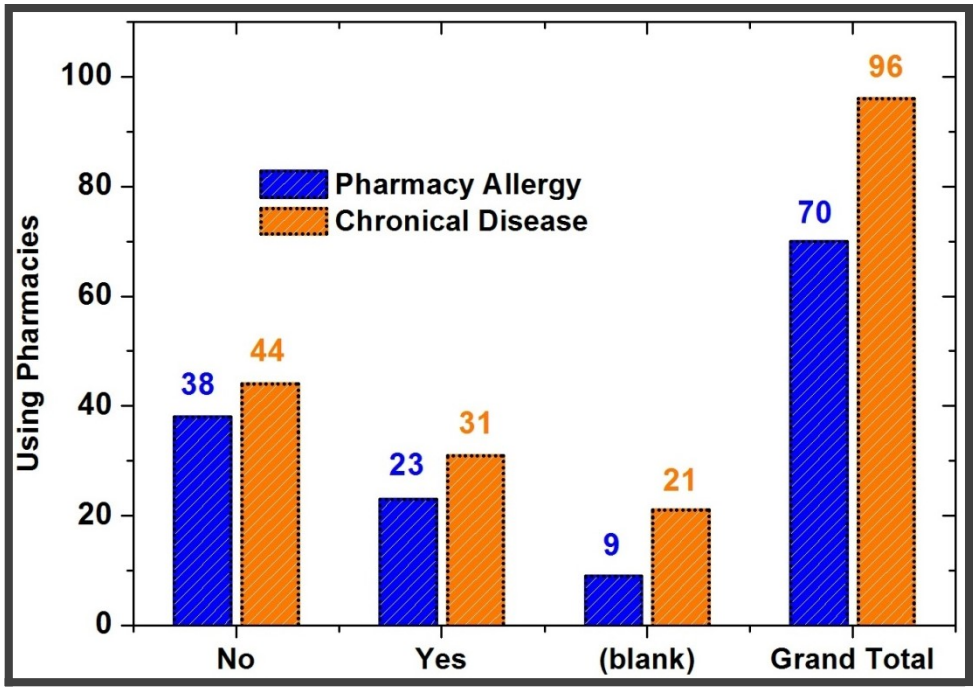

Figure.5: Action between using pharmaceuticals, chronic diseases, and pharmaceutical allergies.

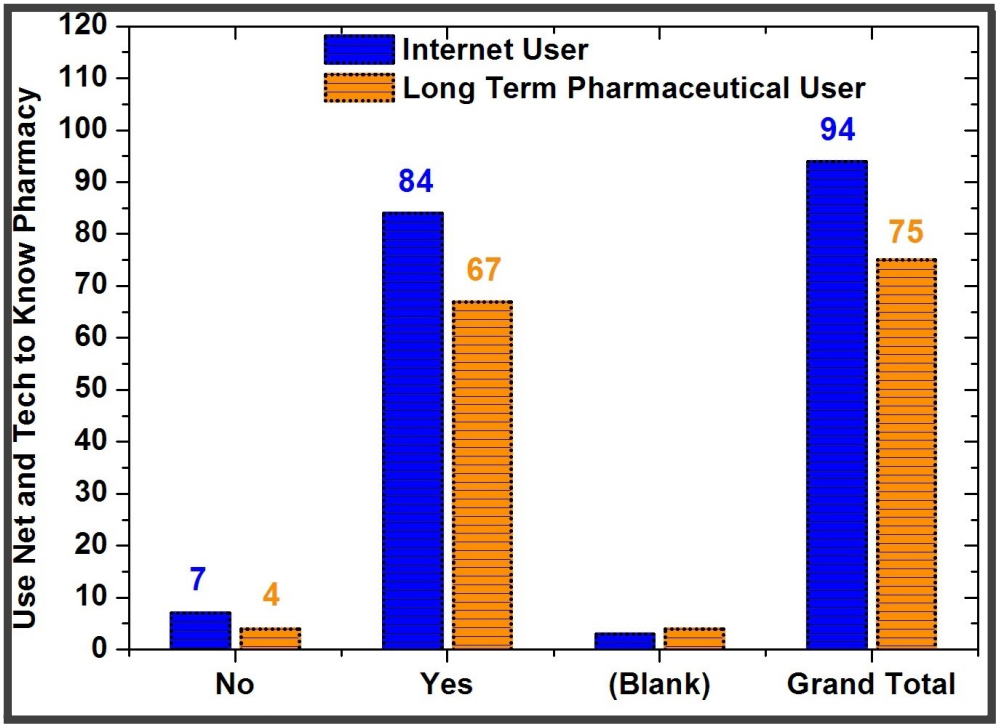

Figure.6: Percentage of internet technology users going online for long term pharmaceuticals.

In Figure 6, it appears that only under 7% of the patient's population were not internet users or not searching for information on the pharmaceuticals they had used for a long time. This might be due to low skill in using internet technology or could be due to the lack of interest, another reason for that is patients who were on long term medication might not be happy or could be stressed about knowing pharmaceutical negative side effects on their health. However, only 5% of the patients left an unanswered response to what extent they used the internet to follow their medications, more than 80% of the patients gave a yes response to internet users and 67% of that patients were seeking long term pharmaceuticals and medicine they had used.

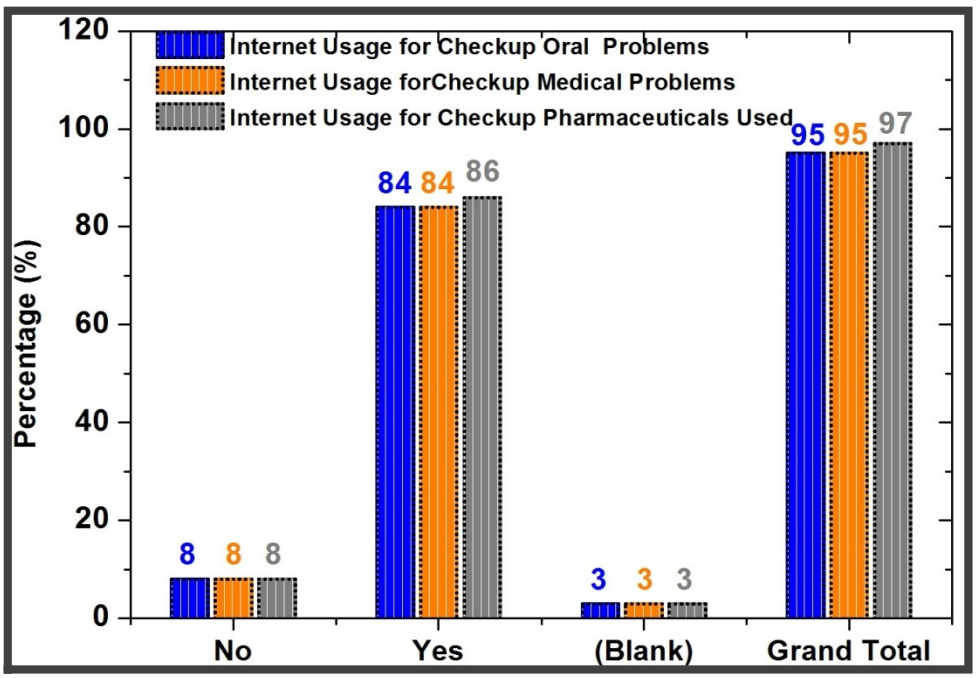

Figure.7: Classification of internet users searching for types of health problems (oral problem, medical problem, and pharmaceutical problem)

Based on data drawn in Figure 7 shows the percentage of no responses to the questions; whether they were using the internet for check-up oral, medical or pharmaceutical problems; was around 8%. Most of the patients that were over 80% were using the internet for checking up their oral and medical health problems as well as pharmaceuticals they had received.

Only 3% of the participants left the answer blank. This might be as a result of personal confidentiality.

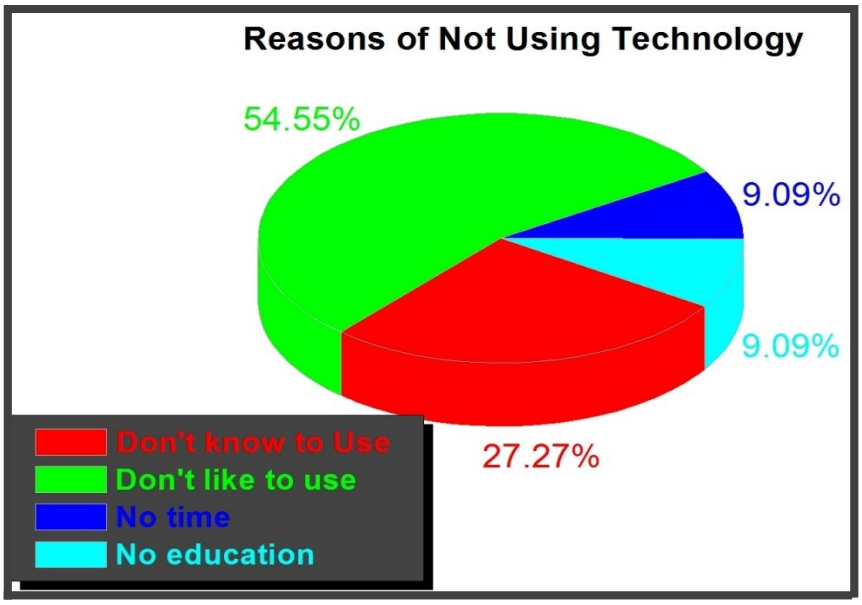

Figure.8: Indicates reasons for not using technology for checking up on medical health.

Figure 8 gives information on those patients who were not using the internet currently for seeking online medical and health care. Most of that population or group of the patients who did not use the internet is 55% of non-internet and technology user. The reason for this was because they did not like using it and because they might not be interested in using the internet for checking on their medical health, instead, they might prefer direct face to face meeting with a doctor. A second major group of the patients (27%) lacked the technical skills, that's why they did not use the internet. It is too technical, they lacked access, had friends go online for them, and anxiety would be other reasons. 9% of patients did not use the internet for the following reason: they pretended that they were short on time. Diagram 8 gives interesting information in which only 9% of the patient were not internet users, the reason was they were either uneducated or illiterate people that's why they never learned or gained knowledge or skill on how to use the technology to seek information online for medical and health intentions.

Hence, from the results we can see that the numbers are critical among the people who are participated in the survey. 54% of people said they don’t like to use technology devices this is lead people to misunderstood about using different kind pharmaceutical and this will lead to get side effect on their health. In addition, people 27.27% of people do not know how to use those devices in order to get information on health system, because in Kurdistan Iraq region there is not such online health system that would help their civilization to collect information and all possible data on diseases and their cure and possible symptoms of the disease. For example, creating a standard and easy web application with easy usability and accessibility in the way that all kind of people in different level of education could use the system, and search for a specific data that either related to health or the medicine before use.

In addition to online web, there is possibility to create mobile application for Android and IOS smartphones, people will be able to track and get information about any medical issues or questions, immediately as the smartphone nowadays is main the main part of human life [13,14].

4. Conclusions and Future work

Our finding was that most patients attempted to acquire health information online before initial appointments with the doctor. Age is a significant predictor of internet use overall, and people in the age ranged between 20 and 40 are most likely to seek online health information. Notably, the rate of women seeking information on health information by using the internet is almost 5% greater than that of men. Based on our work it appears that only 22% of patients who are suffering from chronic diseases were searching for their cases online, while, 78% of patients who face acute diseases were seeking their medical health through the internet. Also, more than half the percentage of the participants (67%) indicated to be long term pharmaceutical or medication users for treating their health conditions.

Our data confirms that most of the patients were using the internet to check up or search for oral diseases, receiving information on other medical health issues they had, and the medications or pharmaceuticals they had used. In contrast, only under 15% of the total number of patients were not checking the internet for their medicines used, oral and body problems.

Overall, it is noted that the rate of patients going online seeking for a check on their disease has increased since 1991, this is due to more education gained by the people of Sulaimani city and increased engagement of the public of Sulaimani with technology and smart devices. We have also concluded in this work that we have a minority of patients population who did not use internet technology to check up on their medical care and health, causes for those non-usages of internet are: 55% of this group of patients primarily were not using the internet because they did not like using internet to seek for health information, second population of non-internet usage was estimated to be 27%, this was as a result of lack of technical skill, last group of those patients that was figured to be 9% mentioned they were illiterate, cannot entirely use internet and technology to look for medical health.

In future study, this research would help many researchers to find out the many methodologies to increase people education regarding their health, and this is by providing recent technologies which available around the world and connect them with health system in Iraq.

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