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Barriers and facilitators of deploying health kiosk in Iran: A qualitative study

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Abstract:

INTRODUCTION: It is less than a decade in Iran that integrated health kiosks have been limitedly provided to public by private sector. Considering the significant benefits of them, this study aimed to identify the barriers and facilitators for deploying kiosks in Iran's formal health system in three phases, "design and construct, implement, and use."

MATERIALS AND METHODS: This was a qualitative study in Iran, and the data were collected through 20 semi-structured interviews with experts in 2019. Participants were selected by purposeful method with the most diversity in terms of background and work experience; the interview texts were coded in MAXQDA10 software and analyzed through framework analysis. Participants' viewpoint was used to verify the data and observers' review to confirm them.

RESULTS: The barriers for designing and constructing kiosks were identified in the form of two main themes: the overall structure of the country and the structure of the health system; the obstacles for implementing were categorized in one main theme, lack of sources; and the barriers to use were also fall into four themes related to people, policymakers, service providers, and designers of kiosks. The facilitators at construction and implementation phases included the overall structure of the country and the structure of health system. At the use stage, the facilitators related to people, health and insurance policymakers, and owners and constructers were identified.

CONCLUSION: It is possible to deploy health kiosks in the Iranian formal health system, although there are some time-consuming and costly barriers which can be overcome by the strengths and opportunities of the system.

Keywords:

Deploy, health kiosk, health policy, health technology, Iran

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Introduction

Health kiosks are a new medium to provide some services; they are used commonly and increasingly in many countries as an important pillar of health system to provide some goods and services cheaper, faster, and easier.[1-4] The health kiosks are multifunctional, computer-based systems[5] which are used by patients for self-screening by various tools[6] and manage their health conditions.[7-10] The new generation of health kiosks, called Integrated Kiosks, provide clinical services along with information to clients[11] such as some authorized drugs[12] and various disease-related services.[13-16]

Some positive effects of using health kiosks have been documented in studies, such as reducing waiting time of clients in health centers, promoting self-care, improving the health and satisfaction of individuals, as well as increasing access to services, decreasing the cost of health system, and reducing the human-resource constraints at the national level.[17,18] As a complement to GP program which sends results as online to GPs, these kiosks may reduce unnecessary patient referrals.[1] Linking these kiosks

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to households' smart health cards also provide more complete information about people's medical history, drug usage, etc.[4]

Despite increasing spread of kiosks over the world,[19] studies have reported various obstacles to the development and deployment of this technology in different countries. Lesselroth *et al*. in their study highlighted barriers to acceptance of kiosk results by providers,[20] another study examined the social and technical barriers in usage phase,[21] similarly, Nicholas *et al*. have mentioned the barriers that users face when using kiosks.[22]

In addition to identifying barriers, paying attention to existing facilitators can help develop, deploy, and welcome kiosks; Hsieh *et al*. have reviewed the feasibility of using kiosks in the official health system and outlined the obstacles and facilitators.[23] Courtney *et al*. stressed the importance of target group participation and teamwork in kiosk design.[24] Another study found that providing user-friendly and useful information and services within formal health system facilitates the kiosk's development.[25]

There have been some studies about the feasibility of the deployment of health kiosks in the world, but not in Iran, where the kiosks have been used for less than a decade.

Limited studies in Iran indicate that kiosks are not officially supervised and controlled and are used remarkably different from global form, only because of people's curiosity about their health indicators.[11] Hence, it is necessary to study in-depth how these kiosks are designed, deployed, and used in society and to gather information from the views and experiences of informants and users of the kiosks in a qualitative way to understand their experiences through collecting and analyzing the opinions and minds of individuals. Therefore, this study aims to explore the barriers and facilitators to deploy integrated health kiosks in Iran during the design and construction, implementation, and usage phases.

Materials and Methods

This was a qualitative, descriptive, exploratory, and applied study which has been conducted January to December 2019.

The population consisted of experts, importers, and users of health kiosks [Table 1] who had an active participation and at least 1 year experience in importing, monitoring, and decision-making on health kiosks.

Using purposive sampling method, the participants were selected with maximum variation in background and work experience, to represent different perspectives in this novelty issue in Iran.

Table 1: Demographic characteristics of research participants

Variable	*n* (%)
Age	
31-35	3 (15)
36-40	2 (10)
41-45	2 (10)
46-50	4 (20)
51-55	7 (35)
56-60	2 (10)
Gender	
Male	12 (60)
Female	8 (40)
Education level	
Diploma	1 (5)
Associate	-
Bachelor	2 (10)
MA	7 (35)
Ph.D.	10 (50)
Relevant experience (years)*	
6-10	3 (16.6)
11-15	1 (5.5)
16-20	4 (22.2)
21-25	7 (38.8)
26-30	3 (16.6)

*Two interviewees were health kiosks users

The sample included CEOs of kiosk software importer or manufacturer companies (n = 2), kiosk users (n = 2), medical equipment monitoring staff (n = 3), university assistants (n = 2), health education specialists (n = 2), laboratory science specialists (n = 2), pharmacist (n = 1), director of health network development (n = 1), clinical specialists (n = 3), and managers of healthcare institutions (n = 2).

The interviews continued until data saturation; it was achieved after 18 interviews. However, two further interviews were conducted to ensure that no further content was found.

A semi-structured interview was conducted to collect data, which designed based on reviewing the theoretical foundations. Researchers did not have any background, social status, and personal knowledge, or assumptions which influence the implementation of research and results.

In addition to demographic characteristics, in interview guidelines, the managerial, technical, economic, operational, process, and cultural barriers and facilitators were addressed to deploying kiosks in the country's formal health system. The questions were determined to be useful or understandable and there was no need to modify them.

Obtaining the consent of participants in due time, one of the researchers visited the individuals and interviewed them to collect data. Before start of each interview, the purpose of research was described, and after obtaining permission, interviews were recorded using a mobile phone. The interview with users was conducted at kiosk deployment location, while others were interviewed at their workplaces.

The data were collected through transcription of semi-structured and in-depth face-to-face interviews and addition of background and supplementary interview data such as memo writing and field notes. The interview duration varied between 17 and 68 min. As the data were collected and after a relatively long deliberation of researcher on interviews, the extracted expressions were coded inductively, line by line, in MAXQDA10 software. The texts and assigned codes were first reviewed by two faculty members to confirm the researcher's inference of data and then presented to participants for review, correction, and final approval.

The data were finally analyzed using framework analysis method which systematically classifies the data based on codes, classes, and themes. The recorded interviews and documents will be preserved for at least 2 years after research.

The validity and reliability of the study were examined by Lincoln and Guba (1985) method to increase the reliability of data. The validity and reliability of the present study originate from credibility, dependability, transferability, and confirmability. To increase credibility, the data and assigned codes were returned to participants (except two kiosk users) to modify and confirm as needed. Furthermore, two supervisors' corrective comments were used in designing and conducting interview guide, coding, analysis, and extraction of results.

The tri-angulation was used in data sources to make dependable the results; this means interviewing people with different work backgrounds in two different research environments. The continuous observation was also conducted throughout the interview, coding, and data analysis by putting together initial notes and extracted analyses. Regarding the confirmability, it was tried to carefully record all activities, and the assigned codes were approved by two professors as well as participants.

The research permission (code: IR. IUMS. REC.1397.480) was obtained from the Ethics Committee of Iran University of Medical Sciences. Before interview, the participants completed consent form. They were ensured that their opinions would be kept confidential, and the data analysis would be conducted anonymously. The researcher's contact number and e-mail address were given to participants to contact the researcher if they had a new opinion or were quitting the study. Due to a variety of questions and expertise and work experience of participants, they could ignore one or more questions and request that the next question be asked. Each interview was assigned a numeric code; thus, only the principal interviewer would identify the participants and their statements.

Results

In this study, 20 semi-structured interviews with experts were conducted. The highest frequency of interviewers was in the age group of 51–55 years and work experience of 20–25 years. Most of them were men and had more than a master degree in education. Table 1 shows the demographic characteristics of interviewers.

Barriers

At the end of data analysis and repeated review of extracted codes and categories, the barriers in the design and construction phase were identified in 103 codes, six categories, and two main themes. The barriers in the implement phase categorized in 58 codes, two categories, and a main theme, and the obstacles in the use phase grouped in 145 codes, eight categories, and four themes. Table 2 shows the details of barriers for the deployment of health kiosks in Iran.

Design and construction phase

Main theme 1: Obstacles to the overall structure of the country

Political and economic barriers

The limited financial resources and economic inefficiencies to provide essential facilities such as human resource, physical space, electricity, and internet coverage are some of the most fundamental infrastructure barriers, and the scientific, economic, and political sanctions make the situation worse.

"The budget is the second barrier… No one will invest unless the electricity, internet, and human resource costs and the profits are returned" (Participant 8).

Social and cultural barriers

The individual's decision-making, weaknesses in teamwork, and ineffective use of others' opinions are social problems in Iran. The conflicts of interest in structural health system are another obstacle.

"The problem is that decision-makers invest, monitor, tariff, and make profits themselves. Even complaints are only tracked through legal medicine organization, where judges have common interests with health policymakers. So, if the investment will be profitable, it will be easily approved and executed" (P5).

Table 2: Details of barriers for deployment of health kiosks in Iran

Stage	Theme	Category	Examples
Design and construction	Overall structure of country	Economic and political level	Lack of resources, economic inefficiency, lack of laws on decision-making and monitoring, sanctions, and import barriers
		Social and cultural level	Weak teamwork morale, inadequate communication between service providers and users, especially in public sector, conflict of interest between government and senior managers
	Internal structure of health system	Infrastructure	Failure to institutionalize some required infrastructures such as telemedicine, ranking system of services and referral, family physician, health e-card use plan, ambiguity in role and status of kiosks as well as their ownership and authority in country's official health system, conflicts in prioritizing health problems, inaccurate economic assessments in health field, lack of attention to investor returns, lack of needed databases to build kiosks such as informal drug list
		Attitude	Resistance of some health system officials in adopting and recognizing new medical technologies, incorrect understanding of health service integration, lack of serious desire to improve medical graduates' skills in new technologies
		Laws and regulations	Lack of medical guidelines, lack of legal requirements to enforce some of them, lack of necessary standards for data security, lack of data intellectual property, tariffing kiosk services, advertisement in kiosk, ambiguity in indicators of assessing efficiency and effectiveness due to different views on assessment of role of kiosks in health system
		Makers' knowledge and skills	Inadequate understanding of makers of health field, variety of services offered in kiosks, variety of required specialties, complexity in designing and working with some required software, weakness in documentation skills to evaluate product strengths and weaknesses during the design, construction, and deployment stages
Implement	Facilities	Space	Lack of space, little attention to privacy, ambiguity about where to put the kiosks considering the differences between goals of policy-makers, owners, and investors, deployment in inappropriate places (out of reach or too accessible)
		Other facilities	Lack of completed internet and electricity coverage
Use	Community members	Demographic characteristics	Age, education, gender, income
		Knowledge and skills	Unfamiliarity with language in device, lack of information about electronic and digital devices and how to use them, users and healthcare providers' unfamiliarity with types of services and how to operate kiosk equipment, misunderstanding of health service providers of kiosks' benefits, limited literacy level of users
		Attitude	Mistrust of users and service providers in safety and security of equipment, accuracy of results, data security, continuous monitoring of official organizations on kiosks, and tendency to visit in person
		Kiosk problems	Lack of personalization options such as adjusting device size to individuals body, lack of attractiveness, lack of attention to specific features and needs of users in construction such as handicapped people needs, lack of flexibility in kiosks, improper workflow in kiosks, overcrowding and long waiting times, lack of online connection between physicians and kiosk users
	Health and insurance policy-makers	Lack of comprehensive monitoring protocol	Disagreements in prioritization of health problems, managers' concerns about entering inaccurate data to device and consequently, receiving inappropriate services, lack of standards for equipment security and maintenance, lack of kiosk service monitoring protocol
	Service providers	Structural	Overuse of defensive medicine in treatment of patients due to structural deficiencies in justice system, work-oriented payment system, lack of skilled workforce in kiosks
		Attitude	Employees' concerns about increasing of workloads, concerns over legislative liability of results and recommendations in kiosks
	Owners and makers	Lack of rules	Concerns over legislative liability of results and recommendations in kiosks, lack of standards regarding data security, intellectual property of data, tariff of kiosk services, advertisement in kiosks, concern of appropriate tariffs and attention to fair return of capital

Main theme 2: Obstacles to the internal structure of health system

Infrastructure

Meanwhile, the lack of institutionalization of some infrastructures, such as telemedicine, makes it difficult to completely establish referral system and family physician, as well as the design of electronic health card in Iran. Furthermore, the lack of some databases such as a complete drug database in the country is an important barrier.

"… We had the experience of having to register the medicines used by patients in a system. It was very difficult because many people didn't used Iranian medicines. All medicines were not available in the system. Some people referred mistakenly at same drugs in different doses and so on" (P12).

Attitudinal

Lack of common understanding about success in kiosks may also influence in the adoption.

"… It is important to know what the policymaker's criteria for effectiveness are. Profitability or health indicators?" (P1).

Rules

In this respect, the shortage of medical guidelines, weakening of supervisory laws on induce demands of providers, and using demand rather than need-approaches in policy-making as well as health advertising, service pricing, intellectual property, and data security laws are other barriers.

"Due to the country's inflation, we cannot yet have a proper tariff that patients as well as providers are satisfied with. Inadequate subsidies have disrupted the pricing." (P10).

Knowledge and skill

Participants mentioned to insufficient familiarity of makers with the health, variety of services and specialties required, complexity in designing, weakness skills in documentation, and communication style between providers and patients are the hurdles in this category.

"The type of services and target groups will determine what specializations are needed during the design and construction phase." (P13).

Implement phase

Main theme 1: Shortage of facilities

Space

Participants believed that inappropriate location of kiosks, low or highly accessible locations, and inadequate attention to privacy could reduce the use of kiosks.

"Given the religious-based lifestyle of Iranian people, many people do not like to disrobe their sleeves in front of other people to check their blood pressure, for example" (P6).

Other facilities

Results showed that the lack of human resources, internet, and electricity at the kiosks could be obstacles in implementation phase.

Use phase

Main theme1: Users barriers

Demographic characteristics

Participants listed the first barriers to use health kiosks as demographic characteristics such as age, education, gender, and income.

"…using the kiosks depends on efficiency and usefulness of kiosks. The elderly health kiosks are quite different from child health kiosks" (P10).

Knowledge and skills

Not familiar with kiosks' benefits and their services, also the language used in the devices, lack of skill of use, and users' limited health literacy are categorized in this subtheme.

"Skill problem in users is a barrier which can be reduced with increasing use and over time" (P5).

Attitudinal barriers

Distrust of the equipment's safety, security and accuracy, data security, and the tendency to visit in-person are attitudinal barriers.

"Most of the people and providers don't trust the results of these devices" (P1).

Problems in designed kiosks

Some participants stated that the lack of personalization such as adjusting the size of device to physical characteristics of individuals, the lack of attention to features and needs of users in design and construction, especially the people with disabilities, the inappropriateness of device for wheelchair users, children, or very obese people, improper workflow in kiosks, overcrowding and long waiting times, and lack of online connection between physicians and kiosk users are other barriers.

"I wish I could submit the results online to the doctor and get his opinion" (P11).

Main theme 2: Health and insurance policymakers barriers

Lack of comprehensive monitoring protocol

Disagreements in prioritization of health problems, managers' concerns about entering inaccurate data to device and consequently receiving inappropriate services, lack of standards for equipment security and maintenance, and lack of kiosk service monitoring protocol are submitted in this category.

Main theme 3: Providers barriers

Structural

Overuse of defensive medicine in the treatment of patients due to structural deficiencies injustice system, fee-for-service payment system, and also lack of skilled workforce in kiosks are mentioned by participants.

"… Well, a specialist thinks that he was earning an income from providing some services, but today the kiosks have overshadowed his/her earning and resists against them" (P5).

Attitude

The employees were concerned about increasing their workload and thought that the makers would not accept their legal responsibility in this regard.

"A patient who has received poor service due to equipment or software bugs whom should complain to? He will definitely sue an established or online physician" (P4).

Main theme 4: Owners and makers barriers

Lack of rules

The legal gap in responsibility of the makers, the lack of standards regarding data security, intellectual property rights of the data, the fair pricing of the kiosk services, and advertising in kiosks does not have any specific protocol in the country.

Participants also mentioned that the ambiguity in the role of new technologies include health kiosks in formal processes, the insurance coverage of services provided in kiosks that require rigorous economic assessments, and also ownership of kiosks that need special attention.

"…For better developing of kiosks, physicians should accept it and the medication and treatment be prescribed based on its results;" a participant stated" (P1).

Facilitating factors

The facilitating factors in the construction and implement phase were identified in 53 codes, four categories, and two main themes. The facilitators in the usage phase categorized in 32 codes, six categories, and three main themes. Table 3 shows the details of health kiosk deployment facilitators in Iran.

Design and construction phase

Main theme 1: Overall structure of the country

Public infrastructure

A participant pointed out some facilities such as high internet penetration rate which covers most population, as well as high electricity coverage that both provide a good platform for using kiosks which are equipped with online services.

"Today, most people have Internet access and use it. So, Kiosks can be designed and use online connected to providers" (P3).

Technical level

The participants believed that the localization and even software and hardware development knowledge and expertise are available in Iran.

Main theme 2: Structure of health system

Legal level

Existence of legal supervisors to monitor on medical equipment maintenance and operation in public and

Table 3: Details of health kiosk deployment facilitators in Iran

Phase	Theme	Category	Examples
Construction and implement	Overall structure	Public infrastructure	Relatively, appropriate penetration rate to establish online connection with service providers, over 99.5% electricity coverage in Iran, supplying over 95% of consumed drugs through domestic production
		Technical level	Ability to localize foreign technologies, existence of knowledge and skills of designing and manufacturing software and hardware of kiosks in domestic companies, existence of some required software
	Structure of health system	Legal level	Existence of legal supervisors to monitor on medical equipment maintenance and operation in public and private sectors, availability of laws to supervise medical equipment, existence of instructions to honor the client
		Facilitator programs	Executing self-care program in healthcare system, executing family physician program in some places, launching telemedicine department, using online systems and software to manage information such as Sib system in health sector or Sadra device in ambulances, establishing surveying programs to assess people's satisfaction of health field functions
Use	People	Cultural level	Public trust in the Ministry of Health officials, existence of health support organizations such as Basij, Red Crescent, Behzisti, Parliament, IRIB, as well as the culture of diversity and the use of new technologies by people
		Skill	Getting more acquainted with new electronic and digital technologies, widespread use of messengers and social networks across the country such as community members and clinical professionals, existence of many educated people
	Health and insurance policy makers	Health system management	Integrated management of health services through network system and positive attitude of other areas in this regard, existence of health outsourcing strategy
		Problems in health field	Imbalance between supply and demand in health services, high cost of healthcare services, and cost-effectiveness of health kiosks
	Owners and makers	Competition	Competition between manufacturers and importers of medical equipment
		Profitability	Economic benefits, possibility of advertising in kiosks

private sectors, availability of laws to supervise medical equipment, and existence of instructions to honor the client are legal facilities that interviewers mentioned to.

"Equipment are monitored constantly in health units due to approved checklists and this can extend to the kiosks as well" (P2).

Facilitator programs

Some participants stated that the launch of new health programs in Iran, such as telemedicine, family physicians, using integrated health systems, and the use of Sadra device at ambulances are facilitators too.

Use phase

Main theme 1: People

Culture

Some participants claimed that the national trust in the Ministry of Health and even national media would facilitate the use of this tool. They also pointed to the role of NGOs such as Basij and Red Crescent which could play a significant role in enhancing popular use of this tool along with health system, insurance organizations, and above all, Islamic Consultative Assembly.

"There are some organizations that can promote the culture of using kiosks such as the media, clerics, university professors, and students" (P6).

Skill

In this category, participants cited more acquainted with new electronic and digital technologies, widespread use of social networks, and existence of many educated people in the country.

Main theme 2: Health and insurance policymakers

Health system management

Managers' positive attitude toward outsourcing strategy and also integrated health management were identified as the facilitators of deploying kiosks.

"The hygiene sector has a coherent system because of its network management department. But, there is no authority in therapeutic filed and the decisions are not easily executed. Anyway, when something starts, it spreads to other sectors too" (P11).

Problems in health field

Imbalance between supply and demand in health services, high cost of healthcare services, and cost-effectiveness of health kiosks can increase acceptance of kiosks.

Main theme 3: Owners and makers

Competition

Competition between manufacturers and importers of medical equipment and also government-sponsored outsourcing services make an interest in the private sector to invest in profitable kiosks.

Profitability

Finally, the economic benefits and advertising aspects in the kiosks can facilitate the use of them.

Discussion

Barriers

Deployment of health kiosks, such as any other new technology, requires some infrastructure that may not exist initially. According to the interviewees, the large contingent variables, including the country's political, economic, social, and cultural variables, cast a shadow over the health sector. They believe that these large variables affect a wide range of social subsystems including healthcare, problems with national per capita income, political sanctions, and import barriers and budgeting and allocating resources to health care. The style of management and communication, as well as health system's structure and degree of concentration, can influence the design and deployment of health kiosks.

In addition, the experiences of the participants showed that the internal problems of the health system also affect the possibility of developing and deploying kiosks. Consistent with the results of this study, Lesselroth *et al*. in their study highlighted the ambiguity of the role of new technologies in the formal process of delivering health services.[20]

In this regard, Chung *et al*. believes that a precise definition of the role of kiosks in formal processes can lead to the smooth integration and synchronization of their performance with the processes of clinics and hospitals, as well as facilitating and supporting staff.[26]

Another obstacle is the national culture that challenges the adoption of new technologies at an early stage; resistance to innovation, especially in the humanities, as well as different and sometimes conflicting understanding of the success definitions of new technologies from the different perspective of stakeholders such as quality, safety, and profitability have been addressed in various studies.[21,27]

Although most participants believed that people would easily accept kiosks, Ng *et al*. studied 100 patients with chronic illness in Singapore and showed that 27 patients did not use kiosks because of their strong desire to visit physicians.[27]

The legal gap in intellectual property and data security has been repeatedly cited by participants, and neglecting it can lead to information theft, according to Kizza *et al*.[28]

Shortage of space is an important problem in kiosks implement, especially in hospitals. In a study on 269

emergency departments, 54% of them, and in another study on mental health facilities, both in the United States, 5–6 of them faced shortage of space for kiosks.[29,30] Jones emphasized that the inappropriate location of kiosks could reduce the use of kiosks.[12] According to the study of Green *et al*., privacy is a global and not only religious issue.[31] Chang *et al*. also noted that the worry about getting naked for conducting some tests and measurements and visibility of results by others may discourage them from using kiosks.[26]

Consistent with the results of this study, some studies determined that the demographic characteristics such as gender, income, and education are important,[32-34] contrary to some others.[17] It seems that the inconsistency in findings is due to differences in provided services and population target groups. In the case of diagnostic and therapeutic services, especially age-related diseases, unlike public health, the effect of demographic characteristics is greater. However, it is difficult to ignore the relationship between location, appearance, data, services, and demographic characteristics of users.[35]

The unattractive appearance of kiosks can reduce using it too. Wrenn *et al*. showed that a significant number of patients thought that mental screening health kiosks are Bank ATMs or mobile chargers and did not use them.[36]

Like Press *et al*., Participants in this study also referred to the device security. They emphasized that users' concern about harmfulness of these devices and the concern that their regular check-up visit process would be disrupted were other barriers for using kiosks.[37]

The accuracy of results is another concern which is also mentioned by Sara *et al*.[21] Likewise, Chung *et al*. showed that physicians' uncertainty of results was the most important challenge which was removed after comparing the results with monitors and reading more articles.[26]

Facilities

As participant mentioned, some facilities such as over 86% internet penetration rate which covers a population of over 71 million, as well as 99.5% electricity coverage that provides a good platform for using kiosks which are equipped with online services.

They also believed that domestic researchers were familiar with the ways of converting theoretical results of technology-related research into actual practice, which have been published by Glasgow and Emmons.[38]

In this process, obviously, it is necessary to consider items such as ease of use, consistency with knowledge and skills of target group, and their visual taste which will be done by engaging local people or related people such as service providers in design, construction, and deployment process and encouraging the use of kiosks. This is consistent with the findings of Jones, who emphasized that the involvement of groups and social classes in the design of opportunistic kiosks may enhance their sense of ownership; hence, they will encourage their relatives and friends to use it.[12]

Meanwhile, similar to bank ATM, the kiosk services can be defined and recognized as part of formal process which is noted in Jones' study.[12] Lyu *et al*. explained that the integration with broader health services can form a part of a wider set of systems and services such as considering kiosks' data in forensic judgments and telemedicine.[39] Tse *et al*. identified two ways to facilitate the use of kiosks: providing useful and user-friendly data to users and service providers, as well as coordinating programs with offered programs in clinics.[25]

Pay attention to use luxury services to promote the social class is a facilitator in Iran. Providing some unnecessary luxury services and even advertisement due to private sector sponsors may have a positive effect on using kiosks as Jones mentioned too.[12]

Limitation

Given the newness of the integrated health kiosks in Iran, researchers failed to find sufficient scientific papers to compare with the findings and inevitably used external evidence. Since the structure, culture, and setting may influence the feasibility of deploying kiosks, it is suggested that the study be repeated in Iran or similar countries.

Conclusion

It is possible to deploy health kiosks in the formal structure of the Iranian health system. Although some identified barriers are time-consuming and costly, it can be overcome by the strengths and opportunities of the system. Hence, the community can utilize kiosks benefits which may improve national and individual's health indicators in Iran.

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Conflicts of interest

There are no conflicts of interest.

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