■ REVIEW ARTICLE

Virtual Clinic: Best Practices for Patients and Doctors Under CoVid-19 Pandemic

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ABSTRACT

Virtual Clinic is a web based software application, where patients can consult with physicians, psychologists, therapists, and other health professionals. No physical presence of the patient is required in the virtual clinic. It is much better during the examination if the disease does not require it as the obligatory diagnostic prerequisite. The web-based VC has been designed for functional and nonfunctional purposes and specifications. These criteria have been met through interviews that have semi structured and open-ended questions on disease evaluation by medical practitioners. Finished questions concerning the evaluation by the experience of the disease. And it's a very open source application that any user can link a shared issue to a conference. This virtual clinic was used during lockdown due to Covid-19. There have been many lockdowns in countries all over the world. This was the only option during the pandemic. In developing the application, we were particularly concerned about the provision of services and the reliable, secure, and efficient storage of data. Here, the non-functional and functional requirements are proposed along with such clinic's design. Such requirements were collected depending on the input that medical practitioners have specified via interviews that had open ended and semi structured questions related to assessment of disease according to their experience.

KEYWORDS | Virtual Clinic, CoVid-19, Architecture, Design, Performance

INTRODUCTION

THE WORLDWIDE OUTBREAK OF Covid-19 placed people under considerable strain. This new outbreak of 2019 corona virus was 1st stated in China's Wuhan, as well as influenced the United Kingdom on 31 January 2020. The outbreak was reported. The WHO announced on 11 March 2020 that Covid-19 Social dissociation measures had been implemented in India in March. As an alternative to face to face consultations, they were presented at this time by 2020 and were virtually connected with the Internet (via telephone or video call). A virtual center is a way of service delivery that allows patients, physicians, and insurance companies to communicate and work together to help patients get a remote diagnosis and treatment.[1] It is particularly accurate in case the primary conditions are not severe as well as can be cured at home. It is normal when in cities there is availability of a doctor, for example. Although doctors are not readily available in developing world countries as well as in rural areas of the developed countries. Here, we propose the virtual clinic's conditions as well as design which allow patients, through text-based messaging and audio/video, to consult doctors or other healthcare professionals virtually anywhere in the world. The patients may be diagnosed and prescribed more easily at a time and place. The actual symptoms

including temperature, blood pressure, and so on must be uploaded by patients for diagnosing. On the other hand, the doctors analyze the reports and the preliminary documents of the patient for writing as well as uploading the prescription. Also, patient records for future references are kept in a secure database by the virtual clinic. The proposed virtual clinic is developed from detailed interview data with doctors. The answers of doctors were utilized to address the virtual clinic's functional and non-functional needs. The quality improvement approach was followed through the Plan-Do-Study (PDSA) cycle by the Institute for Healthcare Improvements.[2] A process of activation and redesign The PDSA cycle was followed by an improvement approach for quality improvement. An improvement principles-based process of enabling, redesigning process, and support for delivery and evaluation were conducted.

An overview of certain potential reasons for patient satisfaction has been provided by open-ended qualitative data. Those were the following:

- The offer of an alternative use during the CoVid-19 pandemic to the virtual clinic.
- The journey times have been reduced.
- Reduced waiting times.
- Reduced effect on symptoms of travel.

This report shows that virtual consultation in response to CoVid-19 is fast and acceptable to a large extent. Additional measures to support CoVid-19 virtual consultations are also needed for clinically relevant and acceptable.[3]

LITEATURE REVIEW

A psychological software design / architecture may be analyzed from two different angles. Their virtual clinic offers mental health services, including prevention, early intervention, and recovery. We address first research initiatives focusing on the impact of other such practices on patients and the community in the following paragraphs. Then we explored the idea of the virtual clinic and its non-functional criteria in software design. Virtual clinic's all components that involve online personal advice, peer-to-peer support networks, referral to electronic self-help services, instruction, and confidential online screening. Have addressed the role played in e-health applications by the virtual clinic. They demonstrate that the use of

such modern technologies in clinical practice has certain benefits and problems. This indicates that consultation process might be promoted by the connection

Among virtual and real worlds as well as affect treatment sessions positively, in particular for group. Also, these settings can also boost comfort levels among patients and therapists. Such benefits were noticed in comparison with traditional TV applications when the framework developed by authors (e.g., videoconferences, chat, and emails). Nevertheless, problems associated with the possible addiction to such virtual clinics and privacy and personal protection issues have not impeded patient entry.[4] Patients are enrolled in the online system as a first step. The virtual clinic allowed patients to speak to medical professionals, communicate and share information. The virtual clinic has found it to be effective in a variety of aspects of patient life and wellbeing in some areas. The alternative route of drug prescription and other related activities are discussed as a clinic word.[5] We found that a study for assessing loyalty of client to a content-dependent Web service, in particular, to a healthcare website, was performed on the Internet. We find that in customers there exists confidence issue in doing their medical for a virtual clinic. And they do not know about even about paying online. It concludes that patients' trust is motivated by infrastructure, protection, and accessibility on the website. A lot of papers speak about those points. Yet some of the study paper's miss points. Somewhere in the article, we add to it.

According to a report by Practo, an online platform, online consultation for virtual treatment increased by 500% between March 1 to May 31, 2020 during the pandemic. During this period Indian access to health services has added around 5 crore users with an average frequency of two online consultations per users per month, as approximately 80%, first-time virtual users, along with around 44% of users from non-Metros, were registered with reporting to healthcare professionals offering teleconsultation. 7.5% was linked to 19 symptoms of total online consultation. Eight minutes were the total time spent online with the doctor. In the overall consultation between the most discussed questions, a growth of 600% was observed. The virtual meeting during the

lockdown was time for an increase of 76% across several cities. Delhi, Pune, Mumbai, Hyderabad, Chennai, and soon.

3. Requirements of a Virtual Clinic

There are many features available in a virtual clinic. Including functional requirements, a system such as reliability, protection, and performance should also have functional requirement. Since a virtual clinic offers facility, the difference among death and life may be. The system's functional specifications are as defined in a patient of virtual clinic must have ability for registering as well as retaining his health and personal records.[6] The first time an expert should have the ability for sending a request to a patient/subscriber. The new medical examination reports should be submitted to your patient/subscriber. Only the physicians involved should have access to the medical records of a given patient. The first time, Health practitioners and organizations should be able to register and manage wiki pages as service providers. The patient should be properly advised and guided to a certain medical professional. Medics and organizations should be able to give notices to every subscriber (medical professionals or patient). To the patient subscriber, advisories must be sent through multiple channels, including SMS and e-mail.

A virtual medical center has been attempted in several ways. However, we also concentrate on the practical needs of such a device. The essence of the service (medical services are generally viewed as fundamental and fundamental human rights) rendered as well as the data value (information of patient health is confidential) treated through system makes these conditions especially relevant. Reliability is described as a device property which demands that in adverse circumstances it stays operational.[7]

A virtual clinic must be reliable as it can save a person's life by providing service. The intent of the service fails if the service is not available when most of it is required. Mechanisms to ensure the quality of operation were not part of a reliable system. One of the most significant criteria for such a system is protected because of the patient health information sensitivity.

A security requirement was defined as a security measure for preventing or removing vulnerabilities that may infringe the sensitive, integral, or

VARIABLE	COVID-19–POSITIVE (N=102)	COVID-19–NEGATIVE (N=3688)	p VALUE
Any VTE event	3 (2.9)	168 (4.6)	.43
PE	1 (1.0)	91 (2.5)	.34
LE-DVT	0 (0.0)	62 (1.7)	.19
UE-DVT	3 (2.9)	22 (0.6)	.004
Cerebral vein	0 (0.0)	6 (0.2)	.68

Table 1: COVID-19 positive and negative along with P value

Abbreviations: ICU - intensive care unit, PE - pulmonary embolism, UE-upper extremity, VTE-venous thromboembolism, DVT- deep venous thrombosis.
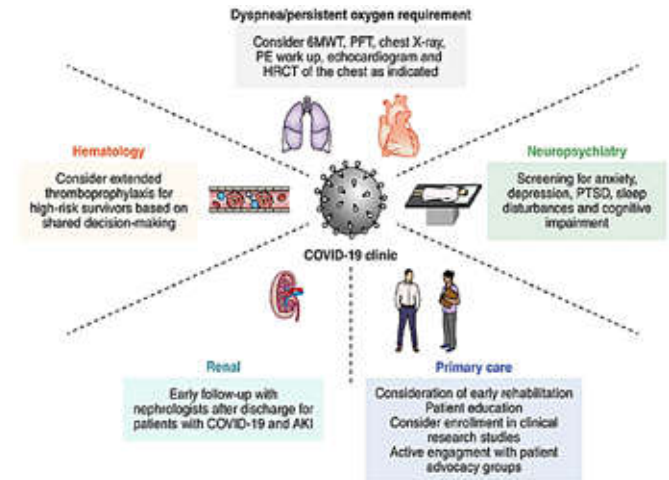

Figure 1: Multidisciplinary COVID-19 Clinic 5-tier views. **Source:** Author self.

accessible data. The security requirement is defined in this context. These constraints must be included in all phases of production. Not only should the details provided by the patient be kept confidential, but also in a way to prevent unauthorized persons from making changes (integrity).[8] If applicable, the data should also be available. For the system that provides medical care, a virtual clinic is appropriate. This especially applies to uploading or forwarding medical test results or medications quickly.

RESULT AND DISCUSSION

During CoVid-19, the results of the virtual clinic improved, as seen online. How patients in the covid-19 are virtually associated with physicians? A virtual clinic fills the gap between people, doctors, and health systems that allows all people, in particular patients with symptoms, to stay at home and to communicate across virtual networks with doctors. science technologies are being used for the healthcare detection coronavirus, which includes case recognition, population monitoring,

Figure 2: shows that Virtual clinics seem to impact the general quality of life, happiness, or expectations that women have in their clinical episodes by using an online question-naire framework (10-11). **Source:** Budd, J., Miller, B. S., Manning, E. M., Lampos, V., Zhuang, et.al (2020). Digital technologies in the public-health response to COVID-19. Nature Medicine, 26(8), 1183-1192. https://doi.org/10.1038/s41591-020-1011-4

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touch tracking, as well as assessment of behavior based on public communications like virtual or telecommunications clinics, etc., and data on mobility.[9] There are huge millions of cellular telephones, large online datasets, connected Smart phones, and relatively cheap computer tools.

This result indicates the possibility of improved assistance for patients in expressing health problems and preventing embarrassment about medical issues of a delicate and personal nature as a usefull element of adoption and use of a virtual clinic.[12]

CONCLUSION

Virtual visit to any doctor anywhere in the world can be made through video streaming and chat support via a proposed virtual clinic. The contact between patient and doctor is good and timely. It maintains a database of medical records and the qualifications, credentials, and timetables of patients registered at the virtual clinic. The patient can pick the time slot available and ask for doctor's appointment. All related reports can also be sent by the patient if required for medical check-

up. The doctor is still available for these studies. The drug is available to physicians and patients at any time. The prescription is available once again. This project also discusses reliability, security, and performance specifications that are not functional. Such non-functional criteria are every program's required part which manages patients' medical details. Also, it demands reliability and efficiency as important part of the fundamental design of the service rendered by such applications. In this paper, we suggest a range of non-functions to improve reliability, protection, and performance. Initial results of the implementation indicate the minimal reliability, protection, and performance thresholds of the specified non-functional specifications, if implemented. IJFMP

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