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Review of the Scientific Literature Prior to the COVID-19 Pandemic on the Use of Digital Technologies in Healthcare

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Abstract

In context, the COVID-19 pandemic is encouraging digital changes throughout numerous sectors and across local society. In the wake of the first outbreak, healthcare institutions moved swiftly to incorporate digital solutions and cutting-edge technological instruments.

The purpose of this study is to provide an overview of the digital solutions described in the preliminary scientific literature for reducing the effects of COVID-19 on people and healthcare systems.

We searched open data provided by health authority in Dubai using suitable criteria to locate relevant material on the use of digital technologies in response to the pandemic and performed a systematic assessment of this early COVID-19-related literature (from January 1, 2021, to January 30, 2022). We classified the retrieved articles based on the technology used and the requirements of the patients that were studied, and we extracted research parameters such as the paper's title, journal, and publication date. We developed a grading system by pairing patient requirements with technological categories. We also retrieved data and categorized each technology mentioned by the chosen articles in terms of its intended use within the healthcare system, its level of innovation, and its potential for expansion into other regions.

The search turned up a total of 212 articles, of which 106 met the criteria for inclusion in the review after being screened. Digital tools for diagnosis, surveillance, and prevention were common themes across the publications chosen. We provide news that several of these advanced diagnostic methods and digital solutions have been presented for the COVID-19 virus. We found a lot of advice for using AI-powered tools for COVID-19 diagnosis and screening among the examined literature. Measures of prevention and surveillance may also benefit from digital technology, such as the use of contact-tracing applications and the monitoring of internet and social media use. The use of digital technology to foster individual agency and patient participation has received less attention in scientific literature.

In conclusion, Artificial intelligence-based diagnostic algorithms that consider both imaging and clinical data show promise as integrative digital solutions around diagnosis. Digital applications have shown to be useful for monitoring, but there are still issues with privacy and usability to be resolved. Several approaches, like as telemedicine and telehealth technologies, have been presented to address various patient requirements. While these resources have been accessible for some time, the current era may prove especially favorable for their widespread implementation. For all the resistance national health systems have shown to the digital transition in recent years, it is worthwhile to take advantage of the crisis's impetus and adopt at

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least some of the solutions proposed in the scientific literature to implement best practices and models of care in the future.