Exploring Digital Access as a Social Determinant of Health amongst UAE Students

Rakan Alhrahsheh[1], Ganka Ivanova[2]

Abstract

Digital information and communication technology usage has increased dramatically over the last decade across different fields of personal and professional life. This study was conducted with the aim to investigate how digital access affects health outcomes, particularly in UAE, and gathered data from 300 students at Al Ain University's Abu Dhabi campus, UAE. This study explores the connection between digital education, social media access, and health service outreach and usage. Many people, especially younger individuals, use more than a single smart device. This study investigated whether digital access directly correlated with better healthcare service and improved individual's health by examining the data gathered to draw predictabilities and possibilities to be considered in the future. The findings of this study indicated significant correlations ($p < .05$) between the dependent variable (digital access to health) and independent variables (work; $p = .165$) and (income; $p = .000$). Surprisingly, this study also showed that for the participants, there were no significant differences between education levels and digital access to health ($p = .0724$).

Keywords: Digital access and the digital divide, information and communication technology, diffusion of technology, electronic commerce, health

Introduction

The world is currently witnessing the fourth Industrial Revolution with the dawning of a new age. Most of the worlds' population has access to a multitude of digital platforms that are used for different reasons: communication, education, shopping, and access to public services. People use mobile phones, applications, computers, laptops, and other devices for the purpose of completing various tasks and accessing services that just a couple of years ago required their physical presence, along with limited resources of time and financial efforts

However, does the use of these modern devices and communication methods provide us faster and better quality of service? Does technological access and digital awareness correlate with better access to health care? Have most users of digital information and communication technology (ICT) become completely reliant on digital access and become accustomed to service access experiences

[1] Dr. Rakan Alhrahsheh, Al Ain University, Rakan.alhrahsheh@ aau.ac.ae
[2] Dr. Ganka Yordanova Ivanova, Al Ain University, ganka.ivanova@aau.ac.ae

that require far less physical presence and face-to-face transactions because of COVID-19 as well? The unprecedented pandemic has radically changed our lives (Tarman, 2020). Scientists confirm that digitization has helped reduce the gap between technology and education, providing tools with good content and enabling faster communication networks (Kalimullina et al., 2021; Marques-Ramos, 2021).

Are digitally educated people experiencing the privilege of better health and well-being because of their digital access? This study sought to answer the questions raised above and attempted to find out if there is a direct positive correlation between digital access and health.

Having postulated these overarching questions, one must understand that there is a myriad of nuances in the ongoing advances in digital access and peoples' reactions, acceptance, willingness, and the ability to embrace these advances. This process is diverse and based on an individual`s cultural, social, and economic circumstances. It has yet to be clearly determined whether data access is of particular significance in terms of the effects on health outcomes, as in many cases, the populations of marginalized individuals suffer more disproportionally from inequitable digital access and are more vulnerable to health problems due to their social-economic circumstances. In such a context, the technological transformation of society into one where people are ever more reliant on digital ICTs could exacerbate existing health inequalities, as digital inequality and health disparities occur along similar axes and are both rooted in an unequal distribution of resources.

This study examined how digital access may be influencing health outcomes. This study is timely as digital ICTs are increasingly critical for accessing resources. The UAE is a country where the population is encouraged to actively participate in the knowledge-based economic growth, and its people have access to the wider world when it comes to goods, commodities, and services, especially when it comes to experiencing the latest, cutting-edge technology products. From the beginning of the pandemic, many new applications and platforms have been developed, or pre-existing platforms experienced wider usage by much of the population, especially young people, and students. Education, income, and work are important markers of the society and are part of the considered factors of this study. The sample of the study below represents students from across the spectra of the Emirati society; many of them are working students with families and great social responsibility.

Research Questions

The following research questions were sought to be answered in this study:

RQ1. Is digital access a social determinant of health?
RQ2. Is there a statistically significant relationship between the digital access of people linked to their level of education, work, and income status?

Hypothesis

There are statistically significant differences at the level of significance ($p = .05$) when it comes to digital access to health amongst Al Ain University students related to their level of education and employment status.

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Theoretical Framework

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While trying to identify the association between the digital access to services with the health status of UAE students, the first step was to search and find other aspects of social determinants and see the existing data and similar research to compare and draw specific conclusions toward the end of this study. In their study, Gibbing's and Wickremesinghe (2021) tested the social determinants of health in the U.S.A, the healthcare systems' framework, and its ability to provide superior care. A qualitative research approach was adopted including a literature review. Montagni et al. (2018) developed a program to identify the social determinants of digital health and conducted a field survey, which captured the effect of university students' use of information technologies on their health and well-being and considerations of socio-demographic conditions. Their study consisted of a sample of 507 surveyed, and the results indicated that: (1) 93.4% of the students had digital access, (2) 64.5% of respondents suffered from some type of pain and illness, (3) 68.1% professed to have good nutritional diets, (4) 51.1% reported experiencing study stress and anxiety, and (5) 92.2% of students considered the US health system as an institution to be the best and that there is a significant difference in the use of digital health by gender and year of study.

Mesanovic et al. (2018) investigated how social media can change the access approach to healthcare with some case studies. After an investigation with a group of digital health companies, their study showed that if the healthcare system were to rely heavily on digital health technologies in the future, it would change the form of healthcare provision. Instead of office visits in the hospital, the interaction would be done automatically through smartphones or social media

platforms according to the demand. Digital companies are extremely keen on collaborating with stakeholders and engineers, as they see the potential benefit and lucrative opportunities that these digital health technologies represent. A separate study was conducted, consisting of a sample of 59 people in the countryside of Lebanon (Talhouk et al., 2016). The study considered several factors, most notably the literacy of the sample members. It showed that the use of smartphones by refugees provided a quick opportunity to access health services.

Influence of digital access on social determinants of health

As mentioned above, the UAE as a country has started to play a primary role when it comes to digital education and digital health access. Several supporting data points to this assertion released in 2020 through government statistics and press reports show that the UAE ranked number 1 in the world in per capita mobile phone usage. Additionally, in 2020, the UAE formed the Abu Dhabi Digital Authority to meet the increasing demand for services accessed via additional platforms and devices. However, of more interest to this study is the possible connection between digital access, factors affecting the digital access, individual health status, health concern outcomes, and all other factors affecting this process.

A study of the social determinant of health is a useful prism for understanding how health outcomes are connected to the level of digital access. The study concerning social determinants of health also aims to examine the ways in which health inequalities within and between countries are not natural but rather the result of social factors (Marmot et al., 2008).

The social determinants of health show that the unequal distribution of access to important resources directly impacts the conditions in which one lives, especially in terms of access to critical things such as education, housing, or healthcare, and shapes frequency of morbidity conditions and effects on mortality rates in vulnerable age groups, because of these existing socioeconomic conditions (Marmot et al., 2008). Furthermore, by employing social determinants of health, the perspective and focus of this research are to see how social structures affect health outcomes. In other words, by incorporating a more structure-oriented approach to understanding health disparities, socioeconomic or demographic differences in health are understood in terms of the role of historically constructed in relation to one's economic or financial power rather than an individual's characteristics or behaviors (Williams, 2003).

Fundamental cause theory suggests that social conditions can be directly connected to a disease that one may experience, as they cannot be explained solely in terms of how they shape more proximal risk factors. Quite often, the individual and contextual social conditions shape an individual's access to vital resources that are essential for avoiding risks that lead to early morbidity and mortality, as these vital resources can minimize or prevent the consequences of illness, should it occur (Link & Phelan, 1995). Individuals can avoid risks for disease with the help of a number of resources; in this context, the most beneficial are financial resources, knowledge, skills, abilities, power, and prestige, as well as more interpersonal properties, such as social connectedness. Access to such resources is the essential feature of fundamental social cause theory. Working within a framework informed by fundamental cause theory, an individual's access to vital resources is supposed to be considered essential for promoting and maintaining good health. Put in terms of the digital divide, access to so many resources has become largely – and in some cases entirely – available via digital ICTs, and digital access surely affects health outcomes up to a specific degree. These resources can be seen as the mechanisms that link digital access to health outcomes.

Digital Access: A Sequential Model

For the purposes of this study, digital access and probable causes of digital inequality can be best explained by summarizing van Dijk's (2005) multi-stage access model. Within the framework of this model, digital access occurs sequentially in terms of four types of successive stages: (1) motivational, (2) material or physical, (3) skills, and (4) usage access. Although there are different perspectives for understanding the digital divide, van Dijk's sequential model is specifically useful, providing multiple points at which ones' level of digital access may be either restricted or advanced by their access to resources. In addition the above-mentioned, when viewed through the lens of capturing the ability to use digital ICTs in ways that reap offline rewards for the user into the concept of digital access, this unique perspective is helpful in explaining how individual health outcomes might be shaped by one's level of digital access.

Motivational access

The first phase and kind of access described by the model, motivational access, can be understood as the motivation on the part of the potential user to use digital ICTs (van Dijk, 2005). Many people

lack the motivation to access ICTs either because they perceive digital ICTs to be irrelevant to their lives (Stanley, 2003) or because they are skeptical regarding digital ICTs (Harrington et al., 1990; Stanley, 2003; Torkzadeh & Angulo, 1992; Weil et al., 1990).

Material and Physical access

Once an individual has overcome the barriers to motivational access, their further access is shaped by the second stage of data access actualization, namely material and physical access. This is understood as being able to access a computer with an Internet connection. The diffusion of smartphones and other forms of technology, such as tablets, has enlarged the means of access.

This stage and type of access are differentiated as physical and conditional access, according to van Dijk's framework (2005). In this context, physical access refers to the hardware of computers and other digital ICTs, as well as the network connection. Conditional access, on the other hand, refers to the applications, programs, and other digital content that often requires an additional fee. Increasingly, physical access can only be as useful as the level of conditional access available.

Skills access

The third factor covered by the model is skills access, which refers to various kinds of knowledge, skills, and abilities (KSAs) individuals possess, KSAs are indeed necessary for utilizing digital ICTs.

Usage access

Usage access can be understood in terms of the frequency and duration of use, types of activities performed, and content accessed using digital ICTs (van Deursen & van Dijk, 2014). This disparity in usage behavior is important because not all digital ICT activities provide users with the same benefits (Zillien & Hargittai, 2009). As van Dijk (2005) noted, while the first three stages and types of digital access are necessary preconditions to usage access, they are not sufficient. As such, among those who have achieved the stages of motivational, material and physical, and skills access, there are disparities in how people use the Internet and as a result, their Internet use returns. In other words, the benefits of using digital ICTs are not uniformly distributed among people who have attained the first three levels of access, because what an individual does with the Internet, for

example, passive consumption uses versus active and creative uses, remains critical. Considering social determinants and fundamental cause perspectives in conjunction with van Dijk's sequential model for understanding digital access has provided us with a useful framework for understanding the relationship between digital access and health.

The following sections discuss certain mechanisms through which the relationship might operate. More specifically, education and income are discussed in terms of their relationship to health outcomes and in terms of disparities in digital access.

Education

Digital access may affect health outcomes as digital ICTs have become increasingly more important for accessing educational opportunities. Research has thoroughly demonstrated that education is a significant predictor of health across various health outcomes (Schnittker, 2004). Health outcomes may be affected by levels of digital access, especially in terms of the relationship between access to digital ICTs, education opportunities, and academic achievement. Nowadays, digital ICTs are often part of the curricula at every level of education across the developed world. However, Deursen and van Dijk (2017) argued that while operational and formal digital skills can be taught in primary education environments, they are largely absent from the curriculum. These skills related to cognitive content, specifically the ability to search, select, process, and evaluate information from the Internet, are extremely vital for academic achievement, especially for higher education. This suggests that those who have acquired these content-related digital skills have more success in attaining higher levels of education, and thus, in this sense, access to digital skills may impact educational attainment. In fact, some research suggests that even among elementary class students, digital access is often associated with a higher academic achievement (Juang & Russel, 2006; Judge, 2005; Paino & Renzulli, 2013).

Formal digital literacy skills instruction, as well as informal learning supported through digital ICTs, have become integral to the curriculum of formal education learning environments around the world (Marais, 2021; Mbhiza, 2021). In that context, an individual's level of access to skills may depend on the formal education they have received. Research indicates that individuals with higher levels of education have increased levels of digital access, and vice versa (Hargittai, 2002, 2003; Zillien & Hargittai, 2009). As a matter of fact, the gap in access to digital ICTs and Internet connection when segmented by an individual's educational attainment level is the most

pronounced. As of 2019, a study reported that 98% of college graduates use the Internet, as opposed to 84% of those who graduated from high school, and even more pronounced, only 71% of those with less than a high school diploma reported Internet use (Pew Research Center Internet/Broadband Fact Sheet, 2021). Educational attainment is not only a strong predictor of Internet adoption but is also highly related to the range of digitally mediated activities engaged in, skills possessed (van Deursen & van Dijk 2011), and the percentage of individual ownership of digital ICT devices.

Income

Digital access may affect health through an income pathway both in terms of an individual's ability to find and maintain employment and the type of employment or occupation they are qualified to do. People with low to no digital access are confronted with considerable barriers when looking for work both in terms of the kinds of jobs they are eligible for (skills access) and the way in which the access to employment opportunities has become digitized with online job listings and applications. A study reported that 54% of adult Americans have used the Internet to search for information about a job, and 45% have submitted a job application online (Smith, 2015). Higher level of digital skills benefits job seekers, as they may be more efficient and faster in gathering information and online communication. Kuhn and Mansour (2011) found that the Internet helps people find work and reduces unemployment by about 25%. Digital skills are also viewed by employers as a desired skill set and are often checked as part of the interview process. Higher level of digital skills often makes an individual more competitive in the labor market. Additionally, research has indicated that the expansion of personal social networks through online activity can provide an individual with access to informal information about job opportunities (Hampton & Wellman, 2000; Fountain, 2005). In this sense, digital access may lead to increased social capital, which in turn can lead to better employment opportunities.

Access to digital ICTs also plays a significant role in structuring earnings for individuals who are employed. A study showed that Internet users gain significantly more in earnings than non-users (DiMaggio & Bonikowski, 2008). This may be because higher levels of digital skills mean employees have better access to labor-market information and are better and more efficient at doing their work. Moreover, we postulate that health disparities as structured and analyzed by

economic income level also seem to correlate with digital accessibility, as the level of access to data platforms has been shown to vary by level of income, as one might except, owing to an individual's ability to fund a better quality of data platforms and Internet services when their income increases. Studies have shown that only 62% of low-income individuals (those who earn less than $30,000 per year) use the Internet, compared to 90% of individuals who earn $50,000–74,999 per year and 97% of those who earn more than $75,000 per year (Zycor & Smith, 2012). The level of income directly impacts access to digital ICTs in several ways. For example, income may impact motivational access in terms of the equipment and connection one has available to them. The quality of the equipment available and the reliability of the connection impact how people come to the decision of whether they want to access digital ICTs. Leisure time may also be a mechanism at work in the relationship between income and motivational access. In the same way that economic capital provides the material necessities for existence, it also provides freedom from spending time acquiring and maintaining those necessities (Bourdieu, 1990). In turn, motivational access may be shaped by the amount of time resources an individual has at their disposal (van Dijk, 2005).

The relationship between income and material and physical access is straightforward in terms of the extent to which people can afford digital ICTs equipment and Internet connection. Although many people in the developed world have access to computers and an Internet connection from their homes, majority of them prefer physical and material access at public computer labs, the homes of friends and family, and at work or school. While material and physical access is understood as being able to access a computer with Internet connection, the availability of various technology platforms such as tablets and smartphones, has expanded this type of access. Nowadays, many devices are used to access the Internet and this may enable or limit the types of usage activities that one is able to access and use. It is important to consider not only personal access to the Internet via smartphones or computers but also the quality of the device used, the reliability of the sources accessed, the speed of the network connection, along with the location where a person gains Internet access.

The level of income may also have a correlation with one`s access to digital skills. For example, children who grow up with computers and Internet in their homes are at an advantage when it comes to access to digital skills because research has shown that much of digital literacy is learned informally at home as it is embedded in one's life. Some scholars have suggested that digital

literacy skills are usually acquired in informal spaces (Meyers et al., 2013) as opposed to through formal instruction. As such, individuals who find themselves in environments where digital ICTs are being used on a frequent and fluid basis might be in a position to develop their digital skills faster.

Usage access is another important consideration for the mechanisms through which digital access may be shaped by the level of income. Reasons and patterns of usage access can be understood as being shaped by the disproportionate distribution of economic, cultural, and social capital. As with motivational access, economic capital may determine levels of usage access in terms of quality of the equipment available and connection reliability. Findings of different surveys have revealed an interesting correlation that individuals using computers are significantly more likely to participate in "capital enhancing" activities than those using mobile devices (Pearce & Rice, 2013).

After having now reviewed the theories and findings in similar research efforts as foundational information, the next section discussed what the data captured through our questionnaire revealed, specifically when it comes to UAE students and correlations of digital access and health outcomes, and their correlation to education and health.

Methods

Research Design

This study was conducted with the objective to determine the social determinants of digital access to health, specifically the impact and correlation of education and health variables, as they are seen as the primary social determinants of digital access to health. This study relied on the descriptive approach through a questionnaire prepared for this study by the researchers themselves after reviewing similar literature.

The research design is linked to multiple variables. The dependent variable is digital access to health, and the independent variables are education, work, and income as social determinants of digital access to health services. To find the correlation and its effect between the variables, this study relied on the analysis of the multiple correlation coefficient between the independent variables (education, work, and income).

Sample

This study used an intentional random sample consisting of 300 university students enrolled at Al Ain University, Abu Dhabi Campus, UAE, enrolled in the academic year 2020–2021.

Two-third of the participants were female ($N = 200$, 66.70%), while one-third were male ($N = 100$, 33.30%). The participants split into the following streams: sociology (65.00%, n = 195), psychology (25.00%, n= 76), and special education (10.00%, n= 29). Table 1 notes these frequencies and distribution.

Table 1
Distribution of the study sample by gender, department, and age
Student Users (N = 300).

Variable	N	%	M	SD	Range
Gender					
Male	100	33.3			
Female	200	66.7			
Total	300	100			
Department					
Sociology	195	65.00			
Psychology	76	25.00			
Special Education	29	10.00			
Total	300	100			
Age (years)					
Less than 20	150	50.00			
20 to less than 30	122	41.00			
31 and above	28	09.00			
Total	300	100			

Data Collection Tool

The data collection tools included a four-part survey questionnaire, the first part of which captured socio-demographic data. The second part consisted of nine questions designed to measure the impact of digital access on health that required participants to mark them if relevant, as follows: (1) "I have a smart device," (2) "I pay attention to health products on the Internet," (3) "I usually conduct research on nutritional health," (4) "I research physical strength development," (5) "I use my device to search for the right health services," (6) "I use the Internet to find the right doctor and clinic," (7) "I book an appointment with a doctor online," (8) "I consult a doctor online," and (9) "I get my medicine online." The third part consisted of six questions that measured the

homogeneity betwe education as a determinant of digital access to health and required marking from participants as well as relevancy: (1) "I can read and write," (2) "I use Internet applications regularly," (3) "I use digital access to book doctor's appointments," (4) "I use digital access to learn about reasons for health conditions," (5) "I use digital access to search for a specialist," (6) "Digital access has helped me a lot in keeping track of my health." The fourth section consisted of two survey questions that measure income and its role in digital access to health through the following indicators: (1) "I have a high income" and (2) "My income brings me high digital access to health care."

Data Collection Process

Data were collected through an online survey described above, conducted by the authors for a period of three weeks in October 2021. This study has been approved by the university administration. Initially, the questionnaire was sent through email to 350 randomly selected students. Among these, 304 completed the questionnaire and sent it back, three samples were deleted because they were incomplete, and 46 questionnaires were not returned. The total sample of the questionnaires used for the purpose of this study was 300, to ensure a sufficient representative number of the students participated to better capture community attitudes toward the topic assessed. To ensure questionnaire validity, the authors had the questionnaire reviewed by a group of arbitrators at Al Ain University and the University of Sharjah in the UAE, and their observations were taken into due consideration. The stability of the questionnaire was confirmed using Cronbach's alpha test, as its value was .90. The high value of this parameter ($> .60$) indicated the high reliability of the study tool (Sekaran & Bougie, 2016). Table 2 summarizes these results.

Table 2
Cronbach's alpha of the reliability of the questionnaire

Domain	No. of Items	Cronbach's alpha
Digital access to health	9	881.
Education determinants	6	851.
Work determinants	3	865.
Income determinants	2	831.
Total	20	902

Data Analysis

In this study, SPSS-23 software was used to perform statistical analysis. This resulted in descriptive statistics, including frequency distribution and percentage of data used to display the socio-demographic characteristics of the respondents. As the study has multiple correlations, standard multiple regressions were used to test the hypothesis of the study, and from there, the homogeneity between the variables was measured, and the normality was determined. In addition, a linear test between the variables was used. Furthermore, the mean and standard deviation were used to determine the descriptive statistics of the variables included in the regression study and matrix correlation between the three independent variables. The correlations between dependent variables and the degree of influence by the independent variables were examined. More specifically, R-Square test was employed to find out the correlation coefficient between the dependent variable and the independent variables and analysis of variance (ANOVA) test to show the p-value and the level of significance between the dependent variable and the independent variables. The last step also helped determine the validity of the hypothesis, the effect of the variables, and the beta value.

Results

RQ1. Is digital access a social determinant of health?

Table 3
The responses of the study sample individuals to the factors driving the digital healthcare divide

Item	Arithmetic Average	Standard deviation
I have a smart device and use the Internet	4.21	1.67
I pay attention to health products on the Internet	4.11	1.65
I usually conduct research on nutritional health	3.89	1.56
I am researching the development of physical strength	3.62	1.47
I use my device to search for the right health services	2.35	1.23
I use the Internet to find the right doctor and clinic	2.30	1.11
I'm booking an appointment with a doctor online	1.91	1.76
I consult a doctor online	1.81	1.13
I get my medicine online	1.56	1.00
Arithmetic average	3.64	2.23

The results presented in Table 3 reveal indicators of the digital gap in access to health. The item: "I have a smart device and use the Internet," received the highest approval from the study sample with an average value 4.21 out of 5.00. The statement: "I pay attention to health products on the Internet" received the second highest approval of the study sample with an average 4.11, whereas "I get my medicine online" ranked ninth with an average 1.56.

Table 4

The responses of the study participants to the items of the relationship between the digital accesses of people and education.

Item	Arithmetic Average	standard deviation
I can read and write	4.55	2.22
I use Internet applications regularly	4.35	2.33
I use digital access to learn more about reasons for health condition	3.61	1.16
I use digital access to book doctor's appointments	1.86	2.05
I use digital access to search for a specialist doctor	1.55	2.13
Digital access has helped me a lot in keeping track of my health	1.40	2.05
Arithmetic average	3.64	2.23

Table 4 shows the relationship between individuals' digital access and education, the statement "I can read and write" ranked first in terms of approval from the study, participants with an average 4.55 out of 5.00. The option "I use internet applications regularly" received the second highest approval from the participants with an average 4.35. The statement "Digital access has helped me a lot in keeping track of my health" received the lowest approval (1.40 out of 5.00).

Table 5

The responses of the study participants to the items of the relationship between the digital accesses of people and Labor

Item	Arithmetic Average	Standard deviation
Work allows me continuous digital access	2.23	1.67
My work provides me with tools that aid in rapid digital access	2.15	1.56
My business provides me with electronic services in the field of health care	1.78	1.17
My income brings me high digital access to health care	1.35	1.12
Arithmetic average	1.87	1.38

Table 5 depicts the relationship between individuals' digital access and labor. On the one hand, the statement "Work allows me continuous digital access" received the highest approval from the participants with an average 2.23 out of 5.00. On the other hand, the statement "My income brings me high digital access to healthcare" showed the lowest approval with an average 1.35 out of 5.00, which indicates that there is no clear correlation between them.

Table 6

Descriptive statistics for the variables included in the regression study

	Mean	Std. Deviation	N
Digital access to health	4.3333	1.97105	300
Education	.466	.49827	300
Work	.6000	.45653	300
Income	12.000	6.19687	300

The results presented in Table 6 show the descriptive statistics for the variables included, i.e., the mean and standard deviation for digital access to health, education, work, and income. The results evidence that education and work have no effect on the digital access to health, as their average is less than 1, and it has no effect. As for the income variable, it appears to have a significant effect on the access to digital health.

RQ2. Is there a statistically significant relationship between the digital access of people, linked to their level of education, work and income status?

Prior to identifying the strength of the correlation between the dependent variable and the independent variables, it became clear through data analysis that the data distribution was normal as the data appeared together around the horizontal line. Therefore, the spread follows the normality distribution.

Table 7

Matrix of correlations between the three independent variables and the dependent variable

	Digital access to health	Education	Work	Income
Person correlation				
Digital access to health	1.00	.925	.234	.423
Education	.925	1.000	.145	.654
Work	.246	.149	1.000	.0354
Income	.471	.456	.082	1.00
Sig. (1-tailed)				
Digital access to health	.	.000	.095	.004
Education	.874	1.978	.215	.001
Work	.014	.0323	.	.334
Income	.004	.0239	.334	.
N				
Digital access to health	300	300	300	300
Education	300	300	300	300
Work	300	300	300	300
Income	300	300	300	300

The findings encapsulated in Table 7 indicate that there was a strong direct correlation between digital access and both work and income, but interestingly, in contrast, there was no relationship between education and digital access to health.

Table 8
Shows the correlation coefficient between the dependent variable and the independent variables

Model	R	R-Square	Adjusted R-Square	Std. Error of Estimate
1	.932a	.868	.853	.75505

    a. Predicators: (constant), Education, Work, Income
    b. Dependent variable: Digital access to health

The results shown in Table 8 indicate that the independent variables explain the variance in the process of digital access to health, which is a significant percentage. To verify this further, the ANOVA test was performed.

Table 9
The analysis of variance between the dependent variable and the independent variables

Model		Sum of Squares	df	Mean square	f	Sig
1	Regression	97.843	3	34.614	57.231	.000a
	Residual	14.823	3	.587		
	Total	112.667	3			

    a. Dependent variable: Digital access to health

    b. Predicator: (constant), Education, Work, Income

Table 9 shows the value of f (57.231) and the value of significance (.000) less than (.05), which indicates the null hypothesis should be rejected, and the alternative should be accepted, as the regression is large and not equal to zero. Thus, there was a significant relationship between the independent variable, digital access to health, and the dependent variables: work, income, and education. However, to determine which of these variables had the greatest effect, we checked the value of beta in the method described as follows.

Table 10

Coefficients of the variables and correlation

Model		Unstandardized Coefficient		Standardized Coefficient	t	Sig	Correlation	
		B	Std. Error				Zero order	Partial
1	Constant	.086	.503	.	.171	.866		
	Education	.874	.021	.946	10.567	.724	.925	.901
	Work	.435	.230	.104	1.428	.165	.276	.271
	Income	.274	.343	.042	.36	.000	.471	.270

Results presented in Table 10 suggest that the variables work and income were significant, which means that there existed significant differences at the significance level ($p = 0.05$) when it comes to digital access to health among Al Ain University students regarding their employment status. The variable education has a significance level of more than 0.05 and thus had no effect on the dependent variable digital access to health, and there was no direct correlation between them, indicating no significant differences at the significance level ($p = 0.05$) between education and digital access to health.

Discussion

The UAE was ranked first in the following indices per capita in 2020: mobile broadband Internet subscriptions, mobile broadband subscriptions, and mobile network coverage. In the UAE, major digital achievements included all key sectors, such as education, health, economy, as well as the realm of human and societal development.

Given this context, this study looked at the interrelated ways in which the level of digital access might affect health outcomes. Regarding the factors that lead to the digital healthcare gap, the results of this paper showed that the total study population had digital access through the availability of a smart device, while the higher levels of digital healthcare access were not always associated with the availability of a smart device such as mobile phones or a computer. In addition, most people searched the Internet for sports tools for health, and the findings revealed much lower average interest of the individuals in the sample when it came to searching for health services, accessing a doctor's consultation, and dispensing medication via the Internet.

From the students' responses, it was observed that their professional environment supported and allowed them to have continuous digital access. This latter condition fostered the habit of being in touch and using a number of digital platforms. Digital access has become something we are all

accustomed to. Although we posed additional unique questions, the results of our study are aligned with similar previous studies conducted by van Dijk (2005), Stanley (2003), Harrington et al., (1990), Torkzadeh and Angulo (1992), and Weil et al. (1990). The last of these states that many people lack motivation toward digital access and do not believe that communication and the Internet are relevant to their lives. Some participants were also skeptical and had anxiety or distrust when it comes to digital ICT usage and impact. These studies also showed that people who were motivated to use digital ICTs were constantly using the Internet and considered it relevant to their lives. The continual usage of digital access through their workplace or business also fostered the importance of the Internet in their lives. When it comes to specific usage in the context of this study and its research questions, the findings also showed lower average interest among individuals overall in searching for health services, getting a doctor's consultation, and dispensing medicines online, which showed the importance of personal contact, even in times of increased digital access. Regarding the field of work, the results showed that work did not provide numerical access. . In addition, this finding is consistent with the fact that mobile-dependent users do not have the same level of access in terms of developing digital literacy skills and self-confidence or the breath of online activities they can execute (Katz et al., 2019; Kumar et al., 2019; Puspitasari & Ishii, 2016; Dunaway et al., 2018; Mascheroni & Olafsson, 2016; Park 2015; Wijetunga, 2014) In regard to the relationship of education to digital access to healthcare, the results indicated that the study participants were literate and had great interest in digital access; they used the Internet permanently and often sought to learn about their health status. The results also showed that people were not interested in searching for the "right" doctor for their health condition online nor did they care to book an appointment online with the doctor, and finally, digital access did not help them much in the field of healthcare. However, regarding digital access to health and its correlation to education, according to the results of this study, there was no explicit correlation between the two nor an indication of a significant negative impact owing to lack of advanced education.

As remarked earlier, this research is very timely, as people globally have increased their technology access and usage and use their own mobile devices for multiple reasons, far beyond simple communication. COVID-19 has dramatically changed our lives and made us consider social distancing and achieve the same by executing various tasks, functions, and activities online for health-related reasons. Owing to these considerations, this study and its findings are especially useful and can be used for the development of further longitudinal study on a national level and

indeed worldwide as technology usage has been increased globally and health is one of the pillars essential to everyone`s life. Digital access is one of the demands of our time, and thus, it is important to define the correlation between it and human health.

Conclusion

This study furnished interesting answers to critical questions raised in a time of increased usage of ICT and digital access to all kinds of services and aspects of life. Health is often regarded as the most important virtue and a basic human necessity for survival. Health-related services and their ease of access and quality often determine one`s choices when it comes to selecting a community or even the country, where individuals and their families decide to reside. In times of COVID-19 and during the past decade, we have all experienced the necessity to tremendously increase our individual online presence and learned to access all kinds of services digitally. Hence, the questions that this research posed and the answers to them are coming at a most appropriate time and context to postulate interesting predictions ahead, linking old and new habits to basic needs and drawing correlations.

The participants of this study accurately represent UAE's youth and exemplify the universal widespread and heavy usage of mobile phones and ICT across the UAE.

When it comes to the relationship between work and the level of digital access to health care, the results indicated that work provided the participants with digital access at a medium level and provided them with technological tools that help them achieve digital access at a medium level. The results also showed the lack of digital access in the field of health in the workplace.

Finally, this study also indicated that an individual's income does not necessarily allow easier digital access to healthcare and is directly correlated with the latter. Regarding the hypothesis that an advantageous position at the individuals place of employment and a high income is invariably linked to a large digital access to healthcare, we concluded that it is possible that this may apply to people who work in developed societies, but the results of this study in our sampling did not support that. In this regard, this study also presented similar findings that corresponded to similar research conducted in other countries.

This study is of particular importance and provides empirical data to guide developing community decision-makers as those leaders strive to provide high-standard services and serve their populations in the most efficacious way and provide a better tomorrow to the entire community in

their charge. This study can be expanded to the national and even global level to maximize its benefit, resulting in the added value of information-driven policies and innovations ahead, if can be conducted as a longitudinal study in the future.

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