Perception of health care professionals towards mHealth application

Rajesh Kumar Sinha, RenuElza Varghese

Department of Health Information Management, School of Allied Health Sciences, Manipal University, India

Abstract

Mobile technologies are widely expanding and easily available for healthcare and research. They provide the healthcare professionals with the current updated information in the area of healthcare and research. Objectives: To assess the level of perception of the healthcare professionals towards mHealth applications. Methods: A prospective cross-sectional study among 310 healthcare professionals including Doctors (94), Nurses (194) and Allied Health (22) was conducted. A validated questionnaire consists of 33 questions, including characteristics of respondents (6 questions), 10 general questions on the use of mobile phones, and 17 perception questions was used to collect data. Statistical Analysis: The SPSS 16.0 was used to determine the frequencies and percentage. The Chi-square test was done to assess the relationship of various variables where $p<0.05$ was considered significant. Results: Among the participants, 72.9% were smart phone users. More than 70% of the professionals agreed that mHealth assist in data collection and surveillance, adhering to medications and drugs, improving communication of patients with healthcare providers, supporting clinical decision making, alerting healthcare professionals about their patient's needs, monitoring patients closely but majority of them had no opinion on how mHealth protect the privacy and confidentiality and reduce the clinical workload. Conclusion: This study concludes that many professionals are using smart phones and perceived that mHealth applications can support them in patient care, research, education and promoting the best practices in the healthcare industry.

Keywords: Perception, mHealth, Expectations, Healthcare, Professionals, Mobile Electronic Devices.

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Introduction

Mobile technologies have modernized different industries and the health care is no exception. The use of mobile technologies in health has led to the development of m-Health, which is expanded as mobile health i.e. the use of mobile devices for the practice of medicine and healthcare research. The mHealth technology is a sub-segment of eHealth, which is the use of Information and Communication Technology (ICT), such as computers, mobile phones, communications satellite, patient monitors, etc., for the provision of health care services and information. These applications operate with a variety of objectives, including increased access to healthcare and health information, improved ability to diagnose and track diseases, more actionable public health information; and a wide access to current medical education and training. Presently, it has become

Correspondence: Rajesh Kumar Sinha, Department of Health Information Management, School of Allied Health Sciences, Manipal University, Manipal – 576 104, Karnataka, India (Tel.: +91-820-2922329; Fax: +91-820-2571915; E-mail address: rajesh.sinha@manipal.edu, rajsinhahim@gmail.com)

an economical method of classifying and monitoring health issues and for the design of health policies.[1] mHealth also provides health professionals with access to patient data as well as variety of information sources, both of which provide a great assistance in the diagnosis and formulation of treatment. Individuals can use mHealth to access resource materials on health issues. Patients can self-monitor and transmit information to their health care provider; e.g., blood pressure, diabetes data, etc. The mHealth application could be seen as an important communication tool for those who are living in remote areas or physically impaired.[2]

Mobile technologies have a number of key features that give them an advantage in particular activities within health care and public health. Firstly, many Mobile Electronic Devices (MEDs) have the wireless cellular communication capability, providing the potential for continuous, interactive communication from any location, e.g. telephone calls, text and multimedia messaging and also internet access via Wireless Application Protocol (WAP) or mobile broadband internet. Secondly, the devices are portable because of their small size, low weight and rechargeable, long-life battery power. Finally, many MEDs have sufficient computing power to support multimedia software applications. The combination of these features varies between specific devices and their relative importance will change with the health activity in which they are used. However, with advances in technology development, single devices increasingly possess many or all of these functions.[3]

Smartphones (e.g., Android, BlackBerry and iPhone) are powerful devices that combine the conventional functions of a mobile phone with advanced computing capabilities. Many health care professionals already use smartphones within their medical practice. This helps in replacing other mobile devices like pagers, personal digital assistants, etc. Recently there has been a meteoric rise in the popularity of smartphones, and consequently use of applications ("apps"). Currently, there are a large number of apps in the "medical, health care & fitness" category; with some of these being specifically designed for healthcare professionals such as medical calculators and medical reference tools. These apps can provide healthcare professionals with the ability to look up potential drug interactions, perform medical calculations thus reducing the risk of error, and study their patient's radiological images without having to leave their patient's bedside. Additionally, this technology has also helped in improving the communication between the healthcare professionals which is an essential element needed in the medical field.[4] These technologies has succeeded in proving its potentiality in healthcare domain, but to make the implementing successful, it is always advisable to assess the perception of healthcare professionals because the failure to this may lead to rejection and non-sustainability.

Methods

A cross-sectional study was carried out among doctors, nurses and allied health professionals of a tertiary care center of Southern India. The sample size of 211 was determined based on the pilot study conducted among 20 healthcare professionals with the mean score of 65 and S.D of 3.7. To receive a better response, a total of 310 healthcare professionals, including 94 Doctors, 194 Nurses and 22 Allied Health professionals were selected from the available population of 131 doctors, 275 nurses and 30 Allied Health Sciences using the proportionate stratified sampling method. The allied healthcare professionals who were involved in patient care such as physiotherapists and speech therapists were included in the study. A validated questionnaire consists of the demographic details of the respondents and 17 questions on application of mHealth in the provision of health care services based on a 5 point Likert scale ranging from Strongly Agree to Strongly Disagree with the score of 5-1 was used for the study. The respondents were first briefed about the study, its objective and the purpose of the survey. The questionnaire was then administered to those who were interested and willing to take part in the study. An informed consent was also obtained from the respondents for being

the part of the study. The investigator ensured the respondents that the information collected from them will be only used for the study purposes and their identification will not be disclosed to any third party without their consent.

Statistical Packages of Social Sciences (SPSS) version 20.0 was used to assess the level of perception in terms of frequencies and percentages and presented in the form of tables. The Chi-square test was carried out to test the level of significance of various responses with the characteristics of the respondents, where $p<0.05$ was considered significant.

Results

The findings of the study are presented under the following headings in the form of tables and discussed hereunder:

Demographic details of the respondents

There were 310 respondents participated in the study, where 125 were male and 185 females and of them, 10%(31/310) were found to be under the age interval of 20-24 years; 41.6%(29) of 25-29 years; 23.9% (74) of 30-34 years; 14.5%(45) of 35-39 years; 2.3%(7) between 40-44 years and 7.7%(24) were above the age of 45 years. (**Table 1**)

Among 310 respondents, doctors constituted about 30.3% (94), nurses 62.6% (194) and allied health professionals constituted to be 7.1% (22). About 46.5% (144) of healthcare professionals were found to have the work experience of 0-4 years, 24.2% (75) of 5-9 years, 15.5% (48) of 10-14 years, 8.1% (25) of 15-19 years, 3.2% (10) of 20-25 years and the rest i.e. 2.6% (8) had a work experience of more than 26 years. (**Table 1**)

With regard to the use of mobile phones, the majority of the respondents i.e. 72.9 % (226) were smart phone users, whereas 23.9% (74) of the respondents were using conventional type of phones and 3.2% (10) of them did not have any kind of mobile phones prior to the study. (**Table 1**)

The study result also evident that the healthcare professionals have used the mHealth applications for various purposes, such as medication and drug references (37.7%), clinical guidance (22.9%), medical news (21.9%), refer medical journals (19%) and to access the medical dictionaries (25.6%). (**Table 2**)

Perception of healthcare professionals towards mHealth application

The perception towards mHealth application has been identified from 310 healthcare professionals and presented in the form of table and discussed hereunder:

The mHealth applications act as a platform to reach to the outreach in improving the health status of the population and this study also revealed the similar finding where about 77% of doctors, 86% of nurses and all the allied health professionals felt that the mHealth applications can assist them in reaching to the outreach population and improving their health status. **(Table 3)** The association of the responses received with respect to gender, age, designation, and years of experience were found to be statistically significant ($p< 0.05$). (**Table 3**)

The mHealth applications assist in raising awareness and education among the healthcare professionals. In view to this 92.6% of the respondents agreed to it and 7.4% of the respondents were of no opinion. The designation wise response indicates that 86.1% (81/94) of Doctors, 94.9% (184/194) of the Nurses and all the Allied Health professionals agreed to it. The association of the responses with respect to Age, years of working experience, designation, use of mobile applications and use of mHealth applications were found to be statistically significant ($p<0.05$). (Table.3)

When asked whether mHealth applications assist in data collection and surveillance, more than 70% of the nurses and allied health care professionals perceived that it assists but only 60% of the doctors claimed in favour of it. The survey result indicated about 77% of the allied health professionals, who did

Table 1 Demographic characteristics of the respondents (n=310)

Gender-wise distribution of the respondents		
Gender	**Frequency**	**Percentage**
Male	125	40.3%
Female	185	59.7%
Total	**310**	**100**
Age-wise distribution of the respondents		
Age interval	**Frequency**	**Percentage**
20-24	31	10%
25-29	129	41.6%
30-34	74	23.9%
35-39	45	14.5%
40-44	7	2.3%
>45	24	7.7%
Total	**310**	**100**
Designation wise distribution of the respondents		
Designation	**Frequency**	**Percentage**
Doctors	94	30.3%
Nurses	194	62.6%
Allied Health Professionals	22	7.1%
Total	**310**	**100**
Year of experience wise distribution of the respondents		
Year interval(years)	**Frequency**	**Percentage**
0-4	144	46.5%
5-9	75	24.2%
10-14	48	15.5%
15-19	25	8.1%
20-25	10	3.2%
>26	8	2.6%
Total	**310**	**100**
Type of phones used by the respondents		
Type	**Frequency**	**Percentage**
Smart phones	226	72.9%
Conventional type	74	23.9%
No phones	10	3.2%
Total	**310**	**100**

Note: n – Total number of respondents

Table 2 Purposes for the use of mHealth applications (n=310)

Purposes	Yes		No	
	f	%	*f*	%
Medication and drug reference	117	37.7	193	62.3
Clinical guidance	71	22.9	239	77.1
Medical news	68	21.9	242	78.1
Medical journals	59	19	251	81
Medical dictionaries	80	25.6	231	74.5

Note: f- frequency

not have any opinion whether mHealth applications assist in facilitating payments for health services, but around 61% of nurses and 54% of doctors claimed that the mobile money applications facilitates them in payment for health services. The above responses were found to be significant (p<0.05) with the gender, age, years of experience, years of experience and the designation of the respondents. (**Table 3**)

Table 3 Perception of Healthcare Professionals Towards mHealth Applications (n=310)

Sl. No.	mHealth applications assist in:	Target group	Agree		No opinion		Disagree		Significance of response*		
			f	%	*f*	%	*f*	%	factors	χ^2	p value
1	improving the health status of the patient	Doctors (n=94)	73	77.7	21	22.3	0	13.4	G	12.177	**.007**
									A	26.180	**.036**
		Nurses (n=194)	168	86.6	22	11.3	4	2.1	YOE	29.809	**.013**
									UMP	2.851	.415
		Allied Health (n=22)	22	100	0	0	0	0	Desg.	53.357	**.000**
2.	raising awareness and education among healthcare professionals	Doctors (n=94)	81	86.1	13	13.8	0	0	G	2.710	.258
									A	42.071	**.000**
		Nurses (n=194)	184	94.9	10	5.2	0	0	YOE	59.885	**.000**
									UMP	1.022	.600
		Allied Health (n=22)	22	100	0	0	0	0	Desg.	21.529	**.001**
3	data collection and surveillance	Doctors (n=94)	58	61.7	36	38.3	0	0	G	21.121	**.000**
									A	30.010	.070
		Nurses (n=194)	144	74.2	46	23.7	4	2	YOE	47.310	**.000**
									UMP	4.865	.301
		Allied Health (n=22)	17	72.2	5	27.8	0	0	Desg.	16.341	.176
4	facilitating payment for health services and other expenses using mobile money applications	Doctors (n=94)	51	54.3	39	41.5	4	4.3	G	12.637	**.013**
									A	65.634	**.000**
		Nurses (n=194)	119	61.3	61	31.4	14	7.20	YOE	88.779	.000
									UMP	2.621	.623
		Allied Health (n=22)	4	22.2	18	77.8	0	0	Desg.	47.77	**.000**

Note : *f*- frequency, %- percentage , * Association of respective response with respect to G- Gender, A- Age, YOE- Years Of Experience, UMP- use of mobile phone, Desg.- Designation, χ^2- Chi-Square Value

The mHealth apps help in reminding patients to take up medications by the means of alerts and reminders via SMS according to the specified time. [6] The table 4 evident that the 75% of Doctors, 72% of nurses and 72% of Allied Health professionals are in agreement that mHealth applications can help them by adhering to medications and drugs. The study result also shows that the majority of nurses (87%), Allied health professionals (82%) and doctors (66%) agreed that the mHealth applications can be an assistive tool in notification of results of various diagnostic measures done for treatment purposes. (**Table 4**)

When the respondents were asked whether the patients can be kept reminded about their appointments with the use of mobile health applications, 80% of doctors and nurses, and 77% of allied health professionals agreed whereas 20% of the respondents had no opinion.

Eighty four percent of nurses, 57% of allied health professionals and 60 % of the doctors had a positive perception when asked whether mHealth applications assist in improving the communication of patients with the healthcare providers. The allied health professionals who participated in the study also supported that the mHealth applications helps in improving the communication

Table 4 Perception Towards mHealth Applications (n=310)

Sl. No.	mHealth applications assist in:	Target group	Agree		No opinion		Disagree		Significance of response*		
			f	%	*f*	%	*f*	%	factors	χ^2	p value
5	adhering to medication and drugs	Doctors (n=94)	71	75.5	23	24.5	0	0	G	11.628	**.020**
									A	43.328	**.002**
		Nurses (n=194)	141	72.7	46	23.7	7	3.6	YOE	62.455	**.000**
									UMP	8.003	.091
		Allied Health (n=22)	13	72.2	9	40.9	0	0	Desg.	32.07	**.001**
6	providing notification of results of various diagnostic measures	Doctors (n=94)	62	66	24	25.5	8	8.5	G	5.375	.251
									A	41.043	**.004**
		Nurses (n=194)	169	87.1	17	8.8	8	4.1	YOE	34.803	**.021**
									UMP	48.359	**.000**
		Allied Health (n=22)	18	81.8	4	18.2	0	0	Desg.	70.32	**.000**
7	reminding patients to keep their appointments	Doctors (n=94)	75	79.8	19	20.2	0	0	G	32.981	**.000**
									A	62.035	**.000**
		Nurses (n=194)	156	80.4	29	14.9	9	4.7	YOE	42.854	**.002**
									UMP	6.335	.175
		Allied Health (n=22)	17	77.3	5	22.7	0	0	Desg.	25.13	**.014**
8	improving communi cation of patients with the healthcare providers	Doctors (n=94)	57	60.7	27	28.7	10	10.6	G	14.233	**.007**
									A	48.652	**.000**
		Nurses (n=194)	119	61.3	61	31.4	14	7.20	YOE	53.693	**.000**
									UMP	11.770	**.019**
		Allied Health (n=22)	4	22.2	18	77.8	0	0	Desg.	74.007	**.000**

Note : *f*- frequency, %- percentage , * Association of respective response with respect to G- Gender, A- Age, YOE- Years Of Experience, UMP- use of mobile phone, Desg.- Designation, χ^2- Chi-Square Value

between the healthcare professionals, especially in case of referrals for therapy and other intervention. The response was statistically significant to the age, years of working experience, utilization of mobile phones and designation of the respondents ($p<0.05$). (**Table 4**)

About 73% of the nurses and only 52% of doctors and 36% of allied health professionals agreed that the mHealth applications can be a help in reinforcing appropriate behaviors in the patients by providing alerts. When asked, if the applications helps in providing comprehensive information for making clinical decisions, 82% of the allied health professionals, 73% of doctors and 76% of nurses agreed but they were also concerned about the delivery of up to date patient data and domain knowledge to their fingertip, as and when required. The majority of the respondents agreed on a fact that the features associate with the delivery of patient data and domain knowledge build confidence in them in providing quality healthcare. The association the responses in respect to age, years of working experience were found to be statistically significant ($p<0.05$). (**Table 5**)

Table 5 Perception Towards mHealth Applications (n=310)

Sl. No.	mHealth applications assist in:	Target group	Agree		No opinion		Disagree		Significance of response*		
			f	%	*f*	%	*f*	%	factors	χ^2	p value
9	improving communi cation between the healthcare professionals	Doctors (n=94)	71	75.6	22	23.4	1	1.1	G	16.441	.002
									A	53.089	.000
		Nurses (n=194)	157	81	24	12.4	13	6.7	YOE	36.483	.013
									UMP	11.370	.023
		Allied Health (n=22)	22	100	0	0	0	0	Desg.	30.29	.003
10	receiving alerts to reinforce appropriate behaviors in the patients	Doctors (n=94)	49	52.1	35	37.2	10	10.7	G	38.159	**.000**
									A	40.355	**.005**
		Nurses (n=194)	143	73.7	41	21.1	10	5.2	YOE	61.454	**.000**
									UMP	23.091	**.000**
		Allied Health (n=22)	8	36.3	9	40.9	5	22.7	Desg.	45.08	**.000**
11	providing comprehensive information to support clinical decision making	Doctors (n=94)	69	73.4	24	25.5	1	1.1	G	16.524	**.002**
									A	49.358	**.000**
		Nurses (n=194)	148	76.3	40	20.6	6	3.1	YOE	79.040	**.000**
									UMP	4.632	.327
		Allied Health (n=22)	18	81.8	4	18.1	0	0	Desg.	40.19	**.000**
12	improving the confidence among the healthcare professionals as health related information is readily available through the apps	Doctors (n=94)	70	74.5	19	20.2	5	5.4	G	9.360	.053
									A	61.669	**.000**
		Nurses (n=194)	172	88.7	21	10.8	1	0.5	YOE	72.905	**.000**
									UMP	6.851	.144
		Allied Health (n=22)	22	100	0	0	0	0	Desg.	27.06	**.008**

Note : *f*- frequency, %- percentage , * Association of respective response with respect to G- Gender, A- Age, YOE- Years Of Experience, UMP- use of mobile phone, Desg.- Designation, χ^2- Chi-Square Value

All the allied health professionals, 85% of nurses and 59% of the doctors positively responded that the mHealth applications can assist them to monitor the status of certain disease conditions like diabetes, hypertension, etc. from home as this can provide alerts or notifications in case of any variation. (**Table 5**) This response was statistically significant ($p<0.05$) with gender, age, years of working experience, utilization of mobile phones and designation of the respondents.

The respondents did not look very confident and not sure about the statement related to the support of mHealth application in alerting their fellow practitioner in case when the patient needed their help the most. This could be due to their non-practice or non-exposure to such application. The result showed the variation

Table 6 Perception mHealth Applications (n=310)

Sl. No.	mHealth applications assist in:	Target group	Agree		No opinion		Disagree		Significance of response*		
			f	%	*f*	%	*f*	%	factors	χ^2	p value
13	monitoring patients closely & would be provided with more information	Doctors (n=94)	55	58.5	27	28.7	2	12.8	G	21.457	**.000**
									A	61.893	**.000**
		Nurses (n=194)	165	85.1	24	12.4	5	2.6	YOE	60.098	**.000**
									UMP	64.790	**.000**
		Allied Health (n=22)	22	100	0	0	0	0	Desg.	56.57	**.000**
14	alerting to inform the healthcare professionals when their patients needed their help the most	Doctors (n=94)	50	53.2	27	28.7	17	18.1	G	1.137	.888
									A	66.526	**.000**
		Nurses (n=194)	156	80.4	19	9.8	19	9.8	YOE	54.190	**.000**
									UMP	19.096	**.001**
		Allied Health (n=22)	12	54.5	10	45.5	0	0	Desg.	54.136	**.000**
15	reducing the clinical visits of some patients if they were closely monitored from home	Doctors (n=94)	29	30.9	29	30.9	36	38.3	G	7.850	.097
									A	44.707	**.001**
		Nurses (n=194)	112	57.8	42	21.6	40	20.6	YOE	66.820	**.000**
									UMP	8.109	.088
		Allied Health (n=22)	0	0	8	36.3	14	63.6	Desg.	51.353	**.000**
16	protecting the patient privacy and confidentiality	Doctors (n=94)	1	1.1	47	50	46	48.9	G	16.805	**.002**
									A	67.862	**.000**
		Nurses (n=194)	19	9.8	92	47.4	83	42.7	YOE	84.463	**.000**
									UMP	3.126	.537
		Allied Health (n=22)	9	40.9	13	59.0	0	0	Desg.	73.735	**.000**
17	decreasing clinical workload and workflow changes	Doctors (n=94)	12	12.8	53	56.4	29	30.8	G	10.647	**.031**
									A	46.952	**.001**
		Nurses (n=194)	37	19	74	38.1	83	42.8	YOE	70.999	**.000**
									UMP	11.221	**.024**
		Allied Health (n=22)	18	81.8	4	22.2	0	0	Desg.	74.856	**.000**

Note : *f*- frequency, %- percentage , * Association of respective response with respect to G- Gender, A- Age, YOE- Years Of Experience, UMP- use of mobile phone, Desg.- Designation, χ^2- Chi-Square Value

in responses among the respondent only nursing professionals claimed the most i.e. 80.4% compared to doctors and allied health professionals. The response was found to be significant ($p<0.05$) with the age, years of working experience, use of mobile phones and designation of the respondents. (**Table 5**)

When asked the respondents whether mHealth helps in reducing the clinical visits of the patients by closely monitoring from home 63% of the allied health professionals disagreed and 57% of the doctors agreed to it. (**Table 6**) The association of response with respect to age, years of experience and designation were found to be statistically significant ($p<0.05$).

The privacy and confidentiality of patient data are always considered under threat, when it is maintained electronically. This study also showed the same result as the majority of the respondents had no opinion when asked regarding the assistance of mHealth applications in protecting the privacy and confidentiality of the patients and most of them disagreed with it. The age, years of working experience, use of mobile applications and designation of the respondents were found to be statistically significant with their response ($p<0.05$).

Table 7 represent the responses received from the respondents where about 89.4% of the respondents felt that the mHealth application should be practices within the healthcare facility.

Table 7 Overall Perception (n=310)

Parameter	Yes		No	
	frequency	%	frequency	%
Do you think mHealth applications should be practiced within the healthcare?	277	89.4	33	10.6

Discussion

The present study offered diverse opinion of the healthcare professionals towards mHealth application in patient care. The health care professionals who took part in the survey felt that the mHealth has the potential in improving their efficiency in patient care by reaching to the patients, who finds difficulty in accessing health care. Larry W Chang et al[5] in their study also claimed the similar findings, where the healthcare professionals claimed that the mHealth applications not only improve the patient care but also assist the healthcare professionals in reaching the outreach. The majority of them considered mHealth application as a tool for creating awareness and education among the population. The literature search also indicated some of the initiative in the similar context taken by Nokia India, in association with Arogya World, a US based non-profit organization that has announced a major diabetes prevention mobile health initiative in India that would offer messages about the diabetes awareness and prevention.[6] Even, Freedom HIV/AIDS in India is the first ever initiative on HIV/AIDS awareness using mobile phone games, and is also the largest ever-social initiative on the mobile devices. It is one of the effective ways of spreading messages and creating awareness by Play-and-Learn method. This method makes learning not only exciting and engaging, but helps in better enhancement and retention of knowledge.[7]

The healthcare professionals claimed that they always find challenging in collecting health related data from the rural and outreach population. Most of the time, medium of collection use to be paper and that results in more time consuming and duplication. In this regard, mHealth application such as, Datawinners, iFormBuilder have not only streamlined the process of data collection, but also have equipped the professionals to easily tabulate the collected data without any extra effort.[8] (**Table 3**)

The respondents did not look very confident in answering the questions related to the reliability of mHealth application in financial transaction during patient care as they were not very sure the use

mobile phone in this context, but the literature survey indicated few applications like, Heart File Health Financing, Transportmypatient, which are considered as few promising applications that allow the transfer of funds related to patient care in a transparent manner.[8]

The mobile phone is always considered as one of the best mean of communication and in the context of health care, this has always assisted the healthcare professionals as well as patient in communicating with the each other irrespective of geographical location. This study also indicated the similar findings like, Matthew Price et al[9] where about 84% of the study population claimed that mHealth applications are being helpful to maintain timely linkages with Doctors. In the similar line, CommCare is a mHealth platform for health workers that track and supports their interactions with patients. It manually tracks the work via paper registers and carrying large patient education flip charts, thereby replacing the Community Health Workers (CHW). Each CHW is equipped with a midrange phone running open-source and low-literate-friendly software. CommCare increases the timeliness, accuracy and relevance of essential information delivered to their clients.[8] The study by Car J. et. al.,[10] also showed that the mobile text message reminders improved the rate of attendance at healthcare appointments compared to no reminders.

The regular monitoring of patient health status is considered as one of the key activities to improve the health status of the patient. The healthcare professionals who participated in the study also felt the same and they claimed that the mHealth application can assist in monitoring many health related problems of the patient. The study conducted by Hilary Pinnock et. al.[11] showed that healthcare professionals were generally neutral with the impact on care and were concerned with the workload implications when using a mHealth application for monitoring asthma. The result of study by Emily Seto et. al.[12] also indicated that the clinic visits of patients had been reduced due to their close monitored from home using mHealth technology.

The health care professionals who took part in the survey also added that the mHealth applications should be practiced in health care settings, as they contain relevant information regarding various diseases and conditions and make it available at their fingertips. They also commented that the applications could prove to be of great help for education and research purposes, as they contain the latest updates. More than 90% are in agreement that they would like to use the mHealth applications if they can get it for free and with features that help them in; receiving alerts and reminders about their patient schedules and appointments, accessing domain knowledge, video conferencing with the other professionals and patients in remote areas, availability of health portals, supporting them in making various clinical decisions and improving the communication and collaboration with the geographically dispersed researchers. They also added that the mHealth applications should keep the patient data confidential and it should be user-friendly, easily understandable, easily available and portable; should be able to keep track of the patient status during treatment period and regularly updated with the latest information. The professionals recommended in using mHealth applications because it is time saving, improves the quality of healthcare, helps in research, reliable, easily accessible, reduces workload, provides diagnostic notifications faster, improving communication with the patients and healthcare professionals, etc. But a few were of the notion that it should not be practiced because it will reduce the direct contact of the professionals with the patients and it might be a burden in professional teaching. There were a few disagreements of the respondents had been observed where they felt that the mHealth cannot be mean to monitor the patients from home, as the visit of clinic should be must in improving their disease condition, especially in chronic cases.

Conclusion

Mobile communications are a part of our everyday life and therefore, they can have the potential to change

our wellness and healthcare. There has been a large impact of this technology when it comes to the area of healthcare education and research. The study concludes that a large number of the healthcare professionals are using mobile phones as a means for communication in their day to day life and the majority of them are using smart phones, which is the latest mobile technology used globally. Health related applications like Medscape, WebMD, L-Practo, and many more are being practiced within the healthcare professionals for purposes like referring medications and drug; for clinical guidance; to refer medical dictionaries, etc. They highly perceived that use of mHealth applications can support the professionals for patient care, research, education and in the healthcare industry. These health care professionals also strongly suggested that the mHealth applications should be practiced within the healthcare professionals and in the healthcare industry as they are efficient, time saving, informative, easily accessible and user-friendly. Even, there were many of them, who had no opinion about mHealth and its benefits. This could be due to either the use of conventional type phones or non-awareness about the availability of mHealth application. Here, the need felt is to create awareness and training program about the availability of mHealth application, its functionality and benefits, which would ultimately empower the healthcare professionals and would strengthen their practice.

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