RESEARCH ARTICLE

A STUDY ON CHANGE IN DOCTOR-PATIENT INTERACTION THROUGH WEB-BASED HEALTHCARE SERVICES

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ARTICLE INFO	ABSTRACT
	The budget for healthcare sector in 2015 is expected to be Rs. 33,150 crores by the government of India. As the time passes the health has become a major concern for each individual and in these web-based healthcare services took a huge transition. The web-based healthcare services is the easy going phenomenon where the management of health taken places on their own. From the last decade, a huge change has taken place as now the patients are able to take decisions related to medications, treatments and services as per their convenience. The paper is focussed on the change in doctor-patient interaction through web-based healthcare services. The study was conducted from the sample of 216 and the findings suggested that these services have totally changed the life of doctors and patients as well getting more informative, serious and creative for their health.

INTRODUCTION

In present scenario, rise of digital technologies has totally changed the livelihood of individuals. Use of internet, social media websites, mobile applications, smartphones and tablets etc. has grown their activity by delivering the best healthcare facilities to patients, healthcare professionals (HCPs) as well as payers (Engaging Patients Through Social Media, 2014). The internet is the major source and a vehicle for health information, care and maintenance. Social media websites has created a big and interactive platform for sharing, co-creation, discussion and to modify user-generated content (Kietzmann *et al*., 2011). According to the report of Internet and Mobile Association of India (IAMAI) and IMRB (Indian Market Research Bureau) International, the total internet users in India are about 302 million from the population of 1.27 billion in the year 2014 (India may overtake US as second largest internet user base, 2014). The web-based services basically help the patients, healthcare professionals and pharmaceutical industries to communicate and interact with each other. Now it has been authorized that pharmaceutical and healthcare companies can

legally interact and communicate with the consumers (or surrogate consumers) or customers. Up to some extent one can say that the full implementation is still not done because of lack of organizational commitment and specially the lack of trust (Seidman and Eytan, 2008). Healthcare now-a-days has become the important and crucial part for the individual's online consumption (Romano, 2003). The people search for disease information, medications, treatments, procedures and consultations with doctors or hospitals etc. The e-health concept and web 2.0 technologies introduced at the turn of the century which is assumed to be the most characteristic way of interaction and communication which is increasing day by day (Mukherjee and Mcginnis, 2007). The websites or health providers are emerged and in this various hospitals and third party players are included. According to a report published in The Times of India (2014), online medical consultation is becoming popular in which new options like online appointments, video calls with doctors, getting knowledge from social media is at higher side and the example of Vedanta Hospital in Gurgaon has been mentioned (Doc, 2014). Similarly, the third party players like practo, meetmydoctor, intermed, drsupport etc. are indulge in this field providing best services to the patients. They provide services like scheduling appointments with doctors, viewing medical records, paying bills, online prescriptions, health calculators, health directories,

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tips etc. thus, resulting in the number of patients for seeking the care, medical facilities, hospitals, wellness centres, physician's practices and holistic groups (The Benefits of Online Appointment Scheduling, 2012). Today, millions of customers and consumers (or surrogate consumers) use internet for their personal use. According to the study, 120 millions of population are active internet users and 900 plus millions mobile phone users (Dinesh Chindarkar, 2013). Internet is defined as the electronic network that links people and information through computers and other digital devices which allows person to person communication and at the same time allows for normal retrieval (Dimaggio *et al.*, 2001). Instead of this internet proved it to be the best source for information and interaction with doctors and patients. Internet enhances the doctor-patient interaction in many ways and are as follows (Dimaggio *et al.*, 2001)

1) Firstly, the patients enjoy communicating with doctors or health experts.
2) Secondly, it appears to be the more convenient way to research online, online appointments and other services provided by the authorities at any time.
3) Thirdly, it offers the ability to consult international or national experts in particular field in easy manner.

Benefits of Web-based healthcare services

Web-based services provide individuals a security and convenience regarding their diseases, appointments, treatments etc. The benefits of healthcare services are as follows-

Source- https://blog.practo.com/awesome-revamped-patient-records-released/
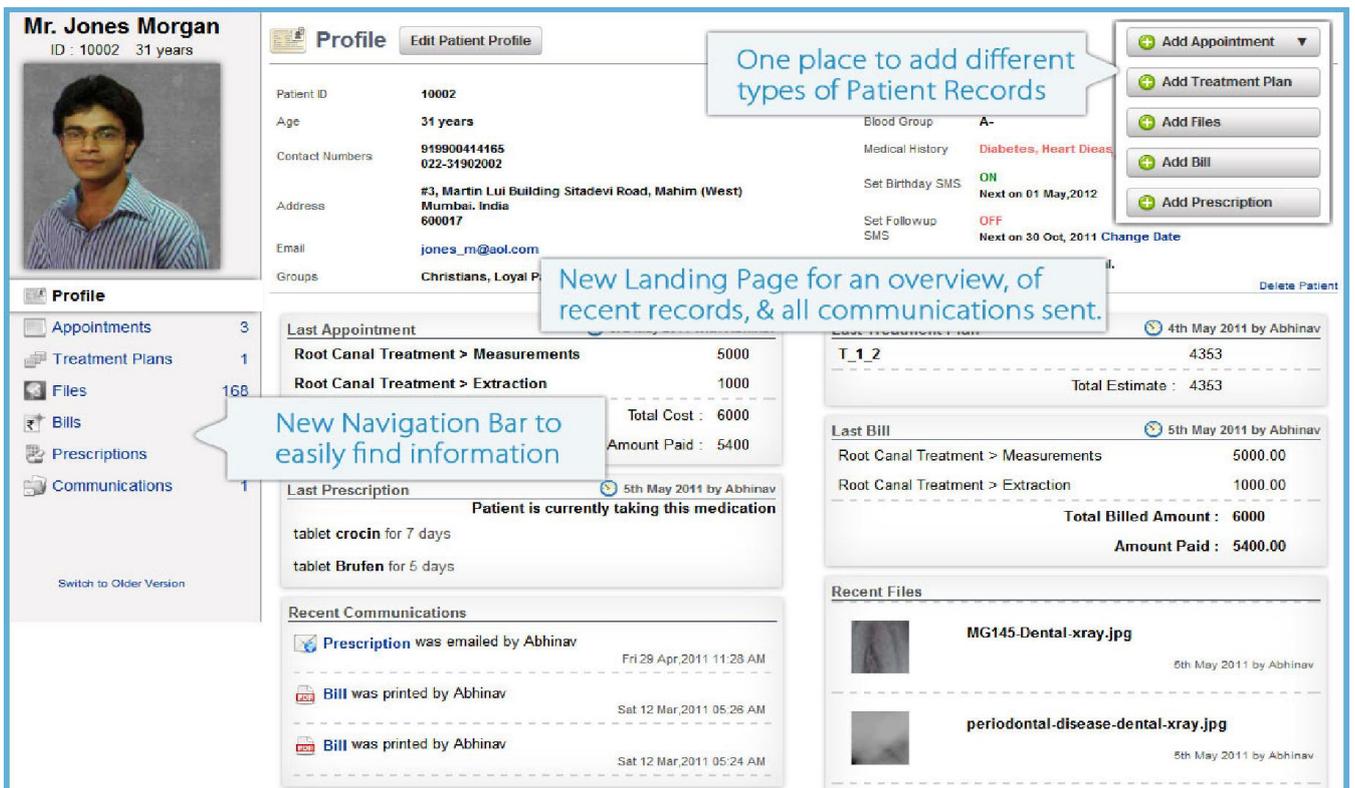
**Figure 1. Patient's profile on practo.com**
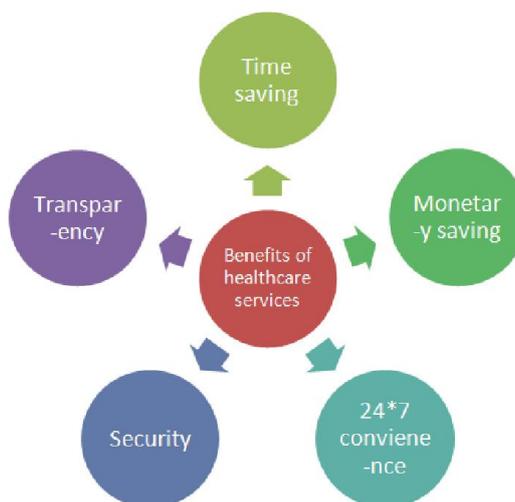
Figure 2. Benefits of web-based healthcare services

1) Time-saving

At present time due to monotonous lives of individuals or patients, they do not get enough time to meet doctors or physicians or wellness providers for their treatments and waiting long hours for appointments and medicines. Thus, web-based healthcare services now proved to be the better option for time saving for doctors as well as patients. Practo, a web-based healthcare service helps the patients for online appointments. According to the report Practo deals with about 5 lakh visitors a month and 1500 appointments a day and is expecting to have 20 lakh visitors a month and 20 lakh appointments a day till the end of the year (Verma and Dalal, 2014).

2) Monetary savings

Parallel to time, money is also one of the crucial things for the individuals. So, these websites and their services help the patients to save the money because manual work and face-to-face interactions are costly as compared to online services. Docsuggest (web-based service) do not overcharge for the services or one can say that they are money friendly with the patients (Pahwa Nikhil, 2011). Also many providers give discounts, loyalty plans, packages etc. for their and trustworthy patients like- drsupport, intermed etc.

3) 24*7 convenience

All the services provided by the online providers or players are available at anytime and anywhere. The few facilities are offered round-the-clock without any inconvenience to the patients and doctors.

4) Security

This is one of the major considerations for any individual and accordingly, the web-based services are secured in certain manner. No misuse takes place at any cost. For example- a patient can keep their appointments, tests, personal health records etc. safe and secure by logging them with personal passwords.

5) Transparency

Now-a-days, every individual wants transparency in their work. Similarly, in case of web-based services transparency plays its role to satisfy the doctors and patients to work in easy manner.

Rise in third party players

Third party players are the healthcare providers which help in the patient-doctor interaction in best way. There are number of providers in India as well as in other countries providing services like online appointments, health tips, discounts, online pharmacies etc. Shashank N.D., owner of Practo runs a platform for about 8000 doctors and subscribes services to 5000 healthcare centres across India (Mint, 2014). These players helps the doctors to manage their appointments in better way, anywhere and easily access the records of patients 24*7 and thus enhances the interaction of doctors and patients in easy manner.

According to the report by Mercom Capital Group, a healthcare consulting firm that in first quarter of 2013, about 57 crore was invested for the healthcare service companies and Practo has raised about 23 crores in seed capital including Sequoia Capital using 50,000 clinics by the end of this year (Adarsh, 2013). Similarly, iclinic has raised its funds about $4 millions (or Rs. 24.16 crore approximately) from $1 million (or Rs. 6.04 crore) (Tech good care, 2014). There are various services which are provided by the web-based healthcare providers and following are some of the services provided by some of the providers-
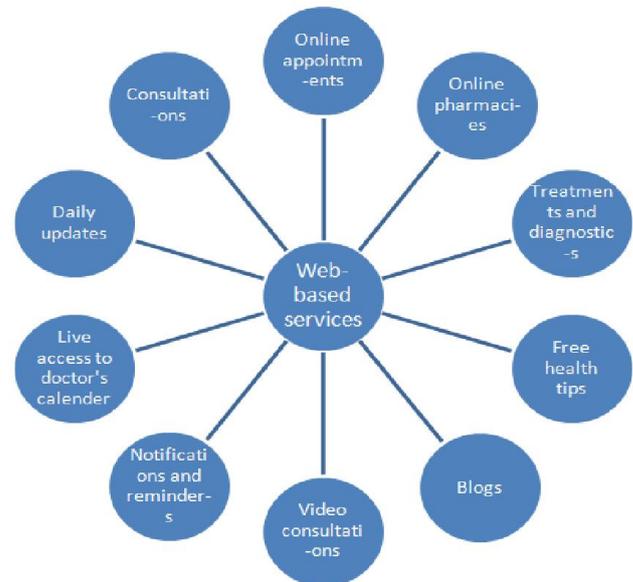

Figure 3. Types of web-based healthcare services

Literature review

Doctor-Patient Relationship

The doctor-patient relationship is the long term way for the medical care and the best medium to gather and diagnose the data and accordingly the plans are made to support and heal the patient. From last decades, there are many changes occur in the way to deliver the health care to the patients and also balancing the healthy relationship between doctor as well as patient. The doctor-patient relationship can be described as the consistent event in the medicine and can mainly be preserved by the help of stable and static goals of medicine (Siegler, 2000). These goals repeat the need for the pure model of medicine which helps to interpret the illness specifically by physical signs and symptoms. According to the study, the communication skills and sensitive behaviour are the two basic and important things required for every doctor and this can be achieved by various courses and positive attitude (Baile *et al*., 2000). Also, it has been mentioned about the importance of the character of the physician for the better performance as a practitioner (Tor, 2001). So, one can say that a better relationship and interaction can enhance the representation for better integrity. The overall goal for healthy relationship is to heal and care of the sick in formal and distinguished manner. It has been proved that the better way to serve the doctor-patient relationship is by patient-centred framework which endeavours to judge and get the picture by combined biological, psychological and social

perspective and getting the individual experience of patient and meaning of illness (Mead and Bower, 2004). Such type of models help in better decision making to take the better responsibility for own health. The model automatically leads to the patient-centred mode of communication. The ultimate expression is the doctor's duty to respect the patient and providing enough benefits and better compliance to treatment (Dimetteo, 1994). Patient centred system (PCS) helps in patient empowerment and decreases the dependency on services (Ian Pocock, 2014). At present, in every field and every relationship, trust is very important. Similarly, the more relevant thing in doctor-patient relationship is the trust and thus, the blind trust is now being replaced by informed trust (Akerkar and Bichile, 2004).

Following is the table which shows list of some third party players which provide healthcare services to the patients with the description-

Table 1. List of Websites and their descriptions

Websites	Description
Practo.com Intermed.in	• Online appointments • Dental services • Consultations • Diagnostics (labs, digital care etc.) • Pharmacies • Packages
Doctorsbooking.com Medicalindia.in Helpingdoc.com	• Online appointments • Online appointments • Online appointments • Online consultations • Free health tips • Free consultations • Offers • Blogs for remedies and precautions • Packages
Qikwell.com	• Choice of specialists • Online appointments • Instant appointments confirmation • Appointment's reminder • Notifications for delay or change
Icliniq.com	• Phone consultations • Video consultations
Drsupport.in	• Online appointments • Sharing experiences • Frequent updates • Notifications and confirmations
Mylifecare.co.in	• Online appointments • Health clubs • Knowledge banks
Kare4u.in	• Online appointments • Personal health records • Digital lockers • Health packages

Change in the attitude of patients

The need to improve the way of treatment and management for the patients is now at the top of the discussion. The present generation is keen to involve in the healthcare context and learn about the new ways of treatment and medications for their better health. At present, health information technologies and online resources boosted the quality of care by improving the access, efficiency, management especially of chronic diseases,

patient and family involvement (Kanaan, 2009). The number of healthcare organizations has created the different portals for the patients where they can easily access useful information. A recent survey launched that now patients are more interested to pay attention and involve themselves in their health and medical care when they are easily helped out by the online services and which is more especially helpful and true for lower income patients (Consumers and Health Information Technology, 2010). According to the report, patients or the consumers are the resourceful operator of internet by the industries but industries itself are not completely ready to adapt the internet in their business (Egger, 1999). However, the patient's attitude is towards positive to gain number of advantages from web-based services. Also one of the research found that 72% of consumers are interested to us the online tools which provides the services like paying medical bills, communication with their doctors, scheduling online appointments and getting online lab results (Cary, 2011). There are many patients who don't have enough time to meet their doctors due to busy and monotonous schedule. The Bangalore based Healthcaremagic.com generates 4.5 million visitors per month (Roy Shreya, 2011). The technology is now getting the main subscriber which is helping out to enhance the quality, safety and efficiency of delivery of healthcare. Thus, getting more and more efficient services through web-based players is changing the attitude of patients.

Concern of security and privacy in web-based healthcare services

Privacy is defined as the right to be l*et al*one (Warren and Brandeis, 1890). It is very important to secure the information which are somewhat personal and cannot be disclosed to everyone. The information or records which are shared are like the outcomes for a clinical relationship and is considered to be the most confidential and to be protected from others or unknown individuals (Rinehart-Thompson and Harman, 2006). Various agencies and authorities are responsible to decide and develop the guidelines as done by The National Institute of Standards and Technology (NIST) which explains information security as the storage of data confidential (Barbara and Edward, 1995). Also The Health Insurance Portability and Accountability Act (HIPPA) and The Health Information Technology for Economic and Clinical Health (HITECH) Act play its role in deciding the guidelines for security and making the data and records confidential. It has been surveyed that about 73% of physicians communicate with other physicians about their personal work (Greene, 2011). Then, the security and privacy becomes the major concern for each individual. Timely, the authorities and concerned organizations with the help of their team of health information technology identify the security concerns and if any problem occurs then they convey to the authoritative person (Laurinda *et al.*, 2012). Possibly, security is one of the major concerns in any field whether related to healthcare, education, services etc. The important factor in improving the quality and making feasible for everyone is through Healthcare Information System. The world Healthcare Information Technology market is expected to spend $162.2 billion in 2015 (World Healthcare IT 2011). Many a times it gets difficult for the individual to rely on the information given by the portals or internet. Mr. Prerak Hora,

Associate, TMT law Practice at Nishith Desai Associates has said that, "social network content is mainly in the form of user generated content. It is very important on behalf of patients creating right information regarding their diseases, brand name, contraindications, adverse effects etc. (Roychowdhury, 2010).

It is very important to attain the information security to gain the trust of individuals. The security is thus accomplish by confidentiality, integrity and availability of information and their meanings are as follows (http://www.healthit.gov/sites/default/files/small-practice-security-guide-1.pdf)

- **Confidentiality-** This is the major thing to be taken in the part of security. The information must not be disclosed to everyone or to an unauthorised person.
- **Integrity-** The information should not be emended or blotted out in an unofficial manner.
- **Availability-** The information should not be approachable and operable on demand by any authorized person.

These above mentioned practices likely to help the consumers or customers to make them feel safe and secure in the hands of internet services. Whenever the individual assess the web-portals always think about the conditions that may result in an unauthorised access, use, revelation, interruption and adjustment of electronic health information (http://www.healthit.gov/sites/default/files/small-practice-security-guide-1.pdf).

Importance of Web-Based Services

Health has been projected as one of the super seven areas of explosive growth, according to August 2012 comscore webinar on "The Rise of India's Digital Consumer" (Viveka Roychowdhury, 2013). In this regard, number of studies had been conducted to prove the importance and boom of web-based services around the world. Web-based services not only changed the lives of patients but also doctors and pharmaceutical industries to transform the things according to the ease and use. The importance of e-Health services not only implemented but detailed about the challenges which play a meaningful coactions with appropriate healthcare receiver, competent and feasible strategies and monitoring the techniques in between consumers (WickramaSingh *et al*., 2005).

This not only helps to understand in better way but is like the catalyst to give healthy and fruitful face-to-face and virtual interactions. Many authors defined the communication tool, as the consumers or customers and the organizations which are interacting with everyone heedless to time or distance (Blattberg and Deighton, 1991). The major importance of the online services and appointments are majorly conveyed with the help of Flow theory, which has been explained by many authors (Pace, 2004; Hoffman and Novak, 1996). In the study, the flow theory is like a state or condition where an individual has been engrossed in the situations that without being aware of the moments he/she stands out in the presentation (Finneran and Zhang, 2005). According to the research, the surgical conditions coming under the category of medical practices are also moving towards the internet as the main marketing tool

(David, 2008). Further, Hitesh Gajaria, Executive Director, KPMG India concluded that customers must be educated prominently on social media to follow the principle of "Caveat Emptor-Buyer Beware". Buyer must always be aware about the information related to its health and medicines as well (Viveka Roychowdhury, 2013). The intern*et al*lows the communities to grow and educate themselves by getting best healthcare. With the help of internet promotions and educational processes are also being done (Celio *et al*., 2002) and the reports of psychological interventions are exchanged (Tale *et al*., 2001). As the first firm who started to promote the Gardasil vaccine that helps to protect human papillomavirus which can cause cervical cancer was Merck and the promotion was through facebook (Pharma marketing blog, 2012). The educational tips for the individuals are also provided by the web-based services. For example- Mylifecare, a web-based portal has a section of knowledge bank where diet tips, health calculators, weight management tips, medical and technology etc. can be accessed (www.mylifecare.co.in).

A researcher said that the main advantage of the internet is that it is the best source of health information which can be easily accessible from anywhere and at any time and can be read at private place easily without the hindrance of others with full freedom. It has been mentioned that the health sites do not convey a message to not interact with physicians but it helps the patients to prepare themselves for the appointments and making them much more responsive and liable about their personal and family's health (Health websites gaining popularity, 2002). A survey conducted by WebChutney found that 72% of internet users search for health related information and services as well. The surprising thing is that the 64% of the internet users are over the age of 25 years (Changing Behaviour in India, 2013).

The patients or users generally rely on the internet to search for the information about diseases, treatments and procedures as well as other services which are being provided by the third party players like practo, meetmydoctor etc. The patients are now also interested to review the doctors or healthcare providers, communicate with them about their personal health related problems and also taking opinions from same kind of patients. According to the Google study about 77% of patients significantly use Google search before taking final decision about their appointments or other services (Changing Behaviour in India, 2013).

Research objectives

- To understand the reasons/factors responsible for change in patient and doctor interaction in Indian context.
- To understand the attitude and perception of patients for web-based healthcare services.
- To understand the facilities provided by the websites to the patients.
- To understand the patient engagement level and their satisfaction level for web-based healthcare services.
- To identify the gap in the facilities provided by the web-based healthcare services and recommend the solution for the same.

Methodology

A deep analysis has been done taking the entity variables and the responses given by the respondents. The target population was 216 patients and with the help of google docs the responses were taken.

RESULTS

Favourite mode of information

The patients were asked about the modes of information. At present time, the individuals have number of ways through which they can access the information about various diseases and other healthcare related services.

There are different modes for getting information about medications, treatments and diseases and they are- websites, social media, online advertisements, friends/families, newspapers, magazines, TV ads and so on. When asked from patients about their favourite mode from which they get information about diseases and other health related services then about friends/family were ranked highest followed by TV ads, newspapers and so on. The following graph shows the various modes of information as ranked according to the patient's views-

Rely on web-based healthcare services

Trust and faith regarding the information especially related to health is very important. If there will be trust for the way of getting informed then with full confidence and hope patient will access the web-based healthcare services.
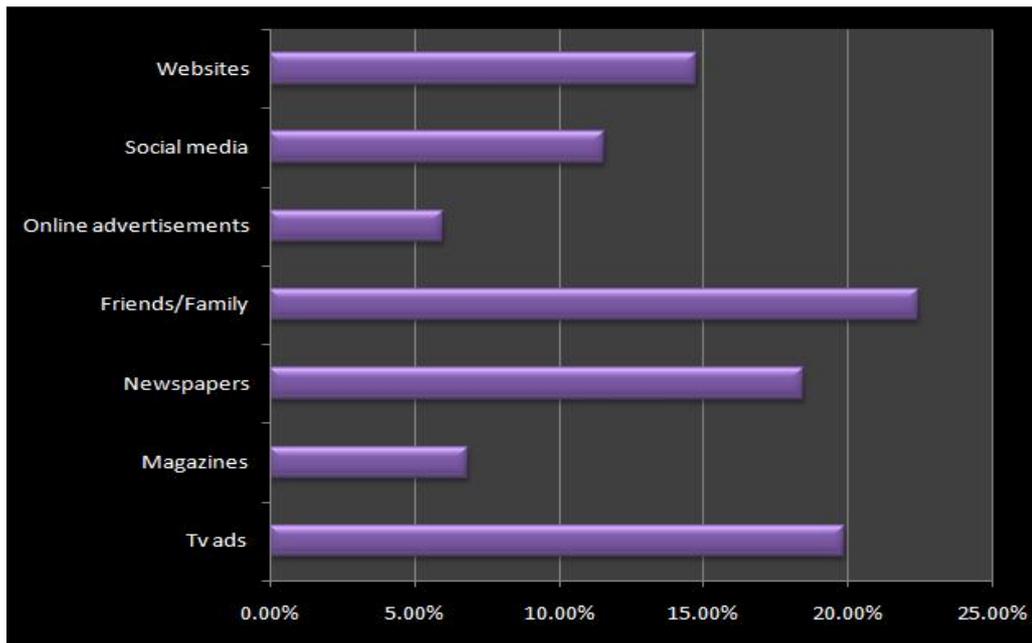
Graph 1. Different sources of information and their frequency

Table 2. Frequency distribution showing rely on web-based healthcare services

Rely on web-based healthcare services		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	123	56.9	56.9	56.9
	No	93	43.1	43.1	100.0
	Total	216	100.0	100.0	
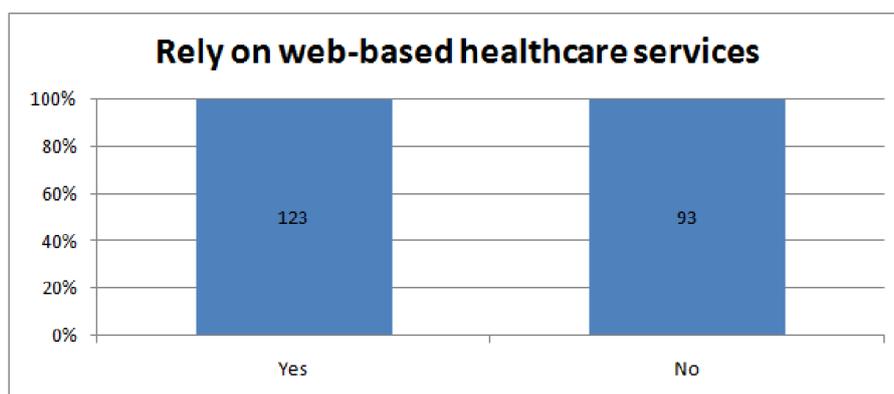
Graph 2. Rely on web-based healthcare services
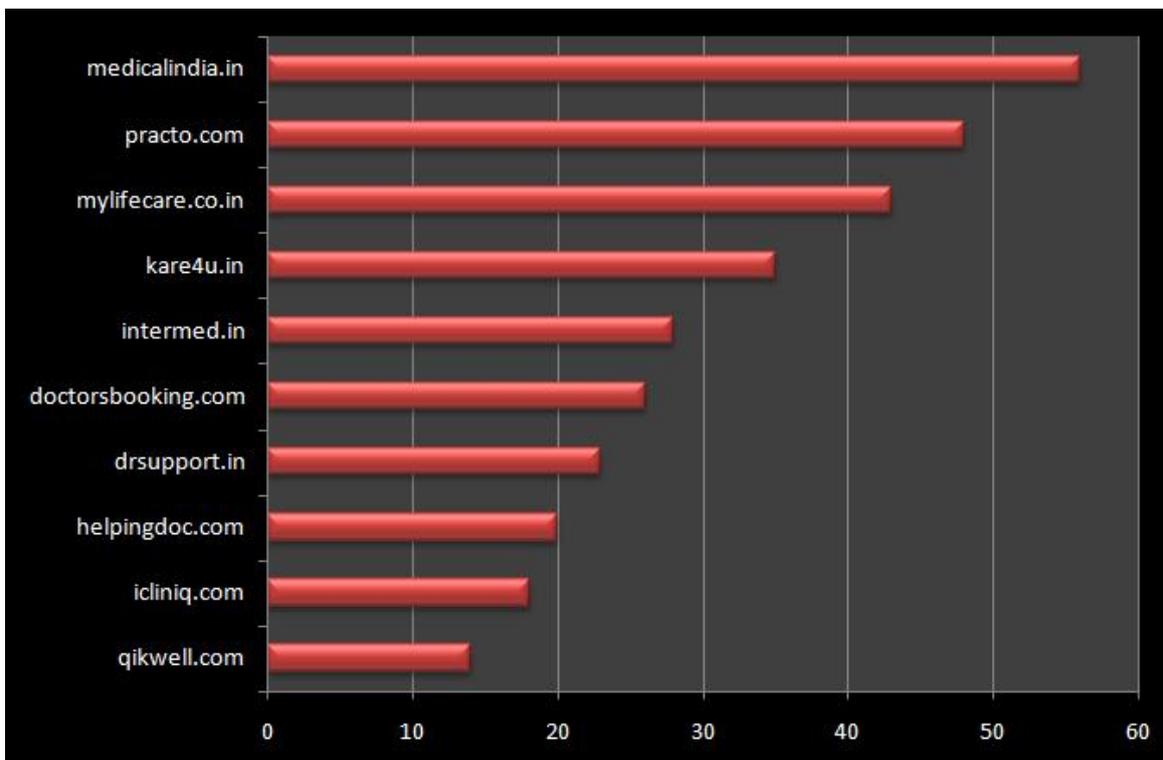
Graph 3. The top third party players

Table 3. Frequency distribution showing some web-based services used

Some web-based services used					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BMI calculators	94	43.5	43.5	43.5
	BMR calculators	30	13.9	13.9	57.4
	Pregnancy calculators	1	0.5	0.5	57.9
	Smoking calculators	4	1.9	1.9	59.7
	None of these	87	40.3	4.03	100.0
	Total	216	100.0	100.0	
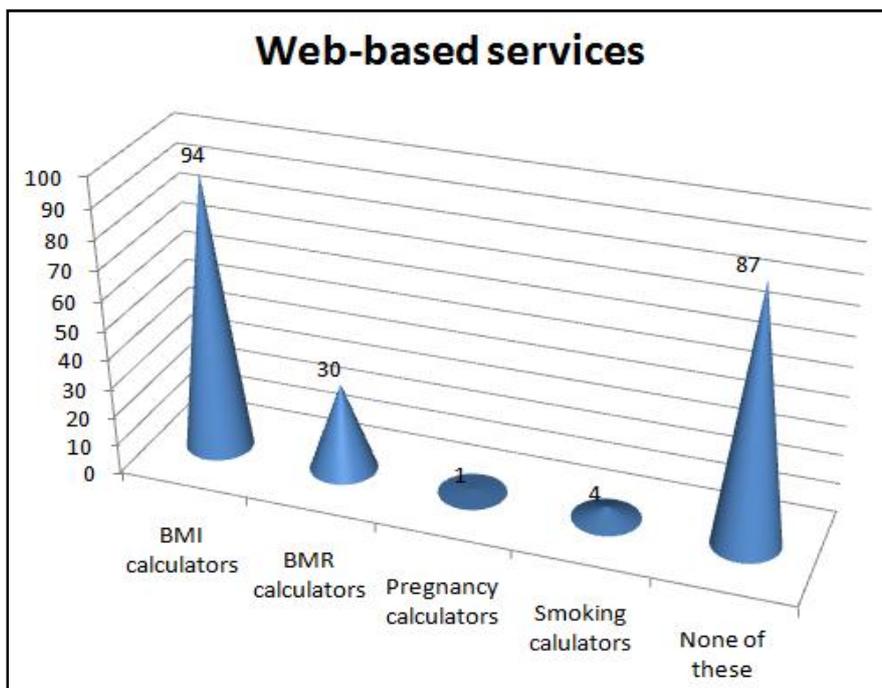
**Graph 4. Different web-based services and their use**

Table 4. Frequency distribution showing that used web services has the property

Used web services were-		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (Not used the services asked)	87	40.3	40.3	40.3
	Preventive	31	14.4	14.4	54.6
	Assisted	32	14.8	14.8	69.4
	Consultative	61	28.2	28.2	97.7
	None of these	5	2.3	2.3	100.0
	Total	216	100.0	100.0	
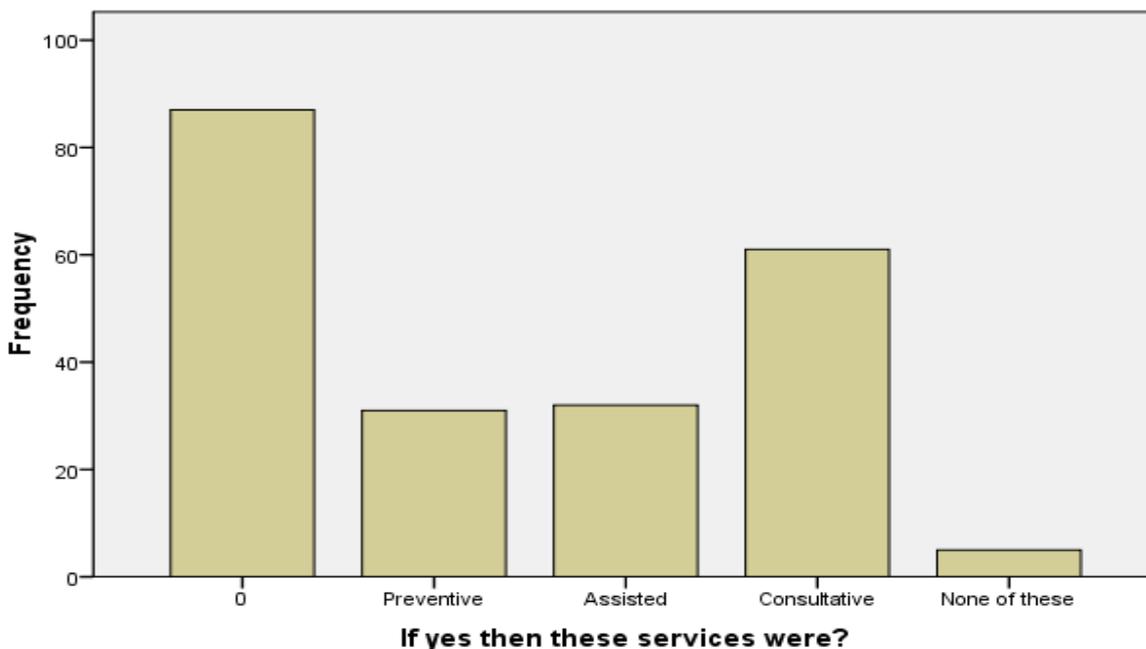
Graph 5. The property of services used

Table 5. Frequency distribution showing demographics of respondents

	Category	No. of people	Percentage	Cumulative percentage
Age in years	18-25 years	106	49.1	49.1
	26-30 years	59	27.3	76.4
	31-40 years	35	16.2	92.6
	>40 years	16	7.4	100.0
	Total	216	100.0	
Gender	Male	114	52.8	52.8
	Female	102	47.2	100.0
	Total	216	100.0	
Education	Undergraduate	8	3.7	3.7
	Graduate	141	65.3	69.0
	Post graduate	67	31.0	100.0
	Total	216	100.0	
Occupation	Student	77	35.6	35.6
	Service	75	34.7	70.4
	Business	13	6.0	76.4
	Academics	29	13.4	89.8
	Housewife	12	5.6	95.4
	Government employee	10	4.6	100.0
	Total	216	100.0	
Annual household income	0-3 lakhs	92	42.6	42.6
	3-6 lakhs	61	28.2	70.8
	6-10 lakhs	29	13.4	84.3
	>10 lakhs	34	15.7	100.0
	Total	216	100.0	

Table 6. Reliability of the survey

Cronbach's alpha	Number of items
0.936	35

Table 7. The statements asked from the respondents and its mean

S.No.	Statements	Mean
1	I feel online appointments make my life easy.	4.42
2	Blood reports, urine reports and other diagnostic services are affordable for assistance and save the time as well.	4.24
3	Obviously, online pharmacies resolve or query in a single click.	3.49
4	Information available on these websites make us empowered in seeking consultation with doctors.	3.68
5	I am able to manage my health problems better through online consultations.	3.35
6	I am able to decide more confidently as I am able to access complete information.	3.54
7	Online health packages grab our attention promptly.	3.44
8	I like to read about general free health information available on these websites.	3.73
9	I become more knowledgeable, as this information enrich my understanding for the disease.	3.72
10	I become knowledgeable browsing the remedies and precautions given on the blogs.	3.72
11	Many-a-times, these blogs for remedies and precautions help me in taking active role in doctor's chamber.	3.62
12	Live access to doctor's calendar helps me in matching my schedule, so that I can have my preferred slots.	3.54
13	I find it easy to get appointment confirmation instantly.	3.58
14	Appointment reminders remind me for doctor interaction.	3.59
15	I think notifications for delay or change of appointments makes our scheduling on time.	3.62
16	Phone consultation helps me in making my mindset.	3.64
17	Video consultation offers flexibility and convenience.	3.45
18	I feel that online feedbacks for doctors make us wise in decision making.	3.59
19	Google maps really make our reach to doctors easy.	3.93
20	Assisted advice on medical insurance helps us in taking right decision.	3.60
21	I become more informed through new researches, developments and treatments available on these websites.	3.72
22	Online ambulance services help us in the emergency situations.	3.79
23	Online blood bank services are definitely a great life line.	3.86
24	Health club services help us in self health management.	3.81
25	Ayurvedic spas and related services help us in rejuvenation.	3.75
26	It really becomes easy to manage personal health records through these websites.	3.71
27	Web-based services make me aware of nutritional tips for the family.	3.85
28	Web-based services are useful in managing the diet tips for me and for my family also.	3.95
29	I find easy to get information for weight management tips.	3.91
30	Gradually, I am becoming fitness freaky through browsing on these websites.	3.72
31	Web-based services do not provide reliable information.	2.70
32	Web-based services do not give enough information about the possible risks and negative effects of services.	3.79
33	These services are wasteful of economic resources.	2.45
34	They promote undesirable values to the society.	2.56
35	It increases the cost of services.	2.62

The third party players and other healthcare provides proved it in a very systematic and appropriate manner because for them health of their patients comes first. Also, patients now-a-days totally rely on such type of healthcare services which are provided by the providers online.

When asked from patients that whether they rely on the services provided by the web, out of 216 respondents 123 rely on the services and 93 do not rely on the web-based healthcare services with mean of 1.43 and standard deviation 0.496. This shows that patients are now more indulged in the web-based services and are satisfied as well feeling confident about the services. The following graph shows the frequency of patients about their views regarding the web-based healthcare services-

Ranking of third party players

The third party players this time are the ones which are the best ways through which patients can take health information and other healthcare related services. Some of the players provide only online appointments and some of them provide other services like they have knowledge banks, health management tips, health calculators, online blood banks etc. Following graph shows the various players like practo, medicalindia, mylifecare, kare4u etc. which provide the services to the patients in an approachable and easy available manner. Also the graph shows the ranking given by the patients those who ever used or accessed the sites anytime and in this medicalindia got the highest ranking i.e. it is mostly used and accessed by the patients followed by practo, mylifecare and so on.

Some web-based services

There are various services which are being provided by the web or internet on high scale. Some of the services which are discussed here are- BMI calculators, BMR calculators, pregnancy calculators and smoking calculators. According to the ease, patients use such type of services and take full use from it with full confidence.

When asked from the patients that which type of service they take from the web, out of 216 respondents 94 used BMI calculators, 30 of them used BMR calculators, 1 of them used pregnancy calculators, 4 used smoking calculators and 87 of

them used none of these services with the mean of 2.81 and standard deviation of 1.868. This shows that most of the patients used BMI calculators to make them healthy and fit. The following pie chart shows the frequency of using the services-

If used above services then these were

The patients who are using such type of services have their own way and thinking that why they use such type of services. These services may be preventive, assisted, consultative or none of these.

Reliability of the survey

The data collection also needed reliability analysis for assisting the consistency. For this Cronbach's alpha was then used for reliability analysis and the method showed the high reliability for the statements i.e. 0.936

Table 6 shows the value for Cronbach's alpha for 35 statements to measure the change in doctor-patient interaction through web-based healthcare services.

DISCUSSION

It is very clear now that how these web-based healthcare services had changed the lifestyle and living of the individuals in an uncomplicated and reasonable manner. Talking about the awareness and attitude of the individuals the results are positive and constructive.

The following are the statements which were asked from the respondents and the mean of the statements are also mentioned-

It is very clear now that how these web-based healthcare services had changed the lifestyle and living of the individuals in an uncomplicated and reasonable manner. Talking about the awareness and attitude of the individuals the results are positive and constructive. As the appointments is one of the major and important concern for each individual because of the busy and hectic schedule they don't get enough time to stand in queue and wait for their turn to just make the appointment with their doctors and thus online appointments are like a vision for the metropolitan cities where with the help of this service the patients can save their time or one can say that online appointments is like a boom for them. The mean calculated was 3.82 and 105 respondents agreed that appointments through web services make the life easy that from anywhere they can take the appointments for their loved ones and for themselves also. The services like diagnostics or the reports related to blood or urine can be sending it to the patients and also can be checked out from doctor's side which saves time and cost. This is justified from the mean of 3.84 and majority of the respondents agreed that in their daily life diagnostics services helped in the better way.

The other concern now-a-days is related to the pharmacies and their services as now patients can get their medications at home just by a single click on online pharmacies and by the survey done with the mean of 3.49 it has been proved that patients resolve their queries easily. The patients today are much more interested to get knowledge of each and everything that what type of medications they have to take in case of the illness and other information regarding their disease etc. and here the online consultations and availability of information solved their problems in the smooth manner and the mean of 3.68 cleared out the results. The management of health problems has now become an important topic to discuss and is well managed through consultations. The majority of respondents are also aware of the online consultations and managing their health related problems in a better way. As the time passes, the changes in the facilities facilitate the patients and the patients at the moment confidently decide about their health aspects with the help of availability of the treatment rooms. Similarly, the online packages also grabbing the attention of the patients and they are now taking the active roles in their health problems. The free health tips make patients interested to think and read about the information about the health and making them knowledgeable and it is clear out with the mean of 3.73 and 3.72 respectively. The very common thing in the use of internet is the blogs and their fruitful results. The blogs for remedies and precautions make the patients knowledgeable and also helps them to take anactive role in doctor's chamber. Due to monotonous and busy schedule patients don't get enough time to wait for their turn to meet doctors and then web-based healthcare services gave the best way and provided services like live access to doctor's calendar, instant appointments confirmation, apps which remind the patients timely about the appointments with their respective doctors, notifications for delay or change in the schedule of the doctors. These services make the patients satisfied with the web-based services which can be acceptable from the results.

Suppose a patient needs immediate consultation and due to any hindrance or obstacle he is not able to consult with doctor physically then at this time technology plays its vital role i.e. phone consultations or video consultations proved to be the best way by which on e can take a relief for the treatment in the emergency situation. A mean of 3.64 in case of phone consultations and 3.45 in case of video consultations justifies its existence and satisfies as well. When it comes to the feedbacks for the doctors then with the help of web services one can convey and consult with the other patients about the best doctors in their town and it is proved in the perfect manner as this helps the patients in improved decision-making.

The medical tourism has taken its place in the mind of patients because with the help of this the patients can find and reach their doctors easily, about 98 respondents agree with this. In a similar manner, assisted advice on medical insurance help the patients to take right decisions related to the health of their friends, families and relatives so that in critical situations they can get better surveillance. In previous years, whatever the researches and developments in healthcare take place, they were not able to reach and approach the patients and thus they were not able to update themselves accordingly but technologies changes the mindset of the individuals and now they can update themselves according to the time with the help of web-based services related to new researches, developments and treatments in the market. The technology is not at all up to this level but it is like a life line for the needy ones or helps in

the critical situations. For example- Ambulance services and blood banks are the services which are like a new light for the ones who are not able to reach to the hospitals in very crucial situations. The patients are indulging themselves in the process of self management i.e. they are now becoming independent ones for their acute illness like fever, cold, cough and other similar diseases and also widely held of the respondents have the same opinion with this state of affairs. Also, services like ayurvedic spas from the web-based approach rejuvenate the individuals in the healthier way. Accordingly, the most problematic thing for the patients is to manage their records safely because it is not at all possible for individuals to carry their personal records everywhere. So, the personal health records is one of the service which has been provided by the web-based services where one can save their records anytime and also can carry them with no problem at all. The nutritional tips, weight management tips, diet tips and fitness tips get the mean of 3.85, 3.91, 3.95 and 3.72 respectively. This shows that patients are now much more health freakier and they can now decide about their health in a superior and healthier way.

When the questions asked from the respondents about the non-acceptance or some negative aspects of the web-based healthcare information then again the majority of them denies the negative thing. 74 of the respondents disagreed that no reliable information is available on the internet with the mean of 2.70. The respondents also agreed that the web-based healthcare services provide enough information about the possible risks and negative effects of the medications, treatments etc. as 68 respondents disagreed to say that internet or web services give negative effects to their health or the information available is not correct. Still there are some of the individuals who are not able to invest enough on their healthcare but the majority of them says web-based healthcare services are economical to them i.e. it is not at all waste of economic resources because the providers don't take extra from the users as generally they have free online appointments and give free health tips to them. The old age people have old thinking related to the internet that it promotes undesirable values to the individuals but the survey proved with the mean of 2.56 that the web-based healthcare services not at all promotes the objectionable values in the society. Also, the web services never increases the cost of services which is a great myth in some of the minds.

Though internet and its related sources of information didn't get the highest ranking as friends/family get the highest ranking followed by TV ads because India is the place where middle class families and poor people are having the majority and thus they don't rely on third person. But as the time will pass the thinking will be changed because the third party players and other providers are targeting them and timely changing their view providing thousands of benefits at single place. Still many of the respondents use and access the services like BMI calculators, BMR calculators etc. The highest ranking third party player is medicalindia.com followed by practo.com. The only think for today's consumer or customer is trust, loyalty and best services which are easily fulfilled by the providers now-a-days and in this way after few years people will definitely go for web-based healthcare services.

Conclusion

The impact of web-based healthcare services undeniably has the qualitative aspect which is helping out to transform the health and other health related issues. The benefits with the help of renovation in the health of the individuals included the liberation of healthcare which is cost-effective, reducing the errors in the medical aspects, superior management of chronic diseases and huge participation in the decision-making process that affect the health in much more effective and recovered manner. In a simple manner, it is cleared out that today's generation is much more indulged in the web services because of its security, convenience, availability and accessibility which were some major issues few years back. The web-based healthcare services have the profound impact on the health of the patients. It has the weight age to improve the effective and efficient delivery of healthcare, educating the patients regarding diseases and treatments, enabling the best doctor-patient interactions, validating the professionals and providing the best security and enhancing the trust.

Till date there has been rigorous change in the internet services so one has to need vigilance timely from the threats if occurs. The internet at this time is changing the way of interaction of physicians/doctors and patients which has totally changed the mentality and also motivated them for their better health. The most effective use of web-based healthcare services is the patient's role in managing their health and this reflects the cultural or social change in healthcare. The objective of the research was to know the change in doctor-patient interaction through web-based healthcare services and this was achieved through literature and statistical analysis. The research questions led to the development of the web-based healthcare services and the study proved it in the best way. The frequency analysis and statistics showed in comprising the variables and seeking the behaviour of the respondents. The role of trust also plays an important role in the study as 123 respondents were in favour and totally rely on the web-based services. When asked from the respondents about the accessibility and usage of web-based providers or third party players then majority of them accessed and used those services which shows that as the time changes the boom in the internet or its services will change the living of consumers or customers.

The theoretical part of the research was to provide a picture of the actual way of change in the surroundings for the healthcare services. Though the majority of the studies were international as in India the rise in web-based services started after 2005. But from 2005 one can see a huge change in the technological services and also the acceptance of web-based healthcare services increased. The overall combination of the research questions give a detailed knowledge that how the present generation is serious about their health and is moving towards the web sources for the best of the knowledge and aspects of the treatments for their healthy and maintained life. As patients pay from their pockets so it is very important to enhance the patient's convenience. Taking about the objectives of the survey the conclusion is explained as

1) **To understand the reasons/factors responsible for change in patient and doctor interaction in Indian context-** The reasons which are responsible for the change in the interaction and communication in between the doctors and patients are like the availability of services at any time and at any place, the security is one of the major factor responsible as patients are now more concerned with the security of the personal data and records and also convenience is a factor because the services are now very convenient according to the requirements of the patients and doctors as well.

2) **To understand the attitude and perception of patients for web-based healthcare services-** Now the patient's mindset has been totally changes for the health of themselves and their family also. The individuals think that prevention is better than cure and so they prefer internet to get knowledge of the diseases in advance and take care of themselves. They always prefer to collect the right information so that they can make them healthy. The patients have the positive attitude towards the web-based healthcare services now-a-days because they trust internet services.

3) **To understand the facilities provided by the websites to the patients-** As it has been already mentioned in the previous chapters about the services which are offered by the web-based healthcare services. These services are like online appointments, diagnostic services, blood banks, knowledge banks, ayurvedic spas, diet tips, weight management tips etc. The patients think that these facilities make their life easy and affordable as well. They rely on these services and take the full advantage.

4) **To understand the patient engagement level and their satisfaction level for web-based healthcare services-** Talking of the engagement level and satisfaction level, the patients give full time to the services and understand it also. The first source of information of diseases and medication is generally internet. They are fully satisfied with its services.

5) **To identify the gap in the facilities provided by the web-based healthcare services and recommend the solution for the same-** The gap is not as such for the urban areas. But today the rural people are lacking behind with these services. They even don't know about the facilities and services which are being provided with the help of websites. Also the approach of the services is not as such with such type of places. As the time is changing the approach will take a new shape and all will use these services and the gap will minimize.

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