CHAPTER 1 INTRODUCTION

This chapter introduces the theoretical background to the research topic, conceptual framework, operational definitions and the profile of health care sector in India. It also states the significance of the study and sketches the overall research work.

1.1 THE BACKGROUND OF ONLINE HEALTH CARE SERVICE

In the nineteenth century technology has eased the efforts of human life and the social system. Technology has made remarkable impact in people’s life making it more simple and pleasurable. In 1950s the computer technology was used to collect, manage and disseminate the data (Banna 2011). After the revolutionary era in computing, computer literacy and access to World Wide Web (www) have reduced the distance between the people. Internet has become popular medium for conveying information about healthcare to the customers (Escoffery et al. 2005). India, a developing country suffers from an acute shortage of doctors, particularly specialists. Moreover, India is overpopulated; where the physician - patient ratio is 1:1800 (Deo 2013), painting a dismal health care picture.

In India the past two decades witnessed Information Communication Technology (ICT) entering into every geographical area. According to International Telecommunication Union, in June 2013, 12.6% of
total population in India are using internet. The technology has grown dramatically but ironically the basic knowledge like storing patient information electronically is not familiar to the users. Top corporate hospitals follow a digital version of the medical and treatment history of patients which is called Electronic Medical Record (EMR). However it is noted that the sharing of information on health related data among health care service providers through EMR is almost non-existent. Globally these services are shared to the customers and other health care service providers. Most of the hospitals in our country provide results of tests and receipt of payment through computerized systems and nothing beyond, signifying a sorry state in health care Information Technology.

The health care service has been facing vast socio, economical, environmental and technological challenges over the past decades (Pan and Chen 2004). Health Care is one of the most important catalysts for economic sustainability and growth of a country (Ramkumar 2011). In service sector healthcare shares a major part by attracting high investments and in fast development phase. The challenges faced by traditional health system are lack of existence of the system to backup the emerging demands of a growing old age group, increase of healthcare expenditures and medical errors. (Banna 2011). The main advantage of online environment is mammoth cost-saving and efficiency in communication, transaction, delivery, (Eppie 2007; Furash 1999; Peterson et al. 1997; Robinson 1989) quality and safety.

Internet has become a popular medium for conveying information about healthcare to the customers (Escoffery et al. 2005). This has become a part of the emerging spectrum known invariably as electronic health, e-health or online health. (Banna 2011) The former term ‘telemedicine’ has been replaced by online health since the last decade. (Pagliari et al. 2005). Online health is the single-most important revolution in healthcare since the advent of modern medicine or hygiene (Silber 2003). Online health means combined use
of electronic information and communication technology in the health sector (Oh et al. 2005).

In the e-revolution, Online Health Care Services (OHCS) is increasingly becoming indispensable in the human life. Online Health Care System refers to the list of services like health records and online advice provided through internet by the hospitals. OHCS rapidly assumed paramount importance of Indian Health Care Sector and ever-increasing telecommunication and internet applications have fuelled the growth of OHCS.

OHCS can provide access to secure information by the seekers around the clock at affordable cost (Eppie 2007). It may be an alternative for traditional health care services too and it can develop a good relationship with the customer cutting across geographical barriers. OHCS can deliver communication efficacy and greater information exchange between the service provider and the customer (Peterson et al. 1997). In recent days OHCS becomes a platform where the interaction between health service providers and the customers can happen efficiently and thereby reducing the burden of the Government.

OHCS permits the customers to communicate with the health care service provider anytime and anywhere. Customers view that online health care service is a substitute for traditional health care (Fisher and Britten 1993). While OHCS is becoming more popular it is important to the health care service provider to create trust in the mind of the customer and retain them.

1.1.1 Brief History of OHCS

Various forms of technologies have developed OHCS over a period of time as listed below in table 1.1.
### Table 1.1 Phases of Online Health Development

<table>
<thead>
<tr>
<th>Development phase</th>
<th>Time Frame</th>
<th>Delivery Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telegraphy and telephony</td>
<td>1840-1920</td>
<td>Healthcare information over telephone</td>
</tr>
<tr>
<td>Radio</td>
<td>1920 onwards till 1950</td>
<td>Radio-telegraph Used in American Civil War</td>
</tr>
<tr>
<td>Space technologies</td>
<td>1950 onwards till 1980</td>
<td>Closed-Circuit Television (CCTV) used in hospitals, Two-way microwave tele-health and audio transmission.</td>
</tr>
<tr>
<td>Information Technology</td>
<td>1990 onwards</td>
<td>Information Communication Technology (Streaming audio visuals through internet)</td>
</tr>
</tbody>
</table>

Source: Khan et al. (2007)

#### 1.1.2 The importance of OHCS

Considering the fact that there is an acute shortage of doctors and medical specialists in India, OHCS becomes one of the prime solution to cater to the needs of the citizens of this developing country. Following are the major important factors in favor of OHCS.

- Majority of the hospitals in the country are deep-rooted in manual procedure, which are unable to manage with the volume of data generated (Mishra 2007).
• OHCS provides general or individualized health information on demand.

• The physical records maintained by the hospital in India are difficult to access which affects the health delivery. The quality and potentiality of health care can be improved through providing Electronic health care records and communication through website. (Hassol et al. 2004).

• OHCS can offer another form of consultation to the customer by providing online consultant located around the world.

• OHCS helps in decision making process and it creates communication between healthcare service provider, the customer, their family members and facilitators or care givers.

• OHCS also helps the customers to make health care decisions, such as selecting a health care professional, health plan and hospital (Meyer 1996).

• The main advantage of developing online health care service is to obtain, store, analyze, process and use the customer information that concerns the doctors, hospitals, laboratory tests etc. (Kohli and Verma 2011).

• OHCS can promote healthy behavior by providing wellness information and explaining associated benefits and costs (Robinson 1989).

• OHCS can help to avoid certain heavy fee-levying private health players.

• Unlike traditional health care, OHCS allows the customers to interact with other customers with specific health conditions, needs, share information, and provide and receive peer and emotional support (Gustafson et al. 1999).

• OHCS assists the customers to manage health problems without direct intervention from a health care service provider (Robinson 1989).
• OHCS enhances utilization of effective health care services and reduce use of unnecessary services and reduce health care cost (Robinson 1989).
• OHCS increases the accuracy and speed of patient information circulation which results in better services for patients. (Kohli and Verma 2011).
• OHCS can enhance the work efficiency of the health care system. (Hassol et al. 2004; Kohli and Verma 2011; Liu et al. 2006).
• The quality and potentiality of health care can be improved through providing electronic health care records and communication through website. (Hassol et al. 2004).
• OHCS can provide second opinion via e-consultation from renowned physicians of reputed hospitals. (Neuhauser and Kreps 2003).
• OHCS can support life style changes such as exercise, diet control, tobacco cessation etc.
• OHCS reduces laborious waiting time in the hospital (Matysiewicz and Smyczek 2009).
• The major benefits of the online health services are ability to provide secured access to information of the customer by the seekers round the clock.
• The delivery of mental health services through internet or online services are called as e-therapy. At present, online services are delivered in the form of email communication, discussion lists, live chat rooms or live audio or audio visual conferencing (Neuhauser and Kreps 2003) Hence, E-therapy is possible.
• India has bed ratio of 9 per 10,000 people (WHO 2012). OHCS can reduce the bed population in India.
• Lack of online pharmacies can be rectified with the use of OHCS.
• OHCS can guide the people about the doctor’s database and get appointment with doctors easily.
• OHCS can lead to electro diagnostics.
• OHCS can assist to conduct health care education programmes through online for the customers, students and health care professionals.
• OHCS can aid increase in life expectancy rates through time and cost benefits, especially for rural community.
• Globally 18% of the internet users look for health care information through online (Pew Research Center's Internet and American Life Project 2010).
• It is possible to send health alerts through ‘Early Warning System’ which helps to prevent and control endemic and infectious diseases to the customer and health care workers via e-mail remainders or short message service through OHCS.
• OHCS helps further research in new areas of health by giving insight into new diseases through analysing the medical data and symptoms.
• OHCS can decrease people and health system travel burden for access to medical services, especially for the elderly and parents who have young children (Khan et al. 2007).

1.1.3 Health Care Scenario in India

World Health Organisation provides various health status indicators of each country across the world. Table 1.2 reveals the indicators pertaining to health care in India.
Table 1.2 Health Care Status in India

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>1,22.46 cr.</td>
</tr>
<tr>
<td>Annual population growth rate (%) (2010)</td>
<td>1.5</td>
</tr>
<tr>
<td>General government expenditure on health as a percentage of total government expenditure</td>
<td>3.9</td>
</tr>
<tr>
<td>Gross national income per capita (PPP international $)</td>
<td>3,550</td>
</tr>
<tr>
<td>Physicians density (per 10,000 population)</td>
<td>6.5</td>
</tr>
<tr>
<td>Nurse density (per 10,000 population)</td>
<td>10</td>
</tr>
<tr>
<td>Life expectancy at birth m/f (years)</td>
<td>63/66</td>
</tr>
<tr>
<td>Probability of dying under five (per 1,000 live births)</td>
<td>63</td>
</tr>
<tr>
<td>Probability of dying between 15 and 60 years male/female (per 1,000 population)</td>
<td>250/169</td>
</tr>
<tr>
<td>Total expenditure on health per capita (Intl $, 2011)</td>
<td>141</td>
</tr>
<tr>
<td>Total expenditure on health as % of GDP (2011)</td>
<td>3.9</td>
</tr>
<tr>
<td>Population living in rural areas (%) (2011)</td>
<td>69</td>
</tr>
<tr>
<td>Cellular Usage % in total population</td>
<td>72</td>
</tr>
</tbody>
</table>

Source: WHO (2012)
1.1.4 Health delivery system in India

According to Mishra (2007) health delivery system in India can be classified into primary, secondary and tertiary levels. Table 1.3 provides the three levels of classification for both public and private sector. Table 1.4 provides the list of major service providers and health transaction through OHCS in India.

<table>
<thead>
<tr>
<th>Table 1.3 Health Delivery System in India</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level</strong></td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td>Secondary</td>
</tr>
<tr>
<td>Tertiary</td>
</tr>
<tr>
<td><strong>Main Systems of Medicine</strong></td>
</tr>
</tbody>
</table>

Source: Mishra (2007)

<p>| Table 1.4 List of Major Service Providers and Health Transaction through OHCS |
|-------------------------------|-----------------------------|--------------------------|
| <strong>Sl. No.</strong> | <strong>Hospital</strong> | <strong>Type of transactions</strong> |</p>
<table>
<thead>
<tr>
<th></th>
<th>Institution</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Narayana Hrudayalaya Hospitals, Bangalore.</td>
<td>Patient registration, Consultation, EMR, Electrocardiography (ECG), Tele Education</td>
</tr>
<tr>
<td>3.</td>
<td>Arvind Eye Hospitals, Madurai.</td>
<td>Patient Registration, Primary Consultation and Diagnosis, Prescription for Treatment, Referral to Specialist, EMR, Tele Consultation.</td>
</tr>
<tr>
<td>4.</td>
<td>Meenakshi Mission Hospital and Research Centre, Madurai.</td>
<td>Patient registration, Diagnosis, Tele Consultation, Electronic Medical Records,</td>
</tr>
<tr>
<td>5.</td>
<td>Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGIMS), Lucknow.</td>
<td>Electronic Medical Records, Remote Radiology Image Analysis And Clinical Case Analysis, Patient Screening, Disease Incidence and Environmental Monitoring, Primary Care and Referral to SGPGIMS for Specialist Consultation.</td>
</tr>
<tr>
<td>6.</td>
<td>Amrita Institute of Medical Sciences, Kochi.</td>
<td>Patient Registration, Specialist, Primary Diagnostic Measurements and upload to Patient EMR, Primary Care Intervention, Patient Counselling, Screening, Tele-Consultation, Diagnosis, Minor Surgery (using Mobile Unit), Therapy, Medication.</td>
</tr>
<tr>
<td>7.</td>
<td>Apollo Telemedicine Networking Foundation, Chennai.</td>
<td>Registration, Primary Investigation and Diagnostic, EMR, Patient Referral to Specialist, Tele Consultation.</td>
</tr>
</tbody>
</table>
Table 1.4 (continued)

<table>
<thead>
<tr>
<th></th>
<th>Location</th>
<th>Services Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>CMC, Vellore.</td>
<td>Tele consultation, Patient registration, fixing appointment with the specialized doctors, EMR</td>
</tr>
<tr>
<td>12.</td>
<td>Tata Memorial Hospital, Mumbai.</td>
<td>New Patient Registration, Avail Laboratory and Imaging Services, EMR, tele-consultation</td>
</tr>
</tbody>
</table>

Indian Space Research Organisation (ISRO) (2005) quoted that in India about 75 percent of the doctors’ practice in urban areas and 23 percent in semi-urban areas. This leaves 2 percent of the qualified doctors, who are attached to about 23,000 primary health and 3000 community health centres, to attend to 70 percent of the population living in villages. There are more than 6, 00,000 villages in India. OHCS can be adopted for those villages far away from hi-tech medical facilities. ISRO, Department of IT and Ministry of Communication and IT, Ministry of health and family welfare, State Governments and medical institutions are the major implementing agencies of OHCS. In India more than 400 platforms are offering OHCS. Tamil Nadu
state has only 13 medical Institutes to offer OHCS. Hence there is a dire need for OHCS to focus on the massive population.

1.1.5 Barriers to implement Online Health Care Services

WHO (2011) has listed various barriers to implement online health care services as presented below.

- Perceived costs too high.
- Lack of legal policies/regulation.
- Organizational culture not supportive.
- Underdeveloped infrastructure.
- Lack of policy frameworks.
- Competing priorities.
- Lack of demand by health professionals.
- Lack of nationally adopted standards.
- Lack of knowledge of applications.
- Lack of technical expertise.
- Non availability of suitable e-learning courses to health care professionals

1.1.6 The components of OHCS

![Figure 1.1 Components of Online Health Care Services](image)

Figure 1.1 Components of Online Health Care Services
1.2 STATEMENT OF THE PROBLEM

Traditional marketing holds that customer retention leads to organizational performance (Kotler et al. 2009; Ross 1995; Zeithaml 2000) and profitability (Eppie 2007). Weinstein (2002) echoed that service providers spend 80% of marketing budgets on attracting new customers, leaving only 20% for retaining existing customers. The cost of recruiting a new customer to a product or service is six times higher than that of retaining an existing one (Eppie 2007). Organizations spend enormous time and resources acquiring new customers (Javaigi et al. 2005). Maintaining good relationship with the existing customer will lead to retaining them for long time and it will be more profitable than attracting a new customer by spending on advertising and promotions. The key strategy to meet the objectives of increasing customer volume, which equates to increased revenue, is keeping the customer base satisfied and retained (Duvendack and Hines 2003). To solve the said health care issues in India it is important that OHCS be adopted. The organizations which have good customer loyalty and retention are benefited in terms of financial gains (Kerns and Clair 2000).

1.3 PURPOSE OF THE STUDY

The purpose of the study was to bring out the factors affecting customer retention in OHCS in India. This research suggests strategies to retain the customer of OHCS. To this end the following endeavors are undertaken:

1. Propose a theoretical framework for establishing a research model that gives a good understanding of factors that influence customer retention in OHCS.

2. Extending the customer retention model by adopting the factors like information quality, perceived usefulness, responsiveness, security, user interface, customer trust, customer satisfaction and customer commitment in OHCS.
3. Bring out the factors affecting customer trust and customer satisfaction in OHCS.
4. Assess the empirical validation of the proposed model for OHCS.
5. Identify the difference, if any, in customer retention based on customers’ age, gender, marital status, income, education and number of consultation taken through OHCS.

1.4 SIGNIFICANCE OF THE STUDY

Online Health Care Service is very important in India because it has been surrounded by rural villages and also the hospitals are far away from the villages. Owing to high growth in Indian population, the Government needs to spend very high amount in Health to achieve self efficacy in health care. Ever rising population enlarges the gap in demand versus supply at a frightening rate and therefore OHCS is the best solution for this problem. People who have been exposed to have trust and reliance towards OHCS compared to traditional health care service.

In the past 20 years ICT has made a revolution in India. The increase in the usage of ICT has made the people to have trust in online health care service. This study is to examine the relationship between customer trust, customer satisfaction, customer commitment and customer retention towards OHCS in India. The significance for the research is stated below

- Online health care service becomes an important way of delivering healthcare to the public.
- Through review of literature it was found that there has been paucity of research in online healthcare customer retention in India.
- In developed countries customer retention is high in OHCS and also it is growing rapidly where as countries like India it has been found that the growth of online health care service is low due to lack of trust in online heath care service.
- This study also identifies the antecedents of customer retention in OHCS.
- It also gives a comprehensive framework for customer trust, customer satisfaction customer commitment and customer retention in OHCS context.

1.5 THEORETICAL BACKGROUND

It is overwhelmingly evident that OHCS is one of the most important tools to cut down the medical barriers. While globally OHCS is growing rapidly it is important for the service providers to analyze the predictors of customer retention. Since customer retention leads to additional sales, lower costs, more endurable higher prices and free recommendations (Reichheld and Schefter 2000). It has minimized the risk and maximised the opportunity of the service provider. If the service providers could retain the customers effectively it will change the scenario of the OHCS. The theoretical background and the consequence of customer retention and its predictors are briefly explained below.

1.5.1 Customer Retention

The researchers proved that retaining existing customer and creating long-term relationships are desirable because they are more profitable for firms (Reichheld and Schefter 2000). Competing on economic benefit and product attribute is inadequate for customer retention (Cravens 1995). Competing on monetary return and service attribute alone may not be sufficient to retain customers (Cravens 1995). Marketers opine that long-term relationships with the customers would enhance their profitability (Dick and Basu 1994; Garbarino and Johnson 1999; Grossman 1998; Sudhahar and Selvam 2008) increased sales, lower costs and other tangible benefits (Terrill et al. 2000). A customer who stays longer with an organisation will increase the value of purchase, increase in number of purchase and the customers’ understanding of organisation and vice-versa and, more positive word-of-
mouth (Trubick and Smith 2000). In this study customer retention is inferred as retaining the patients and their neighbours, friends and family members.

1.5.2 Customer Commitment

In the case of low customer satisfaction studies suggest that strong interpersonal relationships positively influence customers’ intention to repurchase (Jones et al. 2000). Commitment is positively related to intentions to repurchase (Fullerton 2005). Commitment in a business relationship goes beyond satisfaction and commitment in a buyer-seller relationship is a crucial predictor of retention (Wilson et al. 1995).

1.5.3 Customer Satisfaction

Customer satisfaction has been empirically validated to have relationship with customer retention in the service sector (Anderson and Sullivan 1993; Rucci et al. 1998; Cronin et al. 2000). If customers do not get satisfaction, they will not hesitate to switch over to alternative healthcare professionals. Customer Satisfaction has been cited that repeat purchase depends on satisfying customer needs and wants (Kotler et al. 2009).

1.5.4 Customer Trust

Customer trust is the major factor in online services which indicates a positive belief about the perceived reliability of, dependability of, and confidence in a person, object or process (Rempel et al. 1985). Customer trust in OHCS should be highly focused due to new method of treatment and consultation. In e-commerce study trust is much focused along with satisfaction.

1.6 OPERATIONAL DEFINITIONS

Online Health Care Service

A service provided by health care service provider through the Combination of tele-health, telemedicine, e-health.
Online Health Care Service provider
A person or an organisation that provides OHCS.

Customer
Customer is a person, a client, a supplier, or an employee who interacts directly or indirectly with any business

Customer Retention
People who had consumed the health service and come back for re consumption

Customer Commitment
The ‘enduring desire’ of a customer to maintain and develop relationship with service provider.

Customer Satisfaction
Customers’ over all evaluation of service experience.

Customer Trust
A willingness to rely on an exchange partner in whom one has confidence

Information Quality
Accuracy, Reliability, Relevancy, Amount of Data, Interpretability, Ease of Understanding, Consistency of data provided by the online health service provider

Responsiveness
The willingness of the service provider to provide service

User Interface
A medium to contact online health service provider for the customer

Security
State of being free from risk
Perceived Usefulness
The degree to which a customer believes that the particular system will enhance the transaction performance

1.7 DEPOSITION OF THE THESIS
The research report contains six chapters and the brief description of the contents of each chapter is provided hereunder.

Chapter 1: Introduction
This chapter introduces the theoretical background to the research topic, conceptual framework, operational definitions and the profile of health care sector in India. This chapter also states the objective and significance of the research.

Chapter 2: Review of Literature
In order to provide the theoretical foundation for the study, review has been done on various sources that influence the customer retention in OHCS.

Chapter 3: Research Model Framework
This chapter presents the retrospection of the theories related to the customer retention in online services and includes a theoretical justification for the variables and for the proposed research model of the study.

Chapter 4: Research Methods
This chapter evaluates various research methodologies that deals with the research problems by outlining the sampling methods, instrumentation, data collection methods and analytical techniques used for the study.
Chapter 5: Analysis and Interpretation

The penultimate chapter assesses the profile of the survey sample. It also empirically tests the hypotheses and validates the proposed research model of the study through application of Structural Equation Modeling.

Chapter 6: Summary of Findings and Conclusion

The last chapter summarizes the findings of the study and concludes the linkage between the research problems and theories. Research and implications, limitations, outlining suggestions, providing conclusion and offering suggestion for further research opportunities in this area are presented.

The next chapter, under the heading “Review of Literature”, presents the retrospect of research work done on various aspects of customer retention and highlights the focus of the current study and how it delineate the gaps from earlier work.