Chapter - 2

REVIEW OF LITERATURE

2.1 Human Resource Potential in Health Care Sector
2.2 Human Resource Management Practices in Health Care Industry
2.3 Knowledge Management Practices in Health Care Sector
2.4 Knowledge Management Practices in other Industries
2.5 Management of Knowledge Asset in Ayurveda
2.6 Knowledge Management and Human Resource Management
REVIEW OF LITERATURE

An organisation’s competitive advantage is determined by how well it leverages its organizational knowledge asset. A Human Resource Management system, if properly managed, can play a significant role in contributing to the management of organizational knowledge. The single most important and powerful factor that distinguishes one organization from another is its human resources. Human resources of health care organisations have an immediate and direct impact on their patients’ satisfaction. Management of knowledge asset is directly related with quality of service as well as patients’ quality of life, which in turn, is directly related to Human Resource Management of health care organisations. Managing human resources and knowledge assets are the major challenges that the business organisations are facing today.

Review of various literatures is undertaken for getting a broad background of the research area “Management of Human Resources and Knowledge Assets in Ayurvedic Industry in Kerala”. The reviewing of literature and related areas involves the systematic identification, location, and analysis of documents containing information related to the research problem, and critical evaluation of available literature in relation to the point of interest for study, in the form of general literature and specific studies. It makes the research more effective and useful. In this chapter, an attempt is made to review the literature covering a wider spectrum of human resource practices, particularly with special reference to health care sector. The collected research studies and articles, published in various National and International journals, are presented below in six different themes related to the present research study. These themes are:

1. Human Resource potential in Health care sector
2. Human Resource management practices
3. Knowledge management practices in Health care sector
4. Knowledge management practices in Other sectors
5. Management of Knowledge Assets in Ayurveda
6. Knowledge management and Human resource management
2.1. Human Resource Potential in Health Care Sector

Healthcare sector, more than any other sector, depends on human resources to carry out its mission. The lack of human resource policy in the health care sector is a serious ground for several HR issues. The healthcare industry faces many challenges and the utmost challenge is the shortage of healthcare professionals in rural as well as urban areas. In many developing countries, such as India, information on human resources in the health sector is incomplete and unreliable (Rao, Bhatnagar, & Berman, 2012)

(Sinha & Sigamani, 2016), established that the biggest challenge is the shortage of skilled human resource for health at all levels in the healthcare delivery system in India. According to them the earlier studies emphasized that the gap between demand and supply of human resource for health is mainly due to increasing population and burden of diseases, but recently the studies have identified other factors leading to further shortage as emigration of skilled health workforce. Most of the initiatives are mainly directed towards increasing supply of human resources for health to deal with the scarcity and less emphasis to control emigration. They argued that the initiatives have been undertaken by Government by opening of more medical colleges, promotion of AYUSH industry, emphasis on training of Support Staff to form the front line care provider under various plans like NRHM, NHM and 12th Five Year Plan.

(National Health Mission, 2016), in its Tenth Common Review Mission, observed that in Kerala there is a need to strengthen existing HR policies to make them more comprehensive and ensure better implementation. At the same time Kerala has a different training system based on state specific needs.

(Schermuly, Draheim, Glasberg, Stantchev, Tamm, & Hartmann, 2015), made an attempted to contribute to the process of strengthening against crisis through the identification and evaluation of relevant HR crisis and their connections in hospitals. Qualitative and quantitative methods were combined to identify and evaluate crises in hospitals in the HR sector. In order to identify HR crises and their descriptions a structured workshop with experts was conducted. Six human resources crises were identified in this study: staff shortages, acute loss of personnel following a pandemic, damage to reputation, insufficient
communication during restructuring, bullying, and misuse of drugs. The highest occurrence probability in the future was seen in staff shortages. Staff shortages, damage to reputation, and acute loss of personnel following a pandemic were seen as the most dangerous crises. From the study it was evident that managing human resources crises in hospitals is essential for hospitals and necessitated increased awareness. The study also revealed that the six HR crises identified happened regularly in German hospitals in the past, and their occurrence probability for the future was rated as high.

(Lopes, Almeida, & Lobo, 2015), stated that planning the health-care workforce required to meet the health needs of the Nation is a complex task, as it demands maximize the outcome and minimize the financial costs. The problem can be explained as assessing the right number of people with the right skills in the right place at the right time, to provide the right services to the right people. For that elaborate data was analysed and it was found that there is no definite approach to address HHR planning.

(Bijlwan, 2014), discussed in detail the factors to be considered when determining the demand for health services in a particular country. They include cultural characteristics, socio-demographic characteristics and economic factors. The study pointed out that a shortage of all categories of health personnel in the public health system has been well recognized in India and this needs to be tackled on priority basis. Besides it highlights the issue of shortage of female doctors in rural area. The study purposefully sampled female undergraduate medical students and postgraduate students from the specific streams of medicine, surgery, pediatrics, obstetrics and gynecology, and anesthetists. The study mentioned that the migration of health care workers is an issue that arises when examining global health care systems. Descriptive research was selected for this study. The study revealed how human resources management is essential to any health care system and how it can improve health care models.

(Hazarika, 2013), attempted to assess health-workforce distribution, identify inequalities in health-worker provision and evaluate the impact of this misdistribution on key health outcomes in India. Health-workforce distribution and production were assessed by use of year-end data for 2009 obtained from the
Indian Ministry of Statistics and Programme Implementation. The Gini coefficient is used to estimate disparities in the distribution of doctors, dentists, midwives and nurses and the relation between health-worker density as well as selected health outcomes were assessed by linear regression. The study showed that inequalities in the availability of health workers exists in India. Certain states are experiencing an acute shortage of health personnel. As India strives to achieve universal health coverage by 2020, the realization of this goal remains challenged by the current lack of availability and inequitable distribution of appropriately trained, motivated and supported health workers.

(Chaudhuri, Kumar, Joseph, Bhowmik, & Veenam, 2013), in the report of People for Health Project developed by Swasti, Health Resource Centre and Public Health Foundation of India with the financial support of the European Union, presents recommendations for improving HR planning and HR practices in the public sector. The report mentioned that Kerala has achieved good health indicators compared to other Indian states and the Government of Kerala does not have a distinct HRM unit. Each department of health care sector recruits through the public service commission. The study on HR planning process, in Public, private as well as NGO sectors revealed that in all sectors similar challenges are faced by the health sector in making adequate and capable human resources to provide quality health services. This study throws light on innovative approaches adopted by institutions to overcome challenges and the need for comprehensive HR planning effort to attain the goals. The study also gave stress to the need of the hour i.e. to pool all human resources such as formal and informal, allopathic and AYUSH doctors, nurses and paramedics in appropriate ways to overcome challenges.

(Rao, Bhatnagar, & Berman, 2012), examined availability of human resources for health services. They opined that like India, in many developing countries, information on human resources in the health sector is incomplete and unreliable. Hence effective workforce planning and management became difficult. In this study a representative sample drawn from the 2001 census was used to estimate key workforce indicators. Nationally representative household survey data and official estimates were used to compare and supplement census results. The
Review of Literature

A study revealed that India faces a substantial overall deficit of health workers; the density of doctors, nurses and midwives is a quarter of the 2.3/1000 population World Health Organization benchmark. Importantly, a substantial portion of the doctors (37%), particularly in rural areas (63%) appears to be unqualified. The workforce is composed of at least as many doctors as nurses making for an inefficient skill-mix. Women comprise only one-third of the workforce. Most workers are located in urban areas and in the private sector. States with poorer health and service use outcomes have a lower health worker density.

(Gill, 2011), attempted to explore the migration of nurses from India in the context of nursing shortages in the country. It looks at the relationship between the development of the nursing profession in India, shortage of nurses in the country and international migration of Indian nurses. The study highlighted that strong political commitment is required for improving the nursing situation in India and introduction of Human Resources Management in health care are central to its functioning.

The High level expert group report on Universal Health Coverage (UHC) for India instituted by and submitted to the Planning Commission of India ,New Delhi in November (Reddy, et al., 2011), clearly mentioned that the key requirement to ensure UHC is the provision of adequate human resources. The report recommended enough numbers of trained health care providers and technical health care human resources at different levels by giving priority to the provision of primary health care, increasing Human Resources for Health (HRH) density to achieve WHO norms of at least 23 health workers per 10,000 population and enhance the quality of HRH education and training by introducing competency-based, health system-connected curricula and continuous education. The report also recommended the introduction of District Health Knowledge Institutes, in districts with a population of more than 500,000 in order to enhance the quality of health workers’ education and training. It strongly recommended and endorsed the setting up of the National Council for Human Resources in Health (NCHRH) to prescribe, monitor and promote standards of health professional education.
(Nandan, Nair, & Datta, 2007), established that availability of adequate number of human resources with suitable skill mix and appropriate deployment of human resources at different levels of health care set-up are essential for providing effective health care services for the population. Since independence, in India, concerted efforts have been made to address the need for human resources for health; still, shortage exists in all categories of human resources at different levels. Assuring the availability of human resources for health care sector in rural areas and building their capacity in public health are daunting tasks. Future challenges include planning for human resource for public health at State/National level, framing of State specific human resource development and training policy, reorientation of medical and para-medical education, creation of Human Resource Management information system, and ensuring proper utilization of the trained manpower and standardization of training. The study suggested that the linking of human resource development and training policy to the National Rural Health Mission is important in achieving its goals.

Dreesch, et al., (2005) in their study stated that human resources are the most critical constraint in achieving the targets of health care sector. Thus it is important for health planners and decision-makers to detect the human resources requirements of the industry. Planning the human resources for health care is a complex process. It needs to consider both the technical aspects related to estimation of the number, skills and dispersal of health personnel for meeting the population health needs as well as the political implications and values and choices that health policy-makers need to make within the given resources limitations. This study, after analyzing the various methods for planning human resources for health, with their advantages and limitations, proposed a methodological approach to estimating the requirements of human resources to achieve the goals.

(Hall, 1998), presented the objectives of human resources planning for health care. They are, to prevent (i) unemployed or under-employed highly skilled health personnel. (ii) over-employment of under-skilled employees for complex health care tasks, (iii) poor geographical distributions of workforce between rural and urban regions (iv) over-treatment of patients if too many medical or surgical specialists have been trained, and (v) the political necessity of hiring more workers
than can be reasonably afforded, resulting in, poor productivity, low salaries and high personnel turn-over.

2.2 Human Resource Management Practices in health care industry

Human Resource Management practices have the potential to influence the performance of the health care industry. Despite being a vital concern for HR professionals, there is only little research exploring the link between HRM and performance in the health sector.

(Rajendra, 2017), aims to investigate the impact of Human Resources Management practices on healthcare organisation concerning the quality of service and achieving patients’ satisfaction, after satisfying the employees. The investigation has been under taken in the private hospitals of Jodhpur city, and targeted to reach the maximum possible variety of participants. This research identified the relationship between human resources management and healthcare to be extremely complex. The study revealed that effective Human Resources Management has a strong impact on healthcare organisation’s quality and improving the performance of hospital’s staff.

(Ramadevi, Gunasekaran, Roy, Rai, & Senthilkumar, 2016), conducted a case study with the intention to develop a framework for the improvement of healthcare services through an effective Human Resource Management system. This study highlighted the need to examine Human Resource Management processes that prevailed in healthcare sector and suggest better ways to achieve higher levels of patient satisfaction. The methodology used was to develop a conceptual framework and with the help of that conducted a case study in a hospital in India. The proposed framework comprises of three parts. The first part relates with inputs that cover job analysis, determining employee competencies, HR planning, Human Resources practices and employee relations. Second part relates with processes that include training and development focus on healthcare systems; and third part relates with outputs which covers quality, technology, cost and reactiveness leading to patient satisfaction. The study revealed that the most important skill required for healthcare workforce to deliver high-quality care to
patients which was possible by appropriate workforce development through training and development.

(Manimaran & Senthil Kumar, 2016), explained the various viewpoints of the multiple issues regarding Human Resource Management in the Healthcare Industry and also stated that recently the entire world faced the crisis on the healthcare industry and in India, most of the people preferred the private healthcare sector rather than the public healthcare sectors even though the government of India is spending lots of money for public sector. In India there is always an inhabitation of diversification exhibits in-between the private and public healthcare industries which leads towards the conflict among the healthcare professional working in the enormous fields of healthcare industries in our country. This resulted in the distinctive deviation and diversification of remuneration, moral and employment and so on. The study was based on secondary data. This study gave a clear-cut detailed significant result regarding the issue and difficulties faced in the various aspects of Human Resource Management in the healthcare industry in a successful manner.

(Pillai & Abraham, 2016), perceived from their study that due to service oriented and customer centric approach, hospitality and health care sectors have many similarities. They identified the link between hospitality and health care sectors in terms of Human Resource Management practices. The study is qualitative in nature and case study was used. Purposive sampling method was used and primary data was collected through direct observation and semi-structured interviews with experts of the five star hotels and super specialty hospitals in South Kerala. The study analyzed that hospitality sector has well-functioning and polished HRM practices compared to the health care sector. Each HRM practice is inter-connected and resulted into lower exit rate and better satisfaction of the staff. Proper execution of Human Resource Management practices such as recruitment, selection, induction, training & development, performance appraisal, compensation, employee welfare, grievance mechanism and exit management has a significant role in satisfaction of the employees and performance of the organization. A well-functioning HR department and HRM
Review of Literature

practices will enhance the effectiveness of the staff and that will ultimately lead to the best quality service delivery.

(Sinha & Sigamani, 2016), mentioned in their study that Human resources are essential elements of the health care delivery system, and an important organizational asset. The deficiency of human resources in the functioning of health organizations has become a major challenge. The terms and conditions of different forms of employment have resulted in various Human Resource Management issues. Increased number of contractual or temporary human resource may invite some undesired and unpleasant problems to the sustainability of health care delivery system. In India, the current central civil services rules, recruitment methods, appraisal system, reward and punishment, etc. are not sufficient to handle the management issues related to human resources in health care sector. The high turnover, the restricted career growth, and low salary of contractual staff in comparison to regular colleagues working in same organization for the same job have led to a conflicting work environment in organizations. Implementing good practices of Human Resource Management would motivate health personnel for effective health care delivery system.

(Purohit & Martineau, 2016), conducted a study to detect the prevailing recruitment policies and practices for Government Medical Officers (MOs) from Gujarat state in India and to identify issues that prevent effective recruitment of doctors that could have implications for doctors’ shortage in the state. The State Recruitment Rules were very wide-ranging, fragmented and also were not transparent. The recruitment system was considered to be slow and very sporadic having possible implications for attraction and retention of MOs. The study result indicated several other system inefficiencies such as a long time taken by the health department to provide salary benefits and service regularization that has a negative effect over MOs’ motivation. The study also found uneven opportunities presented to different categories of MOs in relation to salary benefits, job security and in recognizing their previous work experience leaving MOs unclear about their future thereby influencing the attraction and retention of MOs to government jobs negatively.
(Samal, 2015), studied the role of AYUSH, in the delivery of health care in India, with special reference to National Rural Health Mission and concluded that in an abysmally deficient health infrastructure the role of AYUSH system in delivering health care services in the rural India is palpable. He pointed out that the grossly deficient health workforces in rural India are hugely replenished by AYUSH doctors and paramedics and many of the therapeutics are being used in different forms for the management of community health problems which are safe and effective. But he also stated that this scenario is not the same in all the states as health, in India is a state issue.

(Elarabi & Johari, 2014), argued that in healthcare organisations’ management of human resources is vital to provide efficient and effective medical services and to achieve patient satisfaction. The study showed that effective human resources management has a strong impact on healthcare quality and improving the performance of hospital’s staff. The study pointed out the need to evaluate the performance of the managers of human resources department in the hospital before beginning performance development process as well as continuous development and training of staff performance.

(Vermeeren, Steijn, Tummers, Lankhaar, Poerstamper, & Beek, 2014), analyzed how HR practices influence on three outcome dimensions: employee (human resources), financial and organizational outcomes, focusing on the mediating role of job. This study uses a unique dataset, based on the ‘ActiZ Benchmark in Healthcare’, a benchmark study conducted in Dutch home care, nursing care and care homes. It was found that HR practices were directly or indirectly linked to all three outcomes. The practice of HR practices is related to improved HR outcomes, organizational outcomes and financial outcomes. The influence of HR practices on HR outcomes and organizational outcomes proved substantially larger than their influence on financial outcomes. Besides, with respect to HR and organizational outcomes, the hypothesis concerning the full mediating effect of job satisfaction is confirmed. It is in line with the view that attitudes of employees are an important element in the ‘black box’ between HRM and performance.
Kumar and A.M. Khan (2013) conducted a study to understand the various constraints and difficulties of Human Resource Management (HRM) in the public health sector. The study was conducted among Mission Director of NRHM, Directors Health Services, Director of Family Welfare, Chief District Medical Officers (CDMO) and primary health care (PHC) providers through a semi structured interview schedule. It revealed that planning for regular vacancies is not done at the district level. Only the contractual staff is hired at the district level.

Patil and Choudhari (2013) opined that Human Resource Management practices are very competently applied by private hospitals. HRM practices were analyzed to identify the influence of these practices on job satisfaction level of nurses and found private hospitals have applied all superficial practices in higher proportion as compared to Government hospital but the core practices are applied only in Government hospitals. In this study, data was collected through self-developed questionnaires and chi square test was applied to test the hypothesis.

(Gile, 2013), conducted a systematic review of the literature for two purposes. One is to understand how the major management practices and employee performances are linked. The next one is to forward suggestions that will guide further research on how research in such a complex relationship might best be undertaken. This working paper is a review of 106 relevant articles published in pre-eminent international refereed journals between 1994 and March 2013. The study showed disparities as well as commonalities in the concepts and treatment of HRM practices and performance. It also provided guidance on how to best undertake future research on the link between strategic HRM practices, in promoting individual and organizational performance, for quality of health care in the developing countries. The study concluded that there is a need to develop systems approach of assessing the structural and process dimensions and apply comprehensive model to analyze the correlation between strategic HRM and employee performance at micro and macro level.

(Singh & Negi, 2013), conducted a study and analyzed the Human Resource Management process and practices in the large hospitals of Dehradun. In modern hospitals, that employed thousands of personnel including medical, paramedical and support staff, managing the vast human resource working in these
Review of Literature

hospitals is a major challenge as it requires round the clock Human Resource support. For this study, three large hospitals were selected and on the basis of primary and secondary information, assessment was carried out. The study identified that the main function of the HR Department is recruitment, training, manpower management and general administration. The Study found that, in health care sector, HR functions are very important and HR processes and procedures are fairly good in hospitals

(Dajiba, 2013), examined the planning and utilization of human resource in the selected private hospitals of Kolhapur district and evaluated the techniques and procedure of recruitment, selection, self-assessment, promotion, remuneration, health-safety, welfare, training of employees in private hospitals. The study found that majority of private hospitals in Kolhapur district are now functioning as family owned proprietary concerns of small and medium size. The doctor proprietors of these hospitals are unaware of the significance of human resource, human resource development, research and development. Owners of these hospitals need to know the importance of hospital management and human resource development and to make an investment on Human Resource Management. The study recommended that these hospitals have a long way to go in establishing cordial relationship with their staff, create warm workplace environment, and develop team spirit and sense of belongingness to the organization, which lead to increase in the productivity of staff, efficiency and the hospital’s good wills.

(Goyal & Shrivastava, 2012), organised a study in the pharmaceutical companies in India for examining the impact of human resource practices on the employee’s job satisfaction and organizational commitment. The study was organised for evaluating the relevance of prevalent HR Practices, and its influence on employee job satisfaction and organizational commitment in pharmaceutical companies in and around Jaipur area. The analysis revealed that HR Practices of an organization can improve the job satisfaction level of the employees and strengthen their Commitment towards their organization in the pharmaceutical units under study.

(Masanappa & Babanrao, 2012), conducted a study to know the process of human resource planning, job analysis and examine the methods of human
resource recruitment, selection, assessment of training needs and its utility, impact of motivational schemes on hospital managers, administrators as well as employees of selected hospitals in the Pune Metropolitan region. In this study, the researcher has chosen hospitals with more than 30 beds for the study, out of 928 hospitals in Pune and in the Pimpri Chindwara area only 75 hospitals having more than 30 beds were taken as sample. In the study, data was collected through primary and secondary sources. The study suggested that hospital administrators should consider offering a retirement plan to improve the work environment. Administrators should spend more time in communicating with their staff. Besides, they must consider changing the work context, especially concerning salary and promotions policies, in ways that can contribute to job satisfaction.

Leggat (2012) in her research paper-‘The Contribution of 'Best-Practice' HR Management to Better Organisational Performance’ cited in the book ‘The Innovation Imperative in Health Care Organisations’ clearly mentions about the evidence for best practices of Human Resource Management and its impact on organisational performance in health care. It also stated that as compared to other industries, health care organisations need strong Human Resource Management systems to compel their human resources to work together to attain more improvements in quality of care and patient satisfaction that have been difficult to realize.

(Smits , Slenter , & Geurts ,2010), explained that in many countries manpower problems in the field of health care are regular items on the agenda of policy makers. To evade mismatches between demand of care and supply of care on national and regional levels, manpower planning models and methods are used to determine adequate numbers of medical specialists to fulfill the future demand of care. A key question is, what factors must be included in the long term (25 years) forecasting and how these factors should be included in a planning model and method. It evaluated the model and the method for medical manpower planning that has been used since 2000 in the Netherlands. To improve accuracy and relevance of the model, it suggested that system dynamics modeling should be used and that strict distinction should be made between factors influencing the demand for care and factors influencing the supply of care.
Fried & Fottler (2008) in their book ‘Human Resources in Healthcare: Managing for Success’ stated that human resources are the most important asset and managing people in the healthcare industry is very important for its success. It provides the techniques and practices behind effectively managing people in the healthcare industry and practical tools necessary for meeting the unique challenge of managing healthcare employees.

(Karunakaran & Pillai, 2008), studied the effectiveness of Human Resource Management practices in private hospitals in Kerala. For the study, 46 hospitals were selected randomly from Kerala, and data was collected through questionnaires. The survey focused on both top management as well as the employees in managerial cadre. The study established that overall Human resource practices in private hospitals in Kerala are fairly satisfactory. However, there is a need of immediate attention in the several areas from policy maker and private hospital management.

(Harris, Cortvriend, & Hyde, 2007), in their paper compared the evidence from a range of reviews concerned with the links between Human Resource Management (HRM) and performance. They examined various reviews of the Human Resource Management and performance literature. The study found relationships between a range of HRM practices, policies systems and performance. Despite being an important concern for HR professionals, there is little research exploring the link between HRM and performance in the health sector.

(Kabene, Orchard, Howard, Soriano, & Leduc, 2006), examined the healthcare system in global context and importance of HRM to improve health outcome of patients in healthcare delivery. The study explored the published literature that is secondary data sources for data collection. The study recommended that proper management of human resources is critical in providing quality of healthcare. A refocus on Human Resource Management in healthcare and more research are needed to develop new policies. Effective human resources management strategies are greatly needed to achieve better outcomes from and access to health care around the world.
Review of Literature

(Singh K., 2004) has recommended that human resources policies have to be made well-matched with business planning. Organizations must consider human resources as assets and have to remember that they are a valuable source of competitive benefit. The study, Impact of HR Practices on Perceived Firm Performance in India, aimed to examine the relationship between the human resources management policies and performance level of firm. The study conducted among 82 Indian firms revealed that there is a significant relationship between the two human resources practices, namely, training and compensation. The study analysed the effects of human resources systems on manufacturing performance and market performance of the firm.

(Buchan, 2004), in his article entitled “What difference does ("good") HRM make?” examines evidence based on the impact of HRM on organisational performance in other sectors and examines some of the underlying issues related to "good" HRM in the health sector. He argues that it is not only the organisational context that distinguishes the health sector from many other sectors, in terms of HRM, but many of the measures of organisational performance are also unique. The article also pointed out the need for a "fit" between the HRM approach and the organisational characteristics, for recognition that so-called "bundles" of coordinated and linked HRM interventions and context and priorities will be more likely to achieve sustained improvements in organisational performance than single or uncoordinated interventions. This highlights an important issue for those who wish to improve HRM practice- that is -deciding how best to disseminate good practice in HRM is as important as determining how to identify and evaluate it.

(Buchan, 2000) HR practices can have direct and a fast effect on patients, since employees stay in direct contact with those patients. According to Buchan, HRM should have an important role in the business process. The aim of the paper is to assess the human resource (HR) dimension of the National Health Service (NHS) reforms in the United Kingdom, and to highlight lessons for the health systems of countries undergoing reform or restructuring. The impact on the HR function of the NHS reforms is assessed in this paper by examining three central requirements of the HR function:
(Siddiqui & Kleiner, 1998), investigated how the health care industry can benefit from the latest developments of the 1990s such as environmental effects and managing diversity as well as to describe how the traditional health care facilities can adapt these new ideas. In the compilation of this report, both primary and secondary research was used. It can be concluded from the study, that the health care industry should adapt the latest methods to compete and survive, such as use more marketing tools to attract Human Resource Management personnel from other industries, promote diversity at the work place, promote from within the company, and cross-train personnel whenever possible. Health care industry has generally lagged behind other industries in securing high-performance individuals and marketing personnel; however, with the development of health maintenance organizations, this trend is changing.

2.3 Knowledge Management Practices in Health Care Sector

The creation and dissemination of knowledge have become increasingly important factors in competitiveness. Although knowledge management is becoming an established discipline with various applications and techniques, its implementation in health care has been challenging. However, many organisations have realized the importance of Knowledge Management and many studies are conducted for the implementation of Knowledge Management.

(Shahmoradi, Safadari, & Jimma, 2017), through systematic review investigated the importance of knowledge management implementation and knowledge management tools used in healthcare for informed decision making. For that, three databases, two journals websites and Google Scholar were used as sources for the review. It was established that application of knowledge management in healthcare is encouraging. There exists a number of prospects for knowledge management implementation, even though there are some barriers. Some of the opportunities that can transform healthcare are clinical decision support systems, advances in health information and communication technology, electronic health record systems, communities of practice and advanced care planning. Providing the right knowledge at the point of decision making by implementing knowledge management in healthcare is paramount.
(Lee, 2017), investigated the impacts of knowledge management enablers, such as organizational structure, learning, information technology systems, leadership, trust, and collaboration, on the knowledge management process of creation, storage, sharing, and application. Collecting data through self-administered questionnaires from four Korean tertiary hospitals, this survey studied the main organizational factors affecting the knowledge management process in these organizations. The results disclosed that organizational factors affect the knowledge management process differently in each hospital organization. From a managerial perspective, the implications of the study was that knowledge managers of each hospital must build an organization culture and systems and continuously educate employees about Knowledge Management based on trust and collaboration.

(Rivera, Kyte, Aiyegbusi, Keeley, & Calvert, 2017), conducted a study to identify the existing methodological frameworks applied to evaluate healthcare research impact and to summarise the common themes and metrics in an impact matrix. The measurement of research impact is an essential exercise to help direct the allocation of limited research resources, to maximise research benefit, and to help minimise research waste. Twenty-four unique methodological frameworks were identified, addressing 5 broad categories of impact: (1) ‘primary research-related impact’, (2) ‘influence on policy making’, (3) ‘health and health systems impact’, (4) ‘health-related and societal impact’, and (5) ‘broader economic impact’. This review provided a collective summary of existing methodological frameworks for research impact, which fund providers may use to inform the measurement of research impact and researchers may use to inform study design decisions aimed at maximising the short-, medium-, and long-term impact of their research.

(Singh & Chauhan, 2016), conducted a study to investigate knowledge management with a focus on knowledge management practices and its relationship with doctors, with very little information about knowledge management practices in India. The study was conducted among doctors in hundred Indian hospitals. The primary data collected from these respondents were analyzed to study the equations developed for empirical research. The study highlighted that the doctors
Review of Literature

are well conversant towards obtaining new knowledge through conference, discussion groups, health reports etc., but they are poorly inclined towards availability or usage of IT tools and intranet. The outcomes obtained from the factor analysis and correlation matrix explained that the Knowledge sharing and use of information technology in healthcare are major factors from doctors’ point of view and have a significant impact on managing Doctors’ workload. The study revealed that knowledge management is an effective strategic initiative that enables long-term success, enhances value, and helps to increase competitive advantage. The implications of this paper will help in strategic formulation for knowledge management practices for managing Doctors’ workload.

(Cruz & Ferreira, 2016), evaluated the perception of employees of health institutions regarding the management of knowledge in their institution and analyzed the existence of differences in this perception, according to the management model of the institution. The study revealed the perception of moderate knowledge management in health institutions and statistically significant differences in the perception of knowledge management in each management model. The study stated that management of knowledge takes place in healthcare institutions, and the current management model influences the way the staff at these institutions manage their knowledge.

(Lee, Kim , & Kim, 2014), conducted a study to evaluate the levels of implementation of knowledge management and outcomes of nursing performance, to examine the relationships between core knowledge management factors and nursing performance outcomes and to identify core knowledge management factors affecting these outcomes. The study used a descriptive research procedure. The sample of the study consists of 192 nurses registered in three large healthcare organisations in South Korea. The variables like, demographic characteristics, implementation of core knowledge management factors and outcomes of nursing performance were examined and analysed in this study. The results of the study provide basic data that can be used to frame effective knowledge management strategies for enhancing nursing performance in hospital nursing organisations. In particular, prioritizing the implementation of a knowledge-sharing culture and organisational learning in knowledge management systems might be one method
Review of Literature

for organisations to more effectively manage their knowledge resources and thus to boost the outcomes of nursing performance and to achieve greater business competitiveness.

(Asemahag, 2014), conducted a study to assess knowledge-sharing practices and determinants among health professionals in Addis Ababa, Ethiopia. Generally health professionals need updated health information from credible sources to improve their knowledge and provide evidence based health care services. Different types of medical errors have occurred in resource-limited countries because of poor knowledge and lack of experience sharing practices among health professionals. An institutional based cross-sectional study was conducted among 320 randomly selected health professionals in 2012. A pretested, self-administered questionnaire was used to collect data about different variables. Majority of the respondents approved the need of knowledge and experience sharing practices in their routine activities. Individual, organizational as well as resource related issues are the major determinants of poor knowledge sharing practices. Improving efficiency of management, proper resource allocation, motivating staffs, and accessing health information sources are important interventions to solve the problem in the study area.

(Rahman, 2013), conducted a study to explore the perception of the officers and researchers belonging to the National Institutes of Health Malaysia (NIH) about their understanding of knowledge sharing practices in their respective environment. The survey questionnaire for the researchers and officers of the NIH was distributed to 400 respondents from the six research institutes under NIH: Network for Clinical Research Centres (CRC), Institute for Medical Research (IMR), Institute for Health Management (IHM), Institute for Health Systems Research (IHSR), Institute for Public Health (IPH) and Institute for Health Promotion (IHP). The responses indicated that knowledge sharing depends on the context of encouraging and rewarding the practices of organisational knowledge sharing. The findings of the study revealed four factors such as Environment and Infrastructure, Management Support, Culture and Technology, as significant determinants in influencing the organisational knowledge sharing practices among
the employees. The study was limited to the perceptual aspect of the issue, specifically from the individuals’ opinions and sentiments.

(Kim, Bennett Hee-Joon Song, & Song, 2012), investigated the extent to which institutional structures facilitate knowledge sharing practices and their impacts on organizational performance. Based on 220 usable survey responses, the researchers applied structural equation modeling (SEM) to observe the extent to which institutional structures enrich organizational performance through knowledge sharing, and other important knowledge sharing-related constructs. The healthcare industry was used as the research context as it is a knowledge-intensive industry. The study found that knowledge sharing practices were strongly influenced by institutional structures, and together considerably enhanced patient safety. Besides, the institutional structures had a high impact on leadership roles and the abatement of punitive behaviors, which in turn collectively enhanced patient safety considerably. This paper recognized the power of institutional structures that successfully facilitated knowledge sharing practices within an environment that is unfriendly to knowledge sharing behaviors.

(Mehrdadi, Borousan, Sabet, Saleki, & Manafi, 2012), designed a research framework for knowledge Management system (KMS) applications in a knowledge circulation process. Though knowledge management systems are proved to be beneficial, their implication in HIT sector is not easy. This case study tried to find the benefits of using KMS in hospital settings. Several major issues affecting the implementation of knowledge management system were identified including “organizational support” “perceived usefulness”, “perceived ease of use”, “concerns of data security and confidentiality” and “incentives for KMS users”. Through knowing and analyzing these issues earlier, the hospitals can solve the common problems of using knowledge management system in their operations and instead benefit from its positive impacts.

(Stroetmann & Aisenbrey, 2012), opined that in healthcare, having the correct information at the correct time can become a difficult challenge due to the sheer amount of ever-expanding knowledge. The Siemens Healthcare Sector is one of the world's largest suppliers to the healthcare industry and a trendsetter in medical imaging and therapy, medical information technology, laboratory
Review of Literature

diagnostics and hearing aids. The Clinical Knowledge Base of Siemens Healthcare is a constructive example of the company’s successful Knowledge Management. By optimizing clinical workflows for the most common diseases, Siemens also makes healthcare faster, better, and more cost effective. The optimization of clinical workflows requires a multidisciplinary focus and a collaborative approach of researchers, medical advisors, and scientists as well as healthcare economists. Current medical information and knowledge are some of the core assets in the healthcare industry. The main issue is to connect knowledge holders and knowledge recipients from various disciplines efficiently in order to spread and distribute knowledge.

(Bordoloi & Islam, Knowledge Management Practices and Healthcare Delivery: A Contingency Framework., 2012), the article mentioned that healthcare delivery, being a knowledge driven process, provides opportunity to incorporate knowledge management practices to improve processes. At the same time knowledge management is systematically more complex in healthcare and minimal research existed to guide academic and organizational stakeholders. Hence this study investigated about the application and impact of knowledge management practices in healthcare delivery. This investigated knowledge management practices in the areas of (i) knowledge acquisition and sharing, (ii) knowledge assimilation and application. The study revealed how the different knowledge management practices affect the performance of healthcare delivery through technical and interpersonal care. And also explored the factors of physician characteristic, ailment characteristics, organizational IT infrastructure and organization processes, on which the conceptual framework will be contingent on. From an academic perspective this study identified some key knowledge management practices and explored their linkages with technical and interpersonal care, while from a practical point of view it provided implications for administrators and practitioners in healthcare delivery on the management of contingency factors so that the knowledge management practices can be properly implemented.

(Wickramasinghe, 2010), in an article stated that healthcare all over the world is facing lots of challenges including escalating costs and more pressures to
Review of Literature

deliver high quality care. By fostering knowledge management and making their knowledge assets explicit, healthcare organizations will be more suitably equipped to meet these challenges. The case study data presented in the article depicted the complexity of the service delivery process, which in turn requires that many disciplines create and share knowledge to enable the delivery of a high quality caring. Thus the need for shared knowledge is a fundamental requirement. The goal of knowledge management is to provide the decision maker with appropriate tools, technologies, strategies and processes to turn data and information into valuable knowledge assets. It also discusses the benefits of incorporating these tools and techniques to the healthcare arena in order to make healthcare delivery more effective and efficient, and thereby maximize the full potential of all healthcare knowledge assets. To ensure a successful knowledge management initiative in a healthcare setting the article proffers the knowledge management infrastructure (KMI) framework and intelligence continuum (IC) model. The benefits of techniques lie not only on the ability of making explicit the elements of these knowledge assets, and in so doing enable their full potential to be realized, but also to provides a systematic and robust approach to structuring the conceptualization of knowledge assets across a range of healthcare environments as the case study data presented demonstrates.

(Hara & Hew, 2007), conducted a study to extend research on online communities of practice in two ways. First one was to examine the types of activity that nurses undertake on an online community of practice as well as the types of knowledge that nurses share with one another and second one was to examine the factors that sustain knowledge sharing among the nurses from their local perspectives. An in-depth case study with mixed methods was adopted to obtain naturalistic data. The study revealed that the common form of activity performed was “Knowledge sharing,” which is followed by “Solicitation.” Regarding the types of knowledge shared, the most common were “Institutional practice” and “Personal opinion.” The factors that have helped sustain knowledge sharing within the online community of practice included (1) self-selection, (2) validation of one’s practice with others who share a related working situation, (3) a necessity to gain better understanding of current knowledge and best practices in
of Literature

the field, (4) a noncompetitive environment, (5) the asynchronous nature of the online communication medium, and (6) the role of the listserv moderator. This study contributes to the growing knowledge base of communities of practice that span organizational boundary. Administrers of the organisations can use the coding scheme developed in this study to gauge current activities of existing online communities of practice.

(ODysseas & Spyros, 2006), examined the role of knowledge management and how it can be successfully applied to improve health services so as to increase patients' satisfaction. The beginning of this article was about explaining the theories beyond knowledge management as "what is knowledge" and how it can be transformed and captured across people and organizations. The last part of the study consists of the theory of knowledge management and the benefits of it in the area of healthcare in comparison with the old traditional systems.

2.4. Knowledge Management Practices in other industries

Only few studies are available in knowledge management in health care industry. In order to gain a deeper insight in this area, knowledge management in other areas are also reviewed.

(Torabia & El-Denb, 2017), studied the role of “tacit” knowledge sharing on organizational productivity. Accordingly, a framework was developed and hypothesis were drawn and tested where results demonstrated interesting insights into the role of sharing on organizational productivity. A questionnaire was settled to test the validity of the model, and distributed to managers and employees of different branches at the Koosar Bank in Tehran, Iran. The study established that the employees’ intension to share and consequently the sharing of tacit knowledge has direct positive impacts on productivity. In addition, the analysis revealed that not only productivity would increase as a result of knowledge sharing, but also employees’ innovative contributions increased as a consequence of exposure to others’ knowledge, expertise, and experiences.

(Joshi, Farooquie & Chawla, 2016), investigated how organizations collect, disseminate and apply knowledge. Though both Indian public and private sector organizations use Knowledge Management for enhancing organizational success,
the study tried to compare the degree of KM implementation in private sector with that of public sector. For the study the empirical investigations of relationships between KM constructs was used. The study utilized both qualitative and quantitative technique for instrument design, data collection and analysis. Convenience sampling was used. Literature review along with focus group discussion and a series of personal interviews were used to build a conceptual framework and a questionnaire. The results showed that private sector is ahead of public sector on all the Knowledge Management constructs and it is significantly higher in all constructs except leadership.

(Bharadwaj, Chauhan, & Raman, 2016), examined the knowledge management capabilities in large Indian organizations and their impact on knowledge effectiveness. It is based on the assumption that together the perspectives of Knowledge Management infrastructure and Knowledge Management processes provide a useful theoretical foundation for defining important aspects of knowledge effectiveness in organizations. This research has established evidence that large Indian organizations have started realizing the importance of managing knowledge as a strategic asset. However, the approach is different in different organizations. Some organizations depend more on creating knowledge infrastructure capabilities through culture and structure while some others equally emphasize the need of process approach to manage both tacit and explicit knowledge within the organization. Data collected from 156 organizations were subject to structural equation modeling. The results established that both infrastructure capabilities and process capabilities play an important role in improving KM effectiveness.

(Wang & Yang, 2016), conducted a survey and presented a model for evaluating success of KM in small- and medium-sized enterprises (SMEs). This study is the first empirical test of an adaption of the Jennex and Olfman (J&O) KM success model considered to be a better description of Knowledge Management success due to its solid theoretical foundation to analysis of the influences of Knowledge Management and inter-actions on workers' productivity in Taiwanese SMEs settings. The outcomes of the study served as valuable reference for
researchers interested in exploring issues related to the successful implementation of KM, and for practitioners aiming to achieve the benefits of KM in SMEs.

(Nnabuife, Onwuka, & Ojukwu, 2015), examined the extent to which knowledge management improves the Performance of Selected Commercial Banks in Awka. It also examined the extent to which knowledge acquisition affects the performance of an organization. This study employed descriptive research design; primary source of data are the major instrument used for this study. Pearson’s product moment correlation was used to analyze the data. The findings revealed that there is a positive relationship between knowledge identification and organizational performance. It also revealed that knowledge acquisition has a positive effect on organizational performance. In conclusion, knowledge is the key resource needed if an organization intends to operate at a level that is equal to no other. The study therefore recommended that an effective system should be put in place to ensure that relevant knowledge that will boost performance was identified. And also that knowledge acquisition is not only about acquiring mere knowledge but mindfully managing knowledge acquisition activities in order to tap into different kinds of knowledge.

(Bhanumathi & Rath, 2015), identified the status of the KM practices in SMEs by considering the sample set in Bangalore, drawn from both manufacturing and service sectors and explored to scientifically and empirically investigate, associations between knowledge management enablers, the knowledge creation processes, and organizational performance among Bangalore SMEs. The research study was on empirical data collected through interviews and questionnaire administration. It was found that the majority of the manufacturing organization have not yet started the implementation of knowledge management. Among service organizations, the majority are in the growth stage. Among medium scale organizations, the majority has not yet started implementing the concept of knowledge management, and the majority of small scale organizations are in the growth stage.

(Omotayo, 2015), demonstrated that knowledge management is a key driver of organizational performance and a critical tool for organisational survival, competitiveness and profitability. Hence creating, managing, sharing and utilizing
knowledge effectively is important for organisations to take full advantage of the value of knowledge. In order to manage knowledge, attention must be paid on three key components such as human resources, process, and technology for the purpose of leveraging knowledge.

(Vasudevan & Chawan, 2014) presented a brief explanation of knowledge management practices in SMEs that covered various barriers to knowledge management. The study concluded that the in-depth study of market orientation, which is one of the subsets of knowledge management, learning from consultants, frequent interactive sessions with employees, attending conferences/workshops outside India on a particular topic and subtopic of manufacturing processes, and extensive use of internet are seen as key driving factors of knowledge management. Knowledge management professionalism, industry academia interaction and social networking require more attention and workout as these would help position India as an international manufacturing destination, specific to innovation and sustainable development. This research study also suggests few managerial implications for owners of SMEs for the effective use of knowledge management in their organizations.

(Tubigi, Alshawi, & Alalwany, 2013) conducted a study to evaluate KM processes and to investigate the impact on organisational performance (OP). The researchers propose a conceptual model through an in-depth investigation of the previous and current studies in the area of Knowledge Management and organisational performance. It was imagined that this model can play a role in guiding the process of KM implementation in order to maximise the beneficial effects of KM processes on organisational performance. An inductive qualitative approach was used based on a preliminary study. The study showed that knowledge usage is the most influential aspect of KM that impacts organisational performance. Moreover, the study revealed that knowledge transfer is a common Knowledge Management process employed by organisations. Accordingly, it was ranked as the second most influential factor of Knowledge Management with respect to organisational performance.

(Suresh, 2013) focused on exploring the influencing factors regarding KM in various industries in Chennai. Therefore, it aimed to investigate the main factors
Review of Literature

affecting the various industries in Chennai in adopting, applying and innovating KM. As the knowledge management practices in Indian organizations are at a stage of infancy, this study offers a comprehensive platform for future KM research and provides managerial implications for organizations, particularly various enterprises, to better realize the worth of KM and the possible impediments involved in the processes of adopting, implementing and innovation in KM.

(Thakur & Sinha, 2013), explained Knowledge Management in an Indian Perspective with emphasize on Knowledge Management practices in business organizations at Bhopal. They discussed in detail the role of knowledge management in Indian business organization. The paper is a part of studies of knowledge management technologies and their implementations in various business organizations and some problems that hindered knowledge management practices at Bhopal. The objective of this paper is to identify the extent to which organizations are aware of knowledge management. The focus is on understanding how the knowledge management initiators foresee the implementation process and deriving its benefits. The paper investigates the scope of effective implementation of a knowledge management strategy in the workplace of business organizations and provides future directions.

(Anand & Singh, 2011), in their paper had tried to identify issues for successful KM implementation in Indian SMEs. It focused on the strategy, implementation, technological and performance measurement and benchmarking issues regarding KM in Indian SMEs. KM is a practical tool for any organization. KM has gained importance in the today’s global knowledge economy. It is vital not only for big firms, but for small and medium size enterprises (SMEs) also. This paper tries to identify the steps regarding implementation of KM in Indian SMEs for improving competitiveness of SMEs in globalized market.

(Sharma, Bansal, & Kumar, 2011), conducted a study to analyse the effectiveness of knowledge management system in textile industry in Punjab. Data was collected only from managerial personnel. The study result revealed that the lack of adequate reward to encourage knowledge related behavior is a problem being faced by most of the industrial units and Knowledge enrichment culture shows very low score for willingness to share knowledge.
Review of Literature

(Chawla & Joshi, 2010), attempted to study Knowledge Management implementation in Indian manufacturing, IT and IT Enabled Services (ITES) and power generation and distribution companies. Various dimensions of Knowledge Management, namely: process, leadership, culture, technology, and measurement are compared across the three industries to understand the differences in KM practices. The study revealed that there is difference in Knowledge Management practices with respect to the organizations’ use of the above mentioned dimensions across the three industries. The raw mean score of various dimensions for ITES is the highest followed by manufacturing, and power generation and distribution on all except the leadership dimension. But, one way ANOVA results indicated that no significant difference is found for KM process, culture and technology. Statistical difference was found on the remaining two dimensions, namely, leadership and measurement, which were further analysed. Though KM has been studied in Indian manufacturing, pharmaceutical and IT industries, its comparison across industries has not been carried out.

(Karthikeyan & Rengaraj, 2010), conducted a study to identify the various factors that contribute towards Knowledge Management practices in the automobile industry in India. The researcher carried out the study by framing a structured questionnaire and the mode of communication was personal interview. The study is a descriptive one. Primary data was collected by the help of structured questionnaire administered to level 2 and level 3 employees of Research and Development division. The study showed knowledge management as a coordinating mechanism. The study supported the view that a firm with a knowledge management capability will use resources more efficiently and so will be more innovative and perform better. The significance of training based on competency gap, SAP and R& D for enriching the Knowledge of employee’s is clearly pointed out in this research work.

(Zack, McKeen, & Singh, 2009), had conducted an exploratory investigation of the organizational impact of knowledge management. The study revealed that KM practices were found to be directly related to organizational performance which, in turn, was directly related to financial performance. There was no direct relationship found between KM practices and financial performance.
Review of Literature

A different set of KM practices were associated with each value discipline i.e. customer intimacy, product development and operational excellence. There existed a gap between the KM practices that firms believe to be important and those that were directly related to organizational performance. The findings were based on organizations from North America and Australia. The study concluded that there was no significant relationship found between KM practices and financial performance.

(Goswami, 2008), explained that theoretically knowledge management is seen to have the potential to influence many spheres of an organization. It is available in a variety of forms and to a large extent the hidden tacit knowledge can be codified and made explicit. It is believed that by sharing of knowledge, the organization will benefit in the long run. This paper makes an exploratory study about Knowledge Management in practice at ICICI (India) and tries to identify the critical success factors of Knowledge Management. A small survey was done among 31 employees of ICICI and based on their responses a factor analysis was carried out. This resulted in identification of the critical success factors. A personal observation of the system at work was also made to understand whether Knowledge Management can fulfill some of the needs of the technical and professional workforce.

(Anantatmula, 2007), attempted to identify attributes of Knowledge Management Effectiveness and establish their relation with business results. The research premise is that Knowledge Management outcomes are difficult to measure but their contributions to organizational performance can be assessed. The finding of the study is that leadership is the main driver for successful KM implementation. KM leadership is primarily responsible for supporting and sustaining a learning environment in organizations. Coordinating Knowledge Management initiatives with the strategic plan of organizations would direct Knowledge Management efforts toward improved organizational performance such as customer satisfaction and business growth. Knowledge Management initiatives patronize customer satisfaction through better product or service quality. In turn, these outcomes promote new products and services, and increased revenue.
Review of Literature

(Singh, Shankar, Narain, & Kumar, 2006), attempted to understand the Knowledge Management practices in Indian manufacturing organisations, which are going through a major transition in this area. For that a postal survey carried out to access the impact of Knowledge Management practices in Indian manufacturing industries. Data were collected and analysed for 71 industries under this category. The results showed that the main reasons why these organisations are focusing on Knowledge Management are to gain competitive advantage and create new knowledge. However, financial constraints and culture are amongst the highest ranked barrier for Knowledge Management implementation. The study pointed out that there have been major changes in the Indian engineering industry in terms of better awareness and adoption of KM practices. The study addressed many related issues in this direction.

(Sreekumar & Mohan, 2003), focused on the knowledge management aspects in the highly dynamic knowledge intensive information technology sector and identified the determinants of knowledge management system. A survey of information technology firms was conducted to collect data on the knowledge system and its determinants. The study observed that the Indian information technology companies have started implementing knowledge management systems, in varying degrees and highlighted that for successful knowledge management, the firm requires sufficient knowledge base as well as a dynamically optimum advanced communication technology base.

(Almashari, Zairi, & Alathar, 2002), explained the impact of Knowledge Management on organisational performance based on an empirical survey of Kuwaiti organizations. The study looked at both the concepts of Knowledge Management and learning organizations. Several interesting findings were reported, together with detailed discussions based on the literature of their implications for research and practice. The study highlighted that knowledge management has impact on organizational learning. The complexity of Knowledge Management stems from the necessity for organizations to have a systematic and integrated approach to build the learning processes, culture, and technology infrastructure and performance management needed to define, use and develop
knowledge-related assets. The integrated approach, once in place, can have a great impact on the overall organizational systems and performance.

(Stonehouse & Pemberton, 1999), stated that the role of individual and organizational knowledge is increasingly important in the formation of knowledge-based core competencies. Core competences, deriving from an organisation and that provided distinctive values to customers, were commonly viewed as the basis of competitive advantage. This paper examined the awareness of knowledge management, making reference to a number of sectors and organisations, and specifically the airline industry, arguing that the structure, culture and infrastructure of an organisation are integral elements that facilitate and nurture learning. And as a result, competences are built and developed within the “intelligent” organisation, which in turn, contribute to its competitive success

2.5. Management of Knowledge Asset in Ayurveda

Ayurveda, the traditional knowledge, in its initial stage maintained the management of knowledge in its full glory and acquired immense rich knowledge. But later, management of that Knowledge Asset was not properly maintained. Hence that knowledge gradually weakened due to the ineffectiveness of Knowledge Management system and now a days that knowledge is not even properly used. However the people realizing the value of Ayurveda have taken certain efforts to enrich this traditional knowledge, for the well-being of the society.

(Jaiswal & Williams , 2017), says that Ayurveda, the ancient wisdom has a rich history, but this traditional system of medicine is still not exhaustively explored. Even after decades of developing and applying advanced analytical techniques for herbal drug analysis, Ayurveda drugs still face some drawbacks. This review aims to bring into limelight the age old history as well as the basic principles of Ayurveda. This review would help the researchers and practitioners to gain deeper perspicuity of traditional systems of medicine, to develop the need for strengthening the traditional knowledge and to overcome the challenges to their global acceptance and harmonization of Ayurveda system.
(Chauhan, Kumar, Satyendra, Mishra, & Semwal, 2015), discuss the need for evidence-based research in Ayurveda for global recognition and acceptance of Ayurveda, which needs further advancements in the research methodology. The present review highlighted various fields of research including literary, fundamental, pharmaceutical, drug and clinical research in Ayurveda. The review emphasized that there is an urgent need to validate basic principles as well as drugs used in the ayurvedic system with the help of advanced research methodology. And advancements in the ongoing research methodology are highly required for the promotion of Ayurveda. It will facilitate to expand the research methodology for Ayurveda with main emphasis on the fundamental research. This attempt will surely encourage young researchers to work on various areas of research for the development and promotion of Ayurveda.

(Patwardhan, 2014), discuss the contemporary approaches for linking Ayurveda with evidence-based medicine. For that, the researcher presents a pragmatic assessment of methodology and extent of scientific research in Ayurvedic medicine. The article explaind the meaning of evidence and indicated the need to adopt epistemologically sensitive methods and rigorous experimentation using modern science. The study critically analyzed the status of Ayurvedic medicine based on personal observations, peer interactions and published research. This review article concluded that traditional knowledge systems like Ayurveda and modern scientific evidence-based medicine should be integrated. And also advocated that, Ayurvedic researchers should develop strategic collaborations with innovative initiatives like ‘Horizon 2020’ involving predictive, preventive and personalized medicine (PPPM).

(Kumar, Roy, & Singh, 2014), evaluated the knowledge level of Ayurvedic medical practitioners about public health issues with the aim to find out the competency of Ayurveda practitioners regarding knowledge of public health issues. A Cross-sectional study was conducted in the union territory, Chandigarh and two districts each of the states of Haryana and Punjab. For collecting information from the respondents, who were registered Ayurveda doctors and interns, Public health knowledge assessment tool comprising a questionnaire was used. The study observed that curriculum and training of Ayurveda education need
to have more public-health related inputs and therefore, that the Ayurveda practitioners are well-versed with the public health concepts and could contribute in the public health field meaningfully.

(Manohar R., 2013), discussed there is evidence that much of the knowledge preserved by oral traditions has been lost in the passage of time. Therefore, it is necessary to revisit Ayurveda and find proper applications of it for present times. He emphasized that what is really needed in Kerala’s Ayurvedic sector is an auspicious research environment for manufacturers and public laboratories to develop drugs for the treatment of diseases.

(Baghel M., 2011), focused on the need of new research methodology for Ayurveda. This article pointed out that present day Ayurvedic researches are failing in this aspect as they are incompetent to disseminate the knowledge gained from the exercises. Neither has the Ayurvedic teaching changed in the last 50 years nor have the textbooks been enriched with new researches. He pointed out that Drug researches done in the field of Ayurveda in the last six decades have not enriched the Ayurvedic understanding or Ayurvedic concepts; however, these researches have created a better understanding of Ayurveda by the modern medical fraternity. The clinical trials in Ayurveda are needed for revalidation of facts enumerated in Ayurvedic classics leading to the explanation of fundamental principles; to find out better treatment modalities for the existing diseases and for newer diseases; to standardize the treatment procedures scientifically and to establish dose, duration, indication and side-effect profile of any given drug. It is high time to define Ayurveda itself and to develop new research methodology for Ayurveda or the use of herbs to standardize the drugs. Accordingly, the research methodology should be planned and adopted.

(Manohar, 2006), has opined that Ayurveda is based on 5000 years of clinical practice. Hence, in place of conventional evidence-based medicine (EBM) clinical trials, practice-based clinical trials should be organized for Ayurveda.

2.6 Knowledge Management and Human Resource Management

Knowledge Management means efficient handling of resources as well as information within a commercial organization which is really a challenge. For that,
Review of Literature

one of the major requirements is to integrate the link between Human Resource Management practices and organizational performance. There is a gap in understanding the role of Human Resource Management practices in managing knowledge asset and only few studies are available in this matter.

(Nanda, 2016), focused on how HR can be key to the success of knowledge management goals. It also studied how HR links with knowledge management. This study highlighted that there is a strong correlation between HRM and knowledge management. Successful knowledge management helps to achieve the competitive advantages of every organization. The study provided that HRM is the key element of knowledge management.

(Khasnis, 2014), tried to understand KM for HRM theories. In this article, they discussed such highlights which affect the human resource in an organization due to the knowledge economy and its dynamism. It explained the role of knowledge management in Human Resource Management. It takes into consideration such theories which contribute to the knowledge sharing in the organization. It also considered the recruitment process, performance assessment, rewards and other such areas of HRM which are having direct effect on the knowledge sharing.

(Murali & Krishnakumar, 2013), examined the linkages between the knowledge management and human resources function. The techniques used by organization to extract and disseminate knowledge are also examined. The use of knowledge to effectively manage the human resources of an organization is examined through this study. They argued that if knowledge is stored and shared efficiently in an organization, it creates competent workers which will result in the success of the organization. For knowledge to create, store and disseminate in an organization effectively the human resource functions should be designed in a proper manner so that knowledge aspects are taken care of. This is scrutinized in this study.

(Shikhare & Deshmukh, 2013), disclosed a better understanding of Enterprise Knowledge Management; as a strategic tool in support of enterprise transformation for a new economy especially by HRD of an enterprise. The study
identified that newer methodologies can leverage the task of educating and enlightening the employees; and in the process, achieve proper knowledge sharing and knowledge dissemination. HR is part of the knowledge management in an organization, and because of this it has to play a role in concurrence with the IT department, and others responsible for generating and manipulating knowledge. In this course of action, there are multiple challenges faced which demands a multi-faceted and multi-skilled role to be played by the HRD.

(Jimenez & Valle, 2012), examined the effect of HRM practices on the knowledge management process, focusing on HRM practices both in isolation and forming a knowledge-oriented HR system. The main purpose of this paper is to examine the relationship between HRM and each of the knowledge management processes. Findings of the study provided evidence of a positive relationship between the adoption of a knowledge-oriented HR system and each of the knowledge management processes, but also show that the HRM practices comprising that system have different effects on the knowledge management processes.

(Tan & Nasurdin, 2011), examined the direct relationships between HRM practices such as performance appraisal, career management, training, reward system, and recruitment and organizational innovation such as product innovation, process innovation, and administrative innovation. Additionally, it also examined the mediating role of Knowledge Management effectiveness on the direct relationship. The study results revealed that training was positively related to product innovation, process innovation, and administrative innovation. Performance appraisal was also found to have a positive effect on administrative innovation. Additionally, this study also shows that training and performance appraisal, are positively related to knowledge management effectiveness. The mediating role of KM effectiveness exists between training and administrative innovation, performance appraisal and administrative innovation training and process innovation.
Review of Literature

(Singha & Soltaniba, 2010), investigated the degree of awareness and implementation of Knowledge Management principles and practices in Indian information technology (IT) companies. A purposive sample of ten IT companies in North India was chosen for study and a survey was conducted based on secondary data obtained from 10 IT companies. The various phases of knowledge management such as knowledge generation, knowledge codification, and knowledge transfer and knowledge application were taken into account and data were interpreted on the basis of weighted scores for each parameter at each phase. Final conclusions were drawn on the basis of the Knowledge Management Index. It was very clear that though people are aware of the importance of documentation and it is being prepared to some extent, a lot needs to be done in this field. Only very critical information is documented and maintained in archives, whereas general information is not documented. It was also revealed that HR professionals have to realise that true competitive advantage lies in the people and the best HR practices should be aligned to strengthen knowledge management

(Choy Har, boon In, Loke, & Voon Hsien, 2010), discussed in detail how HRM practices like selective hiring, recognition and reward, performance appraisal, self-managed team and extensive training can enhance the firm’s levels of knowledge acquisition, sharing and application. A conceptual model was proposed to examine the relationship between Human Resource Management practices and knowledge management. This model is expected to provide a strategic map that could be utilized by the practitioners and managers so that the initiated KM practices can be more effective in contributing to the overall organizational performance.

(Gantasala, Padmakumar, Yasin, & Gantasala, 2010), attempted to explore in detail the role of Human Resource Management practices on knowledge management in a Jordanian firm. The cumulative impact of HR practices and knowledge management on organizational performance is then studied. The Human Resource Department’s ability to maintain and support databases, leverage technologies, foster a team environment attract and retain human capital, offer blended learning, and efforts to provide continuous learning are assessed for their influence on knowledge management initiatives. A structured questionnaire
was administered with personal interviews to elicit respondent views and suggestions. A Likert's attitudinal scale has been used to draw responses. The effect of knowledge management practices as well as the maintenance of repositories, developing communities of practice, business intelligence and continuous learning on organizational performance was studied. Respondents considered for this empirical research are senior and middle level managers across all functional departments. The researchers presented suggestions to support improved Organizational Performance.

(Theriou & Chatzoglou, 2008), explored the relationships between best Human Resource Management practices, knowledge management, organization learning and organizational capabilities and their impact on organizational performance. The planned framework intends to add to the understanding of the specific processes that mediate between best HRM practices and organizational performance. For that a wide range of related literature was explored and a conceptual model is planned and discussed. The study provides an answer to how best HRM practices can influence performance.

(Edvardsson, 2008), discussed on the basis of literature review, and revealed that the HRM strategy and the general strategy of a firm make up the general KM strategies. Two strategies were identified in this study: Explorative Strategy and Exploitative Strategy. Both strategies have behaviour effects, which have some impact on the KM process. Thus, the exploitative strategy will place greater emphasis on technical skills, knowledge storage, as well as distributing explicit knowledge via IT solutions. This increases the risk that firms adopting such strategy will be locked into past design and to be unable to reach for future applications. Explorative strategy generally puts greater emphasis on knowledge creation, as well as on human interaction to transfer tacit knowledge and use knowledge to increase innovation and new learning. Firms adopting such strategy tend to lack structure and processes to utilise the innovations into competitive advantages. The analysis of the paper is based on literature review, therefore the concepts developed in the paper need empirical testing.

(Oltra, 2005), searched the key factors that explain knowledge management effectiveness, and provided simultaneously a conceptual and practical
framework that links Human Resource Management (HRM) and Knowledge Management. A literature-based preliminary framework assumes that a number of critical Knowledge Management characteristics and KM-related HR practices have an effect on Knowledge Management effectiveness. Qualitative methods were used for data collection and analysis. Three knowledge-intensive Spanish business units of multinational companies are the target case-study settings. Systematic patterns are identified regarding the influence of critical KM characteristics and KM-related HR practices on KM effectiveness. An induced framework, encompassing a number of specific variables and propositions, is developed.

This review makes it clear that many studies have been undertaken on the various aspects, human resources planning, human resources potential, HRM practices etc. of health care industries while only few studies are available for Knowledge Management in health care industry. However studies related to this area in India are scanty. Neither Management of human resources in Ayurveda industry in Kerala nor management of knowledge asset in Ayurveda industry is located in the review of literature. No study integrating management of human resources and knowledge asset in Indian system of health care is available. There exists a gap for research. Hence, present study ‘Management of Human Resources and Knowledge Assets in Ayurvedic Industry in Kerala’.
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