

Outsourcing of healthcare services in a smart city of Eastern India

Outsourcing of
health-care
services

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Abstract

Purpose – Owing to the rising costs and shrinking budgets; inefficiency can be observed in the financing and delivery of health service both in the private and public sectors, which is not only causing organizations to reconsider their management patterns but also to use new strategies to achieve competitive merits in the current world of business. Outsourcing is one of the best alternates. The purpose of this paper is to study: the nature and magnitude of outsourcing of health-care services in a Smart City of Eastern India; the motives behind outsourcing; and the factors affecting outsourcing decisions.

Design/methodology/approach – The study was conducted in Bhubaneswar, a Smart City of Eastern India and capital of Odisha State. Data relating to the outsourcing of health-care services were collected from 40 hospitals (each having a minimum of 10 beds) through a structured schedule. Descriptive statistics were calculated through Statistical Package for Social Science to substantiate the objectives.

Findings – Most of the clinical services were outsourced by small hospitals, while a significant portion of non-clinical services were outsourced by large and medium hospitals. Reduction in cost and better management control were the major driving forces of outsourcing. Loss of control over service providers and quality of measurement were considered as the main disadvantages in the decision-making process of not outsourcing the services by hospitals.

Originality/value – The study is the first-ever survey based on empirical evidence about the state of facilities management services outsourced in public and private hospitals in Odisha, India. The paper concluded that the effect of outsourcing did not synchronize successfully as shown in international literature.

Keywords Outsourcing, Facilities management, Health-care services, Bhubaneswar

Paper type Research paper

1. Motivation

Serious fiscal constraints of almost all governments in developing countries have forced them to carefully prioritize and restrict their public expenditure [1]. The increasing demand for education and health-care of the growing population and increasing aging pattern has put more pressure on the governments to invest more in the social sector, which makes the fiscal situation worsen. In this connection, the deficiencies and limitations of the public health system have been well-documented. This can be overcome by an appropriate health sector reform (HSR). HSR essentially means redefining the government's responsibility in ensuring access to quality health services for the poor and other deprived sections of the population (Raman and Bjorkman, 2006). Some of the HSR strategies are:



- Alternate financing (user-fees, health insurance and community financing).
- Decentralized institutional management (autonomous hospitals, local government supervision and management).
- Public sector reforms (civil service reforms and capacity building).
- Collaboration with the private sector (public-private partnerships (PPPs), contracting and joint ventures) ([World Bank, 1993](#); [Abrantes, 2003](#)).

Among them, PPP strategies have been widely used by both developed and developing countries for their wide range of advantages.

In the era of globalization, increased competition pressure, business challenges, resource limitation, technological anfractuosity, specialization of duties, expediencies of environmental evolution, lack of assurance regarding the future and increase in costs, private health organizations continue to look for ways to increase their competitive edge without jeopardizing their profit margins. Owing to the rising costs and shrinking budgets, inefficiency can be observed in the financing and delivery of health service both in the private and public sectors, which is not only causing organizations to reconsider their management patterns but also to use new strategies to achieve competitive merits in the current world of business. Therefore, managers and policymakers are highly focused on the accountability of hospitals in the field of cost efficiency and financial performance. The benefit of the specialized services offered by various vendors has led many local and national governments to privatize health institutions. To overcome these challenges, PPP, contracting and joint venture are now considered as an attractive alternate.

It is nearly impossible to talk about workable partnerships without an understanding of the nature of the public and private sectors: who they are, what they can offer, how they work together and what conditions are necessary for forming partnerships. These issues differ from nation to nation, and even within a country. The terms “public” and “private” can be confusing, as there are many ways of defining these sectors ([Wang, 2000](#)). Generally, the “public sector” comprises institutions financed, controlled and regulated by the state; and “private sector” is an institution or individual functioning outside the direct control, finance and regulation of the state. It is of two types – “for-profit” (private enterprise) and “not-for-profit” (non-government organizations). “In the health sector, for-profit providers may include individual physicians, diagnostic centers, ambulance operators, blood banks, commercial contractors, polyclinics, nursing homes, hospitals of various capacities, et cetera. They may also include community service extension of industrial establishments, co-operative societies, community-based organizations, religious and philanthropic trusts, professional associations, self-help groups, citizen forums and other types of non-state organizations” ([Raman and Bjorkman, 2006](#)).

PPP in the health sector is a form of agreement between public and private sectors for a common goal(s) [2] of improving the health of a population based on reciprocal obligations and mutual accountability, voluntary or contractual relationships, the sharing of investment and reputational risks and joint responsibility for design and execution. “The core elements of a viable partnership are beneficence (joint gains), autonomy (of each partner), joint-ness (shared decision-making and accountability) and equity (fair returns in proportion to investment and effort)” ([Raman and Bjorkman, 2006](#)). PPP in the health sector poses a great challenge to the actors because of their basic conflicting objectives.

The types and models of PPP available in the world are contracting (contracting-out and contracting-in); franchising; social marketing; joint ventures; subsidies and tax incentives; vouchers or service purchase coupons; hospital autonomy; build, operate and transfer;

philanthropic contributions; health co-operatives; grant-in-aid; capacity building; leasing; and social health insurance. Generally, among the available PPP types and models, contracting is widely used in both developed and developing countries.

Contracting has been defined as a purchasing mechanism used to acquire a specified service, of a defined quality and quantity, at an agreed-on price, from a specific provider, for a specified period (Mills, 1998). Through this arrangement, one party, the principal or purchaser provides compensation to another party, the agent or provider, in exchange for a defined set of health services for a defined target population (Abramson, 1999). Contracting does not mean privatization. Contracting out should be considered as an alternate management and regulatory tool in the hands of public sector managers to achieve public health goals, which sometimes are difficult to achieve through direct provision of services. There are several options for contracting between the public and private sectors. These include contracting out or outsourcing [3], contracting in, procurement, leasing and subsidy and franchising (WHO, 2006).

Outsourcing is the management buzzword of the 1990s. Outsourcing is defined as a long-term, result-oriented relationship with an external service provider (third party) for activities traditionally performed within the organization and this relationship must have to be supervised through the contract and/or partnership management (Young and Macinati, 2012; Laamanen *et al.*, 2008; Carr and Nanni, 2009). Outsourcing is a component of privatization, which is the transfer of any government activity from the public to the private sector and which has involved more broadly the sale of government assets to private enterprises, contracting out of service provisions (outsourcing), repeal of monopolistic licenses, deregulation of government enterprises, devolution of authority to public sector managers and greater reliance placed on user-pay services and franchising (Hodge, 1999).

Outsourcing is the ability of managers and owners to apply that tool in a way appropriate for individual circumstances that will ultimately determine the usefulness of this tool. Outsourcing is an accepted management tool for redefining and re-energizing the corporation. It challenges today's executives to rethink the traditional vertically integrated firm in favor of a more flexible organization structured around core competencies and long-term outside relationships. Outsourcing is being applied to every facet of the company – from fleet vehicle management to business support services to human resource staffing, to information technology, to maintenance and repair. Outsourcing, generally, involves six steps, namely, strategic analysis, identifying the best candidates, defining the requirements, selecting the providers, transitioning the operations and managing the relationship.

Limited experience and scanty literature on outsourcing/contracting out of publicly financed health services in developing countries motivate the researchers to engage themselves in PPPs in the health sector. Creation of awareness and capacity-building within the ministry of health in contracting out publicly financed health services to the private sector is imperative. Second, there is a need to find evidence-based ways to develop the capacity of government institutions and systems for the betterment of the people.

The health-care institutions are in tension from the unprecedented transformation due to raising health-care cost, changing patient demographic, stringent regulation and empowered consumers, which push for a smarter and more efficient health-care system for tomorrow. Specialized health-care service providers can help to minimize financial losses arising due to inefficient cash collection practices, provide access to updated health-care technology at attractive price points and let the doctors focus on what they do best – focus on patients. Interestingly, the adoption of outsourcing as a viable alternate was never given a serious thought before 10 years, however, the perspectives have changed and there are several reasons that have pushed the case for outsourcing.

India spends nearly 4%–4.5% of its gross domestic product (GDP) on health care, out of which, the government spends only 1%–1.5% of its GDP on the health-care sector. Due to the rise in aging population and growing disease burden, the demand for health-care service and health-care infrastructure is expected to increase manifold, especially in the public sector, which not only causes the organizations to reconsider their management patterns but also to use new strategies to achieve competitive advantage in the current global scenarios. To overcome these problems, outsourcing is one of the best alternates.

2. Some theoretical framework of outsourcing

The theoretical aspect of outsourcing is that various organizations have differed in their endowment of resources and capabilities, which, in turn, affects their efficiency. Therefore, the resource-based view of the organizations can also be applied to study “make or buy” decisions, shifting the attention from transaction costs and opportunism to value creation and competitive advantage. As far as the resource-based reasoning is concerned, the organization may perform all those activities in-house in case of which it possesses strategic resources and capabilities, which enable them to outperform competitors, and thus, obtain greater benefits. Alternately, functions may be outsourced when firms lack the resources and capabilities needed to obtain the expected outcomes (Prahalad and Hamel, 1990; Argyres, 1996).

The broader view of the resourced-based theory can be explained by the “knowledge-substitution effect” for which an employee can use the knowledge of another before the former fully understands or agrees with it (Conner and Prahalad, 1996).

Initially, the hospitals were outsourcing merely for cost advantages, which enables them to maintain a sustainable competitive advantage, but nowadays, they are adopting such outsourcing for getting the strategic benefits in the way accessing the specialized services from outsides. The decision for outsourcing not only helps the hospitals to meet their scarcity of resources but also it enlarges their capabilities and efficiency.

The famous make-or-buy theory was prevalent in the developed countries, especially in England and USA during 1990s. The make-or-buy decision most frequently gives little consideration for the long run competitiveness of the organization (Ford *et al.*, 1993). It is simply based upon a multi-industry model in which the differentiated product can be produced either by the parent firms or by pair of specialized companies, which combines a variety of final products (Grossman and Helpman, 2002). (In)outsourcing was an upshoot of the theory of make-or-buy decisions.

In many cases, the decision for outsourcing is characterized by technological change and the empirical evidence suggests that the technological change increase the likelihood of outsourcing. So, product characterized by higher technological changes will be more likely to be produce by mass specialized firms to which other firms outsourced their production (Bartel *et al.*, 2012). The external effect, specifically the labor-augmenting effect of the outsourcing firms can be examined through Heckscher-Ohlin model of general equilibrium, whether the welfare enhancing outsourcing holds in absence or presence of external effect can be highlighted through this model. The effect of outsourcing on sectoral output, employment and factor price depends upon the factor intensity and the relative magnitude of sectoral return to scale (Choi and Beladi, 2012).

3. Review of literature

Despite its increasing popularity, outsourcing in the health-care sector, especially for public sector health, has been a recent phenomenon that emerged in the early 1990s and has become a trend for privatization movements (Augurzky and Scheuer, 2007; Guimaraes and

Carvalho, 2011). In Germany, the pattern of outsourcing with respect to facility management is U-shaped, which shows that small and large hospitals have outsourced to a greater extent than the medium ones (Augurzky and Scheuer, 2007). The process of outsourcing is increasingly adopted by the public and secular nonprofit hospitals. However, the religious hospitals including both Catholic and other denominations and investor-owned hospitals have consistently outsourced their services gradually (Alexander and Lewis, 1984; Hofer and Rohrer, 2011). The difference between nonprofit and investor-owned hospitals does not depend upon the earning of profit rather on the limitation of distribution of profits, the capacity to receive tax deductible donations and tax exemption.

The clinical and allied health employees in Iran expressed both positive and negative views regarding outsourcing. A large number of these employees have negatively responded to the skill of an outside provider securely managing hospital data, their working environment and ensuring staff and patient satisfaction (Kahouei *et al.*, 2016). The availability of sufficient staff for administration, no interest in taking a risk and lack of skilled workforce offered by the outsourcing agents were some of the reasons for not adopting outsourcing (Sendilkumar, 2020).

Non-medical items such as medical waste, laundry, logistics, administrative services, catering, cleaning and management of sanitary waste and common trash show the highest rate of being outsourced (Hofer and Rohrer, 2011; Sendilkumar, 2020; Karimi *et al.*, 2012; Macinati, 2008). One of the studies in Pakistan suggests that a health-care institution can outsource their non-core and less profitable activities to external vendors through which they can save their cost in that aspect (Aziz *et al.*, 2017; Mahalik and Mishra, 2019).

Various studies in countries such as Germany, Taiwan and Iran show that medical facilities such as pathology, microbiology, hemodialysis, ambulance services, department of nutrition and pharmacy, radiology, magnetic imaging, computerized tomography and ultrasound show the highest percentage of being outsourced (Augurzky and Scheuer, 2007; Sendilkumar, 2020; Karimi *et al.*, 2012; Macinati, 2008; Haiso *et al.*, 2009).

Outsourcing allows a tertiary health center to become more specialized in concerned services (Aziz *et al.*, 2017; Billi *et al.*, 2007). Studies from different countries such as USA, Taiwan and some of the Eastern Mediterranean regions found that outsourcing allows a tertiary health center to concentrate on the management of core mission and advance its distinct specialty to achieve its strategic goals (Guimaraes and Carvalho, 2011; Billi *et al.*, 2007). Outsourcing of certain independent tasks allows a hospital to maintain financial flexibility if there is uncertainty in demand; and it also reduces the out-of-pocket expenditure, which increases customer satisfaction, thus creating a stream of loyal customers (Young and Macinati, 2012; Billi *et al.*, 2007; Moschuris and Kondylis, 2006; Siddiqi *et al.*, 2006).

Some of the hospitals have negatively responded to outsourcing as a strategic tool as it limits the control over outsourced operations, staff and customer satisfaction (Guimaraes and Carvalho, 2011; Kahouei *et al.*, 2016; Billi *et al.*, 2007; Lau and Zhang, 2006). The presence of local protection regulation and lack of overall post-outsourcing measurement will create a conflict between the clients and the outsourcing vendors (Lau and Zhang, 2006; Gaspareniene, Remeikiene and Startiene, 2014).

Most of the public hospitals do not have a policy framework for outsourcing, which gives a chance for duplication of function and facility management. For the successful implementation of outsourcing, both outsourcer and service provider have to work closely and extensively to provide guidance, compensate for bureaucratic rigidity and evaluate operating performance (Skipworth *et al.*, 2020).

Economic factors such as saving overhead cost, access to new technology with lower cost, better service quality, audit quality, accountancy accuracy, etc. are mainly responsible for adoption of outsourcing as a strategic tool by different hospitals (Guimaraes and Carvalho, 2011; Sendilkumar, 2020; Macinati, 2008; Moschuris and Kondylis, 2006; Gaspareniene *et al.*, 2014; Libby, 1997; Young, 2007; Hodgkin *et al.*, 1997; Kavosi *et al.*, 2019).

One of the studies on cost-benefit analysis of outsourcing at Botswana showed that after adjusting the quality of services, outsourcing provides greater value for money in terms of cleanliness per Pula spent than in-sourcing (Cali *et al.*, 2016; Ikediashi and Ekanem, 2015). The organization carrying out most of the services through outsourcing scored better in terms of efficiency than an organization that limited itself to partial outsourcing or in-sourcing (Mahalik and Mishra, 2019). A similar study in Nigeria found that outsourcing has improved the quality of security, cleanliness and laundry services. Because of the improvement of these inputs in the health-care delivery process, the quality of overall health-care services offered by this institution has improved to a great extent (Nwagballa, 2016).

The reasons for outsourcing varied within and between health organizations and it depends upon the characteristics of the labor market, employee skill level, institutional pressure from labor force management and the nature of industrial relations (Macinati, 2008; Young, 2005; Mujasi and Nkosi, 2017). Sometimes, it depends upon the expectation of reducing cost and customer satisfaction, the complexity of the hospital and the number of information technology centers in a hospital (Moschuris and Kondylis, 2006; Mistura, 2019). A European cross-country comparison showed that procurement and logistic services were outsourced to enable supply chain control and achieve the desired cost saving (Skipworth *et al.*, 2020). It had also been found that the rate of outsourcing significantly differed between the rural and urban areas due to the challenge in the availability of outsourcing vendors (Mujasi and Nkosi, 2017).

Outsourcing performed better with respect to reproductive health and child health services than the contracted model (Haiso *et al.*, 2009; Alexander and Rundall, 1985; Bhushan *et al.*, 2002). In Pakistan, the government outsourced the administration of primary health-care services due to lack of capacity to manage it effectively and equitably. There is a significant difference between the service offered by outsourcing agents and district government administered Basic Health Unit with regard to infrastructure, availability of essential medicine, basic medical appliance, mini lab facilities and vehicle for referrals (Tanzil, 2014).

Despite the large body of literature available on outsourcing in different sectors, it is quite scarce in the health sector and there are only a handful of research papers based on the Indian context. Hence, in this study, we have attempted to present the Indian scenario of outsourcing in the health sector.

4. Objectives

The objectives of this paper are to study:

- the nature and magnitude of outsourcing of health-care services in Bhubaneswar (a Smart City of Eastern India);
- the motives behind outsourcing; and
- the factors affecting outsourcing decisions.

5. Hypotheses

The study hypothesized that the jobs (both clinical and non-clinical), which were outsourced are independent of the size of the hospitals.

6. Data and methods

6.1 Setting of the survey area

The study was conducted in Bhubaneswar, a Municipal Corporation with a population of about 12,00,000 and is the capital of Odisha state. Bhubaneswar was declared as a Smart City by the Government of India in January 2016. It is an educational hub in eastern India having reputed national institutes, including All India Institute of Medical Sciences, Indian Institute of Technology, National Institute of Science Education and Research; and several state-owned medical, engineering and management colleges. The city is well-connected to the major metro cities of India by rail and air.

With an increase in the number of multi-specialty and super-specialty hospitals, the city is gradually becoming a major health-care destination in eastern India. People from neighboring states are also traveling to Bhubaneswar to access the health-care facilities. The growing significance of health-care facilities in Bhubaneswar within the state and across the eastern states is not only increasing the competition among hospitals but also exerting pressure on hospital authorities to discover new pathways to remain competitive. One of the measures to stay competitive in the market is to specialize in the core services of the organization and to outsource the ancillary services. It could increase the efficiency of the organization and also increase the profit. Though outsourcing is not a new concept in the industrial sector, it still has a long way to go in the health sector. Many studies provide evidence in support of or opposition to outsourcing in the health sector; still, there is no consensus over the subject. In this study, we have attempted to obtain information on the utilization of outsourcing by hospital authorities for both clinical and non-clinical services.

6.2 Survey

During the study, a total number of registered health-care institutions (including private and public) present in Bhubaneswar is 170. Many of them have only outpatient facilities and some have less than 10 beds. We have excluded those from our survey, as there is the least possibility of outsourcing by them. Therefore, the study frame included only those medical institutions, which have the capacity of 10 or more beds; and the total number of medical institutions in this category is 40 (2 public hospitals and 38 private hospitals). All 40 medical institutions were surveyed. Further, for better analysis, we have divided the hospitals into three categories considering the number of beds (details are provided in [Figure 1](#)). The medical institutions, which have 10 to 50 beds are categorized as small while the hospitals, which have a bed capacity of 51 to 100 are categorized as medium. The medical institutions, which have more than 100 beds are categorized as large hospitals.

The respondents in this study were human resource managers (HRMs), medical record employees and physicians. All employees in these categories were eligible to participate in the survey irrespective of their gender and all of them were involved in the decision-making process of outsourcing of services for various departments in the hospitals. A covering letter was prepared and submitted to them before collecting data, which described the purpose of the study and explained that the response to the survey would be kept confidential and used for research purposes only.

The information was collected through a schedule, which was developed by the authors after reviewing the existing outsourcing literature. They made necessary changes in the schedule after conducting a pilot survey in three types of hospitals (small, medium and large). The schedule was divided into three sections. The first section focused on the individual information of respondents (age, gender, the position of the job in the organization, level of education, etc.). Sections 2 and 3 dealt with the outsourcing of non-clinical and clinical services, respectively. The final version of the schedule was

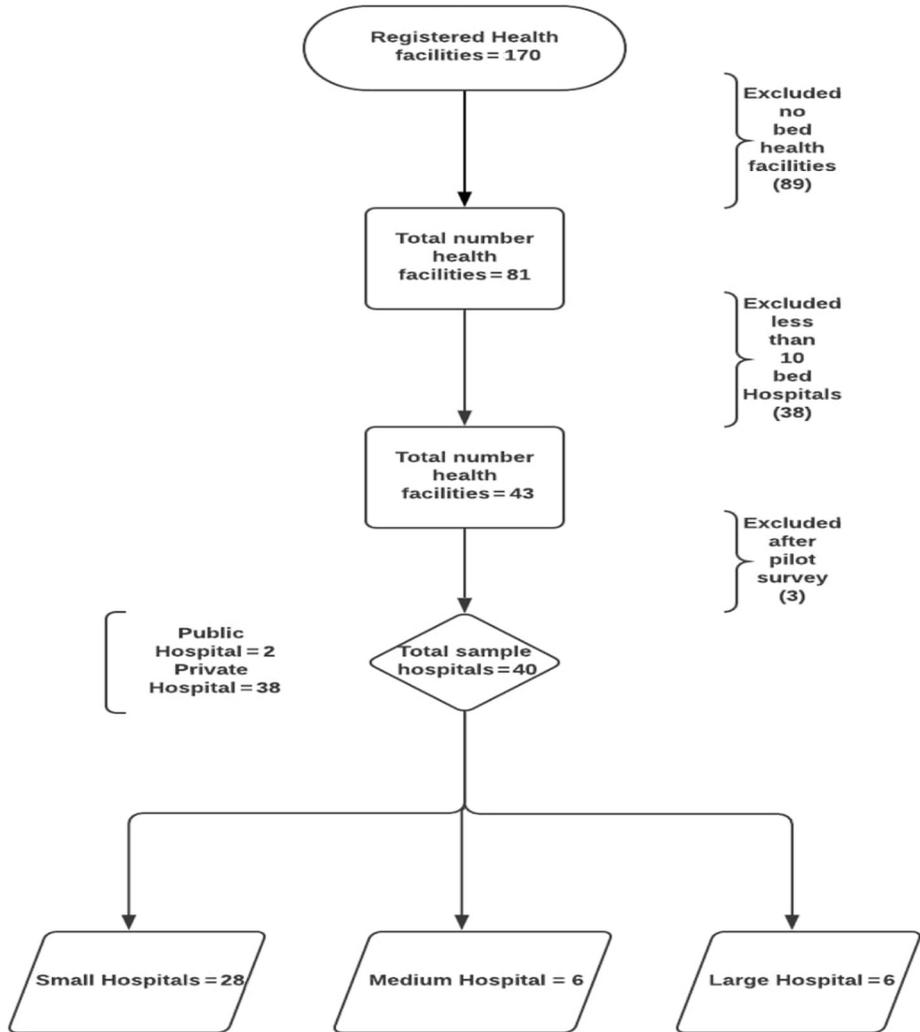


Figure 1.
Study framework

Source: Prepared by the authors

administered by the authors themselves after collecting information from different medical institutions in Bhubaneswar.

6.3 Variables used

In this study, all the information was collected from the HRMs, medical record employees and physicians of different hospitals. For the first objective, we have collected information regarding the types of services outsourced and their characteristics. With reference to the types of services outsourced, two categories were identified, namely, non-clinical

(maintenance of building, gate and reception service, car parking, gardening and outline facility, waste disposal, laundry service, kitchen and cafeteria and ambulance service) and essential clinical services (pathology, microbiology, pharmacy, bacterial materials, endoscopy, electrocardiogram, electroencephalogram, magnetic resonance imaging (MRI) and nuclear examination service). For each category of service, questions were asked to determine the magnitude of the service outsourced. For the second objective, we have obtained information both on general and specific reasons for outsourcing. In literature, the three main reasons for outsourcing were identified as follows, namely, financial, strategic and institutional; hence, we have listed the reasons in the schedule accordingly with an open-ended question to acknowledge individual specific reasons. For Objectives 3, 13 important factors affecting the outsourcing decision-making process were identified from the literature and incorporated in the schedule along with “other factors, if any.”

6.4 Methods used

The data obtained through the survey were mostly qualitative in nature. Descriptive statistics, figures and charts were calculated/prepared through Statistical Package for Social Science and MS Excel. The mean and frequencies were calculated for all the demographic variables and individual items of clinical and non-clinical services. Chi-square test was used to test the independence of the hypotheses. In addition, we have also listed the factors affecting decision-making of outsourcing and the reason behind the outsourcing.

7. Results

7.1 Demographic characteristics of respondents

The demographic characteristics of respondents are presented in [Table 1](#). Majority of the interviewees were male, i.e. 72.5%, whereas only 27.5% were female. Similarly, 55% of the interviewees had a bachelor’s degree, only 25% had a master’s degree and 20% had Master’s degree in Business Administration. Out of the total respondents, 45% were medical record keeping officers, 37.5% were HRMs, while 17.5% were physicians.

7.2 Types of hospitals

As we have mentioned earlier, the hospitals are divided into three categories, small, medium and large. In [Figure 2](#), we have presented the percentage of different types of hospitals in our collected survey data. Out of 40 hospitals, we have 28 small (70%), 6 medium (15%) and 6 large (15%) hospitals. The study area is a growing urban agglomeration. Majority of the population are, generally, belonging to middle class families. They require health-care

	Category	No.	(%)
Gender	Male	29	72.5
	Female	11	27.5
Level of education	Bachelor’s degree	22	55.0
	Master’s degree in science	10	25.0
	MBA	08	20.0
Position	Physician	07	17.5
	Medical record officer	18	45.0
	HRM	15	37.5

Table 1.
Individual
characteristics of
respondents

Source: Primary data

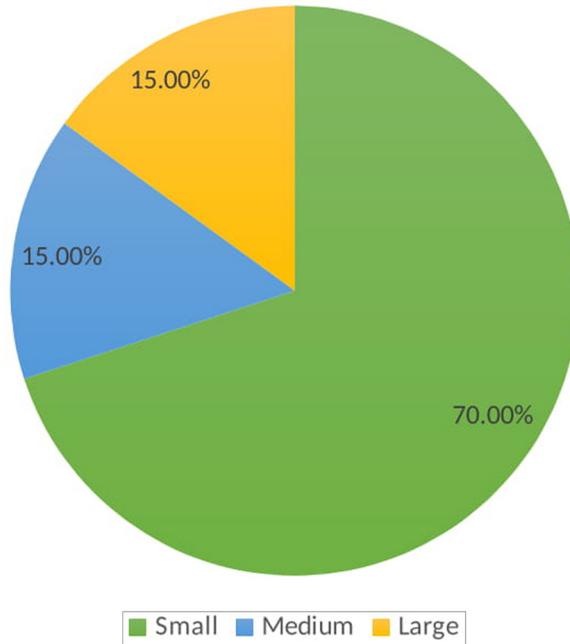


Figure 2.
Types of hospitals in percentage to total sampled hospitals

Source: Prepared by the authors using primary data

services with a reasonable and affordable price, which are supplied by small hospitals. Therefore, the majority of the hospitals are belonging to small categories. Generally, the upper middle class and rich class population access the medium and large corporate hospitals.

7.3 Characteristics of outsourcing of clinical services

[Table 2](#) represents the frequency of various clinical services, which were outsourced. It depicts the number of hospitals, which have outsourced at least one of their clinical services.

Table 2.
Outsourcing of clinical services across different hospital sizes

Services	Size of hospital		
	Small (%)	Medium (%)	Large (%)
Pathology	7.50	0.0	0.0
Microbiology	2.50	0.0	0.0
Pharmacy	15.0	0.0	0.0
Bacterial materials	10.0	0.0	0.0
Endoscopy	5.00	0.0	0.0
ECG	10.0	2.5	2.5
EEG	10.0	0.0	0.0
MRI	20.0	10.0	2.5
Nuclear examination service	12.5	05.0	2.5

Source: Primary Data

Outsourcing in this context means that the services, which are not fully produced by the hospital itself; rather it is produced by a private service provider or through the cooperation between different hospitals, including commercial service providers.

As far as the outsourcing of clinical service is concerned, all the respondents have outsourced at least one of the services belonging to the clinical services category. One of the interesting findings discerned from this table is that the frequency of outsourcing of clinical services is high among the small hospitals, whereas this percentage is quite low for medium and large hospitals.

As seen in this table, the most frequently outsourced clinical service is MRI, which is outsourced by around 20% of the small hospitals, whereas only 10% of the medium and 2.5% of large hospitals have outsourced MRI service. Nuclear examination service is the second most outsourced service at the rate of 12.5% by small hospitals and 5% and 2.5% by medium and large hospitals, respectively. One of the important findings is that most of the clinical services are outsourced by the small hospitals only, whereas the medium and large hospitals have produced these services in-house. The medium and large hospitals have their own resources to devote clinical services for which they do not adopt the outsourcing method.

Services such as pathology, microbiology, pharmacy and Electroencephalogram (EEG) are outsourced only by the small hospitals, whereas these services are not at all outsourced by any of the medium or large hospitals. Electrocardiography (ECG) is the only service next to MRI and nuclear examination, which is outsourced by only 2.5% of the medium and large hospitals. This is clearly visible in Figure 3 that the practice of outsourcing for various

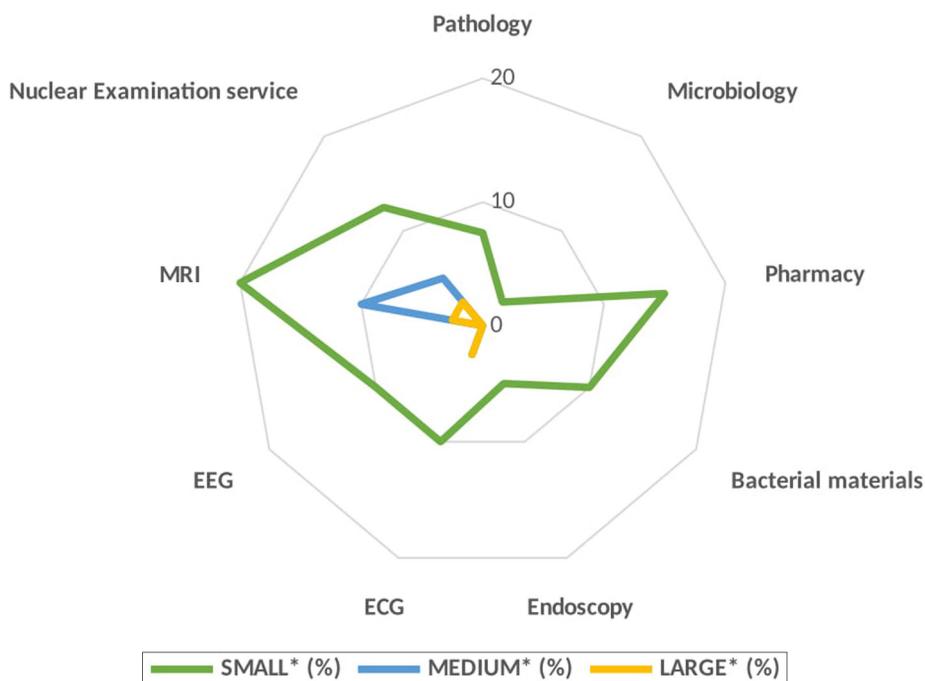


Figure 3. Spider plot of outsourcing of clinical services

Source: Prepared by the authors using primary data

clinical services was higher in the case of small hospitals in comparison to medium and large hospitals. MRI and nuclear examination are the only two clinical services, which is positively outsourced by some of the hospitals from each group.

7.4 Characteristics of outsourcing of non-clinical services

Table 3 depicts the rate of outsourcing of different non-clinical services by the hospitals, differentiating by size. Though there are many other non-clinical activities, which are necessary for the well-functioning of a hospital, we have presented only those services, which are outsourced by at least one of the hospitals in the study area. The large hospitals outsourced almost all its non-clinical services, which are generally non-technical in nature. Waste disposal is outsourced by almost all the responding hospitals, whereas more than half of the hospitals have outsourced their laundry services. One more interesting fact is that some of the nonclinical services such as kitchen, cafeteria and gate and reception services are more highly outsourced by medium and large hospitals than small hospitals. Services such as ambulance, maintenance of building, car parking, gardening and outline facility are outsourced at a lower rate by almost all types of hospitals. The above result is represented visually in Figure 4. It is clear from this figure that most of the non-clinical services are positively outsourced by each group of hospitals. Maintenance of the building is the only non-clinical service, which is not outsourced by any of the small or medium hospitals.

7.5 Test of independence

In this section, we test whether the jobs (both clinical and non-clinical), which were outsourced are independent of the size of the hospitals. The hypotheses were tested are given below and the test results are presented in Tables 4 and 5.

Hypothesis 1:

H0. The clinical services, which were outsourced are independent of the size of hospitals.

H1. The clinical services, which were outsourced are not independent of the size of hospitals.

Hypothesis 2:

H0. The non-clinical services, which were outsourced are independent of the size of hospitals.

Service	Size of hospital		
	Small (%)	Medium (%)	Large (%)
Maintenance of building	00.0	00.0	2.50
Gate and reception service	32.5	15.0	15.0
Car parking	02.5	02.5	05.0
Gardening and outline facility	05.0	05.0	05.0
Waste disposal	57.5	15.0	15.0
Laundry services	35.0	07.5	10.0
Kitchen and cafeteria	15.0	12.5	15.0
Ambulance service	15.0	05.0	2.50

Table 3.
Outsourcing of non-clinical services across different sizes of hospitals

Source: Primary data



Outsourcing of health-care services

Figure 4. Spider plot of outsourcing of non-clinical services

Source: Prepared by the authors using primary data

Size of hospital/outsourcing decision	Chi-square value	P-value
Pathology	1.390	0.49
Microbiology	0.440	0.80
Pharmacy	3.025	0.22
Bacterial materials	1.905	0.39
Endoscopy	0.902	0.64
ECG	0.37	0.98
EEG	1.905	0.39
MRI	4.075	0.13
Nuclear examination services	0.789	0.67

Table 4. Results of chi-square test of clinical services

Source: Calculated by the authors from primary data

H1. The non-clinical services, which were outsourced are not independent of the size of hospitals.

For testing the above hypotheses, Chi-square test is used. The results of Chi-square test of clinical services and non-clinical services are presented in Tables 4 and 5, respectively. From Table 4, it is evident that the null hypothesis, i.e. outsourced clinical services are independent of the size of hospitals, is accepted, as the P-values are greater than the chosen level of significance (0.05). This suggests that variables are independent. There is no

evidence of an association between variables. We can conclude that clinical services, which were outsourced are independent of the size of hospitals.

But in case of non-clinical services, [Table 5](#) suggests that out of eight outsourced services, five services (maintenance of the building; gate and reception service; car parking; gardening and outline facility; and kitchen and cafeteria) are not independent of the size of hospitals.

7.6 Reasons behind outsourcing of clinical and non-clinical services

In hospitals, the use of an outside expert is often out of question, as time is always a constraint. The staff must be trained and training must be continuous to keep up with the technological changes of hundreds of devices used on a daily basis. Medical devices have changed a lot because of the integration of software and more advanced circuitry. The increased complexity and responsibility can put significant pressure on the hospitals and require them to consider the option to outsource. We have reviewed the literature on reasons for the outsourcing of different clinical, as well as non-clinical services in different contexts and prepared a list of all the appropriate reasons for the outsourcing of any services (clinical or non-clinical). We have administered the questionnaire in a pilot survey and made necessary changes, which are appropriate to capture the local contextual factors.

7.7 Reasons for outsourcing of clinical services

From [Table 6](#), we can discern that the most important reason for outsourcing of bacterial materials is better access to expertise and for reducing staff headcount. Better management control is the second most important reason, whereas work flexibility is the third important reason for outsourcing. Cost reduction and better management control is the most important reason for outsourcing of pathology, whereas reduction of capital expenditure and work flexibility are the second and third important reasons, respectively.

In the case of microbiology, better access to expertise is the only reason for outsourcing in the study area. Similarly, for services such as endoscopy, EEG, MRI and nuclear examination, reduction of capital expenditure is the most important reason; whereas, reducing delay in process of delivery of service is the second and third most important reason for outsourcing endoscopy and ECG, respectively. Improving efficiency is the second and third most important reason for outsourcing ECG and MRI, respectively.

Better management control is the first important reason for outsourcing of pharmacy service, whereas technological advantage is the second reason for outsourcing the nuclear examination service. Most of the clinical services are outsourced to reduce capital

Size of hospital/outsourcing decision	Chi-square value	<i>P</i> -value
Maintenance of building	5.812	0.05**
Gate and reception service	10.286	0.01*
Car parking	5.212	0.07***
Gardening and outline facility	4.519	0.10***
Waste disposal	2.449	0.29
Laundry services	0.568	0.75
Kitchen and cafeteria	17.299	0.00*
Ambulance services	0.539	0.76

Table 5.
Results of chi-square
test of non-clinical
services

Notes: * Significant at 1%, ** significant at 5%; *** significant at 10%
Source: Calculated by the authors from primary data

Outsourcing of health-care services

Services	Reasons		
	First	Second	Third
Provision of bacterial materials	Better access to expertise and reducing staff headcount	Better management control	Work flexibility
Pathology	Cost reduction and better management control	Capital expenditure reduction	Work flexibility
Microbiology	Better access to expertise	Reducing delays	Better access to expertise and reducing staff headcount
Endoscopy	Capital expenditure reduction	Reducing delays	Better access to expertise and reducing staff headcount
ECG	Capital expenditure reduction	Improving efficiency	Reducing delays
EEG	Capital expenditure reduction	Improving efficiency	Better access to expertise and work flexibility
MRI	Capital expenditure reduction	Better access to expertise	Improving efficiency
Nuclear examination	Capital expenditure reduction	New technological advantage	Better access to expertise
Pharmacy service	Better management control	Focus on core services	Reducing staff headcount

Table 6.
Reasons for outsourcing clinical services

Source: Primary data

expenditure in the first place, while better access to expertise and better management control are the other two important reasons, which provide outsourcing an advantage over in-house service.

7.8 Reasons for outsourcing of non-clinical services

Table 7 presents the reasons for the outsourcing of different non-clinical services. More specifically, the table reports the three most important reasons for outsourcing each category of services by at least one respondent in the study area. Regarding the maintenance of the building, the majority of the respondents have opined that greater focus on the core service is the most important reason for outsourcing of this service. Reducing staff headcount and work flexibility are the second and third important reasons for outsourcing of this service, respectively.

Similarly, gate and reception services are outsourced basically for getting better management control. Sometimes, more concentration on core services and work flexibility are usually the other reasons for the outsourcing of services such as gate and reception, car parking, cafeteria and laundry services. One of the special cases among the non-clinical services is the ambulance service, which is outsourced for different reasons such as reducing capital expenditure and avoiding delay in service delivery. Some of the respondents have opined that better management control is one of the most important reasons for the outsourcing of this service.

7.9 Factors affecting outsourcing decision

The need for outsourcing has grown over the past two decades due to several factors such as increased competition, downsizing, the need to reduce cost, improved quality of service delivery and increased flexibility, which facilitate change and emphasis on core competencies (Fan, 2000). Although a sizeable number of studies in different countries have investigated the management practice associated with the outsourcing of different services such as banking and railway, less attention is paid to the health sector. Therefore, there is a

Services	Reasons		
	First	Second	Third
Maintenance of building	Focus on core services	Reducing staff headcount	Work flexibility
Gate and reception service	Better management control	Focus on core services	Work flexibility
Car parking	Work flexibility	Focus on core services	
Gardening and outline facility	Reducing staff headcount	Work flexibility	Focus on core services
Waste disposal	Better management control	Work flexibility	
Catering	Reducing staff headcount	Better management control	Work flexibility
Cafeteria	Work flexibility	Focus on core services	
Laundry services	Better management control	Focus on core services	
Ambulance service	Capital expenditure reduction	Reducing delays	Better management control

Source: Primary data

Table 7.
Reasons for
outsourcing of non-
clinical services

need to investigate the factors influencing the decision-making about the outsourcing of services by the hospitals.

Though outsourcing is not highly successful in the study area, there are several factors associated with the outcomes. A remarkably significant proportion of the respondents generally agreed with the notion that they have lost control over the outsourced services, which will ultimately affect their business activity. Similarly, a higher proportion of around 65% of the respondents are of the view that they are unable to measure the service delivered by the outsourcing agents. Around 42.5% of the respondents have opined that the complexities in the documentation and many formalities in the process of outsourcing are the factors affecting their outsourcing decision (Figure 5). Risk factors such as any discrepancy in the process of service delivery and insurance are also associated with the factors in the process of outsourcing (40%). Long-term contractual agreements and lack of a strategic plan for outsourcing are equally responsible as factors for outsourcing, which is supported by around 20% of the respondents. The quality of service delivered by the outsourcing agent is also one of the factors affecting the outsourcing decision, which is supported by around 17.5% of the respondents. Factors, which negligibly affect the decision of outsourcing are unavailability of suitable outsourcing partners, higher cost of implementation, unfavorable past experience regarding the quality of services offered by outsourcing agents and uncertainty of the legal environment, which may create a problem for them in future. Other factors such as employment opportunities for their relatives, getting a higher margin in profit, taxation and subsidies policies of the government, the incentives and promotional rewards offered by the supplier of raw materials are supported by around 30% of the respondents in the study area.

8. Discussion

The main purpose of this exploratory study was to investigate the extent of outsourcing in hospitals in the study area and to ascertain the factors affecting the outsourcing of different

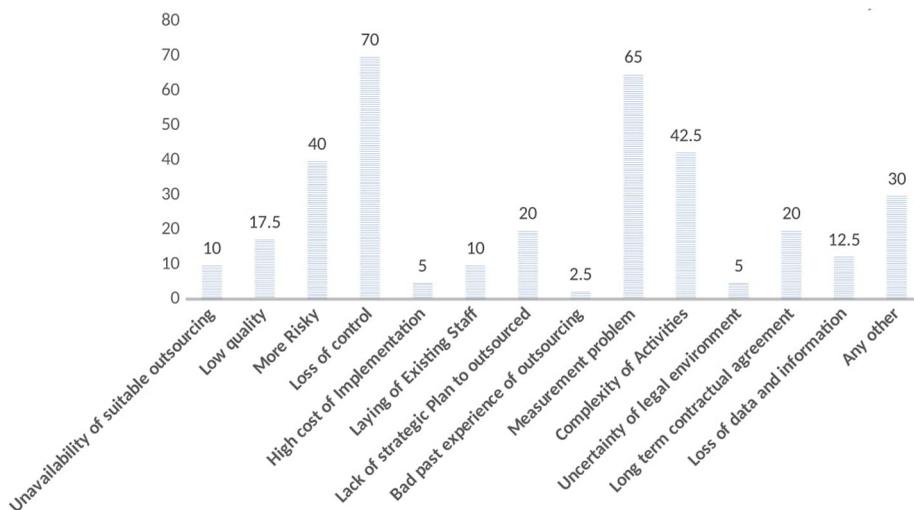


Figure 5.
Factors influencing
outsourcing decision
(both clinical and
non-clinical services)

Source: Primary data

clinical and non-clinical services. The key result of this study describes four major implications regarding the outsourcing phenomenon.

The first implication is related to outsourcing of clinical services. It was found that hospitals with smaller bed capacity have outsourced their clinical services more than the medium and large hospitals (Augurzky and Scheuer, 2007); this may have occurred due to the availability of the limited resources in small hospitals. It was also found from our study that reducing capital expenditure is one of the major reasons for outsourcing clinical services, which was also found in other literature (Augurzky and Scheuer, 2007; Guimaraes and Carvalho, 2011). Again, MRI and nuclear examination are the two most frequently outsourced clinical services according to our study, and these services require sophisticated medical equipment and experts to handle them. Setting up in-house pathology services demands a large amount of resource allocation, which might not be possible for all hospitals. Furthermore, outsourcing these clinical services might increase the efficiency and quality of the services.

The second implication of the study is about the outsourcing of non-clinical services; medium and large hospitals have outsourced more of their non-clinical services than small hospitals. This might be due to work specialization being possible only in a large setup (Augurzky and Scheuer, 2007). Large and medium hospitals might want to take advantage of work specialization and increase their efficiency and productivity. Maintaining cleanliness and hygiene is the foremost concern of every health facility. The number of patients handled on a day-to-day basis is high in large and medium hospitals; thereby, maintaining hygiene is also a challenge for them. Outsourcing the non-clinical services could increase the efficiency and would also decrease the workload on the hospital management (Guimaraes and Carvalho, 2011; Raeissi et al., 2018).

The third implication of the study is about the various reasons for the outsourcing of different clinical, as well as non-clinical services and most of the international literature tends to emphasize the financial and strategical advantages as the reasons behind outsourcing (Billi et al., 2007; Raeissi et al., 2018). In line with the existing literature, our

findings also show that the concentration on core services, capital expenditure reduction, better management control, better access to expertise and work flexibility are the driving forces for outsourcing.

The fourth implication of the study is about the factors affecting the outsourcing decision. There are several factors, which affect the decision of outsourcing as discussed in international literature; and here, most of the respondents have focused on the issue of loss of control and inaccuracy in the measurement of quality of services delivered by the outsourced agents (Roberts *et al.*, 2013).

However, the study has several limitations. Beyond the limitations inherent in the use of questionnaires as an instrument of data collection, there are drawbacks such as limited area of coverage and unequal distribution of size of hospitals in the study area. Furthermore, the study used simple descriptive statistics for data analysis. Though the use of cross-tabulation and simple methods of data analysis is accommodated by the exploratory posture, further studies should consider the use of more sophisticated statistical tools for data analysis. Future studies may also consider the assessment of the quality of services delivered by the outsourcing agent and the level of patient satisfaction.

9. Conclusion

The present study is a novel attempt to understand the role of outsourcing and the factors affecting the outsourcing in an emerging area of the health sector in Eastern India. It was found that the clinical services are predominantly outsourced by small hospitals, while the non-clinical services are generally outsourced by the medium and large hospitals. Reduction in the cost of capital, better management control and access to experts are some of the major driving forces to outsource both clinical and non-clinical services. However, loss of control over the service providers and quality measurement are the main bottlenecks in the process of outsourcing by hospitals. This study could be used as a stepping stone toward understanding the scope and prospects of outsourcing health-care services from the receivers' point of view. It is imperative to make the health sector more competitive, which could further provide a stimulus to increase the quality of care and reduce the cost of care in health facilities.

Notes

1. In India, for example, the Fiscal Responsibility and Budget Management Act 2003, which states that the revenue deficit as a ratio of GDP should be brought down by 0.5% every year and eliminated by 2007–2008; the fiscal deficit as a ratio of GDP should be reduced by 0.3% every year and brought down to 3% by 2007–2008; and the total liabilities of the Union Government should not rise by more than 9% a year.
2. The common goal may be equity, efficiency, quality and accessibility.
3. Here, the terms outsourcing and contracting are used interchangeably.

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