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Health care competition, strategic mission, and patient satisfaction: research model and propositions

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Abstract

Purpose—In all industries, competition among businesses has long been encouraged as a mechanism to increase value for patients. In other words, competition ensures the provision of better products and services to satisfy the needs of customers This paper aims to develop a model that can be used to empirically investigate a number of complex issues and relationships associated with competition in the health care industry.

Design/methodology/approach—A literature review was conducted. A total of 50 items of literature related to the subject were reviewed.. Various perspectives of competition, the nature of service quality, health system costs, and patient satisfaction in health care are examined

Findings—A model of the relationship among these variables is developed. The model depicts patient satisfaction as an outcome measure directly dependent on competition. Quality of care and health care systems costs, while also directly dependent on the strategic mission and goals, are considered as determinants of customer satisfaction as well. The model is discussed in the light of propositions for empirical research.

Practical implications—Empirical studies based on the model proposed in this paper should help identify areas with significant impact on patient satisfaction while maintaining high quality of service at lower costs in a competitive environment.

Originality/value—The authors develop a research model which included propositions to examine the complex issues of competition in the health care industry.

Keywords

Competitive strategy; Patient care; Health services; Research

1. Introduction

Within the health care industry, competition impacts several relational perspectives; with numerous studies reporting the impact of increased competition. For example, several studies have examined the relationships between competition and quality of health care (Zwanziger

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and Melnick, 1996; Enthoven, 1993; Kassirer, 1995; Chassin, 1997); between competition and health care system costs (Robinson and Luft, 1985; Robinson and Luft, 1987; Robinson and Luft, 1988; Zwanziger and Melnick, 1996; Zwanziger and Melnick, 1988; Robinson, 1991); and between competition and patient satisfaction (Miller, 1996; Brook and Kosecoff, 1988). These studies show that competition is capable of increasing value for customers over time. Quality and process improvements lead to decreased costs, which in turn results in increased customer satisfaction. This paper reviews relevant literature and develops a model that can be used to empirically investigate a number of complex issues and relationships associated with competition in the health care industry. Specific consideration is given to the impact of competition, in the context of a volatile external environment, on the health care organization's strategic mission and goals and its internal environment in terms of health care quality and health care system costs, and how these relate to customer satisfaction. While there are different types of customers within a health care system, we limit discussion of customers to patients.

This research attempts to provide direction for the advancement of knowledge and practice in the field based on a number of considerations: first, it is possible to provide a more consistent definition of competition in health care in relation to patient satisfaction; second, it is important to identify and understand the mechanism of competition in the health care industry if premium services and products are to be offered to patients; third, it is possible to apply theories, concepts, and principles from other disciplines to gain insight concerning competition in health care; and fourth, there is a need for greater comprehension in delineating the impact of increased competition via the use of a more precise definition as well as the knowledge from other disciplines.

This paper also reviews relevant literature on the impact of competition, particularly in regards to system costs, quality of care, and patient satisfaction; presents and discusses a research model of competition and patient satisfaction in health care with propositions for empirical research; and suggests directions for future research and practice. The theoretical basis for this model takes a system approach to understanding the relationship between competition and patient satisfaction that recognizes the external environment as the catalyst for increased competition in the health care industry. Governmental regulations, political dynamics, changing social and demographic characteristics and ever-advancing technology are driving a major shift in the health care industry resulting in the disintegration of health care networks and intensified competition and cost pressures.

2. Background

2.1 The nature of health care competition

Traditional competition in health care involves one or more elements (e.g. price, quality, convenience, and superior products or services); however, competition can also be based on new technology and innovation. A key role of competition in health care is the potential to provide a mechanism for reducing health care costs. Competition generally eliminates inefficiencies that would otherwise yield high production costs, which are ultimately transferred to patients via high health service and delivery costs. Fuch (1988) noted that during the 1980s, the US government sought to change health care in America via the use of market principles to allocate scarce resources. However, Reinhardt (1996) reported that competition could not enhance efficiency in the health care industry because public and private insurance companies were paying for three-quarters of the health care bills. Likewise, Porter and Teisberg (2004) reported that competition in the US had become zero-sum-based, a situation in which health care system participants are actively engaged in dividing value instead of creating value. In some cases, this type of competition erodes existing value through unnecessary costs. Porter and Teisberg identified several features of zero-based competition in health care associated with unfortunate strategic choices: incorrect level of competition, focus on cost reduction,

incorrect geographic market, focus on satisfaction surveys, and offering improper incentives to subscribers as well as providers.

Porter and Teisberg advocate a positive-sum competition in health care characterized by the following features: prevention, diagnoses, and treatment of specific diseases; improved value; proper level of competition; suitable market; and correct information about providers, treatment, and alternatives for specific conditions. Although positive-sum based competition has many potential benefits, it is not an assured success because substantial reforms are required. Nevertheless, competition remains a vital activity in the health care industry and consists of three components that encompass all the major stakeholders to include providers, payers, employers and patients. The first component is comprised of individuals who provide health care (e.g. physicians and other practitioners). Greenberg (1991) defined forms of competition for physicians. Physicians may compete for patients who are able to pay for services and do not have health insurance, or for patients who have their expenditures paid for by third-party insurers – for these, physicians compete on a non-price basis, based on location, colleagues' referrals, and reputation. Physicians may also compete for affiliation with a PPO or by establishing an independent practice association (IPA) to ensure their patient flow. Finally, physicians may compete in the medical market, by reducing competition from non-physicians such as psychologists and podiatrists.

The second component is comprised of the organizations that provide health care services (e.g. hospitals, hospital systems, or other health services organizations). Hospitals compete for physicians, third-party payers, and patients simultaneously (Harris and McDaniel, 1993). In the past, hospitals competed for physicians by offering more highly trained supportive staff or better equipment. However, current trends indicate that hospitals are more likely to compete for patients by providing more services, better amenities or discounted prices (Fuch, 1988). The strong competition for medical talent and technology exists locally and globally. The places where cutting edge technologies and new medical discoveries have the most power in recruiting the best and the brightest medical personnel. In the world of health care, organizations must consider physician migration and physician shortages in recruiting the best and brightest health care providers. The recruitment of physicians has always been challenging and especially so in the primary care specialties in rural and underserved areas. A wise organization will look carefully at the age distribution of its staff and plan well ahead for recruitment needs.

The third component comprises organizations that provide health care financing and insurance and health care plans (e.g. health management organizations (HMO), preferred provider organizations (PPO), and various insurance companies). Buyers of insurance plans must be knowledgeable about the varying prices and must be able to make an informed choice when deciding on what plans to buy. Under these assumptions, competition among health insurance plans could be easily identified to factors such as access, premiums, benefit, and quality. However, because plans usually present different degrees of freedom in provider choice or benefit/coverage services, this makes the comparison among plans very complicated, if not impossible for patients.

To better understand the nature of competition in health care, Zwanziger and Melnick (1996) proposed a model to analyze two types of health care market competitions: competition in physician-dominated markets (i.e. quality or non-price competition) and competition in insurer-dominated marks (i.e. price competition). For competition within physician-dominated markets, physicians decide when to admit patients and strongly influence the choice of hospital. Upon admission, physicians continue to dominate the distribution of hospital resources and operations relating to treatment. In this model, hospitals essentially compete for patients through efforts to attract physicians. In addition, under the fee-for-service and usual-

customary-reasonable (UCR) payment mechanisms, physicians are usually insensitive to the cost of care at different hospitals. The competition of hospital services in this case is largely determined by its location, quality as perceived by physicians, and amenities. Since quality costs money, it presupposes quantitative adequacy and often more care (Donabedian, 1980). Studies show that hospital costs tend to increase in the quality competition market dominated by physicians (Aaron, 1991; Robinson and Luft, 1985, 1987, 1988).

Hospitals and insurers have a more aggressive role in the insurer-dominated market. To secure network contracts, hospitals have to compete for inclusion in insurers' provider networks as well as try to control costs effectively. Nevertheless, the possession of a contract does not guarantee an increase in patient flow. A hospital loses contracts with managed care plans if it does not secure enough patients. In this market, price becomes an important factor in acquiring managed care contracts and retaining a patient base, thus, providers are forced to become price-sensitive. Insurance plans also compete for cost to payers, quality of provider networks, credentialing screening, and quality assessment procedures.

2.2 Measurement of health care competition

Baker (2001) discusses five important conceptual issues in measuring competition in health care markets including the identification of products offered, market areas, selecting a basic measure, considering forces that modify competitive dynamics, and accounting for managed care. There is a concomitant increase in competition as the number of firms increase. Competition is measured by carefully identifying the products and/or services as well as firms which offer these products and/or services, identifying the relevant geographical market area (e.g. metropolitan statistical areas (MSAs)), and selecting a basic measure of competition.

One of the most widely used measures of competition is the Herfindahl-Hirshman Index (HHI). The HHI is defined as the sum of squared market shares of firms participating in the market. This index has been used by the Department of Justice Merger Guidelines to assess the likelihood that a merger will result in excessive power. In the health care literature, empirical studies on competition use the HHI as the measure of market concentration (Joskow, 1980; Noether, 1988; Farley, 1985; Zwanziger and Melnick, 1988; Hadley and Swartz, 1989; Melnick *et al*., 1992).

Two additional parameters that need to be considered when measuring competition are the extent of integration between firms, and the role of managed care (Baker, 2001). These parameters are important because they often modify competitive dynamics. Examples of how to measure competition in healthcare and relevant data sources (including strengths and weaknesses of each source) are detailed in Baker (2001) and Mark and Coffey (2001).

2.3 Concepts of service quality and patient satisfaction

Experts have struggled for decades to formulate a concise, meaningful, and generally applicable definition of the quality of health care. For example, Palmer *et al*. (1991) defined quality of health care as "the production of improved health and satisfaction of a population within the constraints of existing technology, resources, and consumer circumstances." For physicians, quality of health generally involves a technical and a physician-patient interaction.

The technical aspects of quality of care consist of two sub-dimensions: the appropriateness of the services provided and the skill with which appropriate care is performed. Appropriateness of the services provided requires that physicians make high-quality decisions about care for each patient. The skill with which appropriate care is performed requires skill, judgment, and timeliness of execution. The quality of the interaction between physicians and patients depends on several interrelated factors, including the quality of communication, the physician's ability

to maintain the patient's trust, and the physician's ability to treat the patient with concern, empathy, honesty, tact and sensitivity.

Satisfaction with health care is closely related to concepts of health care quality. Ware *et al*. (1977) proposed that patient satisfaction should be a multidimensional concept. These dimensions include "the art of care", which focuses on the personality attributes of the health provider; "technical competence", or the patient's perception of the provider's knowledge and expertise; "the physical environment" as perceived by the patient; and "efficacy of care", or the client's perception of outcome. Linder-Pelz (1982) further suggested ten constructs or elements that should be used to determine satisfaction: accessibility or convenience, availability of resources, continuity of care, efficacy or outcomes of care, finances, humanness, information gathering, pleasantness of surroundings, and quality or competence.

Donabedian (1980) noted that client/patient satisfaction is not only an important component of the quality of care, but also a heavy contributor to the definition of quality from the perspective of clients' values and expectations. Essentially, satisfaction could be seen as an objective of care (psychological health) or a contributor to other objectives and outcomes. For example, satisfied patients are more likely to better comply with providers' medical regimens, and to cooperate or maintain relationship with specific providers. Learning from these concepts, we know that satisfaction plays an important role in quality measure and improvement.

For research purposes, the satisfaction construct may be used in two ways. It may be used as a dependent variable to evaluate provider services and facilities (based on the assumption that patient satisfaction is an indicator of the structure, process, and outcomes). It may also be considered an independent variable that predicts consumer behaviors (with the assumption that differences in satisfaction influence what people do) (Ware *et al*., 1977). In today's highly competitive health care market, satisfaction serves not only as a monitor for quality and improvement but also serves to attract patients and insurers.

2.4 Measuring quality and satisfaction

The primary means of assessing how patients feel about the care they receive in a health care setting is measurement of patient satisfaction. Measuring satisfaction also serves as an important tool for quality audit and improvement in all types of health care organizations. Patients sometimes (or always) have different views from the health professionals when judging the quality of care and services. It is essential to realize the needs of the patients and collect information on services delivery and operations from a patient's perspective. The results of a patient satisfaction survey can be used to further improve care management and promote the quality of patient outcomes.

Lanning (1990) also suggests that to assist purchasers in developing quality outcome measures, health care managers should include "patient perceptions," along with technical competence. There should also be a general philosophy that values quality.

Other studies have explored the use of patient satisfaction surveys in quality improvement efforts in hospitals and HMOs. For example, Nelson (1990), after examining the application of patient satisfaction in health care organizations, concluded that the attributes of patient satisfaction were still ill-defined. Specific attributes included technical competence, outcomes, continuity, patient expectation, non-systematic approaches, and weak methodologies. As a result of the ill-defined nature of health care attributes, these attributes tend to be ineffective for use in total quality improvement efforts. However, other studies suggest that satisfied patients are more likely to continue using medical care services when compared to unsatisfied patients (Ware *et al*., 1975; Thomas and Penchansky, 1984), better comply with medical orders

(Dimatteo and DiNicola, 1983), and maintain relationship with a specific provider (Marquis, 1983). The proposed models takes into account the impact performance factors (quality and cost) have on patient loyalty and consumer long-term value.

2.5 Satisfaction measurement by managed care plans

As the managed care market has matured, managed care plans have been requested to report information on member satisfaction based on the NCQA's Standard Annual Member Health Care Survey (Mark and Coffey, 2001). Quality evaluation systems such as HEDIS 3.0, have been created. HEDIS 3.0 is a set of standardized performance measures designed to assure that purchasers and consumers have information they need to reliably compare the performance of managed health care plans.

Managed care plans have also been asked to provide information on all members (including current and previous enrollees) from surveys conducted during the past five years, including actions taken to improve member satisfaction (NCQA, 1996). Gold and Woolridge (1995) report a substantial increase in frequency of patient surveys to evaluate enrollee satisfaction by HMOs and PPOs. Ninety-five percent of the HMOs and PPOs in this study used some type of consumer satisfaction survey. Fox *et al*. (1987) proposed that in order to succeed in the market, a managed care program must persuade the employer that the firm and the employees will benefit, persuade employees to enroll, and keep patients satisfied after they enroll.

2.6 Health professionals and patient satisfaction

The major concern regarding the use of patient satisfaction measures to represent quality of care or patient outcome evaluation is that health professionals often consider patient's evaluation to be incorrect or biased. Pascoe (1983) offers a two-part definition of patient satisfaction based on a "contrast and assimilation model". Pascoe's model takes into account expectations that patients bring to an encounter and the fact that patients may not be fully able to judge a service encounter because they do not have the requisite clinical knowledge. In the contrast model, the patients enter the situation with expectations, and the perceived difference between expectation and experience offers net satisfaction in simple encounters. When experience is greater than expectations, the experience is satisfactory. In the assimilation model, when patients confront a situation they do not fully understand, they may adjust their expectations downward if the experience falls short of what is expected. This theory may help to explain why most patients are satisfied with medical care or personnel, while a greater variance usually exists with respect to other aspects of services during health care delivery (e.g. food, parking, and amenities).

3. Competition and patient satisfaction: research model and propositions

This section proposes a research model of competition and customer satisfaction in health care with implications for empirical research. The model depicts customer satisfaction as an outcome measure directly dependent on competition, and indirectly through quality of care and health care systems costs, which themselves are directly dependent on the organization's strategic mission and goals. The organization's strategic mission is viewed as mediating the relationship between competition and customer satisfaction and the patient's perceived performance and expectations are viewed as moderating the relationship between quality of care and health care systems costs and patient satisfaction.

3.1 Competition, strategic mission and patient satisfaction

A significant element of the model is the organization's strategic mission and goals. The mission or goal of an organization provides a general direction regarding quality of health and costs that reflects the overall organizational internal environment. An industry's external

environment, of which competition is a major driver, influences the strategic direction of the organizations within the industry. The mission defines what an organization can do in terms of quality and costs and articulates the basic values and principles that guide how services are delivered. For example, some hospitals build their reputation on the principles of quality, cooperation, compassion and innovation as the primary drivers and not necessarily cost (Cleveland Hospital). If every US resident had an insurmountable amount of money to spend on health care, then health care costs would not be a problem. Every consumer of health care will not desire to shop around for price alone, but will want to shop for many things such as quality and customer service. On the other hand, many patients will want the best care for the lowest cost. In the current health care environment, this is rarely found. Patients must make a decision and unfortunately sacrifice one for the other. Therefore, the mission and goals and the financial support institutions have, allow them to attract the best medical doctors, nurses, support staff, acquire the most updated and the newest equipment and technology and attract patients. In connecting competition to the organization's strategic mission and goals and ultimately to patient satisfaction requires a model that defines the role competition in a way that what the customer expects in terms of needs and wants is factored into health care design, communication, pricing and the delivery of appropriate, competitively viable health care services.

3.2 Competition and patient satisfaction

Miller (1996) and Porter and Tiesberg (2004) noted that current competition among health plans, hospitals, and physicians has been primarily based upon price. The breadth of the network and style of care is also considered. Competition has resulted in lower hospital costs and health care premiums, with premium reductions up to 10 percent (Enthoven and Vorhaus, 1997). However, it is not clear whether the cost savings from price competition is a result of improved efficiency or from sacrificing the quality of care.

A study showed that hospitals that are subject to more intense competition and greater fiscal pressure from Medicare and Medi-Cal reduced their provision of uncompensated care relative to hospitals facing less pressure from the sources. According to the authors' estimate, hospitals would have provided 36 percent more uncompensated care than was actually provided in 1989, if they had not been subjected to increasing price competition from growth of managed care plans and financial tightening in public programs. However, Brook and Kosecoff (1998) suggest that as competition intensifies, one very likely event to occur is the renaming of "quality of care" to "patient satisfaction." People interested in making money are likely to use marketing techniques and measurement of patient satisfaction to convince people to join their organizations. The quality of care is hard to quantify and compare. Those groups that are currently experiencing a difficult time with HMOs and bureaucracies (e.g. elderly, poor, women, and children) are likely to be even more vulnerable.

Using a competitive model, it has been assumed that a homogeneous service is being bought and sold, and the competition is based on price. However, Jacobs (1997) reported that product quality is a major element of health care. It is also a common practice for health insurance companies to offer different types of policies in terms of coverage. This can be viewed as differences in the quality of the policies, which yields differences in the quality of services. It must be acknowledged that the market is imperfectly competitive (i.e. oligopolistic and monopolistic markets are often found in the health care industry) due to such factors as entry barriers, asymmetry of information, monopoly power, non-uniformity in health service quality or character, prevalent externalities, common motivations other than pure profit, and considerable degree of uncertainty (Folland *et al*., 1993).

Due to the imperfections in competition, market failures also exist in the health care industry. Though vigorous price competition is not usually a characteristic of an oligopolistic market,

quality competition is. Mansfield (1988) stated that technological change and productivity increases can offset imperfection in competitive market. In imperfect competition, firms usually have more resources to devote to research and experimentation than their counterparts. The introduction of the innovation may not be worthwhile, unless the firm has sufficient control over the market to reap the rewards of innovation. Since competitors can imitate innovations very quickly, innovation may not be profitable. Jacobs (1997) noted that when a supplier can vary quality, customers are attracted on the basis of its quality. This phenomenon of "product differentiation" implies that each supplier is facing a downward-sloping demand curve, and that they can choose to compete with other providers on the basis of price or product quality. This difference in quality not only improves the supplier's competitiveness, but can also lead to "brand loyalty", which is heavily related to patient satisfaction with the product or service.

In the health care industry, high technology services tend to attract customers. The more services a health care organization offers, the more competitive it will be for exclusive contracts with employers and other third party payers. Under this assumption, competition could result in the tendency to either have duplicate services in excess of regional needs, or acceleration of technology changes and/or product differentiation. Under such circumstances, competition is not better than regulation with respect to control of costs in the adoption of new technology.

Competition may be better in terms of access improvement. Teisberg *et al*. (1994) suggest that competition in health care compels providers to deliver increasing value to customers, while the fundamental driver of this continuous quality improvement and cost reduction is "innovation." Teisberg *et al*. also suggest that without incentives to sustain innovation in health care, short-term cost savings will soon be overwhelmed by the desire to widen access. The failure to promote innovation will lead to lower quality or more rationing of care.

A study by Zwanziger *et al*. (1996)) examined factors influencing two measures of service mix (specialization and differentiation) before and after the introduction of new reimbursement mechanisms, including post-prospective payment system (PPS) in California. The results of this study suggest that:

- competition among hospitals tends to increase differentiation, whereas higher financial PPS pressure is associated with increased specialization;
- hospitals tend to adopt some high visibility services offered by their competitors while filling market niches selectively overall; and
- the cost savings expected for specialization may prevail only for narrowly defined services.

In order to examine the relationship between competition and other variables within a health care organization entity (e.g. hospital), we define competition as the actions of that entity to obtain the best resources (including technology, human resources, infrastructure) that will provide an advantage over other similar entities and help the entity maintain leadership in the market for that segment of the population served. Consistent with the previous discussions and background, we propose that competition in health care, could possibly initiate technology changes or product differentiation. Although services may be excessive or more costly, improving patient satisfaction is the ultimate anticipated result of competition in the health care industry.

P1 As the level of competition within the health care market increases, the level of patient satisfaction increases.

3.3 Competition, quality of health care, and patient satisfaction

One key question to address when talking about competition and customer satisfaction is "What impact does increased competition have on health care quality and, ultimately, customer satisfaction?" One perspective argues that increased competition forces organizations to employ cost-minimization strategies to the detriment of the quality of health care provided to patients. This, in turn, lowers patient satisfaction levels (Ware *et al*., 1977). Another perspective argues that organizations can improve the quality of health care and patient satisfaction through investments in hard and soft technologies in order to cultivate and maintain a viable patient base (Ware *et al*., 1977). A third perspective suggests that by improving the quality of health care delivery, total system costs may decrease without negatively affecting patient satisfaction (Ware *et al*., 1977).

There is little evidence on the relationship between competition and the quality of health care provided to patients. Quality of health care is defined as the avoidance of death or increases in favorable outcomes (e.g. decreased mortality rates). The literature suggests that superior technology or other resources, increases the quality of care (Ware *et al*., 1977). As hospitals actively engage in competition, the quality of care increases.

There are few empirical studies that have directly examined the relationship between competition among HMOs or HMO market penetration and quality. We suppose the possibility that health care markets with high levels of HMO competition or HMO market penetration would exhibit higher quality of care. The ability of hospitals to compete for customers on the basis of price has motivated HMOs to focus on non-price, quality-oriented strategies. Increased HMO competition or HMO market penetration could stimulate non-price competition among hospitals. Assuming that HMOs compete, in part, for quality of the provider network, hospitals will compete for HMO contracts by improving quality. Therefore, we make the following propositions:

P2 As the level of competition within the health care market increases, the quality of health care provided to patients increases.

P3 As the quality of health care provided to patients increases, the level of patient satisfaction increases

3.4 Competition, health care system costs, and patient satisfaction

The literature on the relationship between the level of competition and health care system costs has indicated contradictory results. However, with consideration of the time period of the studies, these discrepancies can be explained. Studies conducted during the era of retrospective cost-plus reimbursements or charge-based reimbursements indicate that competition is positively associated with system costs. This could be attributed to the fact that hospitals were reimbursed on a retrospective cost-plus basis during this time frame, and were therefore able to compete on a non-price basis. As a result, expensive and sophisticated equipment and services were freely added in attempt to attract physicians (and therefore, patients).

The introduction of fixed payment, competitive bidding made this type of non-price competition much more costly and less attractive to hospitals, which began to compete more on the basis of price. In order to lower prices, hospitals had to become more cost-efficient. This assumption is supported by the post-prospective payment system (PPS) study by Robinson and Luft (1988), which showed that increased competition was associated with decreased costs.

Competition advocates like Alain Enthoven and Paul Ellwood have argued that the growth of HMOs will make health care price competitive and thereby provide the missing "brake" on escalating health costs (Zwanziger and Melnick, 1996). These advocates have hypothesized

that as HMOs gain market shares, hospitals will be forced to become more pre-conscious and cost-effective. HMOs reduce costs through fixed budget financing, reduced inpatient utilization by keeping customers out of hospitals, and using fewer resources once a customer is admitted. If HMOs control significant amounts of patient volume, the competitive impact will concentrate on health care system costs. As a result of low health care system costs, customers are likely to enjoy low services charges and become more satisfied. Therefore, we make the following propositions:

P4 As the level of competition within the health care market increases, the level of health care system costs decreases.

P5 As the level of health care system costs decreases, the level of patient satisfaction increases.

3.5 Health care system costs and quality of health

Many empirical studies suggest a simple, linear relationship between health care system costs and quality of health care provided to customers (Fleming, 1992; Flood *et al*., 1994). A more realistic assumption is that marginal costs may vary over the range of quality. The current study postulates that quality of care and system costs co-vary with each other and move in the same direction: a decrease in health system costs is associated with a decrease in health quality and vice versa. Based on this assumption, we make the following proposition:

P6 As level of health care system costs increases, the quality of health care provided to patients increases.

Based on the previous discussions and propositions, a research model for empirical investigation is depicted in Figure 1.

While the propositions presented are posed in the content of the provider/patient relationship in general, the model can also be used to identify additional dimensions or components of competition in the health care industry. For example, the model can be used to explore different types of health care systems (e.g. public or community-based vs private; not for profit vs profit; general services vs specific niche (cancer, heart, children)); geographic location; size in terms of facility; human resources or number of beds; market (urban vs rural); and/or university affiliation. The model focuses specifically on performance factors that based on the literature if these performance factors are high, patients will be satisfied versus when they are low, patients will be dissatisfied. The model makes assumptions that the basic factors, or the minimum requirements, that if not fulfilled will lead to dissatisfaction, meet the patients' expectations (e.g. high performing workforce).

4. Conclusion and direction for future research

The health care industry faces many challenging issues. The impact of increased competition on quality of health care and systems costs is not clear. In addition, evidence concerning the relationship between the quality of health care provided to customers and the system costs of providing health care is not extensive. The information concerning drivers of customer satisfaction is not well understood. Various studies provide contradictory conclusions. We suggest that the ambiguity concerning the impact of competition on quality, cost, and patient satisfaction arises in part because these issues have previously been examined in isolation. The inter-related nature of these issues dictates that they be examined simultaneously. In this study, we developed a research model, which included propositions to examine the complex issues of competition in the health care industry. We believe that using the above model to conduct empirical research will have significant implications for policy makers.

To date, regulatory efforts have focused on containing health care system costs without diminishing quality of care. Empirical studies based on the model proposed in this paper should help identify areas with significant impact on patient satisfaction while maintaining high quality of service at lower costs in a competitive environment.

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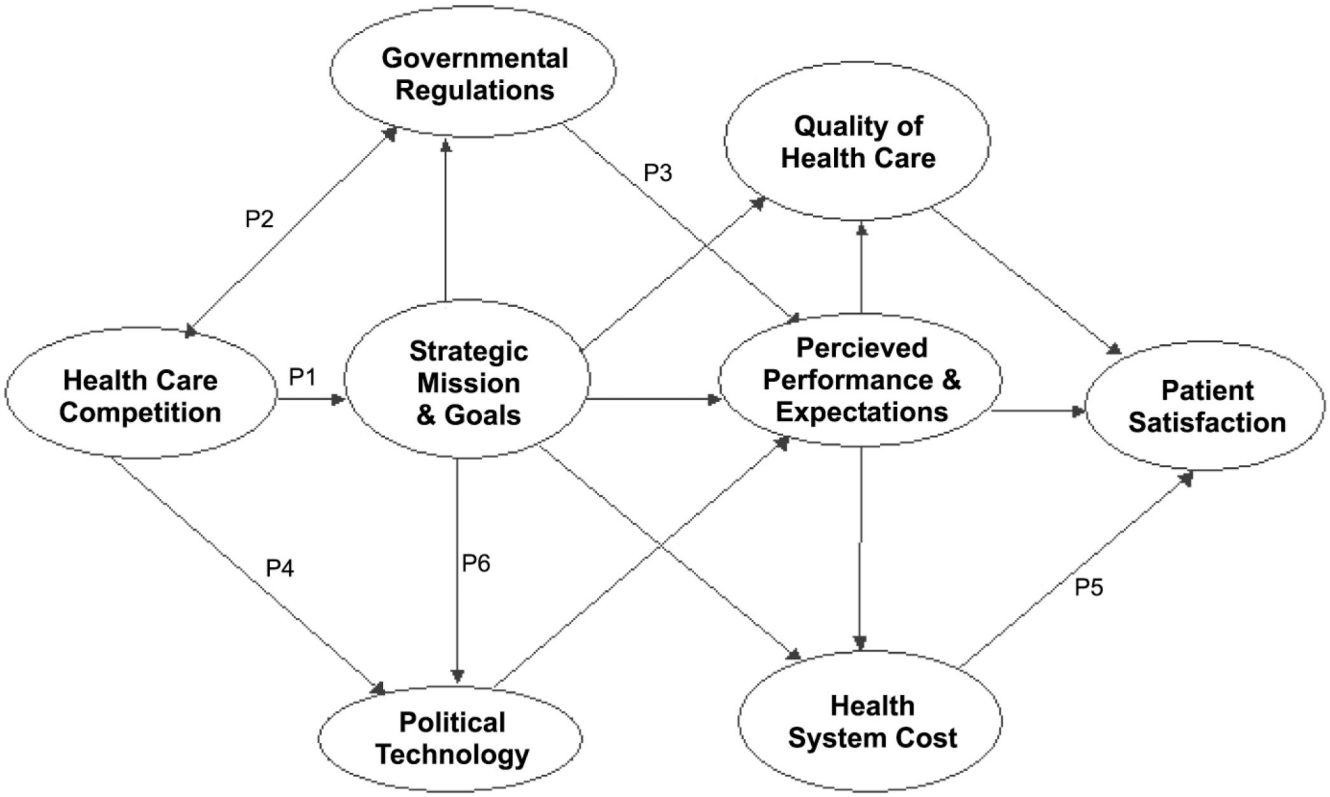

Figure 1.
Competition and patient satisfaction: research model