

MASTER'S THESIS

The effect of ownership status and
performance indicators on perceived
quality of hospitals

An experimental study

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Abstract

The New Public Management (NPM) movement advocates freedom of choice between public service providers as a good on its own, as well as a way to increase efficiency in public services. In the context of healthcare, this translates among others also into a freedom to choose a hospital for treatment. Our extensive literature review shows that although substantial research has already been conducted into the factors driving the decisions of individual patients, previous studies called for further investigations regarding the effect of performance indicators and ownership status on the perceived quality of hospitals. This study examines these relationships by conducting an experimental survey on a sample of 425 Slovak citizens. We find evidence that private hospitals are viewed more favourably than public ones, while those with a high performance rating are viewed more favourably than those with a low rating. In particular, the respondents expect to receive a more effective treatment and to also feel better in private and highly rated hospitals than in public and low rated ones, respectively. This suggests that managers of private hospitals should make use of the ownership status in their marketing and communication strategy, as people surprisingly consider ownership status a better indicator of quality than performance ratings. Nevertheless, we also argue that there might be a case for establishment of an executive agency responsible for evaluation of quality among hospitals in Slovakia.

Keywords

New Public Management; hospital choice; perceived quality; performance indicators; ownership status; experiment; Slovakia

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1. Introduction

1.1. Toward public provision of healthcare

Especially since the end of the Second World War, public provision of healthcare has been institutionalised in most developed countries as one of the essential services to be delivered by the government to the citizen. In general, there are at least three complementary explanations or rationales for providing public services, instead of relying on their spontaneous organisation by the private sector (Besley & Ghatak, 2003). Firstly, public provision of healthcare can be viewed as a product of *egalitarianism*, i.e. of the view that every citizen deserves a minimum standard of living, which also tends to include some standards of healthcare. A second reason for public provision of healthcare can simply be labelled as *paternalism*: individuals supposedly fail to grasp what is beneficial for them and tend to under-consume beneficial goods and services; this information asymmetry is to be resolved by the government, who will step in and provide such goods and services, among which healthcare, publicly. The third way of looking at public provision of healthcare can be seen as *investment*. Publicly provided healthcare will lead to a healthier population, which will in turn become more productive and therefore wealthier. Ultimately, a wealthier population means more demand for domestic goods and services; besides stimulating the economy, this also leads to higher tax revenues. It is thusly argued that the public benefits from public health services in this form exceed the public expenditure.

Arguments from all the three described lines of reasoning have been drawn most notably from Lord Beveridge, the pioneer of the British welfare state and, among other institutions, the father of the National Health Service. While the exact genesis of the welfare state differs from country to country, the current data regarding healthcare expenditure in the most developed countries is clear: healthcare is currently largely a matter of public domain and, with the exceptions of the United States, Mexico, and Chile, more than 50% of health spending is currently financed through public funds in each of the OECD countries, with the average as high as 72% in 2011 (OECD, 2014). Moreover, healthcare has been increasingly becoming a sector of public concern even in the traditionally market-oriented United States, especially since President Obama's efforts to reform the sector with the Patient Protection and Affordable Care Act, also known as 'Obamacare'. The bottom line is therefore that healthcare is, or at least should be, of major concern to politicians, public managers, and policymakers. Moreover, from a wider human development perspective, healthcare as such bears academic relevance regardless of the level of its public institutionalisation.

1.2. The patient: from a passive receiver to an active consumer

In the medical context, the patient has been traditionally seen merely as a passive receiver of healthcare, with both the content and form decided for her by others, whether this is the state, the insurance company, or the personal physician. In a pure 'paternalist' setting, the patient has no choice of health insurance, as this is uniformly provided by the government; the patient has no choice of physician, and has to attend the one assigned to her according to the so-called 'catchment area'; the patient has no power over the choice of treatment and its course, whether this be an operation or medication; lastly, the patient has no choice of the hospital in which to take the eventual treatment, i.e. over the provider of health services proper.

The model of centralised government provision of *uniformly* delivered public services has, however, been increasingly becoming a target of criticism, in particular for two reasons (Besley & Ghatak, 2003):

- 1) Inefficiency in production – in a state-funded healthcare system, incentives to public service providers to improve service quality are very limited. Providers are not dependent on the consumer's satisfaction, and receive funding based on the quantity of patients served instead of the quality of medical services, or eventually even based on a flat rate, regardless of the quantitative output. As a result, the benefit-cost ratio in the public services has been considered suboptimal – hospitals are underperforming considering the money they cost, or even 'game' the finance system to merely receive more funding. Such a policy setting is unsurprisingly considered against the public interest.
- 2) Absence of choice – while patients possess different needs and preferences concerning healthcare services, the public providers do not acknowledge this reality and instead continue employing a one-size-fits-all approach to the patients. The result is a mismatch between supply and demand in the healthcare sector. In an extreme case, this can lead to hospitals being underused, with the patients waiting for a type of treatment they cannot expect to receive.

A remedy to these inefficiencies has been put forward by the movement that is often labelled as 'new public management' (NPM). Some scholars belonging to the NPM movement have argued that introduction of competition and citizen choice in the public sector will improve quality and lower the costs of public services (see for example Hood, 1991, p. 5; Osborne, 1993, pp. 352-355). In particular, the latter notion of citizen choice translated into the healthcare sector as a widely accepted concept of 'patient autonomy' – the right of the patient to at least co-participate in the

decisions concerning her health, including decisions regarding the type and course of treatment. Marking a success of the NPM doctrine, numerous OECD countries have now introduced market-oriented public service reforms, also specifically targeting the public healthcare system. In regard to choice of providers, even though with health insurance remaining mandatory for each citizen, individuals in countries such as France, Germany, or the Netherlands can now at least freely choose between private insurers, as long as these fulfil the relevant legal requirements. On the provider level, patients in many countries have been allowed to freely choose their GP, not having to merely remain with the one assigned to them based on the delineated catchment areas. Finally, patients have been given increasingly more freedom also in choosing hospitals for treatment. In the United Kingdom, for example, patients with coronary disease were allowed to choose from alternative hospitals in 2002; this eventually evolved into a complete freedom of choice in 2008, when all patients were allowed to choose a hospital regardless of the type of treatment, as long as it fulfilled the NHS standards of quality and costs.

Freedom of choice of service providers has been seen by some policy practitioners as instrumental to increasing quality and efficiency in public healthcare (Office, 2005). By exercising this freedom, the patient in the role of a customer is argued to send market to healthcare providers, who in turn need to be receptive to the demand in order to remain profitable. Only the hospitals that are able to provide the services that are demanded - for a price acceptable to the patient and with an adequate quality -, remain in business. This model presupposes an ideal situation of a non-monopolistic market, a system where 'money follows the patient', and a perfectly informed patient able to 'rationally' exercise choice (Tummers, Jilke, & Van de Walle, 2013). Therefore, freedom of choice has also been supported by concrete policies to facilitate the model's functioning. On the one hand, much attention has been given by policymakers to introducing (quasi-)markets into public services and deploying a system of healthcare where providers are financed depending on, in addition to the number of patients served, the type of treatment provided and fulfilment of process standards. On the other hand, active choice among consumers has also been promoted by publishing information on quality of healthcare providers, thus allowing them to recognise the best ones while making their choice. However, the implicit assumption of the patient's ability to make the 'right choice' has remained largely unquestioned by policymakers.

1.3. Research objectives

Making the 'right choice' in the context of healthcare presupposes that one knows what is best for her as a patient, as well as being able to recognise the healthcare provider that approximates this ideal most closely amongst the available alternatives. The concept capturing this notion most closely is arguably that of *quality*. Nevertheless, it is arguable that the answer to the question of what constitutes quality in healthcare differs between economists/policymakers, medical practitioners, and patients. Since much attention has been given to the supply side of healthcare in the public management literature, the present paper will instead focus solely on the demand side. Recognising that the question of what constitutes 'rational' decision-making is problematic and disputable, I will refrain from making normative judgements about the cognitive and intellectual abilities of individuals. Instead, the present paper's aim is to contribute to the understanding of what patients themselves consider as 'good', or 'of high quality', in the context of hospitals; or simply, how they choose between different hospitals when they are given the option.

Why hospitals? If given the option, the patient can generally choose providers of healthcare on several levels, namely: her insurer, primary care provider (which can be a general practitioner or a hospital), and secondary or specialist care provider (usually a hospital). The choice of an insurer and a particular insurance package ultimately breaks down into an economic assessment of health-related risks, since insurance is ultimately a financial product, as opposed to a type of health service proper. With regard to health services in general, it is said that there is an information asymmetry between the patient and the provider due to lack of expert knowledge on the patient's part (Arrow, 1963). The difference in expertise between the two parts then arguably become the more accentuated the more specialised the level of the demanded care is. Therefore, 'on average', patients are information-wise in an even more unfavourable situation when choosing a hospital (for secondary and higher levels of care) than those 'merely' choosing a GP. From a cognitive perspective, the patient is therefore relatively less autonomous the higher the level of care, while freedom of choice guarantees her the same level of autonomy as with lower levels of care in the sense of being able to choose a service provider. In this study, we are therefore interested in how the patient judges the quality of hospitals, rather than of GPs, as this is the situation in which the patient is more vulnerable to misinformation and own misjudgement.

Here, we understand the concept of quality in the widest possible sense understood by the patient. In other words, quality is here defined as encompassing all the expectations the patient has of the 'ideal' hospital, whether these are conscious or unconscious. These expectations can entail concerns related to the execution of the treatment proper, as well as other to all other aspects

related to the visit. The quality of a particular hospital from the view of the patient is then the degree to which this hospital is viewed as fulfilling these expectations. As mentioned above, we are primarily concerned with the demand side in hospital services. Therefore, even though we do admit that both the concept of what constitutes quality and the degree to which a particular hospital fulfils the patient's expectations vary from individual to individual, we are primarily concerned with views on hospital quality in aggregate terms. In addition, we also realise that the demand in any economic model does not only depend on the quality of supplied products and services, but also on the costs. However, after conducting our literature review, we have decided it less relevant for us to focus on the costs for the individual (by keeping them constant), and to consider only competition in terms of quality of healthcare services instead. Our assumption is that the perception of the hospital's quality determines the likelihood of the patient choosing it for treatment. Therefore, the present paper intends to study perceptions quality in hospitals, expecting that these affect the aggregate demand of hospital services by inducing actual behaviour.

1.3.1. Research question

Our central research question therefore reads as follows:

Q_c: What are the factors determining patients' perceptions of hospital quality?

Furthermore, after identifying research gaps to be addressed in our literature review (see Chapter 2, especially Section 2.3. and its sub-sections on Page 26-27), we have arrived at two specific factors of interest – *ownership status* and *performance indicators*. Thusly, we have formulated the two following sub-questions:

Q₁: Does perceived quality of a hospital vary depending on the hospital's ownership status?

Q₂: Does perceived quality of a hospital vary depending on the hospital's performance indicators?

1.4. Social and theoretical relevance

The social relevance of this study consists mainly in: patients' freedom of choice of hospitals and the ongoing transformations of the public healthcare sector in OECD countries. Firstly, researching quality perceptions of hospitals would clearly be of little practical relevance in an absence of freedom to choose. Secondly, much of the healthcare sector in OECD is state-owned, state-funded, or at least state-regulated. Healthcare as such is therefore undoubtedly of public interest. Further, as a major stakeholder, the state is often directly involved by owning hospitals; in some countries, also by assessing the quality of individual hospitals by constructing performance indicators and ratings. Thusly, public institutions can by their very involvement affect perceptions of quality between

individual hospitals, and consequently eventually also steer the demand. Provided the recent trends of privatisation and re-nationalisation of public services, it is conceivable that governments might even use changes of ownership status as a policy tool to shape the healthcare sector. Regarding performance indicators, governments can use these to control the healthcare sector and the standards of quality within it as a rather cost-efficient tool, even without direct financial involvement in the sector. Furthermore, the findings of this study may prove useful to hospital marketers and managers, indicating whether to publish or not to publish the hospital's ownership status and performance ratings. Lastly, health insurance companies, patient organisations, and also individual patients might also find this study relevant to inform their policies or individual decision-making.

From a theoretical perspective, this study attempts to further the understanding of factors affecting demand for hospitals and to contribute to further specification of the existing theoretical models. While a substantial body of literature on factors in hospital choice as such exists, only little has been researched on the potential direct effect of ownership status and performance indicators on quality perception of hospitals. Regarding literature streams, the present paper can be of theoretical relevance to scholars of public management, health economics, marketing, as well as business management.

2. Literature review

2.1. Who chooses a hospital?

The research aim of this study is to identify the factors that patients regard as indicative of hospital quality. First, however, it is necessary to assess whether it is the patient herself who decides which hospital to go to for a treatment or someone else, as our wider research scope is to understand the demand side of public healthcare services. As we have seen in the introduction to this paper (Section 1.2. on Pages 7-8), patients are being given increasingly more choice regarding their health, at least in the context of OECD countries. However, if the patient is the ultimate decision-maker only formally, but the actual chooser is someone else (typically the physician) the patient's conception of hospital quality is of only limited impact on the demand side of health services. In such a case, it would be more meaningful to study how physicians assess the quality of hospital instead.

Even in the United States, where freedom of choice in healthcare was virtually always the starting point, it was recognised as late as the 1970s that a rising trend of 'consumerism' in health services was occurring. Only then it was recognised that individuals were choosing between health service providers and treatments as they did when shopping for ordinary consumer goods and services in the marketplace – picking the best amongst alternatives based on a given set of criteria. The first such specific trend identified within the healthcare sector was that of 'doctor-shopping', i.e. choosing a personal physician as if he were an ordinary service provider aiming to satisfy the patient's needs and wants (see for example Kasteler, Kane, Olsen, & Thetford, 1976). Recognising this, Berkowitz and Flexner (1980) hypothesised that a similar trend might be occurring also in choosing a hospital for treatment. From a mail questionnaire survey conducted on a sample of about a 1,000 respondents in Minnesota, United States, they concluded that even though 51.7% of the population are leaving the choice of hospital exclusively to their personal physician, 15.7% claimed to have at least 50% of the final say, with the remaining segment being somewhere in between. Interestingly, the actively choosing segment appeared to share specific socioeconomic traits: they were generally possessing a higher level of education, they were younger, more likely to have a technical or professional occupation, and more likely to self-pay for medical care. Elsewhere, it was found that rural US patients have a tendency to see themselves as choosers, while the suburban population attributes the choice to the GP (Sandra K. Smith Gooding, 2000). We therefore need to bear in mind that some socioeconomic groups are more likely to actively choose hospitals as autonomous consumers, while others are less.

In a later study, it was found that the person who chooses a hospital and the patient who goes to the hospital are often not the same person: in 6 out of 10 cases, it was reportedly the woman

in the household to decide which hospital a family member should go to (Jensen, 1987). Nevertheless, this finding confirmed that the responsibility for hospital choice was shifting from the physician toward the patient, or at least toward the patient's household. This has been confirmed also in studies outside the United States, where healthcare has traditionally been a public domain and consumer choice has been introduced only recently. In the Netherlands, for example, it has been found that 31% of patients obtain a letter of reference from their GP to their preferred hospital (meaning they decide themselves post-hoc), with the other 69% merely going to the hospital recommended by their GP (Lako & Rosenau, 2009). Nevertheless, this might be an oversimplification of the decision process, when in fact it is perfectly plausible to assume that in at least some of the 69% cases, the physician's opinion simply coincided with the patient's own, or that the patient was convinced by the physician to go to the recommended hospital during the consultation process itself. The fact that the patient trusts the physician's opinion as a decisive source of information on hospital quality does not mean that the patient does not have the final say; it only points to the clue that the GP's recommendation is one of the determinant factors in hospital choice. The patient is, indeed, still able to say no to this recommendation.

The limitation of the studies researching who is the decision-maker in hospital choice is that they are based on findings from self-report surveys, and therefore possibly suffer from systematic biases associated therewith (see for example Choi & Pak, 2005). Most prominently, there is possibly a discrepancy between reported and actual behaviour, but as this discrepancy might swing both directions, there is no reason to be concerned with the internal validity of these studies *per se*. Therefore, we conclude that a significant proportion of individuals choose hospital themselves, or at least someone in their household does so in their name. This finding confirms that patients' or, more broadly, individuals' perception of hospital quality does indeed matter for the demand side of healthcare services, and thus also confirms social and theoretical relevance of the present thesis. In other words, our research question is worthwhile studying. In the following sections, we can therefore proceed by looking at the factors that determine the patient's attitude toward a hospital.

2.2. Factors in hospital choice

A substantial body of literature dedicated to studying factors determining patients' perception of hospitals, or of actual choices of hospitals, already exists. Despite their relatively high age, among the most widely cited are empirical studies and reviews conducted in the 1980s and the 1990s. While many of these are narrowly inductive in method and lack theoretical insights, they continue to be useful in pointing out factors relevant for researchers in various fields ranging from marketing to hospital management to public policy researchers nonetheless. Some of the studies identify hospital

choice factors by posing open questions in surveys, while others use focus group discussions. Yet others identify the relevant factors by directly observing actual behaviour, whether this is a real hospital choice or behaviour observed in an experimental setting. Nevertheless, the variables identified as relevant and their observed magnitude vary greatly from study to study.

The most commonly used method of inquiry in studying hospital perception factors has been that of self-reported surveys. Some of these had pre-identified relevant factors during a pilot phase of the study, and these have been consequently tested on a larger sample. Others have simply tested factors identified in literature review instead. In addition, open questions have been asked in some studies to help identify important factors despite omitting them during the initial phase of research. As pointed out in Section 2.1 (Pages 11-13), however, self-reported surveys come with their own pitfalls. Therefore, further studies have used experimental research design in which they have presented the subjects with profiles of hospitals, real or fictional, with various configurations of individual factors. Consequently, whether a factor has an effect and to what extent has been determined by statistical modelling. An advantage of these studies is the high internal validity of the method. At the same time, however, crucial factors might have been omitted due to negligence in the initial phases of the studies. Finally, some studies have looked at the data on actual hospital attendance, and studied the factors by examining available data about both the hospital and the patient. The attended hospital has most often been compared with other hospitals in its proximity; the properties in which the nearby hospitals diverged were then identified as the independent variable affecting the final choice of hospital. Also in these studies, the relevance and magnitude of individual factors have been determined by statistical modelling. Nevertheless, the weakness of these studies is in their cross-sectional design – significant factors may have been omitted, and the ones concluded to be significant may have been merely correlated to the former, with a direct causal link missing. As such, the factors concluded to be significant may not have directly shaped the patient's attitude, and subsequently choice, at all.

Many factors affecting perceptions of hospitals seem to interact with each other in various manners: for example, a high value in one of the variables might cause another variable to have a smaller effect on hospital choice. Further, according to some theoretical approaches, some groups of factors form together sets of composite variables. I will next attempt to synthesise the knowledge on each of the variables identified in our literature review by describing them one after another.

2.2.1. Individual-specific factors

Beyond the considerations that the patient's *medical condition* might affect her cognitive and decision-making abilities, it is rather intuitive to presume that it also affects her views on which

factors are the most important when choosing a hospital. Some diagnoses are viewed by the patients themselves as trivial: in these case, patients believe they can be treated virtually anywhere (Mayer, 1983); in turn, the patient is relatively indifferent to the hospital's quality. Inversely, when the treatment to be undergone is major, the importance of hospital quality rises (Sandra K. Smith Gooding, 1996, 2000). We should, however, acknowledge that the perception of what is a minor treatment and what is a major one may also differ across individuals. For example, Sandra K. Smith Gooding (1996) found vast differences between the rural and the suburban US population in this regard.

Other researchers employ different distinctions between the *types of treatment* sought. J. Boscarino and Stelber (1982) found that patients put emphasis on diametrically different factors depending on whether they are seeking general care, specialised care, and emergency care. Some studies studying factors in perception of hospitals focus solely on inpatient care (where the treatment requires the patient to stay overnight) while others look at outpatient care (in which case the patient can leave immediately afterwards), which leads to different findings. Further, Lane and Lindquist (1988) distinguish between allopathic (mainstream) and osteopathic (alternative) care, also finding a different set of relevant factors for each type; Lako and Rosenau (2009) found gynaecology, surgery, and stomatology patients to all have different preferences regarding a hospital. Furthermore, a hospital can be associated with a specialisation in a certain kind of treatment, such as heart surgery (Leister & Stausberg, 2007; Varkevisser, van der Geest, & Schut, 2012; Wolinsky & Kurz, 1984): in such cases, patients suffering from diseases falling under this type of expertise are likely to pursue treatment in this particular hospital, automatically disregarding all other available options.

One's *past experience* or *familiarity* with the hospital is widely considered to be among the most important factors for perceptions of its quality (J. Boscarino & Stelber, 1982; Glassman & Glassman, 1981; Heischmidt & Heischmidt, 1991; Lane & Lindquist, 1988; Leister & Stausberg, 2007; Y. C. Wang, Hsu, Hsu, & Hsieh, 2011; Wolinsky & Kurz, 1984). Kim, Kim, Kim, Kim, and Kang (2008) argue that patients instead judge the quality of a hospital based on their past satisfaction with its services. Using a different theoretical model, John (1992) found that past experience affects the patient's satisfaction with the hospital, which in turn determines her intentions to return to it. However, not only the experience with this particular hospital was found to matter, but also with other health providers in general. In other words, a patient dissatisfied with Hospital X will be also less willing to go to Hospital Y for treatment, regardless of the relationship between the two hospitals. Furthermore, Hisrich and Peters (1982) found that not only one's own prior experience with the hospital matters, but also that of a family member. Interestingly, S. K. Smith Gooding (1995)

found that it is especially negative past experience that has impact on hospital choice, i.e. that the magnitude of negative experiences is higher than that of positive ones. On the other hand, Jensen (1987) found that, over time, the importance of past experience in general as a factor was mildly declining.

Several studies have operated with other factors related to *prior experience* or *familiarity*, even though not explicitly categorised as such. J. Boscarino and Stelber (1982) found personal knowledge of the personnel to be a factor, while Hisrich and Peters (1982) found that having an own physician on the hospital's staff is the single most decisive factor (!) in hospital choice (33.7%).

Just as in a 'regular' consumer sector, *socioeconomic status* (SES) and *individual traits* of the patient are deemed to affect choice, i.e. to be acting as intervening variables, also in healthcare. As discussed in Section 2.1 (Pages 11-13), not every patient is equally likely to make the choice in the first place, depending on sex, age, education, and so on. Similarly, the SES is argued to affect the individual's hierarchy of factors relevant for the actual choice of a hospital. In plain language, this means that people rely on different sources and types of information to estimate a hospital's quality, depending on their individual traits, whether for psychological or social reasons. Besides the *medical condition* (discussed above in this section), hospital choice studies have most commonly referred to the factors described in the following paragraphs.

Sex. Women in general have been found to be more sensitive than men to *financial cost* (Jensen, 1987), but also to *time costs* (Tay, 2003). Female patients are also more sensitive to positive *press coverage* than male ones (Leister & Stausberg, 2007).

Age. The elderly have been observed to be in general less willing to travel, i.e. their sensitivity to *time costs* (discussed in Section 2.2.2. on Pages 17-19) is higher (contra Bronstein & Morrisey, 1990; Burgess Jr & Avery DeFiore, 1994; Hogan, 1988; Tay, 2003). They are also more sensitive to *financial cost*, *nursing care quality*, *surroundings*, *availability of private rooms*, and *familiarity*, i.e. previous experience with the hospital (Jensen, 1987). Moreover, they are less likely to make the choice of a hospital themselves in the first place (Berkowitz & Flexner, 1980).

Education. More educated patients are more likely to make an active choice of hospital (Berkowitz & Flexner, 1980; Lako & Rosenau, 2009).

(Family) income. More affluent individuals have been concluded to be more willing to accept higher *financial cost* and *time cost* (for an explanation of both, see Section 2.2.2. on Page 17-19) (Akinci, Esatoglu, Tengilimoglu, & Parsons, 2005; Bronstein & Morrisey, 1990).

Rural/suburban residence status. Rural patients seem to be more likely to be active choosers than suburban ones, and are also generally more sensitive to *financial* and *time costs* (Sandra K. Smith Gooding, 2000).

Besides the above, other socioeconomic traits argued to have a mediating effect on hospital choice include *occupation type, marital status, length of residence, having children at home, home ownership, health insurance coverage, having a personal physician* (i.e. having a personal GP to whom one usually goes in general), *race* (especially white versus non-white) (J. Boscarino & Stelber, 1982; Bronstein & Morrissey, 1990; John, 1994). Finally, Leister and Stausberg (2007) argue that Germans are less sensitive to *proximity* (again, see Section 2.2.2.), i.e. they are willing to travel further, in comparison to US citizens. This suggests that another relevant factor might be that of *nationality/country of residence*.

Finally, other researchers have researched healthcare consumers from the perspective of market segmentation, i.e. by clustering patients into groups with similar preferences or patterns of behaviour. Taylor and Capella (1996) distinguish between “inshoppers” and “outshoppers”: the former tend to stay with the local provider, and are more sensitive to factors such as *quality of care* and the process side of healthcare; the latter tend to “shop” for hospitals outside of their local community, and are more concerned with *financial cost* and physical appearances of the hospital. Lee, Shih, and Chung (2008) cluster patients into four groups instead: 1) *convenience- and economic-oriented* patients tend to emphasise *financial cost*; 2) *timeliness-oriented* patients are more focused on *time cost*; 3) *reputation- and recommendation-oriented* patients are more reliant on word-of-mouth; and 4) *quality- and courtesy-oriented* patients are likely to be attracted by more professionalism and expertise of the staff (all these factors will be discussed in the following sections).

2.2.2. Financial and time costs

While costs *per se* do not seem at face value related to quality perceptions (the narrower focus of our study), we started this study with the wider scope of identifying factor important in choosing hospital on the part of the patient – only later came the refinement of our research question to studying quality perception (in the interest of parsimony of our theoretical model chosen after this literature review). Therefore, in this section, we discuss the *costs* patients are considering when choosing a hospital for treatment. Moreover, it is argued that price indeed *can* after all be perceived by consumers as indicative of quality – the higher the price of the product or service, the higher quality it is perceived to have (Zeithaml, 1988) – and one should also bear in mind that this relationship does not have to be linear.

A rather obvious factor in hospital choice is that of *financial cost*. As with any other types of goods or services, the consumer in the health sector is also concerned with the price she pays. Depending on insurance coverage and the type of treatment, the monetary cost of hospital treatment varies. In some countries, the compulsory public insurance covers all the expenses related to the treatment and the hospital stay. In such cases, financial cost is not a factor in hospital choice as it remains constant wherever the treatment is undergone.

In other countries, the patient has to pay per night of stay, or at least for the meals received, in which case the price among hospitals may vary or not. More significantly, however, some patients pursue a non-standard treatment that is not covered by their insurance plan, or they have to at least partially share the costs with the insurance company (so-called out-of-pocket expenses). Furthermore, some healthcare providers might be covered by the patient's insurance, while others not; yet other people might be entirely uninsured. Under some arrangements, the patient is required to first pay for the treatment herself, and can only retrospectively ask the insurer for reimbursement - in this case, the patient might be restricted by the amount of cash available to her at the moment. All of these scenarios present a situation in which the financial cost for the patient can vary from hospital to hospital, even though essentially the same kind of treatment is in question. Again, numerous studies point to financial cost as a determinant factor in hospital choice, often listed as one of the most important ones (Akinci et al., 2005; Berkowitz & Flexner, 1980; J. Boscarino & Stelber, 1982; Coffey, 1983; Heischmidt, Hekmat, & Gordon, 1993; Javalgi, Rao, & Thomas, 1991; Lane & Lindquist, 1988; Lee et al., 2008; Malhotra, 1983; Moliner, 2006; Sandra K. Smith Gooding, 2000; Taylor & Capella, 1996; Wolinsky & Kurz, 1984). To put a perspective on the size effect of financial costs as a factor, Coffey (1983) argued that a 10% increase in financial costs of a healthcare provider result in a 2% decline in demand.

However, Jensen (1987) spotted a trend of decline in the importance of financial costs over time. Acton (1975) went as far as to claim that money cost actually increasingly approaches zero as insurance covers more and more health services. Moreover, the money cost is argued to be rather patient-specific than pertaining to the hospital, i.e. a patient seeking certain medical services will pay for these a constant amount regardless of the hospital providing them. Consequently, while the patient may be indecisive between getting and not getting the necessary treatment, money costs are in these instances irrelevant as a factor for choice between hospitals. They are therefore relevant only for those who self-pay their medical bills, who are subject to a coinsurance clause (i.e. those who have to partially cover for their medical expenses), or whose insurer discriminates between healthcare providers (e.g. between preferred provider organisations and others). While all of Acton's

objections may to a certain extent be true – in fact, for example US citizens covered by Medicare now face zero financial costs as all standard treatments are now fully covered (Tay, 2003) – he points to specifically US phenomena that might or might not be relevant for patients in other countries. Even if so, the numerous studies cited in the previous paragraph, most of which were actually conducted in the US, point to the fact that financial cost remains one of the most important factors in hospital choice to date.

The hospital's *proximity* is the only factor present in the majority of the studies reviewed, in many of which it has been found to be one of the most important factors – most often even more than financial cost (Akinci et al., 2005; Berkowitz & Flexner, 1980; Fisher & Anderson, 1990; Heischmidt et al., 1993; Hisrich & Peters, 1982; Javalgi et al., 1991; Leister & Stausberg, 2007; Malhotra, 1983; S. K. Smith Gooding, 1995; Tay, 2003; Taylor & Capella, 1996; Wolinsky & Kurz, 1984). While it is obvious that the hospital's proximity to the patient's home is crucial in the case of emergency when any minute wasted by travelling to the hospital may cost the patient life, J. Boscarino and Stelber (1982) found that location is the decisive factor also when the patient is seeking general, non-emergency, care. This, however, can again be explained by Mayer's (1983) finding that patients tend to think that trivial diagnoses can be treated virtually anywhere. Patients may therefore tend to go to the closest hospital merely as a matter of convenience, not being preoccupied that the hospital's quality may be insufficient. Supporting this line of argument, in specialised care, where supposedly a greater degree of expertise is necessary, proximity was found to be only 5th in the rank of importance of factors (J. Boscarino & Stelber, 1982). As with several other factors, however, the importance of proximity was in general found by Jensen (1987) to be decreasing in importance over time.

Coffey (1983) conceptualised the importance of hospital proximity to the patient's home in terms of *time cost*. Given that time is a limited resource, and therefore people are expected to value their time as such, it is expected that patients will be the less willing to choose a particular hospital the higher the time cost associated with it is. Beyond the travel time, he extends this also to waiting time and treatment time (see also Lee et al., 2008). He estimates that, *ceteris paribus*, a 10% increase in time costs of a healthcare provider result in a 5% decline in demand. For comparison: as mentioned above, a 10% increase in money costs leads only to a 2% decrease in demand for the hospital's services.

2.2.3. Recommendations and reputation

As illustrated in Section 2.1 of the present paper (Pages 11-13), it is often not clear who decides which hospital the patient goes to. Reportedly, it is either the physician alone, the woman of the

household alone, the patient alone, or a combination of these. Nevertheless, determining who carried the most responsibility for the final decision comes with conceptual controversy regarding what we ultimately understand as ‘responsibility’. Some authors theorise this issue within the principal-agent framework known from mainstream political science: in such a view, the physician or the ‘woman of the household’ is the *agent* to whom the patient as the *principal* delegates the responsibility to make a decision in the patient’s best interest (Buchanan, 1988). Nevertheless, even in this framework, there is no clear cut distinction between the responsibility of the principal and that of the agent. As the overarching goal of the present paper is to study the patient’s preferences, however, we are primarily interested in the influence of others in terms of where the patient finally goes, not in the question of who makes the choice.

In this respect, Glassman and Glassman (1981) found that the recommendations of others accounted for more than 50% of women’s choice of an obstetrician, i.e. a pregnancy specialist. The study concluded that women relied on these factors due to the difficulty with assessing the medical staff’s competence, whether directly or from secondary sources of information. In another study, 90% respondents indicated that others’ opinion had influence on their selection, while 40% consulted someone they knew who had used the facility they eventually chose to go to (John, 1994). Finally, negative references are likely to have an effect higher in magnitude than positive ones (S. K. Smith Gooding, 1995).

A great number of the studies reviewed for the present paper have found the GP’s role to be crucial, whether regarded as the decision-maker or at least as having a major influence on the final choice (Berkowitz & Flexner, 1980; J. Boscarino & Stelber, 1982; Hisrich & Peters, 1982; Javalgi et al., 1991; John, 1994; Lako & Rosenau, 2009; Lee et al., 2008; Leister & Stausberg, 2007; Malhotra, 1983; Wolinsky & Kurz, 1984). Fisher and Anderson (1990) found in a survey that the *GP’s recommendation* was the most important criterion in choosing a hospital, concluding that “[w]hen the product or service is highly technical [...], consumers are not able to judge quality and will turn to the advice of professionals”. Moreover, even though in a somewhat outdated study, Jensen (1987) found that the doctor’s recommendation was mildly growing in importance as a factor in hospital choice, a finding in contrary to the thesis of an increasingly autonomous customer in healthcare (J. Boscarino & Stelber, 1982). Finally, besides the doctor’s opinion, also the opinion of other medical staff that the patient may encounter can matter, such as that of nurses (Glassman & Glassman, 1981).

The opinion and *recommendations of relatives and friends* can also matter greatly in forming an opinion about a hospital’s quality. Nevertheless, due to the special, and arguably privileged, position in the decision-making setting for the medical staff, we present the recommendations of

other groups of people as a separate category. Again, numerous studies indicated the opinion of other people than the medical staff to be crucial, with some distinguishing between different categories and some not (Fisher & Anderson, 1990; Javalgi et al., 1991; Lee et al., 2008; Leister & Stausberg, 2007; Malhotra, 1983; Wolinsky & Kurz, 1984). Glassman and Glassman (1981) found the recommendations of friends and relatives to be the single most decisive factor in choice of an obstetrician (46%, compared to 13.8% for the factor ranked as second). Interestingly, John (1994) found that after that of the GP, the opinions valued the most are one's own, the spouse's, a relative's, and a friend's. Here it is apparent again that many patients do not rely entirely on their own judgment, but at least partially delegate the judgment to others. Elsewhere, the opinions of others as a source of information have been divided between the wide categories of 'word-of-mouth' and 'expert opinion', with the latter not distinguishing clearly for example between one's GP and other people whom the patient regards as experts (S. K. Smith Gooding, 1995).

Many studies on hospital choice operate with the terms 'reputation' and 'hospital image', both of which relate to concepts that are difficult to grasp and the distinction between which is blurry. The Oxford English Dictionary (Stevenson, 2010) defines 'image' as *'the general impression that a person, organization, or product presents to the public'*, while 'reputation' is defined as *'the beliefs or opinions that are generally held about someone or something'*. 'Image' therefore seems to be possessed by a hospital itself, while 'reputation' seems to be the aggregation of attitudes of the whole public toward a hospital. Nevertheless, it is argued that the terms are interchangeable, with 'reputation' coming from economics and 'image' coming from marketing, while both describing 'the relative standing of organisations' (Shenkar & Yuchtman-Yaar, 1997). In other words, 'hospital reputation' and 'hospital image' both supposedly to the relative position of a particular hospital compared to other hospitals. The present paper will, however, distinguish between *reputation* as a factor separable from other factors reviewed, and *hospital image* as a concept capturing the complex perception of a hospital compared to other hospitals, encapsulating the overall judgement of a hospital. While not very often specific about its meaning, several studies list *overall reputation* as an important exogenous factor in hospital choice (Akinci et al., 2005; Berkowitz & Flexner, 1980; J. A. Boscarino, 1988; Heischmidt & Heischmidt, 1991; Hisrich & Peters, 1982; Javalgi et al., 1991; Lane & Lindquist, 1988; Lee et al., 2008; Varkevisser et al., 2012). As suggested above (see Page 14), hospitals also seem to have a *condition-specific reputation*, indicating their standing within a particular area of expertise (Leister & Stausberg, 2007; Varkevisser et al., 2012; Wolinsky & Kurz, 1984). Malhotra (1983) found that even the prestige of an individual physician on the hospital staff can matter as a factor in hospital choice.

2.2.4. Quality of staff, care, equipment, and facilities

Hospital choice studies list numerous factors that patients seem to consider important in their decisions which imply a *direct* judgement of quality on the part of the patient (i.e. without relying on, or indicating, any secondary sources of information). I have categorised them into four categories, depending on whether they relate to 1) quality of medical staff, 2) quality of care, 3) quality of equipment, or 4) the hospital building. While the factors identified in the following subsections are in no way an exhaustive list, they nevertheless provide an overview of factors that have been found to have the most significant effect within this category of factors.

A number of hospital choice studies the *staff's attitude, courtesy, and professionalism* as important (Berkowitz & Flexner, 1980; Javalgi et al., 1991; Moliner, 2006; Teke et al., 2012; Wolinsky & Kurz, 1984). Some studies feature an overall assessment of the hospital's staff quality as a single factor in hospital choice (Heischmidt & Heischmidt, 1991; Lane & Lindquist, 1988), while others find that having (best) specialist doctors on the staff can be decisive in attracting patients (J. Boscarino & Stelber, 1982; Javalgi et al., 1991).

Focusing more on the process side of healthcare services, another factor important for hospital choice can be that of *quality of medical care, or service quality* (Berkowitz & Flexner, 1980; Lane & Lindquist, 1988; Moliner, 2006; Taylor & Capella, 1996; Teke et al., 2012; Wolinsky & Kurz, 1984). Alternatively, patients have been found to choose hospitals specifically based on *quality of emergency care* even when looking for a general type of treatment (Jensen, 1987).

Several studies have demonstrated that hospitals possessing *best or most technologically advanced equipment* are more likely to attract patients (Akinci et al., 2005; J. Boscarino & Stelber, 1982; Javalgi et al., 1991; Jensen, 1987). Moreover, W. T. Wang, Cheng, and Huang (2013) found that hospitals *providing technology-based services* are likely to be viewed more favourably by patients, whether these services are directly related to the treatment or not. Such services might include online-appointment systems, electronic medical records systems, or online medical diagnosis systems.

Another influential factor in hospital choice has been found to be the *physical appearance* of the hospital building itself (Heischmidt & Heischmidt, 1991; Lane & Lindquist, 1988; Malhotra, 1983; Moliner, 2006; Taylor & Capella, 1996; Teke et al., 2012). Furthermore, J. Boscarino and Stelber (1982) found that the patient's judgment of the *facility's overall quality* to be decisive, while others have focused on *cleanliness* (Berkowitz & Flexner, 1980), *newness* (Wolinsky & Kurz, 1984), or the *surroundings* (Jensen, 1987) of the facility.

Other factors related to the hospital's physical plot can be identified when considering the level of rooms and beds. Jensen (1987) found that hospitals able to provide the patient with the comfort of a *private room* are likely to be viewed more favourably, while J. A. Boscarino (1988) found that hospitals with over 300 beds receive a better evaluation than those with less, suggesting that larger hospitals are perceived favourably in comparison to smaller ones.

2.2.5. Other (institutional) factors

While usually not listed among the most significant ones, some researchers have pointed to the importance of yet further factors in hospital choice, here conveniently labelled as institutional. One of such factors is that of *teaching status*, expecting that university hospitals are supposedly viewed more favourably by patients, attributing the hospital with a higher expertise. While the effect is minor in comparison to other factors such as cost and proximity, it has nevertheless been found to be significant in several studies (Javalgi et al., 1991; Lane & Lindquist, 1988; Leister & Stausberg, 2007; Malhotra, 1983). Similarly, J. A. Boscarino (1988) found that hospitals with a higher *level of care* provided (i.e. primary, secondary, or tertiary) are more likely to be chosen by the patients because of their supposedly better equipment. Mainly due to the traditional involvement of the Christian churches in healthcare provision, the hospital's religious (non-)affiliation has also been studied as a factor, with the finding that it can also have an effect (J. Boscarino & Stelber, 1982; Lane & Lindquist, 1988).

Another factor that has been deemed important is the hospital's '*urbanicity*' level (rural, suburban, urban, or inner city hospital). Specifically in the US, this factor was implicitly referring to the possible issues of racial relations. Nevertheless, several studies have concluded this to be an insignificant factor, or were inconclusive due to its high correlation with other factors, such as *proximity* (J. A. Boscarino, 1988; contra Bronstein & Morrissey, 1990; S. K. Smith Gooding, 1995; Sandra K. Smith Gooding, 1996, 2000). However, Lane and Lindquist (1988) claim that the hospital's *clientele* might affect the patient's choice to visit it or not. In other words, one might form one's opinion of a hospital based on the social class of its typical customers.

Finally, several factors related to the hospital's corporate identity and communication might also have an effect on the patient's choice. Some researchers found that hospitals are able to develop a distinguished *brand*, and therefore attract more patients (Kim et al., 2008; Y. C. Wang et al., 2011). The concept of *brand* may seem to be somewhat similar to the concept of *reputation* (see Section 2.2.3. on Pages 20-21). Here, however, we consider these to be two different things: while we understand *reputation* as beliefs the public holds about a hospital, *brand* refers to intrinsic characteristics of the hospital, which could refer to the hospital's 'brand personality', 'corporate

culture', and related organisational traits. Others have found that *advertising* and *external communication* can both be a valuable source of information for the patient, along with *press coverage* by major media (Fisher & Anderson, 1990; Leister & Stausberg, 2007; S. K. Smith Gooding, 1995). Finally, patients may be concerned with the *level of bureaucracy* at the particular hospital (Akinci et al., 2005).

2.2.6. Overview of reviewed factors

To conclude, the factors that have been found to matter in determining choice of hospitals or attitudes toward them are numerous. The factors can be grouped into eight groups, here labelled as (1) individual-specific, (2) financial and time costs, (3) recommendations and reputation, (4) staff-related, (5) care-related, (6) equipment-related, (7) physical plot, and (8) other (institutional) factors. For an overview, see Table 1 on the following page.

Table 1. Overview of factors in choosing a hospitals for treatment

Individual-specific factors	Financial and time costs	Recommendations and reputation	Staff-related	Care-related	Equipment-related	Physical plot	Other (institutional) factors
medical condition	out-of-pocket financial costs	medical staff's recommendations	attitude of the staff	general quality of (nursing) care and services	best (or modern) equipment and technology	cleanliness of the facility and general physical appearance	teaching status
seriousness and type of treatment sought	proximity	recommendations of relatives and friends	best specialist doctors and overall staff quality	quality of emergency care	use of technology-based services	quality of facility	religious (non-)affiliation
past experience and familiarity with the hospital or its personnel	other time costs (waiting time and treatment duration)	reputation (overall and condition-specific)				newness of facility	'urbanicity' level
socioeconomic status						surroundings	level of bureaucracy
individual traits/consumer personality						availability of private rooms	advertising and press coverage

2.3. Gaps in previous research

2.3.1. Ownership status effect

Aaker, Vohs, and Mogilner (2010) found that ownership status of firms may affect the way consumers form perceptions of firms. Specifically when purchasing public services, students are claim to be aware of the ownership status of healthcare and education providers; when tested empirically, however, they have been demonstrated to be unable to do so (Handy et al., 2010). Little research has been conducted, however, on the effect of ownership status on the perception of service provider quality. Hospital choice researchers have called already in the 1980s for further explorations regarding the effect of ownership on overall judgement of hospitals, i.e. whether the hospital is private or public (Lane & Lindquist, 1988). All other factors kept constant, Coffey (1983) had previously claimed that patients are more sensitive to the *time cost* of a public hospital than of a private one; in other words, patients are less willing to sacrifice time to visit public hospitals, which is to say that they are *per se* seen as inferior compared to private ones. Further, Bronstein and Morrissey (1990) concluded that non-white patients tend to bypass the closest hospital if it is public. Tangcharoensathien, Bennett, Khongswatt, Supacutikul, and Mills (1999) found mixed results in perceptions of for-profit and non-profit hospitals. Moliner (2006) found that the perceptions of private and public hospitals differ on various dimensions; however, due to the possibility of selection bias (as the subjects were recruited by visiting concrete hospitals), this finding cannot be considered as conclusive. Most recently, however, Hvidman and Andersen (2014) have found that public hospitals are perceived as having a higher level of red tape and as less cost-efficient than private ones. Due to the experimental design of the study, we can conclude that these findings are highly valid. Conducted in Denmark on a sample of students, however, this study calls for replication in a different country or among “other groups of respondent” to further establish the generalisability of the findings (Hvidman & Andersen, 2014, p. 18); moreover, while the level of bureaucracy has been argued to matter in hospital choice (see Section 2.2.5. on Page 23), the relevance of the hospital’s cost-efficiency of internal processes is likely to be limited for the present study’s scope, as we do not seem this as a theoretically plausible factor affecting the demand for a particular hospital. Perhaps more relevantly for the present study, Dreves, Tscheulin, and Lindenmeier (2012) asked about the patient’s perceptions of hospital quality, finding that these indeed varies significantly, *ceteris paribus*, according to the ownership status (for-profit, non-profit, public). Namely, non-profit hospitals were found to be more trustworthy than both for-profit and public ones, which confirms similar findings by other researchers (Schlesinger, Mitchell, & Gray, 2004). For-profit hospitals, on the other hand, are considered more competent than the other two types. Elsewhere, it was found that non-profit hospitals are more likely to attract patients than public ones (Chul-Young & Lee, 2006)

To add robustness especially to the findings of Dreves et al. (2012) and Hvidman and Andersen (2014), the first sub-question therefore reads as follows:

Does perceived quality of a hospital vary depending on the hospital's ownership status?

2.3.2. Performance indicators

Another factor not receiving sufficient attention so far in hospital choice studies is the use of performance indicators, i.e. rankings or certificates of quality of various kinds readily available to the patient, and their impact of perception of hospitals. In the domain of higher education, Avery, Fairbanks, and Zeckhauser (2009) found that university rankings do translate into a change of quality perceptions, even though only years after publishing. Since 2002, the local governments in the United Kingdom have been rated on their delivery of public services (the so-called CPA system administered by the independent Audit Commission); in turn, it has been found that this rating is possibly a factor in the politicians' re-election (Revelli, 2008). Turning to healthcare, Glazer and McGuire (2006) argue that using quality reports can be a cost-efficient strategy to improve the overall quality of the sector; however, they also acknowledge that the evidence of their use by the patient is mixed. In an early study, it was concluded that patients were not sensitive to mortality rates in hospitals: a higher mortality rate in a hospital did not result in less demand for its services (Gross & Schaffer, 1989). Nevertheless, this study was conducted only shortly after this indicator started to be published, and the finding might have therefore been a result of the patients' unawareness of its existence. Dranove and Sfekas (2008) found that while positive indicators do not seem to have an effect, negative indicators (or at least more negative than the patient's prior belief) may indeed induce switching to a better-rated hospital. In the specific case of assisted-reproduction clinics, Bundorf, Chun, Goda, and Kessler (2009) find that the clinics with a higher rating do seem to attract more patients; nevertheless, the cross-sectional nature of the data and the absence of controlling for price considerably lower the confidence in the causal effect. Another study confirming the effect of performance indicators using cross-sectional data from the United States was conducted by Pope (2009), while those by Schauflier and Mordavsky (2001) and Epstein (2010) reached contrary conclusions.

Regarding internet-based reports, implying wide accessibility of the data, it has been argued that patients indeed *are* sensitive to certificates of management quality and to quality reports being available on the internet (Leister & Stausberg, 2007). While the internal validity of the study can be regarded as high due to its experimental nature, it only operated with their presence/non-presence,

i.e. with the certificates/reports merely being available or not. In other words, it did not operate with hospitals differentiating in rankings of any kind, and therefore could not conclude whether a better rating results in a more positive reception by the patient. In a recent study, Varkevisser et al. (2012) found in the Netherlands that patients indeed *are* more likely to choose hospitals with favourable performance indicators, at least as measured by *readmission rate after treatment*, in this case specifically after treatment for heart failure. However, the study also found that patients tend to, rather counterintuitively, visit hospitals where they are likely to get more ulcers. The authors argue that this might be either due to a misinterpretation of the indicator on behalf of the patients, or due to ulcers being inversely correlated to an unobserved hospital attribute that is actually perceived positively by the patients. Nevertheless, this study also has its limitations stemming from its cross-sectional design, and thus one “cannot be sure that unobserved hospital attributes are correlated with the quality ratings used” (Varkevisser et al., 2012, p. 377). The authors therefore call for further research that would confirm a *direct* connection between performance indicators and the patient’s choice.

To address the research gap regarding performance indicators, we therefore formulate our second sub-question of the present paper as follows:

Does perceived quality of a hospital vary depending on the hospital’s performance indicators?

3. Theoretical framework

3.1. General assumptions

The main scope of this paper is to determine which factors affect perceived quality of hospitals, assuming that perceived quality directly leads to preferences amongst the alternatives available to the patient, and ultimately to an actual choice of a hospital for treatment. The patient is therefore generally expected to attend a hospital that she perceives to be of the highest quality among the ones in consideration. Attitudes are expected to lead to actual behaviour, and factors affecting the perceived quality of a hospital are therefore expected to directly affect also the demand for its services (but see Zanna, Olson, & Fazio, 1980). Similar assumptions are commonly shared in the applied sciences of marketing research and product development, also specifically concerning hospitals (see the literature review section of the present paper).

Hospital treatment has, along with medical services in general, been by economists regarded as *experience good* or, in a more radical perspective, as *credence good*. In contrast to *search goods*, whose quality and characteristics can be easily measured beforehand, *experience goods* can only be assessed after the purchase or consumption (Nelson, 1970). In the case of *credence goods*, however, it is hard to evaluate the product or service even after the actual consumption (Darby & Karni, 1973). In the context of choosing a hospital for treatment, this perspective implies that it is hard for the consumer, i.e. the patient, to assess a particular hospital before, or eventually even after, using it. The theory of experience and credence goods usually points to an information asymmetry between the provider and the consumer, with the former being better able to assess the consumed products and services than the later. However, in the present paper, we will operate with the assumption that the “objective quality” of hospitals may be ultimately hard, if not impossible, to assess for anyone.

As opposed to objective quality, Zeithaml (1988) coined the concept of *perceived quality*, i.e. quality the consumer deems the product or service to have. This concept conveys the notion that the consumer’s response includes a subjective component, whether this involves the consumer’s nature (cognitive, emotional, etc.) as a human, or as a unique individual different from other individuals. Perceived quality of a hospital is therefore the patient’s judgement about the hospital’s quality, which may differ from the hospital’s objective quality (if such a thing exists at all).

In a real-life situation, the acquisition of products or services is virtually always associated with costs or effort on behalf of the consumer. Similarly, we also expect the patient to make a choice of hospital as a trade-off between benefits and costs. However, just as the benefits, or quality, are subjectively constructed, costs are too. In our model, we therefore rather operate with the concept

of *perceived sacrifice*: most notably, this can entail monetary and time costs, but possibly also other factors; nevertheless, the term *perceived sacrifice* also implies that it is not the objectively measured sacrifice that matters (again, if such a measure can possibly exist at all), but what the patient herself perceives as sacrifice. Analogically with *perceived quality*, the construct of *perceived sacrifice* may or may not be conscious.

The comparison between *perceived quality* and *perceived sacrifice* results in *perceived value*, which is ultimately the determinant of the patient's choice: the hospital with the highest *perceived value* is expected to be the one the patient eventually goes to for treatment. However, the independent variables of interest in this paper – *ownership status* and *performance indicators* – are not expected to affect the perceived sacrifice side of the equation, and therefore, for reasons of parsimony, we need not to include the factors constituting *perceived sacrifice* in our model. Before we move on though, let us pinpoint the difference between *perceived value* and *satisfaction* - two distinct concepts. While *satisfaction* occurs solely after purchase and consumption of a service, *perceived value* is a concept that occurs at various stages of the process, including the pre-purchase face. As such, there is no need to buy a service in order to perceive its value. Satisfaction, however, is the comparison between the perceived value before buying it (derived merely from expectations) and the perceived value after buying/consuming it (derived from actual experience) (Sánchez, Callarisa, Rodríguez, & Moliner, 2006).

Coming back to the concept of perceived quality: consumers have been argued to use some selected attributes of the product, also termed *cues*, as signals of its quality (Zeithaml, 1988). Since determining the product's quality is at times a complex task, *cues* can serve as convenient mental shortcuts, and using them enables one to make a decision, as opposed to not being able to come up with a decision at all. One can distinguish between *intrinsic* and *extrinsic cues*: intrinsic cues are related to the physical composition of the product, while extrinsic cues are related to the product, but nevertheless not physically part of it. For hospitals, an example of an intrinsic cue could be the hospital's physical plot, while the hospital's reputation or brand would be examples of extrinsic cues. In general, however, in the case of services and especially in case of experience and credence goods, intrinsic attributes are difficult to evaluate, or are considered irrelevant by the consumer for determining the quality. Therefore, we also expect patients to rely primarily on extrinsic cues when assessing the quality of a hospital. Theoretically, virtually anything can serve as a cue, i.e. indicator, of a hospital's quality for the patient. Moreover, cues can determine the patient's attitude without the patient herself being consciously aware of this happening. As an example, a patient might infer

that a hospital is of superior quality because of its pleasant building, not knowing herself that she prefers this particular hospital 'just' because of the building.

It is in this context that we attempt to answer the central research question of the present paper:

Q_c: What are the factors affecting patients' perceptions of hospital quality?

In other words, we are attempting to identify the factors that determine the perceived quality of hospitals, which are understood as experience or credence goods. The determinant factors are the cues, or types of cues, that the patient employs to infer the hospital's quality, whether consciously or unconsciously.

3.2. Model specification

So far, we have established that our focus is on the effect of various cues on *perceived quality* of hospitals, implying that the patient is ultimately seeking quality in terms of competence in a functional sense. However, it has been shown that patients are interested not only strictly on competence when assessing, and eventually attending, a hospital. This view represents an experiential view of purchasing, as opposed to a narrowly cognitive one. Besides concerns with one's own health in a narrow sense, the patient also seeks to pursue or satisfy her *emotional* and *social values* (Moliner, 2006; Teke et al., 2012). In other words, when considering whether to go to a hospital or not, the patient is also concerned whether this will contribute to her emotional well-being (in terms of happiness, less stress etc.), and whether this hospital is appropriate according to her social norms, i.e. whether her judgment/decision will be approved by her community, and possibly increase her prestige within it. Our dependent variable – *perceived quality* – is therefore understood as a latent construct consisting of *functional*, *emotional*, and *social* components. These components are not necessarily of equal importance and, in addition, their relative weight may vary from person to person.

The *functional* component of perceived quality is essentially the traditional understanding of a service quality, understood in the narrow terms of economic utility. In the context of this paper, this dimension captures the economic impact on one's health, i.e. the hospital's effectiveness at treatment. Sánchez et al. (2006) have demonstrated that this can be further subdivided into concerns of quality of the service proper (i.e. of the operation), quality of the installations, and the level of professionalism. As suggested above, the *emotional* dimension of perceived quality relates to the emotional state of the patient. Relevant questions here are whether the patient expects to feel relaxed in the hospital, comfortable, and whether she will have a positive feeling in general (Sánchez

et al., 2006). Finally, the *social* dimension is related to the prestige and social approval gained by consuming a particular service, or by using a particular provider. From a certain perspective, the social dimension is related to the so-called logic of appropriateness. Specific question might include whether one's perception by others is expected to improve, whether people from one's own social circles would use this provider, and whether the users of this provider are expected to gain social approval (Sánchez et al., 2006).

The independent variables in our model are stemming from the two sub-questions of the present paper. We expect that the *ownership status* and the hospital's score or ranking in *performance indicators* have an impact on the *functional, emotional, and social qualities* the patient perceives a hospital to have, and thus on its overall *perceived quality*. We will return to the expected effects of these two variables in the following section of the present paper (Section 3.3 on Pages 32-35). However, we must bear in mind that there are also other variables determining *perceived quality* and its components. Firstly, these come in the form of all possible kinds of cues, both extrinsic and intrinsic, from reputation to recommendations to institutional characteristics to previous experience with the hospital. To determine the effect of *ownership status* and *performance indicators*, we therefore have to control for these, or hold them constant. Moreover, some factors that are generally understood as determining *perceived sacrifice*, such as monetary costs, can also simultaneously function as cues determining *perceived quality* (Zeithaml, 1988). In other words, a more expensive hospital can possibly be perceived also as of better quality. To eliminate the effect of such factors in our model, we will keep the financial costs constant. Yet another group of factors that needs to be taken account of is the individual patient's medical condition and other situational factors. As argued in the literature review of the present paper (see Section 2.2.1.), the relative importance of other factors may vary depending on the seriousness of one's illness, or of the treatment one is to undergo. Medical condition therefore also needs to be held constant. In order to increase sensitivity to quality, we will preferably operate with a high level of seriousness of treatment.

To summarise the model (see Figure 1 below for an overview), we are scrutinising the effect of *ownership status* and *performance indicators* on a hospital's *perceived quality*, understood as the patient's relative willingness to pick this hospital for treatment, given that the *perceived sacrifice* is constant. *Perceived quality* is understood as a latent construct consisting of *functional, emotional, and social dimensions*.

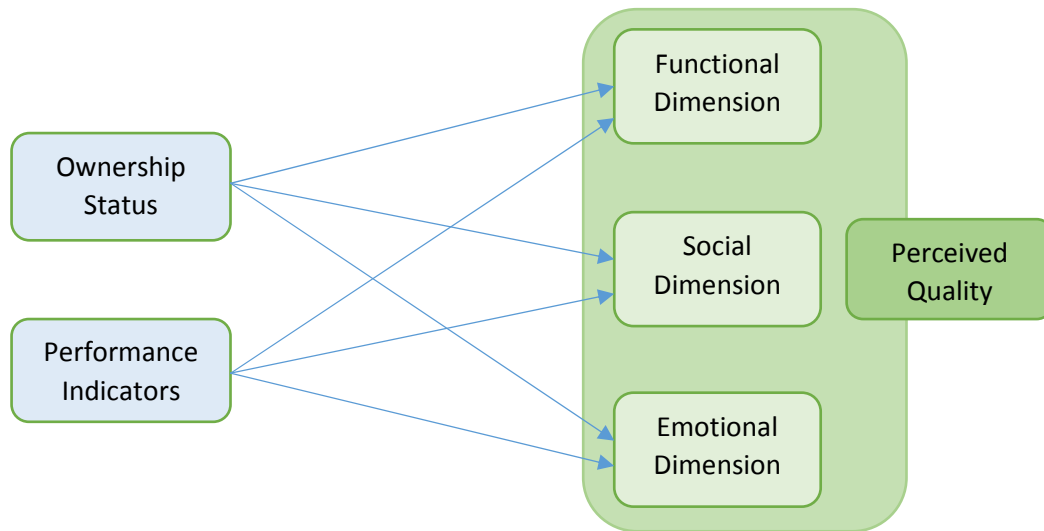


Figure 1. Overview of the theoretical model

3.3. Hypotheses

Once we have established the set of variables used in this study, we can proceed to the derivation of our hypotheses. Our first independent variable is that of *ownership status*. Coffey (1983) has previously argued that the overall perceived quality of public hospitals is lower than that of private ones. It has been suggested that *public* hospitals seem to provide more *emotional value* to the patients, while *private* ones provide more *social value* (i.e. prestige); in terms of *functional value*, *private* hospitals have emerged as clearly superior (Moliner, 2006). Nevertheless, these findings can possibly be a result of pre-selection bias, and therefore should not be taken as strongly established. Hvidman and Andersen (2014) have recently found that public hospitals are perceived as inferior in terms of performance, confirming the long-standing stereotype of public organisation as having a higher level of red tape and being less capable of containing costs. Similarly, Dreves et al. (2012) have found that *private* hospitals are perceived as significantly more competent than *public* ones, while scoring similarly on other relevant dimensions.

However, only little theoretical synthesis has been done regarding the effect of ownership status on *perceived quality* of hospitals. Our suggestion is that, especially in the absence of other cues, ownership status can serve as a valid cue, based on subjectively constructed stereotypes about *public* and *private* organisations as such. For example, one's past negative experience (or mechanisms such as word-of-mouth) with some organisations of the public sector forms a negative stereotype of the public sector as such. Major contributors to these might also have been the movements of new

public management (NPM) and neoliberal economics, both of which depict publicly owned organisations as inefficient and irresponsible to the needs of the citizen, or the patient; instead, privatisation has been seen as key to making public service providers offer better (functional) quality for the same money. In turn, the negative perception of the whole public sector translates into a negative perception of all organisations belonging to the sector (as long as the ownership status is communicated to the consumer), an effect not similar to the country-of-origin effect (see for example Bilkey & Nes, 1982). Also in the specific context of hospitals, we therefore expect a ‘sector-of-origin effect’ to be in place. Nevertheless, we need to bear in mind that stereotypes regarding sectors may vary between countries, i.e. that public hospitals may be perceived as inferior to private ones in one country, with the opposite being the case in other countries. The current study, however, is more immediately placed within the context of more developed countries, specifically the countries of the OECD, and we expect the stereotype of public hospital’s inferior functional quality to be in place. Similarly, we expect that private hospitals are considered more prestigious and therefore providing more social quality. However, the public sector in the developed world has a long-standing reputation of providing uniform standards of services, and being aiming to achieve fairness and equity. We therefore expected public hospitals to be perceived to be of higher emotional quality than private ones.

H₁: Public hospitals are perceived to be of inferior functional quality compared to private ones.

H₂: Public hospitals are perceived to be of inferior social quality compared to private ones.

H₃: Public hospitals are perceived to be of superior emotional quality compared to private ones.

Our next independent variable is that of *performance indicators*. It may seem trivial, or even tautological, to make the proposition that hospitals placed higher in a ranking of quality are perceived to have a higher quality than those with a lower ranking. Indeed, the NPM movement has considered the introduction of *performance indicators* into the public sector not only as a tool to control public services providers, but also as a way to give the citizen relevant cues for choice. Nevertheless, it has been taken almost for granted that, in this instance, the patient really considers hospital ratings and rankings as relevant for her choice. As shown in the literature review, the evidence of patients using such indicators as a relevant cue has so far been mixed. Indeed, the patient might not understand what the indexes are constructed of, and they might as a result be perceived as an arbitrary number of little informative value. Alternatively, they might be seen as biased and therefore not regarded as a trustworthy source of information. Instead of arguing along these lines, however, we simply aim to test the relevance of *performance indicators* in the form of

the following simple and falsifiable proposition. As such, we do not see a specific reason for the performance indicator to affect the individual dimensions of perceived quality differently. In fact, the ‘ideal’ performance or quality indicator should capture all three dimensions of quality.

H₄: Hospitals with a higher score in performance indicators are perceived to be superior compared to those with a lower score in all three dimensions quality – functional, social, and emotional.

The expected effect of independent variables according to H₁₋₄ can therefore be summarised as follows:

	Functional quality	Social quality	Emotional quality
Private ownership	+	+	-
Public ownership	-	-	+
High performance	+	+	+
Low performance	-	-	-

Table 2. Expected effect of independent variables

Finally, we expect that our independent variables – *ownership status* and *performance indicators* – might interact. As much as we expect the ‘sector-of-origin’ effect to cause *public* hospitals to be perceived as of lower functional quality than *private* ones, we also expect *ownership status* to have a moderating effect on *performance indicators*. One of the traditional values in the public sector has been argued to be that of uniformity, i.e. providing the same quality of services to every individual. Indeed, the supposed irresponsiveness of publicly-owned public service providers has been one of the main points of criticism by the NPM movement, arguing that patients do not receive services tailored to their individual needs. According to the logic of ‘sector-of-origin’, we expect this stereotype to work across the whole public sector, meaning that *public* hospitals are perceived to be providing services of similar quality also between themselves. The patient is therefore expected to give less weight to the performance indicator as inaccurate if the hospital is public. We do not expect a similar logic to apply to *private* hospitals though – instead, we expect that *private* hospitals are perceived as, so to speak, freer to vary in all aspects of quality (in both directions). Competing with our first three hypotheses (H₁, H₂, H₃), we therefore formulate our following hypothesis about the mediating effect of sector on performance indicators:

H₅: Hospitals with a low score in performance indicators are perceived to be of superior functional, social, and emotional quality when public, as opposed to private. Hospitals with a high score in performance indicators are perceived to be of inferior functional, social, and emotional quality when public, as opposed to private.

The expectations of H₄ and H₅ can therefore be summarised as follows:

	Functional quality	Social quality	Emotional quality
Private ownership & High performance	++	++	++
Public ownership & High performance	+	+	+
Public ownership & Low performance	-	-	-
Private ownership & Low performance	--	--	--

Table 3. Expected effect of independent variables (alternative hypotheses)

As far as other variables in our theoretical model are concerned, we will test the effect of socioeconomic status only for purposes of control.

4. Research design and methodology

4.1. Experimental research design

To obtain empirical support for our hypotheses, the research strategy of the present paper was chosen to be that of experimental research design. In the absence of available panel data, we saw this as an ideal way to manipulate the two independent variables from our theoretical model – *ownership status* and *performance indicator score*. Due to random assignment of subjects to different experimental groups, experiments are superior in terms of eliminating the effects of any confounding variables, thus increasing the confidence in the casual relations between independent and dependent variables. More specifically, a 2x3 between-subject design was developed in this study:

Treatment groups	Ownership status	Performance indicator
G ₁	Public	★ ★ ★ (better than average)
G ₂	Private	★ ★ ★ (better than average)
G ₃	- (not stated)	★ ★ ★ (better than average)
G ₄	Public	★ ☆ ☆ (worse than average)
G ₅	Private	★ ☆ ☆ (worse than average)
G ₆	- (not stated)	★ ☆ ☆ (worse than average)

Table 4. Treatment groups

The participants were randomly assigned to one of the six groups and presented with a profile of a fictitious Hospital X, including a cue on ownership status and a performance indicator claimed to be provided by a fictitious Institute of Quality of the Ministry of Health (see Appendix 1 on Page 53). The hospital profile was adopted from a website of a real hospital (Univerzitná nemocnica Bratislava in Slovakia, see <http://www.unb.sk/vsetko-o-nas/>). Subsequently, the subjects were asked to imagine that they were in need of an operation (hip replacement), which was to be entirely paid by their insurance company. They were then asked questions related to the three dimensions (functional, emotional, and social) of perceived quality of this hospital and its services, followed by questions indicating their socioeconomic status (age, sex, education). Besides, the respondents also had to indicate the number of previous hospital stays and their opinion whether hospitals in general differ in quality.

4.1.1. Test units and division

The test units in this study are adult citizens of the Slovak Republic. The citizens of this country have been chosen largely as a sample of convenience, due to the personal network of the author increasing our confidence to be able to recruit a sufficient amount of respondents. The link to the Qualtrics online survey was distributed by direct emails, sharing on Facebook on the personal profile and in numerous Facebook groups, as well as by personal appellation. Due to the way of spreading the link, therefore, one cannot consider this pool to be a random sample representative of Slovakia. As a way to increase participation and completion rate, we have run a lottery with the possibility for one of the respondents to win a voucher for 20 EUR to spend on the Gorila.sk online shop.

As mentioned above, the survey has been distributed via the internet. While this disallows the researcher to control the environment in which the experiment is conducted (except the survey design itself), it is superior in terms of ability to spread the survey and recruit subjects, who can undergo the experiment from the comfort of their personal mobile phone or computer. In addition, the subjects were randomly assigned to one of the six experimental groups by the Qualtrics software, and presented with a hospital profile with according cues. Consequently, influences of environmental factors were controlled for accordingly with the experimental logic.

However, recruiting subjects mainly via Facebook comes with its pitfalls. The sample can clearly contain only people who have access to the internet, have a Facebook account, and who were connected to it during the course of the study. It has been shown that the likelihood of using social media in Slovakia correlates with age (negatively), education (positively), and salary (positively) (Vešić, 2012). Further, women and members of national minorities are less like to use social media. Nevertheless, representativeness is not a requisite for estimating the causal effects in an experiment. A distinct issue, however, is an eventual sampling bias caused by social media users were systematically different, as compared to non-users, who were excluded. Finally, the method of recruitment itself is susceptible to the so-called volunteer (or self-selection) bias, meaning that those with a stronger opinion on the survey's topic, i.e. the healthcare sector in Slovakia, are more likely to participate. Both of these biases limit the confidence in generalisation of our findings.

4.1.2. Case description

Besides matters of convenience regarding the ease of recruiting subjects for our study, Slovakia is an interesting case for studying nevertheless. Firstly, there is to date no single widely accepted authority to indicate the quality, or a form of ranking, of hospitals in Slovakia. While some of the three health insurance companies publish the results of patient satisfaction surveys, these are not easily accessible and, in addition, can hardly be considered an authoritative and, maybe even more

importantly, neutral indicator. Therefore, by providing a performance indicator from a fictitious Institute of Quality of the Ministry of Health of the Slovak Republic, this study is also a test of receptiveness to ratings from a hypothetical state executive agency eventually established in future. Moreover, the Slovak economy has undergone a radical transformation following the fall of the socialist regime in Czechoslovakia in 1989 and the process of privatization related to it, and also following Czechoslovakia's division. While prior to 1989 virtually every hospital was state-owned, it is less so today after numerous hospitals were privatised, transformed into non-profit organisations, or handed over to the Catholic Church. Moreover, the free market provides possibilities also for entirely new hospitals to be established by non-state entities. From one perspective, therefore, it could be argued that the salience about hospital ownership in Slovakia is high. Nevertheless, it cannot be taken for granted that this also translates into perceptions of quality. Moreover, even if it is so, this merely makes Slovakia the most likely case for testing the importance of ownership status. Provided that this study serves as a sort of a first probe of the effect of ownership status, this does not pose a problem. Finally, to our knowledge no major academic study concerning perceived quality of hospitals had been conducted in Slovakia, and we thus also to aim contribute to the generalisability of the theoretical models.

4.1.3. Treatments and operationalisation of dependent variables

As mentioned above, the treatments were provided in the form of small information cues placed into an otherwise realistic profile of a Slovak hospital. The hospital was described at the beginning of the vignette as 'private Hospital X', 'public Hospital X', or simply as 'Hospital X' without any indication of ownership status. As for the performance indicator, this was provided in the form of a graphic cue of either one or three stars out of three, as well as verbal description of the indicator. For the hypotheses of this study to be confirmed, these manipulations should cause variance in the dependent variables: perceived functional, social, and emotional qualities.

The subjects were given several statements and were asked to give scores from 0 to 10 in whole numbers to each of them, with 0 indicating 'total disagreement' with the statement and 10 meaning 'total agreement' – the level of measurement for the dependent variables is therefore that of a Likert-type interval scale. Nevertheless, the options between (i.e. excluding) 0 and 10 were not given a verbal description, which approximates the measurement to Visual-Analog Rating Scales (Field & Hole, 2002, p. 46). The participants were required to answer every question and to type the number manually, i.e. they were not merely choosing from radio buttons. This was to increase the effort required to answer each question, and thus to ensure that the subjects cognitively process each question on its own terms before they type the answer. Each question was required to be

responded in order to proceed with the questionnaire. While forcing participants inevitable creates statistical noise in the data, this lowers evasion of questions due to merely not being able to make up one's mind. Moreover, the distribution of choices should *per se* be randomly distributed between the two options the respondent was considering the most (Field & Hole, 2002, p. 45).

Beforehand, the statements were drawn from the theoretical conceptualisation of the three dimensions of hospital quality (see the theoretical framework of the present paper), as well as their operationalisation in previous studies on perceived quality (see for example Sánchez et al., 2006). Firstly, the statements regarding the functional value of the hospital concerned the installations, the staff's professionalism, and the quality of the operation proper:

- F₁: The installations of this hospital are clean.
- F₂: The hospital possesses modern equipment.
- F₃: The medical staff of this hospital has up-to-date know-how.
- F₄: The medical staff of this hospital is competent.
- F₅: The operation will proceed without complications.
- F₆: The operation will result as expected.

Secondly, the statements concerned with the hospital's emotional value ask directly about immediate satisfaction of the patient's feelings:

- E₁: I will feel relaxed in the hospital.
- E₂: I will feel comfortable in the hospital.
- E₃: The personnel will be willing to satisfy my wishes as a patient.

Thirdly, the statements related to the hospital's social value are concerned with social status and the logic of appropriateness:

- S₁: Using this hospital's services will improve the way others perceive me.
- S₂: People I know would use this hospital's services.
- S₃: People who use this hospital's services obtain social approval.

The indices for the three dimensions of perceived quality (functional, emotional, and social) were constructed by calculating the means of scores given by the participants to the statements pertaining to the according dimensions. In other words, the index for perceived functional quality is the means

of scores for statements F_{1-6} ; for perceived social quality it is the means of scores for statements S_{1-3} ; and, for perceived emotional quality it is the means of scores for statements E_{1-3} .

4.1.4. Extraneous variables

Variance in dependent variables may have been caused by other factors than by our manipulations of independent variables. Such extraneous variables might invalidate or weaken the study's findings. Some of these can be easily controlled for in a questionnaire. Accordingly, the participants were asked about their opinion whether hospitals in general differ in quality, about their age, sex, education, and the number of previous hospital stays. Other factors, however, such as current mood or cognitive ability of the subject are difficult to observe in a questionnaire. Another factor may have been that a large number of the participants were living outside of Slovakia at the moment of the study. Accordingly, their perceptions and attitudes towards hospitals may have differed from the general Slovak population. Nevertheless, the confounding effect of such variables in experiments is seen as treated sufficiently by the process of random assignment to treatment groups.

Another factor, however, could have been that of linguistic ambiguities. The questionnaire was translated from English into Slovak by the author, who is a native speaker, and consequently checked for clarity of language by four other native speakers. Nevertheless, this does not entirely rule out the possibility of confusion on the part of the subject caused by the formulation of the scenario and subsequent questions. On average, however, the process of random assignment should again be seen as a sufficient measure for control.

4.2. Validity

Considerations regarding validity can be divided into discussions of internal validity and external validity. High internal validity is one of the biggest advantages of experimental research. As such, the concept of internal validity regards the level of confidence in the manipulation of independent variables causing variance in dependent variables. In the case of experimental research, crossing the four hurdles of causality is relatively straightforward. First, the literature review and the theoretical framework provide us with a credible mechanism between the independent and dependent variables in our model. Secondly, it is impossible for our designated dependent variables to cause variance in our independent variables, as the assignment of independent variables (the treatment) occurs before the dependent variables are measured. In addition, the assignment is decided by randomness alone, and therefore the dependent variables cannot affect it. The third causal hurdle concerns the question whether the proposed dependent variables co-vary with the independent variables. This will be the subject of our data analysis. Crossing the fourth causal hurdle is considered to be one of the strongest points of experimental research design. By randomly assigning subjects to different

treatments, the researcher expects to equate the groups on all possible uncontrolled factors, except the manipulation of the independent variable alone. Doing so, the researcher is able to disregard the possibility of a third factor causing variance in the dependent variables. In addition, we have collected data on some of possible extraneous variables (see Section 4.1.4. above).

The other side of the coin is the study's external validity, which concerns its generalisation to a wider population or to a wider situational context. This is traditionally said to be one of the weaknesses of experimental studies both due to the artificial situation in which they take place and the nature of the sample, which is commonly a sample of convenience, rather than a random sample of the study's target population. This being said, we have attempted to raise the present study's external validity by using an adopted version of a real hospital's website as the profile of our Hospital X. The profile, which included the manipulations themselves, therefore relatively authentically copies real-world information sources, as Slovakia is no exception to the increasing use of the internet for everyday purposes. We suspect that a large proportion of patients already use online information as a major source for forming their attitudes toward hospitals. Furthermore, while we do not claim that our respondents are a random sample of Slovakia's population, we believe that the language barrier was sufficient to at least prevent other nationalities of respondents from taking part. In addition, the respondents were announced that by participating they confirmed that they were Slovak citizens and over 18 years of age. Finally, it could be argued that the sample over-represents computer-literate people, i.e. people with a proficiency at using Facebook, emails, and the internet in general. Provided the context, however, this can be actually seen as the sample's advantage, since websites comparing hospital performance and online profiles of hospitals are likely to be used particularly by such people.

4.3. Reliability

The use of self-report measures is expected to produce a certain degree of measurement error, as they are only an indirect way of tapping the construct we are trying to measure. This however, does not pose a problem to the study's reliability (i.e. that it measures what it is supposed to measure) as long as this bias is systematic and affects all respondents in the experiment. Further, a measure is said to be reliable if it produces the same results under the same conditions (Field & Hole, 2002, pp. 47-48). One way to ensure this would be to ask the same respondents twice. However, this would bring issues of its own, due to the participants possibly remembering their previous answers. In practice, therefore, internal consistency of questionnaire-based research is tested by calculating the so-called Cronbach's alpha (α), which indicates the level of intercorrelations between the individual items of the questionnaire. The general rule of thumb is that a Cronbach's alpha above 0.6 is

'acceptable'. Moreover, a Cronbach's alpha of above 0.7 is said to be 'good', and above 0.9 'excellent'. In this study, we are specifically interested in the reliability of scales for perceived functional, emotional, and social values, which are all constructed of several corresponding items. Table 5 (on next page) shows that the Cronbach's alpha scores for all the three dimensions of perceived quality are all above the sufficient level and the scales are therefore sufficiently reliable for further statistical analysis.

Scale	Cronbach's alpha (α)
Perceived functional quality (F)	0.911
Perceived emotional quality (E)	0.899
Perceived social quality (S)	0.706

Table 5. Reliability of the scales

5. Results

5.1. Characteristics of the sample

Table 6 (on next page) provides an overview of the sample's characteristics sorted by the experimental groups, including the means and standard deviations (σ) of t in brackets. There were in total 425 participants who finished the study, for one of whom the socio-economic data were missing. We have nevertheless decided to include the participant's scores, as the process of randomisation to experimental group should ensure that any observed variation in the dependent variable was a result of the experimental treatment alone. What is noteworthy in the sample is the disproportionate amount of women in the sample, amounting to 70.3 % of the total valid responses. As it has been found in previous research that hospital choice is often delegated to women in families (see Jensen, 1987), this disproportion alone does not pose a threat to the external validity of our findings.

The effect of ownership status and performance indicators on perceived quality of hospitals

	G ₁	G ₂	G ₃	G ₄	G ₅	G ₆	Total
Condition – Ownership Status	Public	Private	- (not stated)	Public	Private	- (not stated)	
Condition – Performance Indicator	★★★ (better than average)	★★★ (better than average)	★★★ (better than average)	★☆☆ (worse than average)	★☆☆ (worse than average)	★☆☆ (worse than average)	
Variable							
Number of subjects	73	72	66	69	75	70*	425*
Men / Women	27/46	22/50	18/48	23/46	20/55	16/53	126/298
Age (σ)	32.99 (7.93)	30.50 (9.26)	33.36 (10.96)	32.75 (10.32)	32.63 (10.94)	31.52 (9.14)	32.28 (9.80)
Years spent in education (σ)	16.68 (2.50)	17.01 (2.78)	16.58 (2.92)	17.01 (2.7)	16.47 (2.65)	16.99 (2.61)	16.79 (2.69)
Number of previous hospital visits (σ)	2.34 (2.06)	2.46 (2.19)	2.86 (2.91)	2.93 (2.58)	2.57 (2.62)	2.71 (2.88)	2.64 (2.54)
Opinion whether hospitals differ in quality from 0 (totally disagree) to 10 (totally agree) (σ)	8.96 (2.21)	9.01 (1.59)	8.95 (1.74)	8.78 (1.82)	8.59 (2.03)	8.70 (1.89)	8.59 (2.03)

Table 6. Sample description

* - includes one subject with missing socio-economic data

5.2. Analysis

Table 7 (on next page) shows the means and respective standard deviations within the experimental group in brackets. Before drawing empirical conclusions, however, we first ran inferential statistical tests to ensure that observed variations in the dependent variables were caused by our experimental manipulations, as opposed to merely due to chance. Running a two-way independent multivariate analysis of variance (MANOVA) first seemed to be an obvious choice provided that we were interested in the effects of two independent variables on three distinct dependent variables. It also allows for drawing conclusions regarding interactions between the two independent variables (ownership status and performance indicator), and thus to validate or reject our H_5 (see Section 3.3, especially Pages 34-35). Using Pillai's trace, there was a significant effect of ownership status on perceived functional, emotional, and social value ($V = 0.043$, $F = 3086.756$, $p < 0.001$), and it was so also for the performance indicator ($V = 0.043$, $F = 6430.723$, $p < 0.001$) and for the interaction between the two variables ($V = 0.011$, $F = 766.121$, $p < 0.001$), though here the observed effect was relatively small. We can therefore conclude that our experimental manipulations were successful and reject the null hypothesis, i.e. that there was no significant difference in the dependent variables across the six experimental groups. Nevertheless, not all assumptions necessary for running a MANOVA were met – Box's test of equality concluded that the observed covariance matrices of the dependent variables are equal across groups ($F = 1736.488$, $p < 0.001$) and the distribution of dependent variables does not seem visually normal (see Appendix 2 on Pages 54-55).

	G ₁	G ₂	G ₃	G ₄	G ₅	G ₆
Condition – Ownership Status	Public	Private	- (not stated)	Public	Private	- (not stated)
Condition – Performance Indicator	★★★★ (better than average)	★★★★ (better than average)	★★★★ (better than average)	★☆☆ (worse than average)	★☆☆ (worse than average)	★☆☆ (worse than average)
Variable						
Perceived functional quality (σ)	7.13 (2.11)	7.63 (1.70)	6.98 (1.83)	6.31 (2.18)	6.96 (1.95)	6.01 (1.98)
Perceived emotional quality (σ)	5.96 (2.52)	6.62 (2.19)	5.87 (1.98)	4.91 (2.68)	6.15 (2.50)	4.93 (2.48)
Perceived social quality (σ)	3.87 (2.00)	4.62 (2.25)	4.10 (2.09)	3.67 (2.44)	4.05 (2.25)	3.67 (2.39)

Table 7. Means of the dependent variables for each treatment group

Upon running separate univariate analyses of variance (ANOVAs) for each of our dependent variables, there was no significant effect found by the interaction of our two independent variables ($p = 0.805$, $p = 0.556$, and $p = 0.778$ for perceived functional, emotional, and social qualities, respectively). Nevertheless, the ANOVAs confirmed the effect of both ownership status and performance indicator on their own, as seen in Table 8 (on next page). In the case of perceived social value, however, the ANOVA was not significant to an acceptable level (i.e. $\alpha=0.05$), and we therefore cannot be confident that it is affected by our two independent variables, as opposed to mere chance.

	Perceived functional quality	Perceived emotional quality	Perceived social quality
Ownership status - F value (significance level)	6.362 (0.002)	7.721 (0.001)	2.549 (0.079)*
Performance indicator - F value (significance level)	18.605 (0.000)	12.346 (0.000)	3.390 (0.066)*
*not significant			

Table 8. ANOVA results of experimental manipulations on dependent variables

As a next step in our analysis, we entered our data into linear regression models with three separate dummy variables: 1) presence of a high performance indicator (as opposed to the baseline of a low performance indicator), 2) ‘privateness’ (i.e. presence or absence of the stimulus indicating that the hospital is private), and 3) ‘publicness’ (i.e. presence or absence of the stimulus indicating that the hospital is public). Tables 9-11 (on next page) show the results for regression analyses of perceived functional, emotional, and social qualities as dependent variables, respectively. No statistically significant effect of ‘publicness’ was found on any of the three dependent variables, while performance indicator and ‘privateness’ can confidently be concluded to affect both perceived functional quality and perceived emotional quality. In the case of perceived functional quality, the presence of a high performance indicator had a similar (positive) effect size as the presence of the cue indicating that the hospital was private. For perceived emotional quality, the observed effect of ‘privateness’ is even higher than the effect of a high performance indicator.

As a final step of our statistical analysis, we ran a regression analysis including our collected data on individual socio-economic characteristics. No statistically significant effect was found, except for the opinion on whether hospitals differ in quality: respondents who believe that hospitals do differ tend to perceive the functional quality of the presented hospital as slightly higher across all experimental groups ($B = 0.118$, std. error = 0.51, $p = 0.020$). Nevertheless, this observation could be merely due to a flaw in our questionnaire design – namely that participants were asked to indicate whether they believe that hospitals differ only after the experimental treatment, thus possibly ‘remembering’ the answers to the 12 statements they rated right beforehand.

	Coefficient (B)	Significance level (p)
Constant	6.082 (0.192)	0.000
Performance indicator		
Privateness	0.818 (0.190)	0.000
Publicness	0.807 (0.233)	0.001
	0.230 (0.235)	0.329

Table 9. Results of linear regression analysis for perceived functional quality

	Coefficient (B)	Significance level (p)
Constant	4.991 (0.235)	0.000
Performance indicator		
Privateness	0.816 (0.233)	0.001
Publicness	0.988 (0.286)	0.001
	0.040 (0.289)	0.890

Table 10. Results of linear regression analysis for perceived emotional quality

	Coefficient (B)	Significance level (p)
Constant	3.685 (0.219)	0.000
Performance indicator		
Privateness	0.402 (0.217)	0.065
Publicness	0.447 (0.266)	0.094
	-0.117 (0.268)	0.664

Table 11. Results of linear regression analysis for perceived social quality

6. Summary and discussion

6.1. Summary of findings

	Functional quality	Social quality	Emotional quality
Private ownership & High performance	+++	NONE	+++
Private ownership & Low performance	++	NONE	++
Public ownership & High performance	++	NONE	+
Public ownership & Low performance	-	NONE	-

Table 12. Observed effects of treatments on the three dependent variables

*NB: the effect sizes are presented in terms of an ordinal type of scale, i.e. the number of '+' signs does not represent the degree of difference between items

The purpose of this study was to research whether performance indicators and ownership status can be relevant factors for patients and general population in assessment of quality of hospitals. The relevance of both factors was confirmed, even though to a different degree for each of the three dimensions (functional, social, and emotional) of quality drawn from our theoretical framework. To provide more details, let us consider each of our hypotheses in turn (see Section 3.3.3. on Pages 32-35). The first hypothesis (H_1) can clearly be confirmed: private hospitals were indeed found to be superior to public ones in terms of perceived functional quality. However, found no difference between perceived functional quality of hospitals that were claimed to be public and those whose ownership status was unstated. Our second hypothesis (H_2) must be rejected, as no statistically significant effect of ownership status on perceived social quality was found. Our third hypothesis (H_3) also has to be rejected, as the opposite was found to be true: private hospitals are perceived to be of superior emotional quality compared to public ones. Again, no significant difference in this dimension was found between hospitals stated to be public and those with withheld ownership status. Further, our fourth hypothesis (H_4) was confirmed only partly: hospitals with a high performance indicator were found to be superior in terms of both functional and emotional quality; however, the effect of performance indicator on perceived social quality was not statistically significant. The latter finding means, rather surprisingly, that going to a high quality hospital (or at least as ranked by the governmental institution) is perceived to be no more socially desirable or

appropriate than going to a low quality one; in other words, going to a high quality hospital does not seem to indicate one's status. Finally, while the null hypothesis of H_5 was initially rejected by the MANOVA, we did not find evidence confirming H_5 either. Thus, we must conclude that no significant interaction between performance indicator and ownership status was found.

Following the calls for deeper investigations into the effect of ownership status and performance indicators (Drevs et al., 2012; Hvidman & Andersen, 2014; Varkevisser et al., 2012), the present experimental study confirms a direct connection between these two factors and perceived quality of hospitals. In other words, in the context of healthcare, which is argued to be a credence (or experience) good, ownership status and performance indicators can both serve as cues based on which patients infer the quality of hospitals. Namely, private hospitals are superior to non-private ones in terms of both perceived functional and emotional qualities; hospitals with a high performance indicator are also perceived to be superior to those with a low performance indicator in terms of these two dimensions of quality. Interestingly enough, the effect of 'privateness' on perceived quality of hospitals was found to be similar, if not higher (in the case of perceived emotional quality), than that of a high performance indicator. In other words, people in Slovakia seem to value ownership status as a better indicator of hospital quality than a rating by an executive agency, which presumably possesses expertise to assess quality. 'Who is the hospital owned by?' therefore seems to be a more important question for Slovak citizens than 'What results does the hospital have in comparison to other hospitals?', as if going for a serious operation was more a matter of brand (or sector) loyalty than of self-interest in one's health. In the context of our findings, however, this would be somewhat of a paradox: indeed, we have found that ownership status has no significant effect on perceived social quality – a concept closely related with the logic of appropriateness, and arguably therefore also with brand loyalty; instead, we have found that people use ownership status to infer perceived functional and emotional qualities, i.e. concepts closely related to the process and results of the medical procedure understood more narrowly. This seemingly paradoxical finding could indicate a generally low degree of trust in public institutions, with consequences for publicly-owned hospitals as much as for executive agencies. Indeed, the latest Eurobarometer report suggests that trust in the national government in Slovakia is below the EU28 average (see http://ec.europa.eu/public_opinion/archives/eb/eb81/eb81_fact_sk_en.pdf); nevertheless, this claim calls for further investigations in terms of relative trust of citizens in public institutions *and* in business within Slovakia. Even though perceptions about corruption arguably do not encapsulate the concept of trust in its entirety, the Global Corruption Barometer 2013 provides some evidence by indicating that 66% of Slovak citizens consider public officials and civil servants corrupt, with business scoring considerably better with only 45%; for comparison, 63% of Slovaks

believe that medical and health services in general are corrupt (see <http://www.transparency.org/gcb2013/country/?country=slovakia>).

To reword our findings in a plain language, we have found that: 1) when choosing a hospital for treatment, future patients do not only consider whether the operations they are expecting to undergo will be executed properly, but also how they will feel during they stay, and how their stay will affect their social life; 2) people expect private hospitals to be more effective in medical treatment than public ones, and they also expect to feel better in them; 3) people expect hospitals with a high performance rating to be more effective in medical treatment than those with a low performance rating, and they also expect to feel better in them; 4) and, surprisingly, people consider ownership status a better indicator of hospital quality than performance ratings.

6.2. Discussion

Our main recommendation is for managers of private hospitals to take advantage of the positive perceptions of 'privateness' and use the ownership status in their marketing and communication strategy. Equally, in a context among hospitals with a low indicator, highlighting a high performance indicator can boost a hospital's attractiveness for patients. From the perspective of policy entrepreneurs, in the particular case of Slovakia, our findings suggest that there may be a case for creation of an independent executive agency that would produce and publish ratings of hospital quality, as no such institution exists in the country to date. Nevertheless, we expect the impact of such ratings to be relatively low compared to the effect of publishing ownership status. Furthermore, public quality ratings alone might also introduce negative behaviour on the part of hospitals, such as 'milk-skimming' and other types of gaming, and they should therefore be introduced with caution.

There are several limitations to our study's findings. First, we merely studied perceptions of quality, not actual behaviour: the implications for real demand in hospital services could therefore be limited. Second, we did not distinguish between those participants who would make the final choice of hospital and those who would delegate it to someone else anyway. Third, conducting an experiment on a sample of Slovak citizens cannot be generalised to the whole world's population. While the finding that performance indicators and ownership status are factors in perceptions of hospital quality may be generalisable, their effect strength may well differ among countries. In the case of ownership status, the effect could also swing in the other direction, probably depending on the dominant stereotypes about the various sectors among the sampled population. Moreover, we found no significant difference between not stating the ownership status and stating that it is public. It could be the case that public ownership is considered a 'default option' for hospitals in Slovakia, while it could be different elsewhere. Further, our sample was not a representative sample of the

Slovak population, but rather a sample of convenience. Another limitation is that the sample was recruited with the promise of a chance to win a voucher in an online shop. While this was expected to raise participation and completion, it may have also attracted subjects merely interested in the voucher, thus decreasing the attention paid during the course of the study and increasing the statistical noise. Moreover, it may mean have led to a more likely recruitment of subject who value private goods, i.e. also private hospitals. The experiment therefore calls for further replication, including different methods of participant recruitment and participation incentives.

Besides replicating this study on a different sample, i.e. more representative or in a different country, there are several other direction further research could take. Firstly, researchers might scrutinise the effect of change in one of our two independent variables (ownership status or performance indicator) in time. Secondly, public and private ownership do not cover the whole scale of possible ownership statuses. Most prominently, investigations could be made into hospitals with a non-profit status. Thirdly, there are several dimensions to ownership that could be manipulated as well, namely legal ownership, funding, and social control. Further, this study did not scrutinise the difference between the performance indicator being or not being present, and we therefore cannot confidently estimate what the baseline in the absence of it is. A different experiment could therefore be conducted, in which one additional experimental group would be presented with no performance indicator. Alternatively, one experimental group could be exposed to a rating of 'average' to see whether a positive rating has the same effect size as a negative one, as compared to the baseline of 'average'. Another manipulation could be done with the provider of performance indicator, i.e. it could instead be claimed to be provided by patient organizations, health insurance companies, or other conceivable actors such as think tanks. It could be that the effect size of performance indicators on quality perceptions depends on the trust one gives to the institution providing it. Going even further, the relevance of performance indicators and ownership status as factors affecting perceived quality could be researched in the context of another type of organisations of public interest, such as schools, universities, or other healthcare service providers than hospitals. Finally, one could also investigate the relationship between trust in politicians (or bureaucracy etc.) and the effect of 'publicness' on quality perceptions of public service providers.

7. Appendices

7.1. Appendix 1

The vignette presented to the respondents was worded in Slovak as follows (curly brackets delimit the randomly-assigned stimuli; emphasis with bold font was included; the rating was graphically represented exactly as it is here):

{-} / {Štátna} / {Súkromná} **Nemocnica X** bola zriadená vo svojej súčasnej právnej forme v roku 2010. Momentálne zamestnáva viac ako 300 lekárov a 450 sestier. V roku 2013 počet operácií v nemocnici presiahol číslo 11 000, čím nemocnica dosiahla svoje historické maximum. Rekordný počet bol zaznamenaný takisto v počte hospitalizácií - viac ako 19 500, čo je nárast o 1 000 oproti roku predtým.

Celkovými opatreniami v oblastiach poskytovania zdravotnej starostlivosti a hospodárenia dosiahla **Nemocnica X** najlepší hospodársky výsledok za posledné štyri roky. Inštitút kvality Ministerstva zdravotníctva SR ohodnotil celkovú kvalitu **Nemocnice X** v roku 2013 {tromi hviezdikami z troch (★★★ - lepšia ako priemer)} / {jednou hviezdikou z troch (★☆☆ - horšia ako priemer)}.

The English translation of the vignette would be approximately as follows:

{-} / {Public} / {Private} **Hospital X** was established in its present legal form in 2010. It currently employs more than 300 doctors and 450 nurses. In 2013 there were more than 11,000 operations conducted, the hospital's historical maximum. A record was set also in the numbers of inpatient stays – more than 19,500, which is an increase of 1,000 compared to the year before.

As a result of overall measures in healthcare provision and finance, **Hospital X** achieved its best financial result in four years. The Quality Institute of Ministry of Health of the Slovak Republic rated the overall quality of **Hospital X** in 2013 with {three stars out of three (★★★ - better than average)} / {one star out of three (★☆☆ - worse than average)}.

7.2. Appendix 2

Figures 2-4 contain graphs of normal distribution of our three dependent variables.

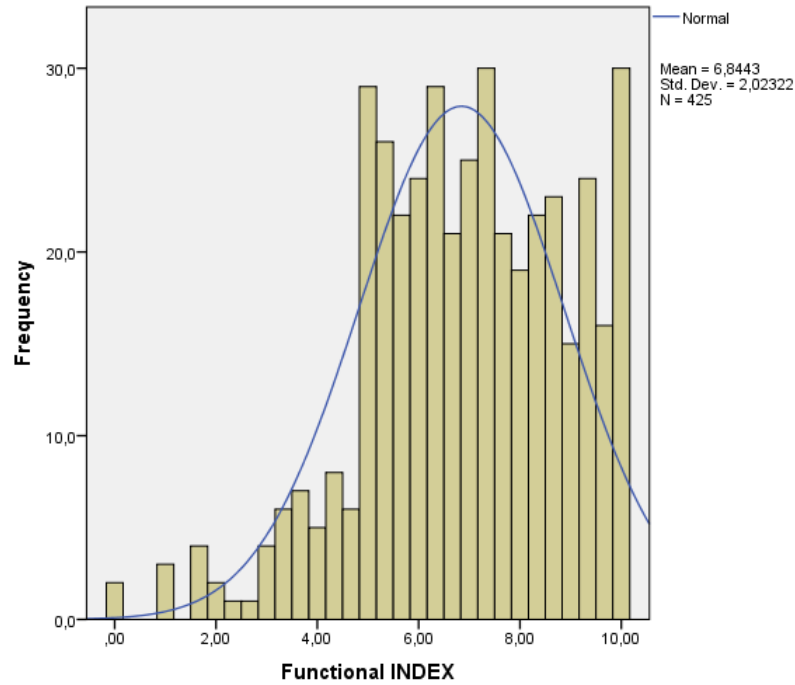


Figure 2. Distribution of dependent variable - perceived functional quality

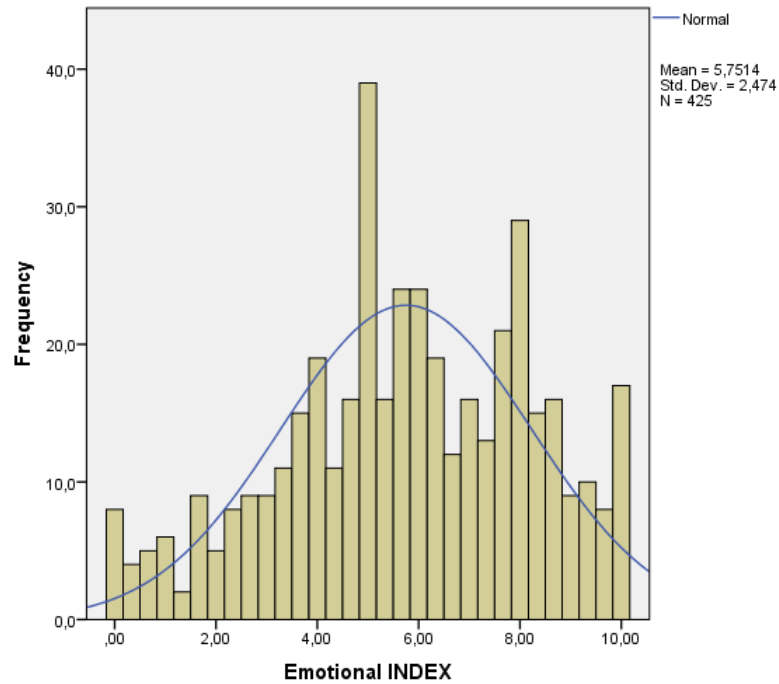


Figure 3. Distribution of dependent variable - perceived emotional quality

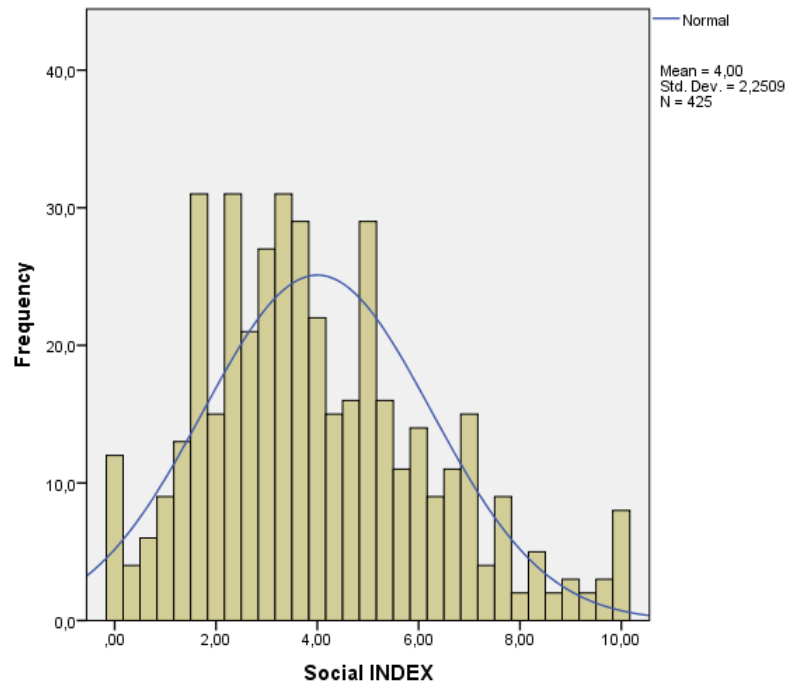


Figure 4. Distribution of dependent variable - perceived social quality

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