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Understanding quality and satisfaction in public hospital services: A nationwide inpatient survey in Greece

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ABSTRACT

Health services compared to the most of other sectors' customer services present some special traits, such as extreme complexity, co-production, and intangibility, while financial and human consequences of low quality are high. This study reports on the findings of a nationwide HCAHPS questionnaire survey conducted in Greece after the implementation of the health system reform due to the financial crisis regarding the factors determining inpatient satisfaction in public hospitals. HCAHPS data were initially analysed by factor analysis followed by an ordinal regression analysis, which aimed to identify the determinants with significant impact on inpatient satisfaction. The study results are consistent with prior research which indicated that the communication with nurses is the most salient predictor of overall patients' satisfaction followed by communication with doctors. Moreover, certain patient (age and health status) and hospital institutional (type and location) characteristics also contribute significantly to patients' perceived overall satisfaction. Hence, health quality improvement activities should consider the critical differences among patient subgroups and hospital types in order to fulfil consumer needs and preferences more effectively.

1. Introduction

Patient satisfaction has been a key issue in assessing the performance of health care providers over the last decades (Vogus and McClelland, 2016; Kleefstra et al., 2015; Schoenfelder et al., 2011; Xesfingi and Karamanis, 2015; Pini et al., 2014). Toundas et al. (2003) mentioned that over a thousand of studies regarding patient perceptions about their medical care are published each year.

Patients' perceptions with respect to the quality of services provided by the health care system suffer from subjectivity given that, inter alia, patients' scientific and technical knowledge of medical care issues is rather limited, and the perceived healthcare quality is subject to the patients' physical and psychological situation and their sociodemographic characteristics (Schoenfelder et al., 2011; Merkouris et al., 2013; Vogus and McClelland, 2016; Dempsey et al., 2014). Moreover, the incredibly complex nature of human disease renders the health care procedures extremely complicated, only to mention that even when there is a consensus about a patient's health state diagnosis, it is very probable that doctors disagree about the best course of treatment (Nembhard et al., 2009). Additionally, the interests and targets of health providers and patients do not, compulsory, coincide, but the decision making depends, more, on health professionals' opinion (Nembhard et al., 2009).

Even though patients' perceived medical care quality is biased, in terms of the marketing principles, they are actually the "consumerscustomers" of the healthcare system (Huang et al., 2004), as well as the exclusive payers, either directly to the private or mostly indirectly through taxes to the public health providers, of the services delivered to them. Consequently, their perceived satisfaction is by far the most important criterion to evaluate the performance of the medical care system. Moreover, in several occasions patients' satisfaction may play an important role to their willingness to get involved in their care and conform to the treatment plans (Sofaer and Firminger, 2005; Vogus and McClelland, 2016; Al-Refaie, 2011). Additionally, Huang et al. (2004) supported that increased levels of patient satisfaction redound to the outcomes of the health care system in terms of reduced utilisation of medical services, advanced prognosis, less malpractice litigation, and a higher level of compliance. Therefore, as Pascoe (1983) mentioned patients' satisfaction is hypothesised to be both a dependent variable and a predictor of future health-related behaviour.

The great importance of patients' satisfaction has led to a great number of different instruments for its measurement worldwide, that focus on the various aspects of medical care experience, such as communication with healthcare providers, access to hospital, the quality of basic amenities, waiting time to make an appointment and to be examined at the clinic (Bleich et al., 2009; Aletras et al., 2009).

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Most of these instruments are specific to a country's health system or type of the hospital rendering comparisons between countries and over time practically rather difficult, if not unattainable.

The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, developed for use in the USA by the Centres for Medicare and Medicaid Services (CMS) with the collaboration of the Agency for Healthcare Quality Research (AHRQ) (Elliott et al., 2009a, 2009b; Giordano et al., 2010), has been the most known standardized, and unbiased set of measures of patient experience so far (Vogus and McClelland, 2016). The HCAHPS survey has been endorsed by the National Quality Forum (NQF) in the USA and it was also selected for the purposes of the European Commission RN4CAST project, which involved 12 countries (Belgium, England, Finland, Germany, Greece, Ireland, The Netherlands, Norway, Poland, Spain, Sweden and Switzerland) because of its potentiality to yield comparable results that would allow to obtain objective and meaningful comparisons across health systems on domains that are important to consumers among the participating European countries and the USA (Squires et al., 2012). The content validity of the Greek translation of the HCAHPS survey has already been examined by Squires et al. (2012) and achieved an 'excellent' rating.

The HCAHPS survey measures discharged inpatients' experiences of the hospital care, employing 25 patient rating items with respect to communication with nurses and doctors, the responsiveness of hospital staff, the cleanliness and quietness of the hospital environment, pain management, communication about medicines, discharge information, overall rating of hospital, and would they recommend the hospital, as well as questions regarding patients' demographics (CMS, 2014).

The interest in evaluating the patients' expectations and demands from the public health system is considerably rising during crisis periods, where all involved stakeholders strive to optimise the efficiency and, especially, the effectiveness of the scarce public resources dedicated to health care (Pantouvakis and Bouranta, 2014; Karanikolos et al., 2013). Greece has indeed experienced a thrilling transition in the legislative, political and economic environment since early 2010 with enormous consequences on the health care system, given that the cuts to hospital budgets exceed 40% and the shortages of personnel and medical supplies dramatically raised. Kentikelenis et al. (2011) and Zavras et al. (2012) reported that Greeks' health status self-evaluation has worsened since the outbreak of the financial crisis while the proportion of citizens that appreciate that they have limited access to medical care is steadily increasing.

Although, the investigation of patients' satisfaction with the medical care provided by the Greek public hospitals is crucial for developing and implementing quality improvement strategies and activities, most of the published studies report on the patients' perceptions before the emergence of the financial crisis (Niakas et al., 2004; Gnardellis and Niakas, 2005; Priporas et al., 2008; Matis et al., 2009; Aletras et al., 2006, 2007, 2009; Panteli and Patistea, 2007; Labiris and Niakas, 2005; Papanikolaou and Ntani, 2008; Polyzos et al., 2005; Toundas et al., 2003; Pantouvakis and Bouranta, 2014; Pini et al., 2014; Chandrinou et al., 2013). Thus, the results from the aforementioned studies cannot provide a solid basis for decision making in the contemporary Greek Hospitals conditions, taking also into consideration that their sample emanated from either a single or a limited number of hospitals and that they did not follow international procedures and protocols for surveying data from General Hospitals (e.g. HCAHPS). There is only one reported study on patients' satisfaction assessment regarding their experience of a Greek general hospital since the outbreak of the financial crisis (Xesfingi and Karamanis, 2015). However, their study sample concerns only a single general hospital in the capital Athens, therefore, it is not possible to draw firm conclusions about the whole population of Greek patients.

This paper aims to fill the gap in the literature by providing evidence about the patients' satisfaction regarding the medical care they experienced from the Greek public hospitals after the implementa-

tion of the health system reform due to the financial crisis, utilising the data of the nationwide HCAHPS questionnaire survey conducted by the Greek Ministry of Health during the period of May 2011 to November 2011. Moreover, the impact of the demographic characteristics of the patients and the institutional characteristics of hospitals on patients' satisfaction was also investigated.

In this light, the next section presents the methodology and the sample of the study, followed by our research results. The paper concludes with a discussion of our findings, limitations of our work and recommendations.

2. Study sample

The survey was administered by the Greek Ministry of Health (MOH) with the aim to include all the 131 public hospitals operating in the national health system. However, 89 hospitals denied participation, claiming that there was a lack of the necessary budget and time. Thus, data was selected by 42 hospitals, which are a fairly representative sample of hospitals to mirror the general structure of the national health system.

The data were collected by the hospitals' Quality Office that has the responsibility to run the patient satisfaction survey on a yearly basis. Using the simple random sampling technique, the patients received the corresponding questionnaire the previous day before being discharged and returned it to a secured drop box at the reception before leaving the hospital. Then, at a centralised level, the sample was collected and validated by the Quality and Efficiency Department of the MOH to ensure that it was representative of each hospital. The sample that was finally selected in the survey contains 5467 inpatients stratified according to the population of patients that each hospital served.

3. Factor structure of service quality

Exploratory factor analysis was conducted to explore latent factors within the questionnaire items and to verify the reliability and validity of the service dimensions. Factor analysis can identify a more reduced set of variables without interrelationships in order to explain, in the highest possible degree, the variability found in the answers to the questionnaire. The Principal Component Analysis method and orthogonal (varimax) rotation were employed to extract the factors that would improve the interpretation of the participants' answers with respect to the core part of the questionnaire which contains 11 services attributes. In particular, we used 9 questions rated on a 4-point Likert scale (Never, Sometimes, Usually, Always) covering 3 specific hospital practices: Communication with doctors (3 items), Communication with nurses (4 items) and the physical environment (2 items). The remaining two items, rated on a dichotomous scale (No/Yes), cover the information about discharge.

The analysis identified four factors with eigenvalues greater than 1. The Kaiser-Meyer-Olkin statistic is 0.87, indicating strong correlations among items and confirms that factor analysis is an appropriate analysis of the sample as it exceeds the 0.5 acceptable limit (Kaiser, 1974). In addition, the Bartlett's Test of Sphericity shows that the suitability of the intercorrelation matrix of the 11 variables for factor analysis is significant at the 0.001 level.

Factors and items of the questionnaire are described in Table 1. This table also presents the mean and standard deviation of the items, their factor loadings and the Cronbach's alpha reliability index for each principal component. The results indicate strong relationships of the items within each factor that are independent of those of other factors. The four factors identified, confirmed the four dimensions under consideration of the HCAHPS questionnaire. Since all items load as expected, it is evidence that the questionnaire exhibits strong convergent validity.

Then, we defined the four distinct factors which explain 69.08% of total variance as follows: doctor communication (F-doctor) that

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