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Full Length Research Paper

Involving stakeholders in university hospital performance reporting: The state of the art in Italy

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University hospitals (UHs) need to pay attention to diverse stakeholders' interests when reporting their performance information, to meet different knowledge expectations concerning the activities they have performed and the outcomes they have achieved. In the existing literature, the level of consideration of UH performance reports reserve for a broad variety of stakeholders interested in UH outcomes, each with different information needs, has not been analyzed. To contribute to fill this gap, this study offers an empirical examination of the Italian experience by investigating whether and to what extent all the thirty-two public university hospital authorities (UHAs) involve stakeholders in their annual performance reports (APRs). First, sixteen key stakeholder groups with an interest in the performance reporting of UHAs were mapped, and the related accountability relationships were described. Subsequently, the APRs for 2017 were examined by employing the content analysis method and common descriptive statistics. Findings reveal that only one UHA involved all sixteen stakeholder groups in its performance report; sixteen UHAs involved at least ten stakeholder groups; and the remainder showed a weak, scarce or even absent involvement for stakeholders. Moreover, it emerged that three stakeholder groups were singled out for greater attention in UHA performance reports (patients, managers and regional government) over others. Involving stakeholders in performance reports needs to be encouraged, as it is an essential prerequisite for developing suitable integrated performance reporting systems.

Key words: University hospitals, stakeholder involvement, performance reporting, stakeholder relationships, integrated reporting, public healthcare, accountability, performance management.

INTRODUCTION

University hospitals (UHs) or teaching hospitals constitute a particular category of university affiliated health facilities, which perform in a complementary and interrelated way, three different types of activity. They provide care and treatment for patients (which is the typical mission of general hospitals), train current and future healthcare professionals, and advance research in medical science (which are the academic missions of university medical schools) (Smith and Whitchurch, 2002; Davies and Smith, 2004; Raus et al., 2019). For this simultaneous role of ensuring care, medical education and research, UHs enjoy a 'traditional' reputation as highly specialized care providers (Ayanian and Weissman, 2002; Kupersmith, 2005). Although the quality

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of their clinical outcomes has been questioned (Hayanga et al., 2010; Zafar et al., 2015), they play an important role in developing new surgical innovations (Yeo et al., 2018). Indeed, UHs are frequently the referral centers for complex medical and surgical patients within integrated healthcare networks (Palm et al., 2013; Nuti et al., 2016). This is especially true in the case of the treatment of rare and oncological diseases that require multiple and innovative diagnoses and advanced clinical capabilities and technologies. However, despite their clinical excellence, when compared to general hospitals, UHs suffer as a result of their *teaching status*, which can lead to lower and more costly hospital productivity, problems of coordination with the universities and greater complexity in governance (Huttin and De Pouvourville, 2001; Grosskopf et al., 2004; Kastor, 2004; Liu et al., 2012; Ali et al., 2017).

The recent literature concerning health economics has emphasized the need to manage this institutional complexity; the latter is strictly connected not only to the partnership with the university faculty of medicine but also to the presence of numerous other stakeholders within the societal environment, which affects UH governance, outcomes, the related performance measurement and reporting systems (Minvielle et al., 2008; Mauro et al., 2014; Del Gesso, 2017). Indeed, the complexity of governance is one of the structural characteristics of university hospital organizations (Schwartz and Pogge, 2000; van Rossum et al., 2016). The latter are multi-stakeholder contexts within which diverse pressures (medical, academic, financial, social, political, environmental etc.) from manifold groups of interlocutors claim interest converge. UHs, like other private and public organizations, need to consider and satisfy these interests in order to face a plurality of institutional pressures, overcome potential conflicts and empower stakeholders, factors that otherwise could threaten organizational sustainability (Zakhem, 2008; Hörisch et al., 2014).

In effect, the outcomes of UH activities have a relevant and multi-faceted impact on the territory in which they operate (for example, in terms of improving citizen health, medical training, academic research, local economy and natural environment etc.). This demonstrates a commitment from UHs to continuously improve performance outcomes in order to ensure their sustainability, as well as to increase accountability and to inform stakeholders about corporate endeavors that strive to improve sustainability performance. Moreover, it is very important for UHs to share performance results with their stakeholders, since the integration of the medical and academic missions makes such hospitals ‘knowledge intensive institutions’, meaning that their healthcare outcomes have a strong additional intangible value. Stakeholders must be able to perceive and to be aware of this additional value (Shahian et al., 2012). This gives UHs an opportunity to prepare their performance reports from a stakeholder perspective, by providing an appropriate and complete disclosure of performance results to improve accountability relationships (Ovseiko et al., 2014).

The aforementioned scenario provides the impetus for this research, which draws on the hypothesis that UHs should pay attention to manifold stakeholder interests in reporting their performance information. This is important so that stakeholder knowledge expectations can be met through the sharing of information about activities performed and outcomes achieved. Studying the involvement of stakeholders in performance reporting by UHs is interesting at a time when UHs are having to face sustainability challenges resulting from diverse contextual pressures (Ryan-Fogarty et al., 2016; Raus et al., 2019). The significance of this study also lies in the increasing emphasis on performance measurement, subsequent communication to stakeholders, and benchmarking that appear to be emerging issues in contemporary healthcare systems worldwide (Loeb, 2004; Piña et al., 2015). Prior studies have poorly addressed performance reporting systems in UHs; and a lack of attention has been paid to how much consideration their performance reports give to a broad variety of stakeholders interested in UH outcomes, who have different information needs.

In the light of this gap in knowledge, this study offers an examination of the state of stakeholders’ involvement in performance reporting in the Italian UH model, which was established by decree no. 517/1999 as a public health institution called *azienda ospedaliera universitaria*, or university hospital authority (UHA). In particular, it aims to investigate whether and to what extent all thirty-two Italian UHAs involve stakeholders in their annual performance reports (APRs). To address this aim, the study is developed in two steps: i) the key stakeholder relationships of UHAs are first defined; and ii) the APR documents of the thirty-two UHAs are then content analyzed to explore stakeholder contemplation within them. UHAs are public university hospitals and hence, represent the institutional UH model in Italy. Their mission is to integrate the activities of academic and hospital medicine, by contributing both to fulfill the care objectives of the regional health system and to realize the scientific aims of the university medical schools, for which the UHAs serve as educational sites for medical students (decree no. 517/1999, paragraph 2 (Caffi, 2013; Kiessling et al., 2017; Safarani et al., 2018).

The organizational and managerial models of UHs vary according to the heterogeneous experiences gained at the international level (Bevan and Rutten, 1987). In Italy, although many different hospitals (both public and private) collaborate with universities, the UHAs only represent the hospitals of the regional National Health Service, which are the legally designated institutions for medical education. Therefore, the Italian UHAs participate both in regional healthcare planning and university

scientific-teaching planning, by playing an important role within the health provision network of the Italian regions. The UHAs, like all public administrations in Italy, must prepare a performance report at the end of the annual performance management cycle, in order to provide performance information, to assess behavior and results, and to enable stakeholder accountability. This document, on which this study focuses, was made mandatory by the introduction of decree no. 150/2009, in order to highlight the organizational and individual results achieved at year's end. This law states clearly that a public administration must report these results to stakeholders by way of an annual performance report (APR); share these results through the publication of the APR document in the appropriate section dedicated to transparency of their institutional website; and encourage interactions and relationships with stakeholders, through the development of forms of collaboration (decree no. 150/2009, paragraphs 4, 8, 10 and 11). The APR is produced in addition to traditional financial statements and it should provide detailed performance results that should be aligned with the performance goals and the allocation of resources in the annual performance plans. Thus, the APR represents the key reporting document by which the Italian UHAs are accountable to their stakeholders for their achieved outcomes. This document is able to disclose additional information that could be very relevant and useful for stakeholders and would enable them to play an active role in observing and acknowledging UHA behavior; this could also stimulate UHAs to make better decisions leading to better performance. The findings of this study may encourage UH managers and policymakers to pay more attention to stakeholder information needs in performance reporting; this can help to build fruitful accountability relationships with stakeholders into the practice of UHs.

THEORETICAL FRAMEWORK AND APPROACH

This study was inspired and deduced from theory on stakeholders. Stakeholder theory (or stakeholder perspective, stakeholder management or stakeholder thinking) emerged in academic discourses in the late 1970s and early 1980s when Freeman, in his landmark book of 1984, originated the concept of managing and shaping the relationships with "the groups and individuals that can affect, or are affected by, the accomplishment of organizational purpose" (Freeman, 2010: 25). The management of stakeholder relationships concerning value creation and ethics helps an organization to survive and thrive in turbulent times and fields (Phillips, 2003; Parmar et al., 2010). As highlighted by Hörisch et al. (2014: 330-331), starting from Freeman's original version, the literature has developed many different types of stakeholder theory by focusing on various aspects (Donaldson and Preston, 1995). These have included the identification of relevant stakeholders, the effects of stakeholders' management on the achievement of corporate aims, and the interdependencies of the organizations within their societal and natural environment for sustainability management challenges (Hörisch et al., 2014). Indeed, the stakeholder perspective which envisages creating value with and for the stakeholders involved, by generating mutual interests, has been widely applied in various disciplines, areas and arguments including accounting, public sector and healthcare (Elms et al., 2002; Freeman et al., 2010; van Helden and Uddin, 2016). At the same time, there has been no lack of scholars who have criticized this view (Key, 1999).

Furthermore, it is necessary to recall here that the stakeholders' perspective was also highlighted by the corporate governance debate concerning the mechanisms by which private and public organizations are directed and how they perform (Ryan and Ng, 2000; Letza et al., 2004; Matei and Drumasu, 2015). At first, this debate focused solely on the private sector. Subsequently it also included the public sector. This followed the emergence of the public governance concept (Bovaird, 2005; Osborne, 2010; Grossi and Steccolini, 2014), where the three basic principles of corporate governance from the 1992 Cadbury report - openness (or transparency of disclosure), integrity (or honesty and completeness of reporting), and accountability (or responsibility for actions) to stakeholders - were extended from private business to public sector entities (Ryan and Ng, 2000). By the end of the 1990s these corporate governance principles had become part of the discourses concerning (new) public governance, that underlined the need for governments to interact, involve and cooperate with internal and external stakeholders in order to improve public service policies and outcomes in the collective interest (Bovaird, 2005; Pestoff, 2011).

The relevance of the stakeholder standpoints, expectations, roles and influences also appears in the emerging notion of collaborative governance. The latter can be referred to as a collective and participating decision-making process through which interdependent stakeholders "seek a mutually satisfactory outcome" when addressing "a complex, multi-faceted problem or situation" (Robertson and Choi, 2012: 83). This notion, which has become quite renowned in public administration literature, emphasizes stakeholder participation in governance. It concerns different cross-boundary partnership forms that also include civic and stakeholder engagement in a constructive and democratic way (Bingham et al., 2005; Emerson et al., 2012; Doberstein, 2016).

More generally, through participation, stakeholders may empower their voice in governance by interacting with an

organization's decision-making processes and performance, which influence (or are influenced by) them. On the other hand, organizations can develop their stakeholder relationships and better manage them in order to create joint processes of sustainable value (Freudenreich et al., 2019). However, effective stakeholder involvement needs to be underpinned by feedback and disclosure concerning the organization's performance, outcomes and impacts. These are the main tasks of the performance reporting systems of an organization, which should provide more and more detailed and complete information (about adopted decisions and consequent impacts) relevant to stakeholders in order to enhance the organization's accountability (Mitchell et al., 2015; Freeman, 2017; Manes-Rossi et al., 2018). The need for organizations to satisfy the interests of stakeholders and their performance information needs is increasingly relevant, both in academic accounting discourses and in reporting frameworks issued by professional bodies at an international level (such as the *Sustainability reporting guidelines* of the Global Reporting Initiative – GRI, and the *International integrated reporting framework* of the International Integrated Reporting Council – IIRC). These debates have highlighted the opportunity for integrating traditional financial measurement and reporting systems with non-financial performance dimensions and communications (Dumay et al., 2016; Adams, 2015). As pointed out by Dumay et al. (2015), disclosing non-financial information to stakeholders (such as that concerning social, environmental, and governance issues) enables organizations to increase their institutional and strategic legitimacy, as well as their sustainability, through the possibility of achieving mutually advantageous outcomes for both stakeholders and the organizations themselves (Dumay et al., 2015; Freudenreich et al., 2019).

Thus, studying stakeholder involvement in performance reporting is of growing interest, because the survival and success of organizations appear ever more dependent on stakeholder relationships and partnerships. In addition, the way in which an organization creates value increasingly involves intangible and difficult aspects to be measured. This implies that the new challenge for performance reporting systems is the shift in perspective from reporting to disclosing information about impacts to stakeholders (Dumay, 2016). Indeed, in agreement with Dumay (2016: 169), organizations need to go beyond reporting mere monetary information, because they create a value that is "much more than money". Therefore, to allow stakeholders to understand how organizations create their value, they need to disclose information of "monetary, utility, social and environmental value" (Dumay, 2016: 180). In other words, performance reports represent an increasingly essential instrument through which to communicate information about activities and results back to stakeholders; at the same time, they can determine how stakeholders perceive and judge these activities and results (Hall et al., 2015). Hence, performance reporting documents can assist manager and policymakers in meeting the needs of stakeholders (Miles, 2019), by providing multidimensional information about the achieved outcomes (Romero and Carnero, 2019). Making this performance information (both financial and non-financial) publicly available increases accountability and transparency, which are essential for improving stakeholder relationships and for encouraging organizational interaction (Grossi and Steccolini, 2014; Van de Walle and Cornelissen, 2014). This is particularly important in public sector organizations where accountability (or being accountable for one's own decisions and actions) has increasingly been seen as a key issue for guarding and improving performance (Bovens et al., 2014; Schillemans, 2016). As highlighted by Van de Walle and Cornelissen (2014), performance reports are among the most important accountability mechanisms with which public organizations can present and explain their behavior and performance to service users and the various interested groups of stakeholders. In summary, it is necessary to provide complete performance information to stakeholders in order to be accountable for performance that directly interests them (Manes-Rossi et al., 2018). In order that this information can match stakeholder knowledge expectations, it is essential to consider all key stakeholder groups and their different knowledge needs.

Performance measurement, performance management and performance reporting systems have gained growing attention in healthcare organizations in an attempt to improve the quality of healthcare services and levels of accountability to stakeholders (Smith et al., 2009; Gigli and Tieghi, 2012; Ashton, 2015; Giovanelli et al., 2015; Shahian et al., 2016; Spanò et al., 2018). The issue of patient and stakeholder involvement in healthcare decision-making and service supply has been much addressed by the literature (Culyer, 2005; Vahdat et al., 2014; Van Eijk and Steen, 2014; Castro et al., 2016; Chambers and Storm, 2019) and different levels of participation have been identified (Ocloo and Matthews, 2016). The participation ladder ranges from a mere consultation role, to full control; the latter, which is the highest level and derives from interactive collaboration with patients, citizens and other key stakeholders, requires feedback about decisions made, leading to better public accountability (Charles and DeMaio, 1993). In other words, performance reporting systems are called upon to consider the key stakeholder relationships and their informational needs. Through stakeholder involvement, more precise information about how the outcomes are achieved and what value is created can be passed on. This enhancement of accountability is necessary to allow health systems to perform better (Brinkerhoff, 2004). Likewise, effective stakeholder communication and relationships in public healthcare

organizations are indispensable since they support the sustainability of the mission to ensure public health protection and improvement (Longest and Rohrer, 2005). Building constructive relationships with a multiplicity of stakeholders implies that public healthcare organizations implement an overall stakeholder management process which includes the identification of the relevant stakeholder groups, their main different accountability expectations, the performance gaps, and the stakeholder interests that must be prioritized (Fottler et al., 1989; Preble, 2005; Bierbooms et al., 2016). However, as evidenced by Bierbooms et al. (2016: 643), taking into account (and responding to) different stakeholder expectations and building strategic relationships with each of them is not yet standard practice for most healthcare providers. Moreover, in public healthcare organizations, and more generally in the public sector, the political nature of public policy can lead to an heterogenous perception of stakeholder importance, where relations with particular stakeholders are given more importance than others (Riege and Lindsay, 2006).

Regarding the context of UHs, although the issue of performance measurement for reporting has proved to be of interest to scholars (Backman et al., 2016), the involvement of stakeholders in the performance reporting systems of these hospitals appears to have received less scholarly attention. And yet, stakeholder influence is one of the major distinctive characteristics of UHs. Thus, integrating the consideration of stakeholders into UH strategies is important (Langabeer and Napiewocki, 2000) in order to face their educational, therapeutic, and research challenges (Safarani et al., 2018). Specific studies that have addressed performance measurement issues in UHs have highlighted the fact that traditional performance measurement systems focus only on financial dimensions, which is inadequate for assessing the multifaceted performance of these complex healthcare institutions (Mauro et al., 2012; Trotta et al., 2013). Such studies have applied the 'balanced scorecard model' in UHs, emphasizing the need to employ more appropriate multidimensional performance measurement systems due to the plurality of stakeholders who have differing views on performance and require specific accountabilities (Minvielle et al., 2008; Mauro et al., 2014).

These studies have analyzed some cases of European UHs including Italian UHAs. It is noteworthy that some university hospitals in Italy, as well as other Italian hospitals, adhere to structured multidimensional performance evaluation systems developed at national or at regional levels in order to monitor and assess clinical and organizational outcomes. Furthermore, to improve the quality of care and hospital efficiency, specific audits have been carried out in certain areas of activity or relevant clinical conditions (such as some oncological treatments and clinical pathways for obstetrics, femoral fractures and heart failure for example) using various performance measures and indicators (Nuti et al., 2016).

Specific cases of Italian UHAs have also been analyzed in a previous study, which showed how mission-based reporting is able to improve stakeholder relationships and accountability in UHAs, by integrating the poor and technical disclosure of traditional financial statements with more readable, non-financial data (Del Gesso, 2017). These data are related to the manifold dimensions (such as health, scientific, financial, social and environmental) that characterize university hospital performance outcomes linked to the tripartite mission of patient care, education and research. Indeed, as Davies and Smith (2004) have highlighted UHs, "need to focus on communicating their contribution to society in all its dimensions" because of the complexity of their service provision, which is influenced by the intensity of teaching and research (Davies and Smith, 2004: 67). Thus, as assumed in this study, UH performance reporting systems need to consider multi-stakeholder relationships and take into account what information disclosure concerning impacts the different stakeholder groups would need. This is essential to better meet and manage the plurality of interests that shape institutional performance.

METHODOLOGY

In order to investigate whether and to what extent Italian UHAs involve key stakeholder groups in their APRs, a careful examination of these documents was performed using the research method of content analysis. This rigorous method allowed the author to check whether, how many, and which stakeholders received the most attention within the APRs. Indeed, content analysis, which is defined as "a research technique for the objective, systematic, quantitative description of the manifest content of communication" (Berelson, 1952: 519), is also known as a method for examining documents. Deriving from the communication sciences, it is widely used today in various scientific domains, for both qualitative and quantitative research, to interpret and quantify phenomena (Elo and Kyngäs, 2008; Gaur and Kumar, 2018). Thus, the content analysis of the APRs helped this study to understand and measure the ability of UHAs to involve stakeholders in the reporting of their performance information. It should be highlighted that content analysis has already been effectively employed in many empirical studies in the field of accounting to collect data on social, environmental and intellectual capital disclosures in annual reports (Guthrie and Abeysekera, 2006). To carry out the analysis of APRs using this method, sixteen keywords to be sought within these documents were chosen. Thus, the number of instances that these keywords (which referred to the sixteen identified stakeholder groups) were cited in the body of the text of each APR was manually counted.

More precisely, the research was developed as follows: First, the key stakeholder groups with an interest in the performance reporting of UHAs were mapped with the help of the literature and an analysis of the peculiarities of the Italian context. Following this, each related relationship was defined by attempting to outline the main information each stakeholder group would need to perceive through performance reporting. This latter phase promoted an understanding of the different roles that each stakeholder plays in Italian UHAs and, as a consequence, why they should be involved in performance reports. Subsequently, as already mentioned above, the content analysis of the APRs of the UHAs was

performed by reading and counting the number of times that the words corresponding to the identified stakeholders appeared within each document. The results of the content analysis gave rise to a dual distribution data matrix (32x16) containing a total number of 4,585 occurrences (or total counted citations). The data matrix represented the thirty-two Italian UHAs on the rows and the sixteen identified key stakeholder groups on the columns. This set of data collected through content analysis was subsequently analyzed using common descriptive statistics that helped to summarize and interpret whether, how many, and which stakeholder groups are involved in the APRs of Italian UHAs. In particular, the following measures of descriptive statistics were calculated by processing stakeholder citations data: frequencies, mean, minimum and maximum values, standard deviation and coefficient of variation. Stata software (version 12) helped with this calculation.

The documents being content analyzed in this study were the APRs relating to 2017. These documents were the most recent reports available in the "transparency administration" section of the institutional websites of the thirty-two Italian UHAs. Indeed, as established by decree no. 33/2013 on public administration publicity and transparency, APRs must be published in this section, under the heading "performance", together with other documents and information related to the performance management cycle. Thus, the path generally followed to obtain each individual document was: UHA website/ transparency administration/ performance/ performance report of 2017. This path was repeated for all thirty-two Italian public UHAs; thus, the sample size has a representativeness of 100%. However, only twenty-seven performance reports of 2017 could be downloaded, as in four cases this document was not available on the UHA website; hence, the representativeness of reports analyzed was 27/32 equivalent to 84%. Moreover, it is important to note that two public university hospitals in the Umbria region (in Perugia and Terni) were included among the thirty-two UHAs, despite them not having yet acquired the formal name of UHA as planned in the Protocol of Agreement signed in 2013 by the region and the related university. Furthermore, the public university hospitals of the Lombardy region were not considered, since this region's organizational model of university centers does not include the presence of UHAs. The informed consent of UHAs to analyze their documents was not obtained and their anonymity was not preserved, due to the transparent and public nature of APRs. This means they are open access files, freely usable and accessible to all.

The analysis of APRs was chosen because this is the mandatory document within which Italian UHAs report their performance results to stakeholders, in addition to the traditional annual financial statements. As is well known, traditional financial statements have many informational limits because they only report the economic dimension of sustainability by including mere financial information. In contrast, the annual performance report should also include non-financial information, since it must be produced in the final phase of the performance management cycle for disclosing the performance results of Italian UHAs. In line with the performance management principles and stages, this cycle (which was mandatorily introduced in all Italian public sector organizations by decree no. 150/2009) begins with: i) the definition of the performance objectives (or expected results) to be assigned to each head of department or structure to be linked to the related budget resource allocations; ii) the ongoing monitoring and adjustment to be carried out; and iii) the measurement and evaluation of both organizational and individual performance (or achieved results) to be reported to internal and external stakeholders (decree no. 150/2009, paragraphs 4 and 10). Thus, APRs should report performance outcomes to stakeholders of Italian UHAs in order to enhance accountability, develop stakeholder relationships and enable their active participation in the management process. It follows that these documents should include reference to all key stakeholder groups, something this article aims to verify.

RESULTS AND DISCUSSION

Mapping the key stakeholders' relationships of Italian UHAs

In university hospitals, many stakeholders have some involvement "in the medical, economical, political, educational, and social outcomes confronting academic healthcare" with a different degree of influence (Langabeer and Napiewocki, 2000: 16; Fottler et al., 1989). The key stakeholder groups that can influence, or are influenced by the performance of UHAs were mapped drawing on the Langabeer and Napiewocki (2000)'s list of a dozen stakeholders (patients, payers, boards of trustees, the community, governments, faculty, staff, educational accreditation groups, medical associations, various consumer advocates, private business, and suppliers). This list was adapted to the UHA context, by considering the specificities of the Italian health system (Ferré et al., 2014) and the UH model (such as the emphasis on the decentralized decision-making power at the regional level, or the difficult coexistence of hospital and university staff within UHA organizations). Moreover, additional stakeholder groups (such as medical students, labor unions and the natural environment) were identified from the literature (Fottler et al., 1989; Ryan-Fogarty et al., 2016; Kiessling et al., 2017). Following this, sixteen different stakeholder groups (external and internal) were identified for Italian UHAs. Once these stakeholders were singled out, an attempt was made to delineate their main performance information needs, both financial and non-financial. The results are described in Table 1, which summarizes the key relationships and the main information that could be disclosed to each stakeholder, for accountability reasons, through performance reports. Hence, the theoretical importance of each relationship for the UHAs, which could justify stakeholder consideration within their APRs, is defined.

Relationship with the patients

Patients represent the primary stakeholders of UHAs since they are the users of the hospital services and thus, the core recipients of the institutional activity (Langabeer and Napiewocki, 2000: 16). Given the central place patients occupy in healthcare, UHAs need to promote their active involvement in organizational choices and in the evaluation of services (Culyer, 2005; Ocloo and Matthews, 2016) through specific projects and mechanisms. The latter might include: surveys to gauge perceptions of the quality of the care; initiatives to overcome barriers to access treatment; the activation of working groups on specific relevant healthcare topics; the management of emerging issues and complaints etc.; and collaboration with voluntary associations and patient advocacy organizations. Indeed, as highlighted in the literature, patient participation in healthcare decisions

Table 1. Mapping of the main performance information needs of the key stakeholder groups of Italian UHAs.

Key stakeholder relationships	Main performance information needs
Patients	(i) Supply structure of care services: variety and specialization of care, innovative and peak treatments, areas of excellence, advanced competences and technologies, integrated care pathways etc.; (ii) Care performance outcomes: volume and quality of delivered care services, timeliness of care, effectiveness and continuity of care, appropriateness, accessibility, safety and risks, equity, reliability, organizational and management efficiency, satisfaction etc.; (iii) Sustainability of care services: efficient management of financial, human, instrumental and natural resources, rational use of public funds; (iv) Relevant patient projects to ensure the security, equity and accessibility of care services.
Citizens	(i) Supply structure of care services: variety and specialization of care, innovative and peak treatments, areas of excellence, advanced competences and technologies, integrated care pathways etc.; (ii) Care performance outcomes: volume and quality of delivered care services, timeliness of care, effectiveness and continuity of care, appropriateness, accessibility, safety and risks, equity, reliability, organizational and management efficiency, satisfaction etc.; (iii) Sustainability of care services: efficient management of financial, human, instrumental and natural resources; rational use of public funds; (iv) Relevant citizen projects to ensure communication about hospital decisions and activities that involve the general community.
Medical Students	(i) Supply structure of medical education and available facilities; (ii) Quality of teaching; (iii) Organizational efficiency of teaching services.
Hospital Staff	(i) Personnel features (types, roles, gender, age classes, internal and external mobility etc.); (ii) Working conditions and staff policies (safety, evaluation, benefits and incentives, satisfaction, involvement, enhancement etc.); (iii) Projects/activities for the development of professional skills; (iv) Autonomy and attribution of professional responsibilities; (v) Staff integration policies.
University Staff	(i) Personnel features (types, roles, gender, age classes, internal and external mobility, etc.); (ii) Working conditions and staff policies (safety, evaluation, benefits and incentives, satisfaction, involvement, enhancement etc.); (iii) Projects/activities for the development of professional skills; (iv) Autonomy and attribution of professional responsibilities; (v) Staff integration policies.
University	(i) Collaborative relationships and processes of integration between the care and academic objectives; (ii) Productivity, results of research and teaching activities (i.e. number of published articles, research topics addressed, pathologies studied, and number of students enrolled in medical degree courses); (iii) Hospital facilities and personnel involved in teaching and research activities; (iv) Development of scientific culture, medical knowledge and technological innovation (i.e. ability to attract research funding, international relevance of ongoing research projects, effectiveness of experiments conducted, and introduction of new medical technologies).
Central Government	(i) Role and functions of the hospital within the national health system; (ii) Achievement of healthcare and organizational objectives identified in health planning at central level; (iii) Development of the tripartite mission within the national health system; (iv) Achievement and maintenance of the state of budget balance.
Decentralized Governments	(i) Role and functions of the hospital within the local healthcare network system; (ii) Achievement of healthcare and organizational objectives identified in health planning at regional and local levels; (iii) Development of the tripartite mission within the local healthcare system; (iv) Achievement and maintenance of the state of budget balance.

Table 1. Cont'd.

Public Healthcare Providers	(i) Policies, typesetting and dimensions of the care services supply; (ii) Inter-organizational collaboration processes and healthcare supply agreements.
Private Healthcare Providers	(iii) Policies, typesetting and dimensions of the care services supply; (iv) Inter-organizational collaboration processes and healthcare supply agreements.
Suppliers	(i) Investment and purchasing policies, average payment times etc. (ii) Supply relationships; (iii) Degree of innovation of health and scientific technologies and medical devices.
Labor Unions	(i) Working conditions, hours and shifts, workplace health and safety, pay and benefits, leave, work wellbeing etc.
Voluntary and Advocate Associations	(i) Care provision: specializations, treatments, experimental therapies, individual and family services, prevention campaigns, innovations, technologies, access to information, staff experience, facilities, risks etc.; (ii) Care outcomes: quality of treatments, effectiveness and continuity of care, timeliness, appropriateness, accessibility, safety, equity, reliability, efficiency, satisfaction etc.; (iii) Research outcomes: novel findings, success/failure of experimental treatments, risks, facilities etc.; (iv) Education and research for the prevention and treatment of specific diseases; (v) Activities that promote health and wellbeing for population; (vi) Ongoing collaborations initiatives with the various associations.
Payers and Private Business	(i) Kind of hospital services offered and related performance outcomes; (ii) Research projects undertaken and related social impacts; (iii) Sustainability of services: efficient management of financial, human, instrumental and natural resources, rational use of public funds.
Natural Environment	(i) Contribution to the protection and improvement of environmental conditions; (ii) Appropriate medical waste disposal; (iii) Sustainable consumption of energy, water and natural resources.
Managers	(i) Performance results of the activity as a whole: achieved outcomes in relation to the planned goals for the integrated development of care, education and research.

Source: Own construction adapting UH stakeholder identification of Langabeer and Napiewocki (2000: 16-17).

allows patient-centered care, empowers patients and contributes to improving healthcare outcomes and services (Vahdat et al., 2014; Castro et al., 2016; Chambers and Storm, 2019). Moreover, performance reporting systems must be able to meet the information needs of patients. Their interests in UHA performance can be related to the configuration and outcomes of care services such as: areas of excellence, for which UHAs act as referral centers within healthcare networks; experimental and innovative treatments; specializations; quality; effectiveness; continuity; appropriateness; accessibility; safety and risks; equity; and reliability and efficiency etc. Additionally, patients' interests can also refer to the UHA's ability to meet healthcare needs using the available resources (financial, human, instrumental and natural) in a sustainable way. Therefore, patients deserve to be given priority in UHA performance reports.

Relationship with citizens

Citizens, or the community as a whole, represent the potential users of care services and are collectively interested in protecting and improving public health conditions (Langabeer and Napiewocki, 2000, p. 17). Their power in public health organization relationships and their role as co-producers of services to promote better care are considered to be increasingly relevant, according to the literature in this area (Van Eijk and Steen, 2014; Ocloo and Matthews, 2016). Accordingly, like patients, citizens are primary stakeholders who need to be involved by the UHAs. Citizens are also the effective 'payers' for the activities of UHAs through general taxation, since the Italian national health insurance system is administered by the public sector. Thus, their expectations and needs concerning performance can be linked to both the improvement of the overall health status of their surroundings and the efficient allocation of resources. It follows that the performance reporting systems of UHAs need to address citizens as well as patients and provide multifaceted financial and non-financial information. It would also be appropriate for reports to be able to disclose data about the configuration of care services, the related performance outcomes and the way in which not only funds but all the available resources are managed to

provide sustainable patient care. Indeed, providing information of public interest enables UHAs to increase transparency and accountability to the recipients of their activities. This is essential to overcome self-referentiality and to encourage the involvement and empowerment of the community in decisions that impact on their healthcare rights.

Relationship with medical students

Medical students represent future health professionals (physicians, nurses and other health professional roles) who need to practice their profession as trainees. Like patients and citizens, medical students are also key stakeholders who need to be involved by the UHAs, since the latter, in addition to satisfying patient care needs, host the university degree courses for the training of future health professionals. Indeed, the medical student perspective is relevant because it contributes to the improvement of the quality of the learning environment (Kiessling et al., 2017). Medical students can also benefit first-hand by learning from the knowledge and experimental results of research activity (Safarani et al., 2018). In other words, the relevance of the relationship with medical students lies in the fact that UHAs are central players in preparing the next generation of clinicians to meet the community healthcare needs by developing their professional skills. Therefore, the information of interest for future professionals concerning UHA performance mainly refers to areas of educational activity and research: the supply structure of the medical education; the facilities made available; the quality of teaching services; and the organizational efficiency of teaching services. Hence, performance reporting systems of UHAs need to be able to disclose information about teaching programs, medical courses of study that are running and those that have been withdrawn, traineeships, master's degrees, doctorates and postgraduate specializations. It would also be appropriate to highlight the collaboration needed for the achievement of the university's training objectives, through the contribution of personnel, facilities and other resources.

Relationship with the hospital staff

The staffs, essential to the functioning of healthcare organizations, are among the most powerful stakeholders of UHAs (Fottler et al., 1989; Langabeer and Napiewocki, 2000: 17; Chambers and Storm, 2019). The well-being of staff needs great attention, as the staff represents a key factor that is able to influence the organizational and managerial efficiency of services and thus, the achievement of UHA performance goals and objectives. UHA staff is divided into two groups: hospital staff and university staff (or faculty employees). Hospital staffs include health professionals (physicians, nurses and other hospital health personnel) and technical and administrative staff who work at Italian UHAs as National Health Service employees (Ferré et al., 2014: 79). The coexistence of these two groups, especially between hospital physicians and university physicians, may produce problems for coordination and integration of the different roles and clinical specialties (Kastor, 2004). This may generate tensions in the governance of UHA activities. Indeed, in Italy, the difficult relationships between hospital and university staff represents one of the main critical aspects of the integration process (between the national health system and the university) leading to the establishment of the UHA. In the context of UHAs, therefore, personnel management and integration policies play a decisive role in determining a harmonious working environment. It follows that UHAs need to place great emphasis on staff policies and consider human resources as fundamental for the improvement of care, teaching and research. Thus, the performance reporting systems should disclose specific information relevant to staff from both groups. This can include: personnel features; working conditions and policies concerning staff integration, safety and evaluation etc.; activities for the development of skills; and a system for the assignment of tasks and responsibilities.

Relationship with the university staff

University staff refers to faculty employees and includes researchers, teaching staff, administrative staff and all personnel affiliated with the university in which the medical school is based. The importance of the relationship with university staff is connected to their academic experience that can promote the quality of care and student training within UHs (Safarani et al., 2018). Indeed, university staffs are engaged in medical research and educational activities, and frequently, are also involved in patient care. In Italian UHAs, where university staff are also called 'personnel in convention' to distinguish them from hospital employees, university physicians often take on the role of directors of hospital departments. Thus, like hospital staff, university staff represents a relevant stakeholder group to be considered in reporting teaching hospital performance.

Relationship with the university

The university or the university medical school is the institution concerned with the training of future doctors and healthcare personnel (Langabeer and Napiewocki, 2000: 17). Indeed, medical schools must refer to UHs in order to teach their medical students and conduct clinical research. For this reason, the UH role was and will continue to be important in the academic medicine of the

future (Fottler et al., 1989: 538; Raus et al., 2019). The relationship with the university is crucial, even though it represents the main factor that makes governance complex, especially when this relationship also includes the state or the federal government that may control the hospital and/or the medical school (Kastor, 2004). This is the case for Italian UHAs, where the way by which they realize the integration of care, research and educational activities is defined by both the regional government and the university through a protocol of agreement signed by the two institutions. Indeed, the university chancellor and the president of the region jointly appoint the general manager of the UHA who is then accountable for their actions both to the region and the university. The directors of the departments which perform the integrated activity are also jointly appointed by these two institutions. Therefore, the university is a stakeholder that is very interested in the teaching hospital performance and is institutionally involved in the management of its activities. The information needs of the university, which, most appropriately, could be met by performance reporting systems, concern the processes of integration between the care and academic objectives. In particular, these needs include the results of the university teaching activities and research performed within the hospital (that is, the number of articles published, the research topics addressed, the pathologies studied, and the number of students enrolled in the medical degree courses). The information disclosure may also concern some planning elements that involve the synergy between the hospital and the university that is agreements and collaborative projects; hospital facilities; and personnel involved in teaching and research activities. This synergy is fundamental for the development of medical knowledge and disclosure may relate to the ability to attract research funding, the international relevance of ongoing research projects and the effectiveness of experiments conducted etc.

Relationship with the central government

Central government represents the state, national government or the Ministry of Health. The relationships UHs have with central government vary among countries according to the way in which the national healthcare system is organized and financed (Ferré et al., 2014: 16). In Italy, the national health service (SSN), which follows a Beveridge model, is structured in three levels of government (state, regions, and public healthcare providers) where the region is the stakeholder with the greatest interest in the performance of UHAs (Nuti et al., 2016; Spanò et al., 2018). The state only defines and coordinates the general planning of health policies, through the identification of a set of activities and services provided by the SSN, or *essential levels of care* (*livelli essenziali di assistenza* - LEA), and through the allocation of (public) health funds to the regions on a corrected capitation basis. In addition, following a correct capitation formula, each region reallocates the health funds to local health authorities (LHAs) - the main public healthcare providers - to finance the LEA supply. Regions play a fundamental decision-making role with a high level of power. They are responsible for the organization and provision of healthcare services in their territories, as well as for the performance of all public healthcare providers, including UHAs (Ferré et al., 2014; Giovanelli et al., 2015). Thus, UHAs contribute to the achievement of regional healthcare planning goals and objectives and are accountable for the related clinical and financial performance. This is because the region, which in turn is accountable to the Ministry of Health, is also responsible for the financial balance to all public providers that make up the regional healthcare system. It follows that the Italian Ministry of Health is interested in UHA performance in relation to: the important role they play within the SSN while carrying out their tripartite mission; how they meet their care objectives; and clearly, their ability to work within their allocated budget.

Relationship with the decentralized governments

Decentralized governments are a group of stakeholders which may include all those government levels positioned below the state government (regions, provinces, territories, municipalities and other forms of local government). In Italy, although the Ministry of Health and the regions are collectively responsible for providing national healthcare services, the region is the most authoritative body of the SSN (Ferré et al., 2014: 21). Each Italian region enjoys considerable autonomy in organizing its own regional health system (or regional health service) by deciding which and how many providers are to be included in it (Giovanelli et al., 2015; Spanò et al., 2018). The UHAs are among these providers and there are also some private health organizations (including private UHs) which collaborate on the basis of a service provision agreement with the region. Each region also establishes the criteria for determining the financial resources to be assigned to public healthcare providers which, consequently, must deliver healthcare services within the limits of the (public) funds received and in compliance with a pre-established financial budget (Mauro et al., 2014). Thus, Italian UHAs must achieve the corporate budget balance that is ensured when there is a balance between revenue (which includes the resources allocated by the region) and costs. As already stated above, the region also appoints (jointly with the university) both the general manager and the directors of the departments that perform the integrated activity. For these reasons, the relationship with the region assumes a leading political role among the various stakeholder relationships of Italian UHAs. Consequently, the region is one of the main Interlocutors to be involved in performance reporting

(Gigli and Tieghi, 2012). However, the region's informational needs do not exclusively refer to financial dimensions. They also include non-financial disclosure concerning for example, the role and the functions that UHAs have within the local healthcare network system; how they contribute to delivering quality care; how they achieve the care and organizational objectives planned at local level; and how they develop the tripartite mission within the regional health service.

Relationship with the public healthcare providers

Public healthcare providers include all the public health organizations that contribute to the delivery of healthcare services. In Italy, the main public providers at regional level are the LHAs (local health authorities) that deliver primary care, hospital care and all other healthcare services including those related to social care. There are also public hospital authorities (HAs), which are autonomous general hospitals that deliver hospital care but are not directly managed by the LHAs (Ferré et al., 2014: 16). Both the LHAs and the HAs are managed by a general manager appointed by the president of the region. Moreover, public hospital care in Italy is also delivered by scientific institutes for research and healthcare (SIRHs), which are specialized biomedical research hospitals, by UHAs, on which this study focuses, as well as by several private providers (such as the private HAs, the private SIRHs and the private UHs). While the LHAs are financed by the region through capitation-based funding, the UHAs, like the others autonomous public hospital providers are financed by different mechanisms depending on regional policies (Nuti et al., 2016). Usually, they are remunerated by the LHAs through the payment of tariffs based on the volume and typology of the services delivered; moreover, the region may also assign to UHAs additional resources for their specific functions (i.e. research and teaching activities, organizational complexity, high specialization, special experiments and rare diseases etc.).

Italian UHAs and other public healthcare providers collaborate to deliver healthcare services which are also supported by private providers according to network and integration logics. Thus, the other healthcare providers are interested in UHA performance in relation to the important role they play within the regional and local healthcare network. The related information disclosures may concern: policy; the typology and volume of the care service supply; the processes of inter-organizational collaboration for the joint management of some activities and services; and the existing supply agreements.

Relationship with private healthcare providers

Private healthcare providers are private healthcare organizations that collaborate to provide healthcare services. In Italy these organizations are accredited private facilities that have entered into a supply agreement with the region in order to deliver healthcare services within the regional and local healthcare network (Ferré et al., 2014: 16). Thus, like the relationship with public healthcare providers, the relationship with private healthcare providers is also important for Italian UHAs.

Relationship with suppliers

Suppliers fall into a general category, which includes suppliers of medical devices, medical and scientific technologies and pharmaceutical products etc. (Langabeer and Napiewocki, 2000: 17). Usually, materials and technologies have a highly specialized profile in UHs, since they are also needed for the development of innovative treatments, experimental research activities and other scientific purposes. Thus, the relevance of the relationship with suppliers lies in the latter's role as input providers in UHs (Fottler et al., 1989: 527). For this role they are placed among the numerous stakeholder groups with an interest in UHA performance reporting systems. In particular, information of interest for them would be: investment and purchasing policies; average payment times; supply relationships; and the degree of innovation of medical devices and technologies.

Relationship with the labor unions

Labor unions are the organizations that represent the staff. Labor unions constitute an important external stakeholder group for their special interest in corporate functioning, which can lead to a conflictual relationship with the UH (Fottler et al., 1989: 528). Indeed, this interest in UHA performance concerns all work conditions affecting the staff and may include: hours and shifts; health and safety; pay and benefits; leave; wellbeing at work; and other work-related issues.

Relationship with voluntary and advocate associations

Voluntary and advocate associations include various typologies of association and organization, such as associations representing citizens and patients, voluntary non-profit organizations, various consumer advocates, medical associations and philanthropic foundations etc. (Langabeer and Napiewocki, 2000: 17). They can be considered a secondary and external stakeholder group, as they interact with the organization but are not essential to its corporate survival (Chambers and Storm, 2019). However, the relationship with voluntary and advocate associations is important within the system of UHA

relationships because their influence aims to improve health and wellbeing among people in civic society. Their interest in UHA performance covers many different aspects, like those related to care provision (that is, treatment, individual and family services, prevention campaigns and experimental therapies etc.). Their interest also concerns the results of care and research activities (that is quality, accessibility, safety and timeliness of care and novel medical findings etc.) and specific activities and collaborations in place to promote the health of communities.

Relationship with payers and private business

Payers and private business are both important stakeholder groups as they are respectively involved in the funding of hospital services and in the subsidizing of projects or activities (Langabeer and Napiewocki, 2000: 17). Payers, in particular, include private insurance companies that pay providers for healthcare services in order to help people to sustain medical costs and they play a fundamental role in countries that do not have universal healthcare programs. For the purposes of this study, payers and private business are considered as a unique group because of the role they play in the relationship with the Italian UHAs.

In Italy, the SSN provides universal coverage through general taxation. As a result, public healthcare services are free of charge for citizens at the point of service; they are asked only to pay a public contribution (*ticket*) (Ferré et al., 2014: 15). Citizens, however, may freely choose to take out private health insurance cover in addition to the basic state coverage so that they can also be treated at private healthcare facilities. UHAs, thus, are financed through public fund allocation mechanisms; moreover, private business may finance specific medical research projects and activities through donations and contributions. These funds received from private business (as well as from associations, citizens and foundations) are a sign of the social legitimacy the UHA mission has among local communities. Therefore, performance reporting systems could include information that would interest private investors, such as the kind of hospital services and the related performance outcomes; the research projects undertaken and the related social impact; and the efficient management of available resources for the sustainability of activities.

Relationship with the natural environment

The activities of university hospitals can determine economic, social and environmental impacts on the territories within which they operate. In particular, the natural environment can be considered a relevant stakeholder because “the provision of healthcare creates significant environmental impacts” (Ryan-Fogarty et al., 2016). The relationship with the natural environment, in terms of reducing these impacts, is becoming increasingly crucial in every domain including healthcare, and demands sustainability reporting (Romero and Carnero, 2019). Thus, it is important that the performance reporting systems of UHAs include disclosure about their contribution to the protection and improvement of environmental conditions, such as the sustainable consumption of energy, water and natural resources. In addition, information could be disclosed concerning the measures taken to ensure the appropriate disposal of medical waste to reduce the impact on the environment and to protect the safety of staff and users.

Relationship with the managers

Managers (or boards of trustees) represent the governing body of UHs. They are key individuals that have overall responsibility for decisions and results (Langabeer and Napiewocki, 2000: 17). Italian UHAs are managed by a general manager who is also supported in his functions by other bodies, such as the management board which puts forward proposals and opinions regarding the integration of care and academic activities. The general manager makes strategic decisions and choices regarding the organization and development of services, although the influence of local politics can limit their managerial potential (Ferré et al., 2014: 151). Moreover, the general manager operates within the financial limits established by the central government and the region. Management also includes the directors of departments who may be both hospital medical staff and medical professors of the related university. The general manager and the directors of departments represent one of the main internal stakeholder groups, because as leaders of the UHAs they are essential to its corporate existence (Chambers and Storm, 2019). In addition, they are accountable for performance to the region and university that appointed them. Thus, the performance reporting systems need to foster disclosure concerning achieved outcomes of planned goals, because it is fundamental that the results of the activity as a whole are measured and reported (Dumay, 2016). Such a disclosure could also be useful for: sharing strategic goals and results among all the individuals involved in management; enhancing the integrated development of care, education and research; and supporting the decentralization of decision-making and promoting participatory leadership.

Stakeholder involvement in the APRs of Italian UHAs

To investigate which of the sixteen key stakeholder groups are taken into consideration by the APRs of Italian UHAs, the corresponding following words was searched for and counted within the reports: patients; citizens; students; hospital staff; university staff; university;

Table 2. Distribution of the overall stakeholders mentioned in the APRs for 2017 of Italian UHAs (N = 4,585).

Italian UHAs	Absolute frequency	Percentage
UHA of Novara	95	2.07
UHA of Turin	0	0
UHA of Orbassano	3	0.07
UHA of Verona	194	4.23
UHA of Padova	105	2.29
UHA of Trieste	604	13.17
UHA of Udine	21	0.46
UHA of Bologna	1180	25.74
UHA of Parma	589	12.85
UHA of Ferrara	243	5.30
UHA of Modena	59	1.29
UHA of Pisa	94	2.05
UHA of Siena	108	2.36
UHA of Florence Careggi	28	0.61
UHA of Florence Meyer	16	0.35
UHA of Perugia	37	0.81
UHA of Terni	-	-
UHA of Ancona	139	3.03
UHA of Rome Tor Vergata	133	2.90
UHA of Rome Umberto I	-	-
UHA of Rome Sant' Andrea	109	2.38
UHA of Naples Federico II	178	3.88
UHA of Naples Vanvitelli	128	2.79
UHA of Salerno	55	1.20
UHA of Bari	16	0.35
UHA of Foggia	98	2.14
UHA of Catanzaro	-	-
UHA of Catania	107	2.33
UHA of Messina	96	2.09
UHA of Palermo	36	0.79
UHA of Cagliari	114	2.49
UHA of Sassari	-	-

Source: Data analyzed from the results of content analysis.

ministry (for central government); region (for decentralized governments); public providers; private providers; suppliers; labor unions; associations; private business; environment; and directors (for managers). Table 2 summarizes the total number of stakeholder citations (or total frequencies) resulting from the content analysis of each APR, which saw a total of 4,585 citations collected from all the APRs analyzed. As can be seen in this table, the number of times that one or more stakeholders appeared in the documents is the highest in the UHA of Bologna, while in some UHAs it is very low, equals zero or is not available. Indeed, in four cases (in the UHAs of Terni, Rome Umberto I, Catanzaro and Sassari) it was not possible to download the APRs for 2017 as they were not available in the online section of the respective UHA websites. In four cases, moreover, the APRs contained very limited disclosures that only concerned the assignment of the health and economic objectives of the hospital departments and verified the related achievement by allowing the assessment of staff performance (in the UHAs of Turin, Orbassano, Udine, and Perugia). In contrast, the APRs of the remaining UHAs provided greatly detailed disclosures of performance results with different degrees of stakeholder contemplation. Some documents also reserved a specific section which included information addressed to some stakeholders (patients, citizens, the region etc.).

However, there was considerable heterogeneity among the various UHAs in terms of stakeholder involvement, and most reports did not involve all sixteen actor groups.

A picture summarizing whether and how many stakeholder groups are involved in the performance reports of the Italian UHAs can be gathered from Table 3, which synthesizes the level of this involvement through five class intervals. It emerges that: 5 UHAs (the four UHAs whose documents were not available online were included) do not involve stakeholders in reporting performance results (meaning that 16% present an absent involvement); 4 UHAs involve at most 4 stakeholder groups (meaning that 13% present a scarce involvement); 6 UHAs involve from 5 to 9 stakeholder groups (meaning that 19% present a weak involvement); and 16 UHAs involve at least 10 stakeholder groups but not all 16 groups (meaning that 50% present an ample involvement). Only one UHA involves all 16 stakeholder groups (full involvement) in its reporting performance results (the UHA of Bologna).

Indeed, as emerged from Table 4, which shows the analysis of data from the content analysis using common descriptive statistics, the maximum value of stakeholder citations was found at the UHA of Bologna, followed by the UHAs of Trieste and Parma. In these UHAs the maximum values refer respectively to patients (391 citations), directors (298 citations) and patients again (203 citations). Thus, these UHAs appear to be those that include the most stakeholders in their performance reports. Yet, by observing the minimum values of stakeholder citations in Table 4, it emerges that almost all the UHAs have at least one stakeholder who is never mentioned in their reports, even though the others are mentioned; only the UHA of Bologna makes exception, referring to all sixteen stakeholders at least once. Moreover, the coefficient of variation (CV), which measures the dispersion of a frequency distribution (or variability in relation to the mean), helps to define whether Italian UHAs involve the different stakeholder groups in their reports in a homogeneous way or not. As the value of this coefficient is always greater than the value *1* (CV > 1, except for the UHA of Turin, which never names stakeholders in its APR), a high-variance emerged. This means that twenty-seven Italian UHAs (or those which include at least one stakeholder in their reports) do not involve all their stakeholders in a homogeneous way. In other words, they do not give the same importance to each stakeholder in their reports but favor one or more stakeholders over others. This variability is the greatest in the UHA of Orbassano (= 4) and is also high in the UHAs of Udine (= 3.60) and Perugia (= 3.34). Indeed, these UHAs involve only one stakeholder in their reports (directors by the UHA of Orbassano) or three stakeholders (hospital staff, region and directors by the UHA of Udine; and hospital staff, labor unions and directors by the UHA of Perugia). Conversely, the variability is the least in the UHA of Cagliari (= 1.19); the variability is also below the value of 1.50 in the UHAs of Siena (= 1.24), Rome Sant' Andrea (= 1.30), Novara (= 1.39), Verona (= 1.42) and Parma (= 1.43). This means that these UHAs involve stakeholders in their reports in a less heterogeneous way than the others (Table 4).

How Italian UHAs involve the sixteen stakeholder groups in their reports can be seen better in Table 5, which shows the percental distribution of each group involved in the APRs. Here, it is clear each UHA accords to each stakeholder group a different degree of importance. Table 5 also highlights which are the three stakeholder groups that are named the most among those UHs that name at least one stakeholder in their documents. It emerged that: patients are the first relevant stakeholder group in ten UHAs; directors are the first relevant stakeholder group in eight UHAs; and the region is also the first relevant stakeholder group in eight UHAs. Only in one UHA was the first relevant stakeholder group the university. Therefore, there are three stakeholder groups that were involved more than others in Italian UHA performance reports: patients, directors, and the region (Table 5). This is better evident in Figure 1, which shows the cumulative values of the stakeholder involvement in APRs. Indeed, this figure allows a comparison of the sixteen stakeholder groups based on the total number of times that each group is cited in the reports analyzed (cumulative frequency); this number is also expressed as a cumulative percentage (calculated by dividing the cumulative frequency by the total of 4,585 citations). As can be seen in Figure 1, the three stakeholder groups with the highest cumulative percentages are: patients (26.91%), directors (23.40%) and the region (19.65%). This means that Italian UHAs perceive the relationships with patients, managers and regional government to be more significant than that with other stakeholder groups and hence, they give priority to meeting these needs regarding performance information. Indeed, excluding the university and the public providers whose cumulative percentages are respectively 6.30 and 6.17%, the other stakeholder groups are all below 5% which means that they are poorly involved in the UHA performance reports. Those groups that are mentioned the least by the sixteen stakeholder groups and do not reach a level of 1% are: private business (0.26%), students (0.46%), labor unions (0.92%) and associations (0.94%). The involvement of university staff (1.44%), suppliers (1.50%), the ministry (1.50%), environment (1.57%) and private providers (1.79%) is also very low; moreover, the feeble involvement of hospital staff (3.49%) and citizens (3.64%) is rather surprising given the relevance of both these stakeholder relationships in UHAs (Figure 1).

In summary, this study found that Italian UHA performance reports disproportionately single out three stakeholder groups over the others. The prevalent involvement of patients denotes a widespread awareness among Italian UHAs of the need to enhance the relationship with those who are most affected by the outcomes of their integrated activity. The significant

Table 3. The ability of the Italian UHAs to involve stakeholders in their APRs for 2017.

	N. of stakeholders involved	Absolute frequency	Percentage
Class frequency	(Absent) 0	5	16
	(Scarce) 1-4	4	13
	(Weak) 5-9	6	19
	(Ample) 10-15	16	50
	(Full)16	1	3
		32	100

Source: Data analyzed from the results of content analysis.

Table 4. Descriptive statistics of Italian UHA involvement of stakeholders in APRs for 2017.

Italian UHAs	Mean	Standard deviation (SD)	Min	Max	Coefficient of Variation (CV) = SD/Mean
UHA of Novara	5.94	8.24	0	31	1.39
UHA of Turin	0	0	0	0	0
UHA of Orbassano	0.19	0.75	0	3	4.00
UHA of Verona	12.13	17.23	0	60	1.42
UHA of Padova	6.56	10.46	0	39	1.59
UHA of Trieste	37.75	75.97	0	298	2.01
UHA of Udine	1.31	4.73	0	19	3.60
UHA of Bologna	73.75	122.27	5	391	1.66
UHA of Parma	36.81	52.57	0	203	1.43
UHA of Ferrara	15.19	27.01	0	106	1.78
UHA of Modena	3.69	6.25	0	24	1.69
UHA of Pisa	5.88	10.07	0	37	1.71
UHA of Siena	6.75	8.36	0	27	1.24
UHA of Florence Careggi	1.75	3.32	0	13	1.90
UHA of Florence Meyer	1.00	2.10	0	8	2.10
UHA of Perugia	2.31	7.72	0	31	3.34
UHA of Terni	-	-	-	-	-
UHA of Ancona	8.69	14.17	0	50	1.63
UHA of Rome Tor Vergata	8.31	14.20	0	39	1.71
UHA of Rome Umberto I	-	-	-	-	-
UHA of Rome Sant' Andrea	6.81	8.85	0	25	1.30
UHA of Naples Federico II	11.13	19.83	0	77	1.78
UHA of Naples Vanvitelli	8.00	15.18	0	57	1.90
UHA of Salerno	3.44	5.49	0	19	1.60
UHA of Bari	1.00	2.37	0	9	2.37
UHA of Foggia	6.13	9.73	0	32	1.59
UHA of Catanzaro	-	-	-	-	-
UHA of Catania	6.69	10.78	0	42	1.61
UHA of Messina	6.00	10.47	0	40	1.74
UHA of Palermo	2.25	3.94	0	16	1.75
UHA of Cagliari	7.13	8.50	0	26	1.19
UHA of Sassari	-	-	-	-	-

Source: Data analyzed from the results of content analysis.

involvement of managers in APRs may be a consequence of an obligation to report economic and health performance results for which Italian UHAs are accountable to the regional government. This also

Table 5. Percentual distribution of stakeholders involved in the APRs for 2017 of Italian UHAs.

Italian UHAs	Patients	Citizens	Students	Hospital staff	University staff	University	Ministry	Region	Public providers	Private providers	Suppliers	Labor unions	Associations	Private business	Environment	Directors
UHA of Novara	32.63%	6.32%	0%	4.21%	1.05%	1.05%	3.16%	17.89%	9.47%	6.32%	0%	1.05%	2.11%	2.11%	0%	12.63%
UHA of Turin	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
UHA of Orbassano	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
UHA of Verona	10.82%	3.61%	0.52%	4.12%	2.06%	5.67%	2.06%	30.93%	8.76%	4.12%	2.58%	1.03%	0%	0%	0%	23.71%
UHA of Padova	20%	6.67%	0.95%	4.76%	2.86%	4.76%	0%	37.14%	4.76%	0%	2.86%	0.95%	0%	0%	0%	14.29%
UHA of Trieste	19.70%	3.97%	0.66%	0.83%	0%	0.99%	1.82%	10.93%	3.31%	3.64%	0.66%	0.17%	3.15%	0%	0.83%	49.34%
UHA of Udine	0%	0%	0%	4.76%	0%	0%	0%	4.76%	0%	0%	0%	0%	0%	0%	0%	90.48%
UHA of Bologna	33.14%	1.10%	0.42%	1.86%	0.68%	4.83%	1.10%	17.71%	6.61%	0.42%	1.27%	0.85%	0.42%	0.68%	1.61%	27.29%
UHA of Parma	34.47%	1.19%	0.17%	1.36%	0.68%	7.30%	1.70%	16.64%	8.83%	2.72%	3.23%	1.70%	1.02%	0%	6.79%	12.22%
UHA of Ferrara	43.62%	2.47%	0%	1.65%	0.41%	2.47%	0.41%	17.28%	10.29%	2.88%	4.53%	0.82%	0.82%	0%	1.23%	11.11%
UHA of Modena	40.68%	11.86%	0%	0%	0%	5.08%	0%	13.56%	10.17%	13.56%	3.39%	0%	0%	0%	0%	1.69%
UHA of Pisa	39.36%	6.38%	3.19%	6.38%	2.13%	0%	1.06%	11.70%	3.19%	1.06%	0%	0%	1.06%	1.06%	0%	23.40%
UHA of Siena	19.44%	10.19%	1.85%	1.85%	0.93%	5.56%	1.85%	25%	13.89%	2.78%	0%	1.85%	1.85%	0%	0%	12.96%
UHA of Florence Careggi	14.29%	3.57%	0%	3.57%	0%	3.57%	3.57%	14.29%	10.71%	0%	0%	0%	0%	0%	0%	46.43%
UHA of Florence Meyer	12.50%	0%	0%	0%	0%	0%	12.50%	18.75%	0%	0%	0%	6.25%	0%	0%	0%	50%
UHA of Perugia	0%	0%	0%	8.11%	0%	0%	0%	0%	0%	0%	0%	8.11%	0%	0%	0%	83.78%
UHA of Terni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UHA of Ancona	25.90%	10.79%	0%	5.76%	3.60%	4.32%	3.60%	35.97%	2.88%	1.44%	0.72%	0.72%	0.72%	0%	0%	3.60%
UHA of Rome Tor Vergata	0%	3.76%	0%	7.52%	3.01%	29.32%	0.75%	26.32%	3.01%	0%	0%	0%	0%	0%	0%	26.32%
UHA of Rome Umberto I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UHA of Rome Sant'Andrea	16.51%	4.59%	0%	22.02%	12.84%	10.09%	0%	22.94%	2.75%	0%	0.92%	1.83%	0%	0%	0%	5.50%
UHA of Naples Federico II	43.26%	5.06%	0.56%	4.49%	2.25%	8.99%	1.12%	20.22%	2.25%	1.12%	1.69%	0%	1.12%	0%	0%	7.87%
UHA of Naples Vanvitelli	8.59%	0%	1.56%	1.56%	3.13%	23.44%	3.91%	44.53%	3.13%	0%	0%	0.78%	0%	0%	0%	9.38%
UHA of Salerno	34.55%	10.91%	0%	25.45%	1.82%	5.45%	3.64%	7.27%	0%	0%	5.45%	0%	0%	0%	0%	5.45%
UHA of Bari	0%	0%	0%	18.75%	18.75%	0%	0%	6.25%	0%	0%	0%	0%	0%	0%	0%	56.25%
UHA of Foggia	13.27%	2.04%	0%	7.14%	2.04%	15.31%	0%	32.65%	4.08%	0%	0%	0%	0%	0%	0%	23.47%
UHA of Catanzaro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UHA of Catania	39.25%	8.41%	0%	5.61%	1.87%	6.54%	0.93%	14.95%	1.87%	0.93%	0.93%	1.87%	0.93%	0%	0.93%	14.95%
UHA of Messina	5.21%	9.38%	0%	3.13%	0%	0%	4.17%	41.67%	14.58%	1.04%	1.04%	1.04%	0%	1.04%	0%	17.71%
UHA of Palermo	44.44%	11.11%	0%	2.78%	2.78%	8.33%	0%	5.56%	2.78%	0%	0%	2.78%	0%	0%	8.33%	11.11%
UHA of Cagliari	14.91%	7.02%	1.75%	4.39%	1.75%	17.54%	1.75%	15.79%	8.77%	0%	0%	0.88%	1.75%	0%	0.88%	22.81%
UHA of Sassari	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

= First relevant stakeholder group; = Second relevant stakeholder group; = Third relevant stakeholder group.
Source: Data analyzed from the results of content analysis.

justifies the great involvement of the region which in turn is responsible to taxpayers for governing the quality and the financial sustainability of the

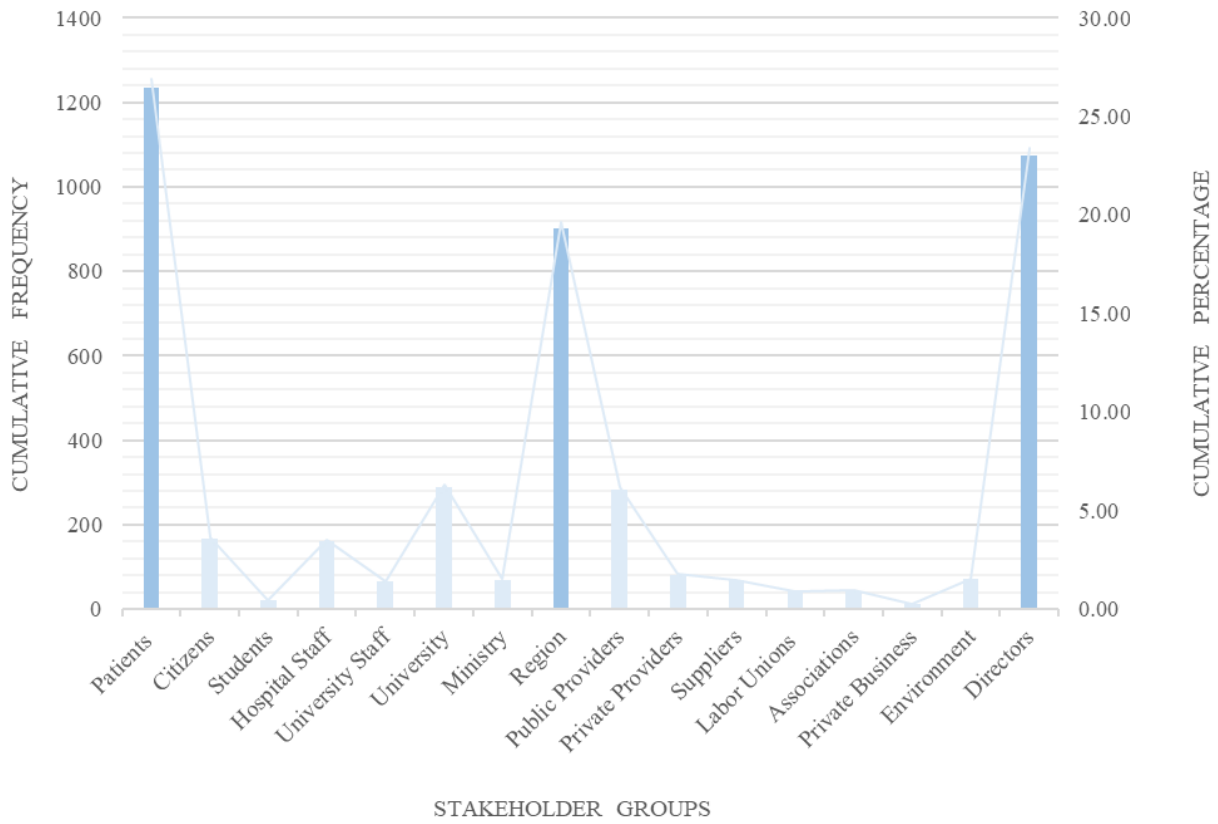

Figure 1. Cumulative values of the stakeholder involvement in the APRs for 2017 of Italian UHAs: the most relevant stakeholder groups.
Source: Data analyzed from the results of content analysis.

local healthcare system to which UHAs contribute. Yet, the exiguous involvement of the other stakeholder groups indicates that Italian UHAs are not very aware of the importance of involving stakeholders in reporting performance results. Therefore, it emerged that the consideration of the different stakeholder interests is not yet a common and widespread practice in the Italian UHAs, confirming the view that this is an issue that currently concerns most healthcare providers (Bierbooms et al., 2016). In addition, as highlighted in the literature, the political nature of public UHAs leads them to perceive some groups of stakeholders as more important than others and, as a consequence, to pay less attention to the relationships they consider less important (Riege and Lindsay, 2006). Conversely, the interests of the all key stakeholders need to be taken into account in order to better manage the multiple actors that influence UHAs. Hence, more consideration must be reserved for each individual relationship according to the power it exerts within the UHA context. In particular, considering (in order to satisfy) different multidimensional information needs through performance reporting can help UHAs to build fruitful accountability relationships and to promote beneficial interactions with their stakeholders (Van de Walle and Cornelissen, 2014; Hall et al., 2015; Miles, 2019; Freudenreich et al., 2019). On the other hand, this performance information is useful for stakeholders, because it enables them to assess and legitimize corporate behavior, to express their needs, to advice on services and to enter into dialogue and collaborate with UHAs. Indeed, such stakeholder empowerment can bring about opportunities to improve performance and tackle UHA sustainability challenges. For these reasons, involving stakeholders in performance reporting needs to be encouraged and fully developed in order for it to become an established practice within UHAs.

Conclusion

This research contributes to the body of knowledge on performance reporting systems in university hospitals, by presenting the current state of stakeholder involvement in performance reporting in Italian public UHAs. In particular, it highlights how it can be strategically important for UHAs to take into account a broader variety of stakeholders in their reporting documents, who have diverse informational needs concerning performance results and governance

issues. The main limitation of the study is that it does not attempt to understand how performance disclosure meets stakeholder interests and their performance information needs.

This study argues that the influence of sixteen key stakeholder groups matters to UHAs and outlines which key multidimensional disclosures in APRs can meet the knowledge needs of each of them in order to promote effective accountability relationships. Indeed, APRs create opportunities for UHAs to provide complete information on organizational and individual performance for their stakeholders. These reports can be a powerful information sharing tool, useful for enhancing stakeholder relationships. Therefore, it is necessary that all groups of stakeholders, each with their own points of view, be considered. Nevertheless, the findings reveal that it is not yet common practice in Italian public UHAs. A great variability in the way in which the sixteen key stakeholder groups are involved in APRs emerged. Greater priority is given to three stakeholder groups (patients, managers and regional government), while all the other mapped groups are poorly contemplated by APRs. Indeed, only one UHA fully involves all stakeholders in its performance report, while sixteen UHAs involve at least ten. The remaining UHAs showed a weak, scarce or even absent involvement for stakeholders. From these results it can be argued that Italian UHAs are not yet fully aware of the importance of involving stakeholders in reporting performance results. It appears, in fact, that the APR is perceived as a normative fulfillment rather than as a performance management tool with which to share findings concerning value creation and achievement to stakeholders. Therefore, full stakeholder involvement needs to be encouraged in order to meet different interests and better manage multiple relationships.

The APR is an important document in the UHA performance management cycle, which is affected by various pressures and the need to respond to stakeholder information requests. In addition, it could be used as a managerial tool with which to integrate the limited disclosures provided by traditional financial statements that merely focus on financial performance. Indeed, multidimensional performance disclosures are needed for stakeholders who want greater accountability by way of a more suitable integrated performance report. However, the suitability of stakeholder information within performance reporting documents is strongly connected to the ability to involve stakeholders in performance management and the reporting processes themselves. Therefore, involving stakeholder is a main prerequisite for developing suitable performance reporting systems; this may become essential for ensuring the sustainability of university hospitals since present and potential stakeholders appear to have a growing influence on their governance.

Further research would be helpful to better understand performance reporting systems in university hospitals. The study of the Italian experience may suggest ideas for future research; it may also help university hospital managers and policymakers to better determine and manage relevant stakeholder relationships, giving them greater awareness of the importance of involving stakeholders in performance reports in order to meet their information needs.

ABBREVIATIONS

UHs, University Hospitals; **UHAs,** University Hospitals Authorities; **APRs,** Annual Performance Reports; **SSN,** National Health Service (*Servizio Sanitario Nazionale*); **LHAs,** Local Health Authorities; **HAs,** Hospital Authorities; **SIRHs,** Scientific Institutes for Research and Healthcare; **LEA,** Essential Levels of Care (*Livelli Essenziali di Assistenza*).

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Professional satisfaction of public university instructors in Bangladesh: A case of Rajshahi University

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Professional satisfaction commonly termed as job satisfaction or employee satisfaction has been one of the key contents of human resource management, organizational behavior, and industrial psychology. Satisfied employees can be more productive and can have significant contribution to organizational success. High levels of job satisfaction could also be a sign of emotional wellness or mental fitness. Teaching is a noble profession. Instructors perform a noble duty in the country. Rajshahi University is the second largest public university in Bangladesh. More than eleven hundred Instructors are working here. The study was undertaken with an intention of assessing the degree of professional satisfaction of instructors of different disciplines and positions. Primary and secondary data have been used to achieve the objectives of the study. The questionnaires prepared for this purpose are applied to 205 Instructors who are currently working in Rajshahi University, Bangladesh. It was also intended to identify factors having strong influence on professional satisfaction of the respondents. 70.70% of the Instructors expressed satisfaction about their professional issues. Only 5.9% Instructors reported high satisfaction and 23.4% moderate satisfaction about their jobs. Study leave, scope to express ideas and views and pension facilities were identified as the most attractive professional factors by the respondents. No significant differences were observed between the degree of satisfaction and demographic profile of the respondents.

Key words: Public university instructors, professional satisfaction, Rajshahi University, Bangladesh.

INTRODUCTION

The term job satisfaction has been defined by scholars in many ways. According to Robbins and Coulter (2010), “Job satisfaction refers to a person’s general attitude toward his or her job”. Kalleberg (1977) opined that "Job satisfaction refers to an overall affective orientation on the part of individuals toward work roles which they are presently occupying." Locke (1976) defined job satisfaction as “a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences." A large volume number of studies have identified two major groups of variables as important determinants of satisfaction. These groups are the

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demographic characteristics of the employees and the characteristics of the work environment (Reiner and Zhao, 1999). Identification of personal and environmental factors determining job satisfaction, impact of job satisfaction on employee performance, relation between job satisfaction and turnover intentions, job satisfaction and employee commitment, influence of demographic characteristics (age, gender, experience, education, marital status) on employees satisfaction level are the main research questions addressed by the researchers.

Problem statement

Competent, committed and contented Instructors are prime preconditions of quality education of all levels. Tertiary education in Bangladesh is provided by public and private sector universities and private and government colleges. Quality education can produce skill manpower who will contribute for socio-economic development of a country. Well-designed curricula, better infrastructural facilities, and good education policy may not ensure quality education if Instructors do not feel satisfied with their jobs. Out of forty public universities Rajshahi University is the second largest university in terms of the number of students, Instructors, departments, institutes, in Bangladesh (Appendix Table A1). The highest numbers of students (36,606) are receiving higher education under 57 departments and 6 institutions. A total of 1157 Instructors, including 218 females of different disciplines are serving the university (Appendix Table A2). 64.31% of the university has higher professional degree, Ph.D. 45.20% of the Instructors are in the rank of professor, 25.84% are serving as associate professors, 24.81% are assistant professors, and only 4.15% are lecturers (Appendix Table A3 to A9).

Like other public universities, except the newly established ones, teacher selection in Rajshahi University is done only on the basis of academic records and performance of selection board. Normally toppers desire to be Instructors of university. The Instructors of most of the departments have moderate work load. Promotion policy like other public universities is liberal. Infrastructural facilities including transportation, residence, internet facilities are good. Instructors enjoy the right to form profession association, elect their representatives for Instructors' association and the syndicate, the highest executive authority of the university. Instructors enjoy liberty to express individual thoughts and opinions. Instructors of all ranks can take part in decision making process as a member of academic committee, professors as a member of faculty and academic council.

In Bangladesh some studies have been done on Instructors of private universities; few researches have been carried out on Instructors of both public and private universities to make a comparison between professional satisfaction of public and private sector universities. This article is an outcome of a project executed under Annual Development Program (ADP) of Rajshahi University.

LITERATURE REVIEW

Research on job satisfaction is extremely an important issue to employers, managers, and policy makers as employees' satisfaction can greatly influence organizational success. Competent and committed employees can make efficient utilization of other organizational resources. Employees' commitment towards the job and the employing organization depends largely on their level of job satisfaction. The study on job satisfaction has a history of more than eighty years which began with the publication of Robert Happock's monograph on job satisfaction in the 1930's (Khaleque, 1984). Since then a huge number of studies have been done on employees of different professions both in developed and developing countries and in service and manufacturing sectors. According to an estimate of Locke (1976) more than 4000 articles had been published on this topic up to 1976. In Bangladesh a good number of studies have been done on employees of industries, banks, NGOs, and educational institutions.

Hossain, (1995) in his PhD dissertation on 'Job Satisfaction of Commercial Bank Employees in Bangladesh' observed that public sector bank employees were more satisfied with their job than the private sector bank employees and executives were more satisfied than non-executives. Propensity to quit the job was found significantly higher among the non-executives than the executives. The study identified significant positive correlation between job satisfaction and performance and significant negative correlation between job satisfaction and job stress, and job satisfaction and propensity to quit the job.

Ali and Akhter (2009) investigated level of job satisfaction among the faculty members of private universities of Bangladesh. The study concluded with the facts that faculty members were overall satisfied with their present condition, except the factors like training facilities and some physical facilities and distribution of courses. The study found no significant difference between male and female faculty members regarding job satisfaction.

Sadeghi et al. (2012) studied impact of demographic profile on academic staff's job satisfaction in Malaysian Research Universities. Results were analyzed in terms of intrinsic, extrinsic, and overall job satisfactions. The academic staffs were found to be at the moderate satisfaction level. Gender, academic rank, and age were identified as the influencing factors for academic staff job satisfaction, while their level of education was not.

Bari et al. (2013) concluded that freedom, career development plan, valuation of employees, learning programs, open and comfortable work environment and

good supervisory relations have positive impacts on employee attitude and performance in the workplace. The researchers suggested that factors having positive impacts on employee attitudes and performance should be rightly focused so that they can enhance the performance of employee and create a positive work environment which will also help grow the institute and its productivity.

Zaman et al. (2014) studied the job satisfaction of the faculty of private University in Bangladesh. The study revealed that salary and fringe benefits, opportunity for scholarly pursuit, course load, quality students, office and lab facilities, independency about work, professional relationship and interaction with other faculties, job security, relationship with administration, opportunity to develop new ideas, relationship with immediate superior/ dept, head/Pro-VC/VC and opportunity for promotion e.t.c., significantly influence job satisfaction of faculty members in private universities in Bangladesh. In this study, it is found that only 8 percent are very satisfied about their job. Also 45, 40, 3.33 and 3.33% of the respondents are satisfied, neutral, very dissatisfied and dissatisfied respectively about their job.

Bochen et al. (2015) conducted a study on university Instructors of Shenyang, China. The objectives of this study were to assess the level of job satisfaction among university Instructors and to clarify the associated factors. The average score of overall job satisfaction was 69.71. The study revealed that turnover intention, occupational stress and chronic disease all had negative impacts on job satisfaction, whereas perceived organizational support, psychological capital and higher monthly income were positively associated with job satisfaction among the university Instructors. Age was also linked to the level of job satisfaction.

Kumar (2016b) conducted a comprehensive study on "Job Satisfaction of Commercial Bank Employees in Bangladesh: An Empirical study "The study indicated that public sector bank employees were more satisfied with their job than the private sector bank employees. The study found a significant positive correlation between job satisfaction and job related variables. The study showed that significant differences existed between employees of public sector banks and private sector banks regarding pay and increments. The employees of private sector banks were more satisfied with pay increments and revisions than those of public sector banks employees. The employees of public sector banks were more satisfied with job security than that of private sector banks employees.

Kumar (2016a) investigated impact of compensation on Instructors' job satisfaction of primary and secondary schools and college Instructors in Bangladesh. The study observed a significant relation between the compensation factors and the job satisfaction of the Instructors. Job advancement, job security, medical service facilities, promotion facilities, working environment, bonus and other allowances and retirement allowances were reported as the important factors for Instructors' job satisfaction. Instructors were unhappy with their pay, promotion, retirement allowances, bonus and other benefits, medical facilities and transportation facilities.

Tilak and Lalita (2013) investigated the present level of job satisfaction among the private and govt. school Instructors. The study revealed that there was no significant difference in the level of satisfaction of male and female Instructors. The study also revealed that there was no significant difference in the level of satisfaction of government and private school Instructors.

Study objectives

1. To ascertain overall level of professional satisfaction of Rajshahi University Instructors.
2. To assess individual job facets satisfaction of Rajshahi University Instructors.
3. To identify job facets having more influence on professional satisfaction of the respondents.
4. To identify impact of demographic profile of respondents on their professional satisfaction.

Study hypotheses

To achieve the objectives of the present study, two null hypotheses were developed:

Ho: There is no significant impact of the job elements on Instructors' professional satisfaction.
Ho: There is no significant impact of demographic variables on the level of professional satisfaction.

METHODOLOGY

The study followed a quantitative approach to achieve the objectives of this study, which was descriptive in nature. There were six demographic variables such as age, gender, marital status, employment status, educational qualifications and faculties. Thirty two independent variables and one dependent variable 'Professional Satisfaction' were taken for investigation. Simple random sampling technique was used to collect the data. Both primary and secondary data have been collected for the purpose of the study. Five point Likert scale (0.01 to 1.00=Very Dissatisfied, 1.01 to 2.00 = Dissatisfied, 2.01 to 3.00 = Moderately Satisfied, 3.01 to 4.00 = Satisfied, 4.01 to 5.00 = Very Satisfied) had been used in the survey. A total of 205 respondents were taken from four category Instructors of Rajshahi University. In determining sample size Yamane (1967: P. 886) simplified formula was applied.

$$n = \frac{N}{1 + \mathrm{N}(\mathrm{e})^2}$$

Where n is the sample size, N is the population size (1157 Instructors), and e is the level of precision (± 6%). The minimum sample size stood at:

Table 1. Reliability analysis of independent and dependent variables.

Cronbach's alpha	N of items
0.825	33

Source: Field Survey.

Table 2. Distribution of the respondents by job satisfaction.

Subject	Frequency	Percent	Valid percent	Cumulative percent
Very satisfied	12	23.4	23.4	23.4
Satisfied	145	70.7	70.7	94.1
Moderately satisfied	48	5.9	5.9	100.0
Total	205	100.0	100.0	-

Source: Field Survey.

$$n = \frac{N}{1+N(e)^2} = \frac{1157}{1+1157(0.06)^2} = 224$$

A total of 224 structured questionnaires were distributed among 224 Rajshahi university Instructors. Out of 224, 205 complete questionnaires were received. All types of data were processed through computer based Statistical Product and Service Solutions, an IBM software (Hejase and Hejase, 2013, P 58). Before feeding the data into a computer, all data were converted into numerical codes and the details of these coding were recorded in a code book. The descriptive statistics was based on frequency percentage, mean, standard deviation, crosstab analysis, correlation analysis and regression analysis.

RESULTS AND DISCUSSION

Analysis and interpretation of data

It is seen from Table 1 that the Cronbach's alpha value (α) was found 0.825 from 32 independent variables and 01 dependent variable, which was higher than the minimum acceptable level 0.70 suggested by Nunnally (1978). Though, according to Hejase and Hejase (2013, P 570), "the generally agreed upon lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research."

Demographics analysis

78.5% (161 out of 205) were male and 21.5% (44 out of 205) were female. Also, 38.0% of the instructors belong to age group of 31 to 40 years, 28.8% instructors belong to the age group of 41 to 50 years. It is also observed that a moderate number, 14.1%, of instructors are with age of 51 to 60 years. The youngest instructors in the age group '25 to 30' years constituted 14.6%. Further, 92.2 % (189 out of 205) are married, 16 or 7.8% (16 out of 205) of the respondents are unmarried. In terms of employment status, 33.2% (68) of the instructors were in the rank of Professor, 22.9% (47) of the instructors were Associate Professor, 23.4% (48) instructors were Assistant Professor and 20.5% (42) instructors were Lecturers. Moreover, 51.7%, (106) obtained PhD degree, 40.5% (83) obtained Master's Degree and above and 7.8% (16) earned MS/MPhil degree. Finally, 10.7% (22 out of 205) of the instructors belong to Arts Faculty, 30 or 14.6% of the instructors were in Business Studies Faculty, 43 or 21.0% of the instructors were in Science Faculty, 30 or 14.1% of the instructors were in Social Science Faculty, 6 or 2.9 % of the instructors were from Engineering Faculty, 62 or 30.2% of the instructors were from Life and Earth Science Faculty, 7 or 3.4% were from the Faculty of Agriculture, and 6 or 2.9% of the instructors represented the Law Faculty.

Table 2 provides information about general satisfaction level of Instructors. Results shows that 70.7% of respondents (145) were satisfied, 48 or 23.4% respondents were moderately satisfied and only 12 or 5.9% respondents were found to be very satisfied.

Table 3 reports the mean and standard deviation of the selected variables results show that among the group variables; 'Nature of the Job' has the highest mean value 4.39. It was followed by Job Security with mean value 3.84 and Promotion Policy with mean value 3.72 Autonomy in Job scored the lowest mean value 3.44. Mean value of salary and other financial benefit and working environment were 3.63 and 3.53, respectively.

Table 4 presents the correlations of demographic variables and dependent variables (Professional Satisfaction). The relationship is significant at P = 0.01 and P = 0.05 (2 tailed). Gender, age, marital status and faculty showed positive relation with professional satisfaction. Employment status and highest degree showed the negative relation with professional satisfaction.

Table 3. Distribution of independent and dependent variables according to mean.

Name of variable		Mean	Mean	Std. deviation
Nature of the job (5)	Teaching require more intellectual ability and effort	4.72	4.39	0.61
	Teaching is different from clerical and administrative job	4.57		0.65
	Teaching is a severe activity	3.82		1.17
	Teaching in University is more prestigious	4.44		0.75
	I feel proud to be a teacher of RU	4.4		0.74
Salary and other financial benefits (5)	I feel I am being paid a fair amount for the work I do	2.29	3.63	1.17
	I am satisfied with the remuneration for exam related activities	2.55		1.12
	Study leave with pay is an attractive opportunity for university Instructors	4.36		0.62
	Study leave is treated as active service	4.07		0.95
	I think university Instructors deserve a separate pay structure	4.86		0.59
Working environment (5)	My department is supportive	3.9	3.53	0.91
	I work in a safe and comfortable environment	3.32		1.15
	I get enough support from my colleagues	3.48		1.02
	I feel encourage to come to work every day	3.68		0.91
	The environment of my class room and other teaching facilities and satisfactory	3.27		1.25
Autonomy in job (5)	Enough scope for self-development	3.75	3.44	1.06
	Work load is fairly distributed	3.39		0.96
	I can freely express ideas and views	3.42		1.18
	Equal opportunity to take part in decision making process	2.99		1.19
	Enough scope for research and higher studies	3.63		1.17
Job security (7)	University Instructors enjoy highest level of job security	3.93	3.84	0.95
	It is not easy terminate a teacher	3.83		0.91
	Health insurance policy of RU is satisfactory	3.3		1.11
	PF and Pension policy of RU is satisfactory	3.64		1.1
	Retirement time of RU is justified	3.8		0.92
	I think job security has a great impact on my performance	4.16		0.74
	I think Provident fund and the Pension system are the security of my future	4.22		0.85
Promotion policy (5)	Promotion policy of RU is well defined and well justified	3.49	3.72	1.11
	I am satisfied with my present position	3.97		0.76
	Promotion policy rightly considers the contribution of Instructors	3.2		1.13
	promotion criteria of RU are a bit liberal	3.77		0.82
	Promotion policy of RU needs to be revised	4.15		1.11

Source: Field survey.

Table 4. Correlations of demographic variables and dependent variables

Subject	Professional satisfaction	Gender	Age	Marital status	Employment status	Highest degree	Faculty (discipline)
Professional satisfaction	1	0.087	0.137(*)	0.007	-0.048	-0.060	0.128
Gender		1	-0.313(**)	-0.247(**)	0.202(**)	-.049	0.237(**)
Age			1	0.260(**)	-0.815(**)	.600(**)	0.023
Marital status				1	-0.321(**)	.282(**)	0.042
Employment status					1	-.722(**)	-0.011
Highest degree						1	0.088
Faculty							1

* Correlation is significant at the 0.05 level (2-tailed).** Correlation is significant at the 0.01 level (2-tailed).

Table 5. Model summary.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.849(a)	0.721	0.670	0.29485

Source: Field Survey

Table 6. ANOVA (b)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	38.725	32	1.210	13.919	0.000(a)
	Residual	14.953	172	0.087		
	Total	53.678	204			

Source: Field Survey

Tables 5 to 7 represent the regression analysis. The analysis shows that the R Square value is 0.721. It indicates that a good proportion of variation (72.10%) exists between the dependent variable (Instructors' job satisfaction) is explained by the total variation of the valid independent variables. From all the independent variables significant values of only three variables, (like;
1. Study leave is treated as active service;
2. I can freely express ideas and views and;
3. PF and Pension policy of RU is satisfactory) are less than the P value 0.05. It indicates that the Instructors think these three things are very important for their job satisfaction.

Major findings of the study

The main findings of the study conducted on" Professional Satisfaction of Public University Instructors in Bangladesh: A Case of Rajshahi University is summarized as follows:

The overall level of professional satisfaction Instructors revealed that (70.73%) (145 out of 205) were satisfied; 23.41% (48) were moderately satisfied and only 15.83% (12) Instructors were found to be very satisfied (Table 2).

Out of six group variables 'Nature of Job' earned the highest mean score 4.39. It was succeeded by 'Job Security' 'Promotion Policy' 'Salary and other Financial Benefits' with mean scores of 3.84, 3.72 and 3.63, respectively. 'Autonomy in Job' received minimum mean score 3.44 which was preceded by 'Working Environment' with mean score 3.53. Mean scores are indicatives of degree of satisfaction of Instructors regarding group job facets. According to mean scores Instructors were very satisfied with 'Nature of job satisfied with 'Job security' 'Promotion Policy' 'Salary and other Financial Benefits' 'Autonomy in Job' and 'Working Environment' (Table 3).

Gender, age, marital status and faculty showed positive relation with professional satisfaction. Employment status and highest degree showed negative relation with professional satisfaction (Table 4).

Consideration of study leave as active service, freedom of expressing ideas and views, provident fund and pension policy gained more weights as facets of professional satisfaction (Table 5). Business, Science

Table 7. Coefficients (c)

Subject	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
(Constant)	0.203	0.479		0.424	0.672
Teaching require more intellectual ability and effort	0.029	0.052	0.034	0.551	0.582
Teaching is different from clerical and administrative job	0.014	0.039	0.017	0.351	0.726
Teaching is a severe activity	0.055	0.030	0.126	1.866	0.064
Teaching in University is more prestigious	0.035	0.052	0.050	0.664	0.508
I feel proud to be a teacher of RU	0.082	0.052	0.117	10.573	0.118
I feel I am being paid a fair amount for the work I do	-0.024	0.029	-0.054	-00.820	0.413
I am satisfied with the remuneration for exam related activities	0.033	0.037	0.072	00.901	0.369
Study leave with pay is an attractive opportunity for university Instructors	0.032	0.043	0.038	00.751	0.454
Study leave is treated as active service	0.092	0.042	0.171	200.214	***0.028***
I think university Instructors deserve a separate pay structure	-0.045	0.050	-0.052	-00.899	0.370
My department is supportive	-0.016	0.034	-0.028	-00.468	0.640
I work in a safe and comfortable environment	0.068	0.038	0.152	100.810	0.072
I get enough support from my colleagues	0.068	0.046	0.135	100.483	0.140
I feel encourage to come to work every day	-0.044	0.037	-0.078	-100.196	0.233
The environment of my class room and other teaching facilities and satisfactory	0.038	0.030	0.093	100.280	0.202
Enough scope for self-development	0.037	0.035	0.076	100.038	0.301
Work load is fairly distributed	0.016	0.037	0.030	00.423	0.673
I can freely express ideas and views	0.082	0.027	0.189	300.083	***0.002***
Equal opportunity to take part in decision making process	-0.007	0.034	-0.015	-000.194	0.847
Enough scope for research and higher studies	0.034	0.030	0.077	1000.116	0.266
University Instructors enjoy highest level of job security	0.002	0.035	0.004	0000.056	0.955
It is not easy terminate a teacher	0.043	0.034	0.077	10000.254	0.211
Health insurance policy of RU is satisfactory	-0.008	0.034	-0.017	-00000.240	0.810
PF and Pension policy of RU is satisfactory	0.151	0.035	0.324	400000.308	***0.000***
Retirement time of RU is justified	0.008	0.034	0.014	000000.238	0.812
I think job security has a great impact on my performance	0.072	0.039	0.104	1000000.847	0.066
I think Provident fund and the Pension system are the security of my future	-0.003	0.036	-0.005	-0000000.090	0.929
Promotion policy of RU is well defined and well justified	0.014	0.034	0.030	0000000.412	0.681
I am satisfied with my present position	0.029	0.040	0.042	0000000.718	0.474
Promotion policy rightly considers the contribution of Instructors	0.014	0.031	0.031	0000000.444	0.658
promotion criteria of RU are a bit liberal	0.069	0.038	0.110	1.833	0.069
Promotion policy of RU needs to be revised	-0.011	0.027	-0.024	-.395	0.693

Source: Field Survey; a Dependent Variable: Job Satisfaction

and law faculty Instructors are comparatively more satisfied than other faculty Instructors.

CONCLUSION AND RECOMMENDATIONS

Employers, policy makers and academicians have been showing great concern about job satisfaction with the thought that satisfied employees can be more productive and can have significant contribution to organizational success. From this study it can be argued that if Instructors are well satisfied, they will be encouraged, assured and will have positive feelings towards their job and this would result in job satisfaction. According to Kumar and Hossain (2017) extrinsic and intrinsic motivational factors have a positive influence on instructors' motivation. The instructors think that extrinsic factors have a greater effect than the intrinsic factors in their job, and they also think job advancement, job security, bonus and other financial facilities, and promotion facilities are the most important factors for their motivation. The findings imply that most of the Instructors are satisfied about their job. Instructors are putting more importance on consideration of study leave as active

service, freedom of expressing own ideas, and provident fund and pension policy. Therefore, the authority should address issues relating to common interest of Instructors to enhance teacher's job satisfaction. Based on the findings of the study, it can be concluded that public university Instructors in Bangladesh are satisfied about their job. This research can be good guidelines for human resource management practices in the education sector in Bangladesh. Some specific recommendations from the researcher's observation are given as follows:

1. Students' evaluation system may be introduced so that performance of Instructors can be judged by the main stakeholder of the university.
2. Equitable distribution of physical facilities among Instructors and departments.
3. Financial support, in the form of scholarship should be provided to young Instructors so that they can pursue higher degree.
4. Special recognition for extraordinary performance in research and teaching.
5. Promotion policy may be re-designed to induce teacher for better research and teaching.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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APPENDIX

Table A1. Top five public universities in Bangladesh.

SL	Name of University	Number of faculty	Number of department	Number of institutions	Number of students	Number of instructors
01	Dhaka University	13	82	12	32251	2257
02	Rajshahi University	10	57	06	36606	1220
03	Chittagong University	09	43	09	23836	1179
04	Jahangirnagor University	06	34	03	16931	752
05	BUET	05	18	06	9780	686

Source: UGC, Annual report (2016).

Table A2. Faculty (discipline) and gender wise distribution of instructors.

SL	Name of faculty	Number of departments	Number of instructors		
			Male	Female	Total
01	Faculty of Arts	11	159	49	208
02	Faculty of Law	02	20	06	26
03	Faculty of Science	09	198	36	234
04	Faculty of Business Studies	05	84	13	97
05	Faculty of Social Science	10	129	35	164
06	Faculty of Life and Earth	07	114	34	148
07	Faculty of Agriculture	04	68	14	82
08	Faculty of Engineering	06	104	18	122
09	Faculty of Fine Arts	03	29	06	35
10	Institutions	06	34	07	41
Total (Dep. 57; Ins 06)		63	939	218	1157

Source: Compiled from Rajshahi University Diary (2018).

Table A3. Designation wise distribution of Instructors.

SL	Name of faculty	Designation of instructors				
		Professor	Associate Professor	Assistant Professor	Lecturer	Total
01	Faculty of Arts	88	53	64	03	208
02	Faculty of Law	05	12	09	00	26
03	Faculty of Science	125	63	43	03	234
04	Faculty of Business Studies	55	16	24	02	97
05	Faculty of Social Science	54	59	47	04	164
06	Faculty of Life and Earth	80	24	32	12	148
07	Faculty of Agriculture	41	22	13	06	82
08	Faculty of Engineering	40	30	43	09	122
09	Faculty of Fine Arts	16	09	05	05	35
10	Institutions	19	11	07	04	41
Total		523	299	287	48	1157

Source: compiled from Rajshahi University Diary (2018).

Table A4. Gender * job satisfaction cross tabulation.

Subject		Job satisfaction			Total
		Moderately satisfied	Satisfied	Very satisfied	
Gender	Male	41	111	9	161
	Female	7	34	3	44
Total		48	145	12	205

Source: Field survey.

Table A5. Age * job satisfaction cross tabulation.

Subject		Job satisfaction			Total
		Moderately satisfied	Satisfied	Very satisfied	
Age	25-30	10	20	0	30
	31-40	22	51	5	78
	41-50	8	48	3	59
	51-60	6	19	4	29
	Above 60	2	7	0	9
Total		48	145	12	205

Source: Field survey.

Table A6. Marital status * job satisfaction cross tabulation.

Subject		Job satisfaction			Total
		Moderately satisfied	Satisfied	Very satisfied	
Marital status	Unmarried	4	11	1	16
	Married	44	134	11	189
Total		48	145	12	205

Source: Field survey.

Table A7. Employment status * job satisfaction cross tabulation.

Subject		Job satisfaction			Total
		Moderately satisfied	Satisfied	Very satisfied	
Employment status	Professor	14	50	4	68
	Associate Professor	10	33	4	47
	Assistant Professor	14	33	1	48
	Lecturer	10	29	3	42
Total		48	145	12	205

Source: Field survey.

Table A8. Highest degree * job satisfaction cross tabulation.

Subject		Job satisfaction			Total
		Moderately satisfied	Satisfied	Very satisfied	
Highest degree	Masters	21	55	7	83
	MS/M.Phil	0	14	2	16
	PhD	27	76	3	106
Total		48	145	12	205

Source: Field survey.

Table A9. Faculty * job satisfaction cross tabulation.

Subject		Job Satisfaction			Total
		Moderately satisfied	Satisfied	Very satisfied	
Faculty	Arts	12	10	0	22
	Business Studies	4	22	4	30
	Science	10	30	3	43
	Social Science	9	20	0	29
	Engineering	1	5	0	6
	Life and Earth Science	9	48	5	62
	Agriculture	3	4	0	7
	Law	0	6	0	6
Total		48	145	12	205

Source: Field Survey.

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Bushehr University of Medical Sciences physicians: Role of individual, organizational and technical factors affecting knowledge sharing

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The main purpose of sharing knowledge is to provide the necessary ground for realization of knowledge management, and then, a transformation of organization knowledge into an effective organizational source. The purpose of this study was to determine the role of individual and organizational technical and cultural factors affecting knowledge sharing among physicians of BUMS, in 2017. This is a descriptive-analytical survey where a self-administered questionnaire is used as a research tool. The research population is constituted of 30 general practitioners, 124 specialists and sub-specialist, and 30 fellowships. Sampling is performed by proportional stratified random method. The results are analyzed SPSS software, version 19. The findings of this study indicated that, in respective order, individual factors, with mean value of 3.54, and cultural factors, with mean value of 3.47, have the highest and lowest effect on knowledge sharing of physicians of BUMS in 2017. In the meanwhile, credit gain index in the organization with mean value of 3.88, and the loss of individual power with mean value of 2.88 have the highest and the lowest impact on knowledge sharing of this group, respectively. According to the findings of this study and positive attitude of physicians of BUMS toward knowledge sharing and its role in obtaining academic authority, it is worthwhile for health and medical educators to pay more attention to this issue and ask medical informants and librarians' help to promote knowledge sharing. This article assessed the role of knowledge sharing among BUMS' physicians which is based on their viewpoints and the role of medical informants in 2017, whose data have been collected using a quantitative and descriptive-analytic method.

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Key words: Medical informants, knowledge sharing, knowledge management, cultural factors, academic authority, BUMS.

INTRODUCTION

In today's world where competition is a principle, gaining competitive advantage and value added is one of the major concerns of managers. Human resource is one of the most important assets to creating competitive advantage, and employees who have more knowledge are of more value to the organizations that invest more

on them (Akhavan and Rahimi, 2013). In fact, to gain competitive advantage, knowledge should be considered as an important organizational resource, and it is imperative for the employees to pay attention to it because, it is regarded as foundation of a dynamic economy and superiority of organizations. Most new organizations have come to realize that, in order to gain value added, there should be a knowledge flow, and in this way, knowledge management can manage all changes in the business area through measures such as effective attracting, storing, and knowledge sharing in a variety of ways. Knowledge sharing is a fundamental tool through which employees can advance knowledge, innovation and competitive advantage programs of the organization (Salavati et al., 2014; Wang and Noe, 2010).

Nowadays, knowledge management can be defined as a systematic approach for gaining, consolidating and distributing knowledge across an organization in order to speed up doing things, use best practices and avoid redundancies and knowledge management; and according to this definition, it can capture all knowledge processes (Hadizade et al., 2013). In order to succeed against other rivals, organizations need to deploy knowledge management so as to achieve a learning organization that constantly updates knowledge. To be useful, knowledge management has to be compatible with existing organizational culture and structure; because, each organization has its own culture and organizational structure, and poor organizational culture results in inefficient organization. Thus, only changing and creating an appropriate and flexible organizational culture prepares the ground for interaction of individuals in the organization and deployment of knowledge management. Added to this, it can be argued that organizational structure also plays a part in knowledge management process and determines the flow of information which, in turn, leads to decision making and, in the absence of knowledge management, will disrupt the structure and all organizational activities (Jafari et al., 2011). One of the key factors in knowledge management is the organization ability in transferring and sharing knowledge; because, in today's growing world, only dynamic and knowledge-based organizations that can overcome growing changes of the day and flourish. To this end, the only way for employees is to use new and up-to-date knowledge and effective sharing of it among themselves. Since knowledge first develops in the minds of individuals, knowledge sharing is the only way of turning individual knowledge to organizational knowledge (Taheri, 2012; Rafva, 2011). In addition to developing creativity in the organization, purposeful sharing of knowledge is important because it leads to faster individual and organizational learning, and ultimately, it improves the performance of individual and organization. That is why organizations should not only develop knowledge sharing in their organization, but also institutionalize and empower it among their employees and encourage them to use it (Shimazu H, Koike, 2007).

Like other organizations, hospitals have specific culture and organizational structure that suits their needs to achieve their goals. Their structural and cultural dimensions are similar to those of industrial and non-industrial organizations; however, given the differences in goals and responsibilities of hospitals, the model used in them differs from other organizations. The structure that management scholars currently agreed upon for hospitals is the one that provides the necessary stability within the hospital and community and can establish a balance between hospital management and its medical staff. Currently, the government is specially focused on science and knowledge systems in Iranian vision document in 1404 (Entezari and Mahjub, 2014). In the meanwhile, medical informants can also be considered as an effective factor in creating this value and trust among members of health organizations for knowledge sharing. That is, being aware of new publications in the field of medicine and new sources of information and new findings in the field of medicine, and familiarity with social networks, in addition to meeting the users' information needs, medical informants encourage them to participate in knowledge sharing so as to create trust and confidence in each other; besides that, they also play a role in promoting the level of specialized knowledge and increasing user interactions, and in sum, facilitate knowledge sharing (Dokht and Zarei, 2014).

During the course of service in health centers and hospitals, doctors deal with various patients and experience different therapies and specialties, each of which is a valuable asset to them.

Physicians working at the Persian Gulf Martyrs hospital have diverse internal, surgical, gynecological and pediatric expertise. If the knowledge and skills acquired by each of them are not transferred to their colleagues, after losing each doctor for any reason, that medical center loses a precious asset, and given the complex competitive environment at the current treatment centers, this issue may bring about irreparable damages. Therefore, with respect to research gap in this area, the current study attempts to investigate knowledge sharing and factors affecting it among general practitioners (21), specialists (84), sub-specialists (15) and fellowships (5) of BUMS and reviews applicable suggestions to improve

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knowledge sharing among this group.

LITERATURE REVIEW

A review of various views of knowledge management experts suggests that knowledge sharing is the basis of knowledge management from different conceptual aspects. Generally, in literature reviews, knowledge sharing has been discussed by various groups, which is important in considering the society's need to share knowledge and experiences in all areas (Li and Lowe, 2016). It was also stated that interpersonal trust plays an important role in knowledge sharing, because, until this trust is established, employees are by no means willing to share their experiences (Wu et al., 2009). In addition to the trust factor which is the most important one, other factors such as cognitive factors, motivation that include mental attitudes and norms, beliefs about knowledge ownership, perceived benefits and costs, and the perception of justice also affect knowledge sharing (Wu et al., 2009). People's attitude toward a particular behavior, such as knowledge sharing, can affect their intent to do that, and, moreover, can have a great effect on any individual's actual performance. In case people feel that through knowledge sharing they have lost their position in society, they will refuse to do so (Wang and Noe, 2010; Seonghee and Boryung, 2008).

Despite many studies that have been carried out on knowledge managing and sharing in various organizations and businesses, research evidence points to the importance of sharing and transferring knowledge in healthcare organizations, especially among physicians and their impact on individuals' health and survival. According to the literature, limited researches are observed in this field. Many studies are available in this field, but there are limited numbers of researches done in knowledge sharing among physicians. Tables 1 and 2 list a review of these papers. These tables describe studies that examine the factors affecting knowledge sharing in national and international level.

In the literature, willingness of different groups of different organizations for knowledge sharing was discussed. Considering the social need to share knowledge and experiences in all areas, it is worth reflecting on. Also, organizational learning and organizational culture play a significant role in knowledge sharing. Beside these issues, organizational learning is significantly associated with knowledge sharing and organizational culture and consequently, supports organizational learning. In fact, among the factors affecting organizational learning, knowledge sharing and common culture play an important role and improve organizational learning (Nugroho, 2018).

Furthermore, shared viewpoint was introduced as the most influential factor in physicians' view to knowledge sharing, and it was argued that subjective norms have strong effects on behavioral intentions for knowledge sharing of physicians (Smit et al., 2014). Attitude was also an important factor in knowledge sharing of physicians (Ryu et al., 2003). Perceived behavioral control also affects the intention to share knowledge (Wang and Noe, 2010). Individuals' attitude toward a particular behavior such as knowledge sharing, can affect their intention for doing it. In addition, the variables of organizational culture, education and information technology have significant and positive effects on knowledge management function (Smit et al., 2014; Dargahi and Dastafkan, 2017; Rajaei et al., 2015).

RESEARCH METHODOLOGY AND DESIGN

This is a descriptive-analytical survey which is also classified as an applied research in term of research purpose. This research is conducted quantitatively using questionnaire as a tool, library resources, and valid articles in reputable scientific journals and databases as well as existing thesis on knowledge management. The research populations of this study are physicians of BUMS in 2017 who were serving in Shohada-ye Khalij-e Fars hospital during the second half of 2017. 184 physicians constitute the research population. The sample size, as determined by Cochran's formula is 125. Sampling is performed by proportional stratified random method. First, a list of general practitioners, specialist, sub-specialist and fellowships, which determines the sampling framework, is taken from the hospital. The research population is categorized in three groups of general practitioners (n=30), specialists (n=124) and fellowships (n=30), then, from each category, the samples are randomly selected in proportion to the initial list. The questionnaires are distributed among selected individuals and they are collected after one month to analyze the results. The results were analyzed by SPSS version 19. The subjects of this study were physicians working at Bushehr Persian Gulf martyrs' educational center in 2017 who were at work in the second half of the year. This center is affiliated with Bushehr University of Medical Sciences and is the only tertiary referral hospital in Bushehr which has internal, surgical, gynecological and pediatric expertise.

Validity and reliability of questionnaire

Questionnaire validity was evaluated by 10 LIS faculty members besides Shohada-ye Khalij-e Fars hospital physicians. Their opinions were included in the questionnaire, and the questionnaire reliability was verified by two methods of test-retest in pilot study and also by Cronbach's alpha method. The pilot study structure was designed as a test-retest questionnaire designed to determine the reliability of 30 Persian Gulf martyrs' educational center physicians. After two weeks, the questionnaire was redistributed to the same 30 people and then re-evaluated as illustrated in Tables 3 and 4).

Demographic profile of research populations

Out of 150 distributed questionnaires, 125 of the physicians of the Persian Gulf Martyrs affiliated to Bushehr University of Medical Sciences and Health Services are studied and then completed the questionnaire (83% response rate). On the basis of information

Table 1. Literature review in national level.

Author	Title	Publication Year	Citations
Rahnavard and Sadr	Relationship between Employees' Perceptions of Knowledge Sharing Culture and Organizational Factors	2009	(Rahnavard and Sadr, 2009)
Beikzad and Doudmani	The Effect of Organizational factors on Performance of Knowledge Management (KM) in Education (Case Study: Ministry of Education, Malekan City Office)	2012	(Beikzad and Doudmani Maleki, 2012)
Syaf	Knowledge Sharing Affecting Factors and its Relationship with Employee Satisfaction in Ahwaz Industrial Towns	2011	(Syaf, 2011)
Alipourdarvish and Dolatabadi	Offering a model on factors affecting physicians' knowledge-sharing intention based on the theory of planned behavior in teaching hospitals affiliated to Tehran University of Medical Sciences	2013	(Alipourdarvish and Dolatabadi, 2013)
Akhavan and Rahimi	The Identification and Prioritization of Motivational Factors Affecting Knowledge-sharing in an Industrial-Research Organization	2013	(Akhavan and Rahimi, 2013)
Soleimani, Pourzaman and Taheri	Investigating the Relationship between Individual Factors of Information Technology and Employees' Knowledge Sharing (From the Perspectives of Employees and Managers of Islamic Azad University)	2013	(Soleimani et al., 2013)
Nemati Anaraki and Nooshin Fard	Intra-organizational Knowledge Sharing Model among Faculty Members based on Individual	2014	(Nemati Anaraki and Nooshin Fard, 2014)
Esmaeil Pour, Kashani and Nekukar	Sharing knowledge: Analyzing role of effective factors on it and ranking factors	2014	(Esmaeil et al., 2014)
Rajaei Azarkhavarani A, Rajaeepour S, Hoveida R, Movahedi F	The Relationship between Knowledge Sharing and Academic Quality Improvement from the Viewpoints of Faculty Members at Isfahan Selected Universities	2015	Rajaei Azarkhavarani et al. (2015)
Rezaei., Faraj Pahloo and Heidari	Cultural Factors Affecting the Participation of Organizational Knowledge	2015	(Rezaei. et al., 2015)
Seif, Sabet Maharlouei, Rastegar and Talebi	Factors Influencing the Willingness to Share Knowledge among Faculty Members of Shiraz University of Medical Sciences	2015	(Seif et al.., 2015)
Fahimeh and Kermani	The Analysis of Individual Factors on Knowledge Sharing Behavior of library and Information Science Faculties	2016	(Fahimeh and Kermani, 2011)
Nadiarpar, Rashkie GhaleNo and Safaei Moghadam	The Effect of Technical and Social Facilitation of Knowledge on Customer Relationship Management in Municipality of Zahedan	2016	(Nadiarpar, Rashkie Ghale No & Safaei, 2016)
Dargahi and Dastafkan	A study of the relationship between organizational culture and individual knowledge hiding among clinical laboratories of the hospitals in Tehran University of Medical Sciences	2017	(Dargahi & Dastafkan, 2017)

Table 2. Literature review in international level.

Author	Title	Publication year	Citation
Ryua, Ho and Han	Knowledge sharing behavior of physicians in hospitals	2003	Ryua, et al. (2003)
Bock, Zmud, Kim and Lee	Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate	2005	Bock et al. (2005)
Kim and Ju	An analysis of faculty perceptions: Attitudes toward knowledge sharing and collaboration an academic institution	2008	Kim and Ju (2008)
Hooff and Huysman	Managing knowledge sharing: Engineering approaches	2009	Hooff and Huysman (2009)
Wu, Lin, Hsu and Yeh	Interpersonal trust and knowledge sharing: Moderating effects of individual altruism and a social interaction environment	2009	Wu et al. (2009)
Wang and Noe	Knowledge sharing: A review and directions for future research	2010	Wang and Noe (2010)
Smit, Lelkens Dolgova and Mulders	Knowledge sharing in a Dutch hospital: An empirical study	2014	Smit et al. (2014)
Li and Lowe	Knowledge sharing in a physician practice group: An exploratory case study	2016	Li and Lowe (2016)
Lin, Lai and Yang	Factors influencing physicians' knowledge sharing on web medical forums	2016	Lin et al. (2016)
Adhi Nugroho	The effects of collaborative cultures and knowledge sharing on organizational learning	2018	Adhi (2018)

Table 3. Reliability of the questionnaire using Cronbach's alpha coefficient.

Variable	Cronbach's alpha coefficient
Individual factors	0.77
Organizational factors	0.7
Technical factors	0.71
Cultural factors	0.76

Table 4. Reliability of the questionnaire using test-retest reliability method.

Variable	Pearson correlation coefficient	Sig.
Individual factors	0.001	0.001>
Organizational factors	0.977	1>
Technical factors	0.976	1>
Cultural factors	0.001	0.001>

gathering tool (questionnaire), seven questions were considered for demographic information examination of subjects. This section includes; age, gender, the degree in medical sciences, work experience, faculty members, teaching experience and type of they taught as depicted in Table 5.

FINDINGS

In this section, based on analysis of the obtained data, the current status of knowledge sharing among physicians of Bushehr University of Medical Sciences in 2017 is described and factors affecting knowledge sharing are determined; description of individual, organizational, technical, and cultural factors affecting the knowledge sharing of physicians.

Answer to the research question

RQ1. What are the most important factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences?

In order to achieve the main research goal, that is, study of the role of individual, organizational, technical and cultural factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences, a questionnaire consisting of 4 main factors with 11 indicators in 5 scales is developed ranging from completely agree to completely disagree. The 4 main factors include individual factors, organizational factors, technical factors and cultural factors. To answer the main research question, a table of mean values of these factors is presented in Table 6.

According to mean values in Table 6, individual factors and cultural factors are the most and least effective factors affecting knowledge sharing of physicians. Thus, individual factors with SD ± mean value equal to 3.54 ± 0.52 are most significant in knowledge sharing among physicians of Bushehr University of Medical Sciences on the other hand; cultural factors with SD ± mean value equal to 3.47 ± 0.48 are the least significant.

RQ2. What are the effects of individual factors on knowledge sharing among physicians of Bushehr University of Medical Sciences?

The purpose of this question is to investigate the role of individual factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences. In order to achieve this goal, 3 main indicators are considered, and the results are presented in Table 7.

Based on the results of Table 7, the research subjects identified *earning credibility in the organization* (mean value ± SD = 3.88 ± 0.71) as the most important factor affecting knowledge sharing of physicians in the organization. After that, *enjoying helping others and solving their problems* (mean value ± SD = 3.70 ± 0.79) is recognized as the second important factor affecting knowledge sharing of physicians. Finally, the least important factor is *losing of individual power* (mean value ± SD = 2.88 ± 0.95).

RQ3. What are the effects of organizational factors on knowledge sharing among physicians of Bushehr University of Medical Sciences?

The purpose of this question is to investigate the role of organizational factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences. In order to achieve this goal, 3 main indicators are considered, and the results are presented in Table 8.

Based on the results of Table 8, the research subjects identified *solidarity and empathy* (mean value ± SD = 3.61 ± 0.67) as the most important factor affecting knowledge sharing of physicians in the organization. After that, *organizational motivators* (mean value ± SD = 3.45 ± 0.75) is recognized as the second important factor affecting knowledge sharing of physicians. Finally, the least important factor among organizational factors is *innovation* (mean value ± SD = 3.33±0.79).

RQ4. What are the effects of technical factors on knowledge sharing among physicians of Bushehr University of Medical Sciences?

The purpose of this question is to investigate the role of technical factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences. In order to achieve this goal, 2 main indicators are considered, and the results are presented in Table 9.

Based on the results of Table 9, the research subjects identified *medical informants* (mean value ± SD = 3.73±0.59) as the most important technical factor affecting knowledge sharing of physicians in the organization. And, the least important factor among technical factor is *tools and technologies* (mean value ± SD = 3.29±0.50).

RQ5. What are the effects of cultural factors on knowledge sharing among physicians of Bushehr University of Medical Sciences?

The purpose of this question is to investigate the role of cultural factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences. In order to achieve this goal, 3 main indicators are considered, and the results are presented in Table 10.

Table 5. Frequency distribution of research populations' demographic and social data.

Variable	Range	Frequency	Percent
Age	20-30	11	8.8
	31-40	19	15.2
	41-50	80	64
	More than 50	15	12
	Total	125	100
Sex	Male	62	49.6
	Female	63	50.4
	Total	125	100
Type of medical degree	General practitioner	21	16.8
	Specialist	84	67.2
	Sub-specialist	15	12
	Fellowship	5	4
	Total	125	100
Work experience (years)	1-5	11	8.8
	6-10	19	15.2
	11-15	77	61.6
	16-20	17	13.6
	More than 20 years	1	0.8
	Total	125	100
Attend	Yes	39	31.2
	No	86	68.8
	Total	125	100
Teaching experience as attend (years)	1-5	8	6.4
	6-10	23	18.4
	11-15	8	6.4
	Not attend and with any teaching experience	86	68.8
	Total	125	100
Types of teaching	Theory	-	-
	Practical and internship	-	-
	Both of them	39	31.2
	Without teaching experience	86	68.8
	Total	125	100

Based on the results of Table 10, the research subjects identified *involvement* (mean value ± SD = 3.67 ± 0.68) as the most important cultural factor affecting knowledge sharing of physicians in the organization. *Confidence* (mean value ± SD = 3.41±0.59) and *support* (mean value ± SD = 3.41 ± 0.75) are also reported as the least important cultural factors affecting knowledge sharing of the physician, respectively.

Discussion and conclusion

Today, organizations have found that they could not continue to work unless they have a strategy to manage and value their organizational knowledge. Organizational culture relies on creativity, and innovation is among the leading elements of knowledge management. Dargahi et al. (2018) was conducted to determine the relationship

Table 6. Frequency of individual, organizational, technical and cultural factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences.

Factor	SD ±Mean value	Max.	Min.
Individual	3.54 ±0.52	5	2
Organizational	3.48 ±0.47	4.57	2.29
Technical	3.51 ±0.41	4.80	2.40
Cultural	3.47 ±0.48	4.50	1.75

Table 7. Frequency of individual factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences.

Individual factor	SD ± mean value	Max.	Min.
Earning credibility in the organization	3.88±0.71	5	1.67
Enjoying helping others and solving their problems	3.70±0.79	5	1.50
Losing individual power	2.88±0.95	5	1

Table 8. Frequency of organizational factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences.

Organizational factor	SD ± mean value	Max.	Min.
Organizational motivators	3.45±0.75	5	1/50
Innovation	3.33±0.79	4/50	1
Solidarity and empathy	3.61±0.67	5	1/33

Table 9. Frequency of technical factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences.

Technical factor	SD ± mean value	Max.	Min.
Medical informants	3.73±0.59	5	2/20
Tools and technologies	3.29±0.50	4/60	2

between knowledge management and creativity and organizational innovation in hospitals affiliated to Tehran University of Medical Sciences. This descriptive-analytic and cross-sectional study was carried out on 120 employees of Tehran University of Medical Sciences in 2012-2013. The results show that the more the knowledge management improves, the more enhanced is the creativity and organizational innovation, and so all policy makers and hospital managers should strive to establish a knowledge management system in order to improve the creativity and innovation in the organization and ultimately, the effectiveness of the hospital performance (Dargahi et al., 2018). In another study aimed to investigate the relationship between knowledge management institutionalization with the job performance of Maskan Bank's employees, research has shown that knowledge management has an impact on their job performance enhancement and improvement. This is an applied research and in terms of implementation, it is a descriptive correlation type. The statistical population consisted of Maskan Bank employees working in Tehran in 2016. The findings of this study showed that the status of knowledge management, empowerment and job performance variables in Maskan Bank was higher than the average. Also, there is a positive and significant relationship between the establishment of KM with the dimensions of empowerment and job performance in Maskan Bank (Davoudi and Damgarzai, 2018).

In the work of Falah (2018) the author provides a model for assessing the impact of KM on empowerment. This

Table 10. Frequency of cultural factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences.

Cultural factors	SD ± mean value	Max.	Min.
Confidence	3.41±0.59	5	2
Involvement	3.67±0.68	5	1/50
Support	3.41±0.75	5	1

research was an applied one with a practical point of view, and in terms of method, descriptive-survey method. Thematically, it designs a conceptual model and using structural equations, it uses Amos software to explain and examine the role of knowledge management as a mediator. In the exploratory interview phase, the statistical population consisted of 16 experts in human resources and in model analysis, the statistical community was composed of employees and managers of the agricultural bank, and 46 samples were selected through a judicious and purposeful method. The results indicate that the intermediary variable of KM plays an important role in that organization to empower employees through a combination of cultural factors and capacity building (Falah, 2018).

One of the approaches of recent studies is to examine the issue of knowledge sharing among healthcare staff. Needless to say, those health organizations face similar issues as other organizations and there is a lot of information and knowledge in their staff's minds. Knowledge stored in their heads and protection of intellectual property by individuals and groups within the organization is so common; however, they rarely use itfor learning or organizational decision making. In this organization, people try to hide their knowledge, as well; because they think that keeping knowledge and experience and not transferring it to others will guarantee their superiority while it is important to recognize importance of factors that lead to knowledge sharing among health practitioners. Physicians and paramedics, as corps that play a key role in community's health, are required to transfer their experiences to one another to help promoting the health level. Therefore, the current research approach is to think of ways that help identifying these factors and planning for the effective sharing of knowledge among this group.

Based on the results of this study, the most affective factors contributing to knowledge sharing among physicians of Bushehr University of Medical Sciences, in respective order, are; individual factors, technical factors, organizational factors and cultural factors. Lin et al. (2016) conducted a research based on theory of social exchange and considering external and subjective motives to identify factors affecting doctors' willingness to share professional knowledge in online medical associations and create a research model to explore the motivations that encourage them to share knowledge. The results of this research indicated that shared view is the most important factor affecting physicians' attitude toward knowledge sharing (Lin et al., 2016). In another research, Van den Hooff and Huysman (2009) investigated knowledge sharing management in six different government agencies. They concluded that having a flexible organizational structure, encouraging organizational culture and widespread use of information technology can positively have effect on individuals and cognitive social relationships which is consistent with the result of this research (Van den Hooff and Huysman, 2009). Seonghee and Boryung (2008) examined faculty members and their associates' attitudes toward knowledge sharing. Factors of trust between members, open social relations, cooperation among individuals and existence of systems for promoting knowledge sharing in the university are introduced as positive to knowledge sharing by the faculty members. Also, there was a positive and significant relationship between trust, cooperation of the members and existence of incentive systems in university with the members' attitude toward knowledge sharing, which is in line with the results of this study (Seonghee and Boryung, 2008). Bock et al. (2005) examined the factors affecting the willingness of managers of several organizations for sharing knowledge in South Korea. They considered the effect of factors such as expected external rewards, expected mutual relationships, and sense of self-worth on attitude toward knowledge sharing as well as the effect of organizational atmosphere and sense of self-worth for subjective norms. According to their findings, there is a significant and positive relationship among the aforementioned factors and it is in line with the current research findings (Bock et al., 2005). Besides, this study is also consistent with the studies conducted by Wang and Noe (2010), Syaf (2011), Alipourdarvish and Dolatabadi (2013), and Akhavan and Rahimi (2013). According to findings of this research, the role of trust, though not ineffective, is less evident than other factors which are not consistent with the findings of Seif et al. (2015).

According to findings of this research, individual factors have affected the physicians' knowledge. From the viewpoint of the participants in the research, *gaining credibility in organization*, with the highest mean value, is the most important factor among other indicators of

individual factors that affect knowledge of physicians. The second important individual factor that affects knowledge sharing of physicians is *enjoying helping and others solving their problems*. Among all, the lowest effective individual factor is *losing individual power*. These results are consistent with those of Soleimani et al. (2013), Fahimeh and Kermani (2011) and Rajaei et al. (2015). In order to achieve the investigation of the role of organizational factors affecting knowledge sharing among physicians of Bushehr University of Medical Sciences, 3 main indicators are considered; in respective order, they are solidarity and empathy, organizational motivators and the least important factor which is innovation; and is in line with the findings of Beikzad and Doudmani (2012) and Asmaeipour et al. (2014).

Technical factors play an important role in the process of knowledge sharing among physicians of Bushehr University of Medical Sciences and every attempt should be made in order to improve the role of these factors. In order to achieve this goal, two main indicators are considered, between which, the role and position of medical informants is more important, as shown in this study. The second factor is attention to the role of tools and technologies in knowledge sharing, which is in accordance with the research of Nazari et al. (2016). Cultural factors also play an important role in the process of knowledge sharing. In order to achieve this goal, three main indicators are considered; based on the current research findings, the most important cultural factor affecting the knowledge of physicians is involvement, after which two factors of trust and support with the same mean value are in the second place. This is in line with the researches of Rezaei et al. (2015), Smit et al. (2014), Wu et al. (2009) and Nemati-Anaraki and Nooshinfard (2013).

Therefore, considering the importance of access to health indicators by health systems and the role of knowledge management in achieving it, it is necessary to take into account the factors affecting knowledge sharing based on the current research findings. What is more, given the health system's approach to access scientific authority, in order to reach, remain and be effective as a scientific authority, universities need to be internationally prominent and leading in the area of knowledge management. To reach and fix their position as a scientific authority, universities have to actively promote its appropriate culture by considering such a role and a place for themselves. As knowledge sharing has a special place in knowledge management, it should be considered in development of scientific authority, as well. According to the findings of this study and positive attitude of physicians toward knowledge sharing, it is worthwhile for health and medical educators to pay more attention to this issue and ask medical informants and librarians' help to promote knowledge sharing.

Considering the unwillingness of physicians to share their knowledge and experiences, measures have to be taken by holding appropriate educational and training courses in order to make this group interested in knowledge sharing. In addition, a unit should be considered for knowledge management in hospitals whose mission is to provide up-to-date and reliable information for health practitioners in hospitals. With respect to dominance of medical librarians in search for information resources and their familiarity with databases, lack of sufficient knowledge regarding databases and correct way of searching for updated and correct sources among physicians and doubtful information on the Internet, it is suggested that a medical librarian be available to the hospital's physicians.

In general, the factors affecting physicians' knowledge sharing (from the highest to the lowest level), including individual factors, technical factors, organizational factors and cultural factors, and their indicators (from the highest to the lowest), including credit in the organization, medical informants, enjoyment in helping others and solving their problems, participation, solidarity and empathy, organizational stimuli, supporting, innovation, tools and technologies, and the loss of individual power. The results of this study can help physicians to effectively share their experiences with their colleagues, which have a wide range of implications. Through knowledge transfer among physicians, many re-actions are not carried out. In this way, medical errors are also reduced. In addition, physicians can continuously learn their experiences by using the up-to-date resources provided by medical informants. Therefore, this study will also help medical informants understand their position and mission, and take steps in this direction. Knowledge sharing is essential for providing services to improve the quality and reduce the cost of health, addressing clients' needs, and also institutionalizing knowledge sharing culture that makes organizations work better; the excellence of organizations provides better services and therefore leads to people's satisfaction.

RESEARCH LIMITATION

Physicians being busy, lack of some physicians' proper cooperation that came forward with multiple referrals and consultations through academic contacts.

Suggestions for future researches

i. Reviewing educational hospital managers' viewpoints about the factors affecting knowledge sharing.
ii. Reviewing educational hospitals managers' viewpoints on the factors affecting knowledge sharing.
iii. Reviewing medical librarians' viewpoints on the factors affecting knowledge sharing in medical universities of the

country.
iv. Assessing the infrastructures needed by knowledge management systems in educational hospitals in Iran.
v. Assessing the role of knowledge management in scientific authority acquisition.
vi. Assessing the role of knowledge management in acquiring scientific authority.
vii. Comparative study of knowledge management systems in hospitals in other countries.
viii. Studying the status of knowledge management structure in health system.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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