Understanding knowledge sharing through the working practices

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Abstract

Purpose – Building upon the practice-based framework, this paper aims to focus on working practices for understanding how knowledge is transferred among health-care professionals within hospitals.

Design/methodology/approach – Using an ethnographic and interpretative approach, the authors conducted preliminary research based on a quali-quantitative methodology within one of the largest hospitals in Southern Italy.

Findings – This study allowed to achieve several results that could be significant and relevant within the health-care sector. First, this paper identified some of the main working practices and their associated activities in health care. Moreover, this paper identified the main organizational forms and/or tools enabling hospital personnel to share and learn the various types of knowledge for each of the prior identified practices.

Practical implications – Hospital managers should develop strategies and policies that take into account the nature and typology of knowledge-sharing processes among health-care professionals in terms of practices.

Originality/value – The paper contributes to practice-based studies identifying identified some of the main working practices, as well as the main tools for sharing and learning of the various types of knowledge.

Keywords Health care, Practice-based studies, Knowledge management, Knowing

Paper type Research paper

1. Introduction

Knowledge management (KM) is an established tradition in the literature and has growing importance in the health-care sector and, in general, in the service sector (Currie and White, 2012; Issac and Thomas, 2019), where research has documented the highly fragmented and distributed nature of medical knowledge (Nicolini *et al.*, 2008; Orzano *et al.*, 2008). In fact, within health-care organizations, different professional groups converge and have specific rules, behaviours and values (Tagliaventi and Mattarelli, 2006). Consequently, as observed by Paul (2006), health-care delivery is fundamentally a collaborative process that bridges the different knowledge of several professionals working together. In fact, "health care is a knowledge-intensive sector where medical knowledge is constantly renovating itself" (Profili *et al.*, 2019, p. 217). Therefore, in health care, knowledge sharing is seen as a process that is critical for teamwork to improve patients' quality of life and clinical outcomes (Rangachari *et al.*, 2013).

Another important issue is that new health-care knowledge is generated at a rapid pace but does not automatically translate into improved patient care and treatment (Kristensen *et al.*, 2015). Indeed, a significant gap exists between clinical practice and research recommendations or clinical practice guidelines (Grimshaw *et al.*, 2004). This gap between "what we know" (knowledge) and "what health-care professionals do" (knowing) challenges effective and efficient health care by undermining the benefits realized from advances in the science of medicine and the dedication of professionals delivering care (Cochrane *et al.*, 2007). In this regard, some scholars use the concept of "knowledge translation", which means "how new scientific insights can be implemented efficiently into clinical practice to reap maximal health benefits" (Nicolini *et al.*, 2008, p. 248).

The focus on collaborative processes between professionals for health care delivery supports the conceptualization of knowledge as collective knowledge, which is an entity emerging from the interaction that exists between rather than within individuals (Alavi and Leidner, 2001; Mascia *et al.*, 2018). Therefore, health-care delivery is fundamentally a process that bridges the various types of knowledge of hospital professionals who work together.

This research aims to understand how professionals share knowledge and learn from each other within a hospital setting. In particular, building upon the practice-based (PBS) view, our study focusses on working practices for understanding how the knowledge is transferred among health-care professionals within hospitals. Using an ethnographic and interpretative approach, we conducted preliminary research based on a quali-quantitative methodology within one of the largest hospitals in Southern Italy. This study allowed us to achieve different results that could be significant and relevant within the health-care sector. Firstly, we identified some of the main working practices and their associated activities in health care. Moreover, we identified the main organizational forms and/or tools enabling hospital personnel to share and learn the various types of knowledge for each of the prior identified practices.

2. Literature review

Knowledge is a multifaceted concept with multi-layered meanings (Nonaka, 1994). Leaving aside the academic debate on the concept of knowledge, it should be noted that "rationalistic" and "practice-based" are recognized by managerial literature as two of the more useful concepts for explaining knowledge.

The rationalistic (or objectivistic) view considers knowledge as objective and independent from human action, as a "thing" that can be transmitted or transferred from here to there and one to another (Nicolini *et al.*, 2003). It consists of two approaches, namely, cognitive and economic. The cognitive approach looks at knowledge as "something that resides in the heads of persons, and that it is appropriated, transmitted and stored by means of mentalistic processes" (Gherardi, 2006). It consists of two dimensions of knowledge, explicit versus tacit knowledge, i.e. know-what versus know-how. Explicit knowledge is readily codified through books, copyrights, patents and electronic media and communicated and shared among people by symbolic and natural language (Nonaka, 1994). Tacit knowledge is informal, personal and subjective; thus, it is difficult to codify and share between people because it is made up of cognitive mental maps, practical skills and abilities elements (Nonaka, 1994). The economic approach instead considers knowledge to be an intangible asset (intellectual capital or commodity) or an object that can be taken out of its context, codified and distributed by the use of communication technologies. This approach focusses on the functional or causal link between knowledge and performance and contemplates knowledge as having a causal link with competitive performance (do Nascimento Souto, 2013).

PBS studies consider knowledge as a practical and situated activity. Knowledge is not a set of discrete elements but rather is mutually constituted through action and interaction, and thus

inseparable (Cook and Brown, 1999; Lam, 2000; Orlikowski, 2002). Cook and Brown (1999) use a dynamic framework for understanding organizational knowledge, thus distinguishing knowledge (what is possessed) from knowing (what is part of the action). Knowing "is something that is a part of the action [. . .]. Knowing is that aspect of action (or practice) that does epistemic work" (Cook and Brown, 1999). While knowledge is about what people know, knowing is about relationships and this is the product of interaction with the social and physical context or circumstances at a given time (Cook and Brown, 1999). This perspective also shifts the focus from the epistemological (explicit versus tacit) to the ontological (individual versus collective or social) dimension of knowledge, from what Cook and Brown (1999) describe as the epistemology of possession to the epistemology of practice. In fact, while individual knowledge concerns types of knowledge created by and inherent in the individual that can be applied independently to a specific task or problem, collective knowledge is created by and inherent in the collective actions of a group. According to PBS, the *locus* of individual understanding is not so much in the head as in situated practice because knowledge is the situated product of work practices (Gherardi, 2009). Unlike prior research that considered knowledge as an object that an individual possesses and/or people possess, this perspective views knowledge as "an activity, as a collective and distributed 'doing', led to its consideration as an activity situated in time and space, and therefore as taking place in work practices" (Gherardi, 2009). It is a "practice that institutionalized, historically determined and codified expertise acquires sense and becomes both a resource and a constraint for action" (Nicolini *et al.*, 2008).

In health care, various patterns of knowing have been the foundation for activities designed to improve working practices, as well as patient care in clinical, community, education, cultural and administrative settings (Chinn and Kramer, 2007; Sibbald *et al.*, 2016). For instance, socio-political and emancipatory patterns of knowing have been offered as suggestions to explore ontological questions of being, and unknowing has been suggested as a pattern to promote a more dynamic process of knowledge development (Chinn and Kramer, 2007). Cochrane *et al.* (2007) conducted a meta-analysis on the translation of knowledge in knowing in health care, identifying multiple factors that facilitate the delivery of optimal clinical practice and care. Graham *et al.* (2006) describe the concept of moving knowledge into action, through an "action cycle". Bonis (2009) highlights that the incorporation of the term "knowing" into nursing literature has contributed to a gradual evolution of the manner in which the concept of knowledge has been used in health care research (Chinn and Kramer, 1999; Gherardi, 2009; Guzman *et al.*, 2015). However, although health-care literature recognizes knowing as a critical issue in knowledge management, to date there is a lack of studies investigating how knowing enhances the sharing and learning processes of hospital professionals.

3. Methodology

3.1 Methods

Using an ethnographic and interpretative approach, we conducted preliminary research based on a quali-quantitative methodology within one of the largest hospitals in Southern Italy (the hospital name is not reported per the hospital administration's request). Ethnography and interpretive phenomenology were recognized as particularly suitable in health care and professional domains (Maggs-Rapport, 2000). This study is part of wider research that aims to explore the effectiveness of professional practices on organizational performance improvement within health care that we are conducting at such a hospital for over two years. It is the most important hospital in Southern Italy with about 3,000 employees, to caring for adults (over 14 years old) and elderly patients in the first-level Emergency Department (on average, 500 accesses a day). Over the duration of the research, two of the authors attended meetings,

workshops and training sessions organized at the hospital and they also observed the working practices of medics and nurses performing their daily routines.

Consistent with prior research on this topic in health care (Orlikowski, 2002; Nicolini, 2011), data were collected by using ethnographic and semi-structured interviews (primary data source) and from websites, health care and managerial reports and other internal documentation (secondary data source). Primary data was collected from May to June 2018, while secondary data collection started earlier in April.

With reference to primary data, our field study focussed on the everyday work practices of health-care professionals from 7 hospital departments, such as advanced therapeutic diagnostic techniques services; anaesthesia and resuscitation; general and specialistic surgery; pain therapy and palliative care; training centre; health and medical territorial direction; legal medicine. We spent time such hospital departments conducting formal and informal colloquies with a range of medics, nurses and physician managers during their working hours. In particular, we conducted a total of 20 one-to-one interviews with hospital workers, each of which was approximately 50 min in length. All interviews were recorded and then transcribed for the data to be analyzed.

With reference to secondary data, we also collected data by reviewing some of the extensive internal documentation generated by administrative officers and health-care managers of the investigated hospital's departments. Although such internal documentation was reserved for hospital workers, it was shared with us by administrative personnel after an explicit requirement.

Data collection was based on the interviews focussed on the working practices of health-care professionals and, thus was exploratory in nature. Participants were asked to describe their everyday activities, as well as the methods and tools used for knowledge sharing and learning in their working practices. In addition, through the interviews, we also collected data on, namely, demographic characteristics, professional information, working practices and activities and knowledge management.

Before and after interviews, we also attended informal meetings and colloquies with 3 (training centre, pain therapy and palliative care and general and specialist surgery) out of 7 department chairs to discuss knowledge-sharing and learning issues, as well as better understand the preliminary results of our research. Moreover, we spent time talking to research project hospital professionals informally in their private offices and meeting rooms.

Apart from the informal colloquies, we conducted a total of 20 one-to-one interviews with hospital workers, each of which was approximately 50 min in length. In addition to observation and interviews, we collected data by reviewing some of the extensive internal documentation generated by administrative officers and health-care managers of the investigated hospital's departments.

3.2 Results

Data collected through the 20 semi-structured interviews were analyzed for getting useful insights from it. Among them, most of the respondents were physician managers (70%) and the remaining group was composed of physicians (10%), nurses (5%) and technician paramedics (15%). Moreover, most of the respondents were used in "training centre" (25%), "pain therapy and palliative care" (20%) and "general and specialist surgery" (20%) hospital departments.

Table 1 shows the demographic information of the respondents.

As Table 1 shows, most of the interviewees were between 52 and 67 years of age, while only a few were younger. In total, 50% of the sample was men. Their educational level was very high. Most of the interviewees held a PhD or a master's degree (50%), a specialization (25%) and a degree (20%), while just one held a diploma (5%).

	Count (%)	Minimum	Maximum	Mean
Age (birth year)				
1935–1950	0			
1951–1966	80			
1967–1982	20			
1983–1998	0			
Missing	0			
Gender				
Male	10 (50%)			
Female	9 (45%)			
Missing	1 (5%)			
Education level				
Diploma	1 (5%)			
Degree	4 (20%)			
Specialization	5 (25%)			
Master's/PhD	10 (50%)			
Other	–			
Health care seniority	–	4	45	31.15
Organizational seniority	–	1	37	23.75
Departmental seniority	–	1	37	16.70
Weekly work hours	–	36	70	43.75
Team composition	–	0	22	7.20

Table 1.
Demographic
information (*n* = 20)

With reference to seniority, the interviewees had been used in health care for at least 4 years (45 years maximum), with an average of 31 years. Additionally, the interviewees had been used in both the hospital and their department from 1 to 37 years, with an average of 24 and 17 years, respectively.

The respondents worked at least 36 h each week, with a maximum of 70 and an average of 44 h. Finally, the average team was composed of 7 people.

In addition, the primary and secondary data enabled us to identify five of the main working practices and the associated activities that were engaged in by health-care professionals, such as:

(1) education and training;

(2) adherence to rules, guidelines and social norms;

(3) more humane and effective medical care;

(4) organizational effectiveness and improvement; and

(5) patient health-care security and quality of working life.

After verifying the existence of such practices in the health-care literature (Currie and Suhomlinova, 2006; Flores-Mateo and Argimon, 2007; Fortney *et al.*, 2013; Buffoli *et al.*, 2014), we also discussed them with the department chairs. Then, we associated the previously identified working practices and activities with various knowledge types and knowing comprised of health-care professionals' doing.

Table 2 shows an overview of the main practices and their associated activities in health care, which also provides additional data from the hospital workers' interviews regarding these activities.

Building upon Cook and Brown's (1999) and Lam's (2000) frameworks, we explore the processes of knowledge sharing and learning between hospital health-care professionals through

Practices	Activities	Data from the hospital (interview)
Education and training	Planning teaching activity Coordinating teaching activity Developing clinical training on the job	"There is the need to teach and also to be motivated to share bachelor theses, opinions, papers and readings" "It is possible to acquire and enrich my professional knowledge through the transmission of documents and planning, teaching classes where we also analyze interesting topics comparing other health-care organizations"
Adherence to rules, guidelines and social norms	Managing human resources administration Managing job timing schedules	"Sometimes it is necessary to modify the daily time schedules because of the basic planning" "Deep analysis of the documents related to potential work conflicts and claims, taking into account the overall regulatory system" "In my daily work, I use to share and communicate with my colleagues also about using the guidelines and hold rules system"
More humane and effective medical care	Assisting, caring for and curing patients Developing informal meetings and support groups Reinforcing organizational citizenship behaviours	"In my experience, it's important to continuously talk to patients and colleagues to define effective diagnosis and care interventions" "I am very careful with patients, and I really pay attention to improve my knowledge and competences because I think that in the future I will be a patient too, so I hope to find nurses and physicians with passion, really motivated and with great attention to human values"
Organizational effectiveness and improvement	Planning and providing continuous feedback Designing and implementing clinical audits Developing research and teaching projects	"I used to share my knowledge and experiences because I think that only shared knowledge is useful and makes it possible to improve the work quality" "To improve our performance, it would be useful and relevant to create and apply teaching projects very strictly and focus on the real organizational and patient needs"
Patient health-care security and quality of working life	Clinical risk assessment and management Collecting data, elaborating and maintaining a risk register	"I usually pay great attention to the procedures for safe care, such as medications and all the hygiene activities for the patients, also for preventing clinical damage to workers" "At my organization, I have to record all the steps of my surgery activity; I especially must note potential accidents where some patients are likely to have problems or die; there is a daily collection of these data"

Table 2.
An overview of practices and activities in health care

the knowing approach for each practice. Integrating the epistemological (explicit and tacit) and ontological (individual and collective) dimensions of knowledge, Lam (2000) distinguishes four different categories of knowledge, namely, embrained, encoded, embodied and embedded.

Embrained knowledge (explicit-individual) is the theoretical knowledge that depends on individual skills and cognitive abilities. Encoded knowledge (explicit-collective) is codified and stored knowledge in documents, written rules and procedures. Embodied knowledge (tacit-individual) is the type of knowledge that builds upon practical experience. Embedded knowledge (tacit-collective) is the type of tacit knowledge that resides in organizational routines and social norms.

Similarly, Cook and Brown (1999) integrate the epistemological and ontological dimensions of knowledge – the epistemology of possession; they also add knowing (as action) – the epistemology of practice – to knowledge to understand knowledge management and learning. In this direction, Table 3 shows an overview of the main organizational forms and tools enabling health-care professionals to share knowledge through knowing, for the five identified working practices: education and training; adherence to rules, guidelines and social norms; more humane and effective medical care; organizational effectiveness and improvement; and patient health-care security and quality of working life.

4. Discussion
4.1 Education and training
The first practice (education and training) constitutes a knowing of organizations and physicians engaged in planning and coordinating teaching activities, as well as developing clinical training on the job.

The activities related to education and training are managed by the hospital's training centre, which is engaged in continuous training activities for health-care professionals. Life-long learning is required by law. The training centre activities are very varied and concern:

- creating training courses enabling students to learn through various learning models and methods, such as learning by absorbing (e.g. lectures, business cases, role-playing, in the basket, behavioural modelling), learning by doing (on-the-job training) and learning by interacting with others (outdoor training, action learning, coaching and mentoring);
- coordinating the training activities of two bachelor's degrees of Science in Nursing and of Science in Health Professions (Radiologic Technology and Laboratory Science); and
- performing fundraising activities to develop inter-organizational projects and professional networking.

Knowing (as action) enables developing "embrained knowledge" through a dynamic process of the articulation of encoded, embodied and embedded types of knowledge. This process draws from close interaction from trainers-to-trainers, trainers-to-students and students-to-students that enables adding knowing to knowledge and vice versa. Simultaneously, a health-care professional not only adds knowledge to his own but also incorporates it into his or her own experiences, skills, emotions and attitudes.

During the interviews, health-care professionals clearly expressed their concerns in terms of needing education and training, particularly to face the deep and numerous changes that are currently occurring in the health-care setting and in the social, economic and environmental world in general. Additionally, education and training are required to fill the still-existing gap between research and practice for health-care professionals (Kristensen, et al., 2015).

4.2 Adherence to rules, guidelines and social norms
The second practice (adherence to rules, guidelines and social norms) consists of organizational and individual knowledge and knowing enabling workers to perform their administrative tasks. This practice does not involve a single hospital department but is rather spread across multiple areas. It concerns the diffusion of shared administrative rules and guidelines, as well as clinical protocols and information to improve the professionals'

Practices	Types of knowledge			
	Embrained (individual/ explicit)	Encoded (collective/ explicit)	Embodied (individual/ tacit)	Embedded (collective/ tacit)
Education and training	Health-care professionals' theoretical knowledge	Learning by absorbing	Learning by doing	Learning by interacting with others
Adherence to rules, guidelines and social norms	Professional bureaucracy	Institution's regulatory systems and law Protocols, rules and guidelines	Operating adhocracy	Hospital's shared systems, routines and social norms
More humane and effective medical care	Health-care professionals' theoretical knowledge	Guidelines and recommendations Humanization care programmes Medical ethics manuals	Health-care professionals' humanizing effort	Networks for the humanization Working groups
Organizational effectiveness and improvement	Health-care professionals' theoretical knowledge	Feedback programmes Clinical audit Research and teaching projects Hospital procedures and written rules	Trial-and-error (reinforcement) learning	Informal talking and conversation Working groups Organizational routines Physician community of practice
Patient health-care security and quality of working life	Health-care professionals' theoretical knowledge	Risk assessment and management procedures Risk assessment toolkit Risk register	Health-care professionals' safety behaviours	Organizational risk culture Professional networks for clinical risk prevention and management

Table 3.
Organizational forms
and tools for
knowledge sharing

quality of work. Additionally, it concerns shared social behavioural patterns aimed at reducing claims, conflicts, absenteeism and other unacceptable and morally unjustifiable acts.

Knowing (as action) enables the process of articulation from explicit knowledge – encoded knowledge (health care national law, rules and guidelines) to both individual – embodied (operating adhocracy) and collective – embedded (organizational routines and social norms) – tacit types of knowledge. For instance, regarding job timing schedules, the hospital defines organizational rules and guidelines for professionals in coherence with national and regional laws. Knowing facilitates knowledge sharing of that encoded knowledge towards embedded knowledge through the shaping of routines and social norms and embodied knowledge through the development of know-how and practical problem-solving skills. Finally, knowing also enables the internalization of a professional model of action and individual behaviour.

Over the past decade, clinical rules, guidelines and social norms have been becoming the major characteristics of health-care provision (Flores-Mateo and Argimon, 2007). In fact, as highlighted by many scholars (Martin *et al.*, 2010), it is useful to increase Evidence-Based Practice (EBP) training programmes through learning by doing to improve the efficacy and efficiency of care provision by developing and sharing the guidelines, rules and social norms.

4.3 More humane and effective medical care
The third practice (more humane and effective medical care) consists of a set of activities enabling physicians, nurses and paramedics to treat patients in a more effective and humane manner. Health-care professionals are engaged in caring for and curing patients. The latter should be done with great attention to human values, such as accuracy, responsibility, compassion, benevolence, empathy and ethics. It also requires both clinical and relational professional competences and passion.

For instance, the selected hospital established an *ad hoc* pathway (well known as "*Percorso rosa*") for women victims of sexual, physical and psychological violence, in line with national guidelines and recommendations. This activity is based on the best practices developed by one of the most important non-profit organizations (the well-known "*Centro Dafne*") that is engaged in providing care to women victims of violence. Carrying out this activity requires that emergency health-care workers devote more attention to identifying possible signs of violence and show greater sensitivity in interactions with their patients. Thus, knowing is critical to apply evidence-based practices from networks for the humanization and working groups (embedded knowledge) to the humanization care programmes and national and hospital guidelines and recommendations (encoded knowledge) and to stimulate health-care professional humanizing (embodied knowledge). Obviously, the process of knowledge sharing through knowing also affects individuals' theoretical knowledge (embrained knowledge).

4.4 Organizational effectiveness and improvement
Another practice (organizational effectiveness and improvement) consists of all these activities enabling hospital personnel to improve individual and organizational performance through coordination and innovation.

For instance, an interviewed physician manager explained to us that the hospital is engaging in planning research and teaching projects to better satisfy real organizational and patient needs. This activity of planning research and teaching projects (encoded knowledge) derives from inter-organizational relationships with expert professionals from prestigious

universities and research medical centres (embedded knowledge). It also stimulates the use of working practices in the health-care setting through a trial-and-error learning mechanism (embodied knowledge) and through individuals' theoretical knowledge development (embrained knowledge).

4.5 Patient health-care security and quality of working life

The last practice (patient health-care security and quality of working life) concerns the quality of the working life of physicians, nurses and paramedics and the safety of patients and their visitors in health-care settings.

For instance, the hospital has established and implemented procedures for physicians, nurses and, more generally, health-care personnel engaged in providing clinical services. The Safety Management System considers the human factor from the point of view of training and information. In line with the national risk assessment and management guidelines, the hospital has established useful knowledge procedures to monitor information relevant to health and worker motivation. The hospital has also identified the operations and activities associated with known risks (including those related to worker behaviour) and, if necessary, applies control measures related to competence, training and awareness (encoded knowledge). The clinical risk assessment and management procedures, register and toolkit were also developed based on experiences and specific expertise shared within professional communities and networks in health-care settings; simultaneously, these social relationships have also contributed to developing an organizational culture that pays more attention to reducing clinical risks (embedded knowledge). This shared culture of safety at work also enables minimizing risks by promoting awareness amongst workers. Health-care professionals are increasingly aware of the real and potential consequences of their work activities and their behaviours and of the benefits that derive from improving the safety of individuals' performances, such as applying precautions to reduce the risk of distraction or inattention and learning from errors through adequate and accurate post-accident analysis (embodied knowledge). Furthermore, individuals learn theoretical knowledge by carrying out these activities (embrained knowledge). In this regard, with reference to the patient health-care security and quality of working life practice, health-care professionals can enhance the process of knowledge transfer not only through the various organizational forms and tools identified above but also through organizational knowing that enables the articulation of various types of knowledge.

6. Practice implications

This article presents several practical implications. Regarding the first practice (education and training), it should be useful to adopt and increase EBP training programmes using a learning-by-doing training process because theoretical training alone cannot provide the same positive results (Flores-Mateo and Argimon, 2007). At the same time, there is a need to rigorously assess and monitor the effectiveness of teaching EBP in terms of reliability, validity and feasibility of the evaluation to address the risk of being too generic and self-referential (Ruzafa-Martínez et al., 2016).

Moreover, regarding the second practice (adherence to rules, guidelines and social norms), our study shows a need for top and middle health-care management to promote and apply interventions, such as training programmes, meetings, discussion groups, flow chart diagrams and worksheets, to achieve the following specific goals: involve professionals in defining ways to apply the guidelines and also in developing the content of these instruments; allow professionals to understand the content of and usefulness of adhering to rules, guidelines and social norms; deeply and clearly explain the reasons for and ways to

apply these instruments; share these elements with all health-care professionals overcoming hierarchical and structural barriers and potential adverse effects; develop an effective coordination system between physician and nurse managers, technicians, nurses and paramedics; promote an organizational change process for overcoming cultural barriers within health-care organizations and stereotypes amongst professionals about their perceptions of senior management (low accessibility and approachability); and promote a high frequency of social interactions and collaborative problem prevention and solving. In this way, the hospital management could clarify the content of guidelines or worksheets, thereby allowing the health-care professionals to understand what they need to do and how (tasks and ways to perform) to adhere to rules, guidelines and social norms. In addition, health-care management should improve professionals' communication and participation by using advanced instruments, such as wikis, social networks and mailing lists, as collaborative tools to create, synthesize, share and disseminate knowledge in health-care (Boyd *et al.*, 2005). Regarding the third practice (more humane and effective medical care), health-care managers should introduce effective managerial tools able to collect and provide useful information to identify the concrete critical aspects of comfort and humanization levels and to develop successful strategies. For instance, Buffoli *et al.* (2014) proposed the LpCp-tool (listening to people to cure people), which is a very effective instrument and is broadly applied in numerous hospitals, which allows health-care professionals to be "more aware about the possibility of upgrading interventions regarding humanization and comfort levels, considering that sometimes small elements are enough to positively change the perception of users; also, some existing services remain unknown due to a lack of communication". This tool should be useful for making the environment comfortable and responding to multiple requests, thus promoting the humanization that represents a crucial factor within hospitals as delicate environments. The literature has identified different tools to support more humane and effective medical care, such as discussion groups involving health-care professionals at different levels and patients for sharing their experiences; medical education programmes addressed to filling gaps, especially in terms of the asymmetry between doctors and patients (Pilnick and Dingwall, 2011); communication training programmes for giving useful suggestions verbally and non-verbally to adopt in all social interactions and relational dynamics, especially in the doctor-patient communication process (Kee *et al.*, 2018) (e.g. smiling; listening; being respectful and careful in approaching people, colleagues or patients); video-elicitation interview analysis with patients in primary care (Llanwarne *et al.*, 2017); and mindfulness interventions for developing awareness and compassion in professionals within primary care (Fortney *et al.*, 2013).

Regarding the fourth practice (organizational effectiveness and improvement), management should introduce tools that are able to encourage an open and participative culture, thereby transforming the same health-care organizations into "learning organizations" where all the workers share knowledge overcoming any boundaries (Currie and Suhomlinova, 2006). In this direction, community-of-practice, networking or open-communication interventions are some tools that could be implemented. For instance, Currie and Suhomlinova (2006) described the Gastro-Enterology Group experience as an ideal type of "community of practice", where individuals from different organizations and professions in health-care share knowledge and expertise to address improving evidence-based services within the digestive disease unit.

For the last practice (patient health-care security and quality of working life), management should increase patient clinical, logistic and privacy security, through education and training programmes regarding the several models of security-related behaviours, that is, "security assurance behaviour (individuals who clearly and actively protect the organization's information system, IS), security compliant behaviour (individuals

who are in line with organizational security policies), security risk-taking behaviour (individuals who may put the organizations IS at risk), security damaging behaviour (individuals who will cause direct damage to the organization's IS)" (Guo, 2013, p. 7). In addition, specific education and training programmes are required to address the negative effects of inadequate security-related behaviours, such as the loss of patients' trust, the negative organizational climate, the high risk of conflict and the low expectations for service quality. Moreover, to improve the quality of working life, health-care management should promote monitoring and assessment activities through several tools (e.g. the Occupational Stress Scale, World Health Organization Quality of Life-BREF Questionnaire, Perceived Stress Scale, Maslach Burnout Inventory) to initiate effective interventions, such as more recreational areas, discussion groups, specific human resource management policies, informal meetings and training, so that employees are better able to cope with stress and any negative standard of working life to consequently increase workers' satisfaction, motivation, commitment and identification (Fortney *et al.*, 2013).

7. Conclusions

This study contributes to an overall conceptual understanding of the role of "knowing" within health-care organizations. Firstly, we integrate different perspectives in analyzing knowledge: on one side, Cook and Brown's (1999) framework, focussed on knowing and on the other side, Lam's (2000) approach regarding the dimensions of knowledge. Thus, we identify some of the main working practices and the main organizational tools enabling hospital personnel to share and learn the various types of knowledge for each of the prior identified practices.

Therefore, the study deepens the mechanisms for understanding how knowledge is transferred amongst health-care professionals. Findings can typically be generalized for all health organizations where health-care delivery is: a collaborative process that bridges the highly fragmented and distributed medical knowledge (Paul, 2006; Nicolini *et al.*, 2008; Orzano *et al.*, 2008); a process based on the translation of knowledge in knowing, trough a moving knowledge into action (Graham *et al.*, 2006). More generally, although the research focusses on hospitals, the results can be extended to the knowledge-intensive sectors where knowledge management is a critical process.

Our study is part of the literature on active knowledge management behaviours such as knowledge creation and knowledge sharing, future research could incorporate knowledge hiding behaviours (Yao *et al.*, 2020; Issac *et al.*, 2020) amongst health-care professionals within health organizations.

In summary, the study allows to clearly outline how the dynamic perspective of knowledge in terms of knowing can truly contribute to improving overall organizational performance through the creation of positive work conditions, where knowledge is shared formally and informally. Moreover, findings show the importance of improving and developing strategies and policies that take into account the nature and typology of knowledge-sharingss processes amongst health-care professionals in terms of practices.

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