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Exploring Knowledge Sharing Among Medical and Non-Medical Staff: A Case Study Of An Ophthalmology Hospital In Malaysia

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The main purpose of this study is to explore the views medical and non-medical staffs of an Ophthalmology hospital towards the importance of knowledge sharing (KS), discover barriers to KS and strategies that may encourage KS. Furthermore, it examined the differences in the views of these constructs between medical and non-medical staff. Questionnaires derived from previous studies were used to collect a survey data from a purposive sample of 54 staff of an Ophthalmology hospital. The results were subjected to descriptive analyses. The results showed that there was a general good awareness by respondents about the importance of KS. Major organizational barriers identified in this study include no system to identify colleagues with whom to share knowledge, and lack of reward and recognition. Major individual barriers identified include lack of interaction between those who need knowledge and those who can provide and lack of trust and communication. Major strategies suggested by respondents include management encouragement to allow publications on newsletter and website, linking KS with performance appraisal and rewards. There was statistical significant difference in the views of medical and non-medical staffs in area of trust and linking KS with non-monetary rewards. This study noted that the management of the hospital must take into considerations, the difference in views and also avail the different opportunities present in the hospital environment to evolve ways in which KS can be encouraged and implemented in the hospital.

Key words: Knowledge sharing, medical staff, non medical staff, Ophthalmology hospital

INTRODUCTION

Background

Knowledge is increasingly recognized as one of the most important organizational resource, especially when the business environment continues to expand in the midst of numerous players. Generally, a unique combination of organizational resources and capabilities in knowledge creation, sharing and positive reactions to new challenges come together to ensure organizational success and sustainability. Literatures abound on the role of organization, groups of individuals and individuals in the overall construction of organizational knowledge (Nonaka and Takeuchi, 1995). An organization provides various scenario within the social and physical conditions, that affects the generation and sharing of knowledge. For instance, knowledge in an organisation can be influenced by change, crisis and diversityas well as personal beliefs, and practices and actionsof individuals involved in knowledge sharing (Lilleoere and Hansen, 2011).

Such situations engender learning, competency, skills,

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technology and understanding among employees (Wales, 2005).

The knowledge-based theory assumes that organizational knowledge is tacit and therefore needed individual management and understanding to flourish (Barney, 1991). However, the diverse nature of employees in an organisation can affect the individual commitment to knowledge sharing. Knowledge management (KM) involves the application of processes, with a view to bridge these gaps, so that knowledge can be created, codified, personalized and disseminated for organizational benefits and competitive advantage (Yang, 2007). In recent times, many organisations have emphasized KM application without proper application of its processes (Hackett, 2000).This multiplicity and spread of relevance of knowledge has attracted research in different aspects of knowledge sharing in the philosophy of KM in organisations. It is therefore believed that knowledge sharing encourages the harnessing of organisational collective wisdom to achieve organisational goals and competitive advantage (Fong et al, 2011).

Statement of the problem

The KM within an Ophthalmology hospital in Malaysia provides an interesting area of research because it covers one of the medical specialties with huge patient caseloads and strong revenue statistics. South-East Asia region, which includes Malaysia, accounts for two-thirds of the world's population with low vision (Chiang et al., 2012), and the presence of some major risk factors for visual impairmentand the increasing life expectancy in the region willcontinue to influence the provision of ophthalmology services (Courtright and Lewallen, 2009; Okoroji and Sailoganathan, 2013). The growing demand for eye care has thereforeincreased the establishment of Ophthalmology hospitals and the employment of foreign expertise with the attendant increase in competition among providers. As one of the leading tertiary eye care providers, there is a growing need for knowledge management as it is faced with increasing competition and the precarious business environment of the health sector in Malaysia. The challenge of managing its human resource diversity and their interactions with instruments as the organisation aims to improve efficiency and perfection in patient care is palpable.

Another interesting context is that even in its specialization, it is multidisciplinary in nature with several departments connected in a knowledge network for improved decision-making. It is therefore characterized by high task complexity and high levels of team interdependence as patient data is captured through the use of highly sophisticated machines that is linked to staff and consultants involved in the patient's journey.

However, it is known that the application of an effective knowledge management process like knowledge sharing has the capability of enhancing the creation of knowledge and proper coordination of data and processes within the organization (Lilleoere and Hanses, 2012), so that a smooth exchange of information across the employees can occur without prejudice to their traditional and cultural perspectives (Wales, 2005).

Therefore, in this study, the behavioral and attitudinal pattern of employees of the Ophthalmology hospital will be explored in order to discover the views of the staff towards knowledge sharing (KS); identify barriers to KS and identify strategies that may encourage KS. It will also examine if there are differences in the views of these constructs between medical and non-medical staff. The result of this study is expected to provide the organization a practical approach in encouraging the staff towards effective knowledge sharing so that the collective wisdom of the organization will be immutable, creative and able to maintain sustained competitive advantage.

LITERATURE REVIEW

Knowledge

Knowledge has been described as what anorganization knows in terms of best practices (Szulanski, 1996). The definition by Grant (1996) that knowledge is residing in the head of individualsgave credence to the belief that most medical knowledge is tacit in nature and therefore possess the characteristics of being difficulty to extract (Ting et al., 2011).Drawing from theliterature, Nonaka and Takeuchi's (1995) knowledge management model distinguishedtwo types of knowledge, namely, implicit and explicit knowledge and their conversion processes in an organization. Explicit is codified and isin the form of printed procedures and guides while implicit or tacit knowledge is personal in nature and isbasically achieved through practice and feedback (Johnson and Lederer, 2005). These two types of knowledge are eloquently portrayed in the health care industry and remain the bedrock of hospital activities.

Generally, most medical decisions depend on experience and knowledge of existing options (Pizzi, 2009). Hospitals administrators havetherefore, continually sort ways to organize and manage these two forms of knowledge in such a way asto prevent knowledge loss and ensure that the right information is applied and re-used within the hospital complex system (Beverly, 2007).

Knowledge management (KM) and Knowledge sharing (KS)

Several authors have recognised KS as the operational

objective and the main part of the KM system (Abdel-Rahman and Ayman, 2011). Knowledge sharing is defined as activities of transferring or disseminating knowledge from one person, group or organization to another (Lee and Choi, 2000). It involves delivering information at the right time (Nassuora, 2011) and improved communication of knowledge for the achievement of group interest (Van den Hooff and De Ridder, 2004).There is a positively intermingled relationship between knowledge sharing (KS), information technology (IT) and knowledge management (KM) (Hsu, 2006).Overall, KM has been implicated in most organisational successes.Effective KM process will tend to understand the health professional's knowledge needs and their information seeking behaviour in the overall activities in knowledge creation and its transfer (Yang et al, 2007). This will lead to proper implementation of various KM processes that are likely to transform a health organization into a learning organization that isable to generate new knowledge, create knowledge systems, and base organizational actions on knowledge (Engeström, 2007).It has therefore been recognised that knowledge management application should be organisation-specific and must be aimed at the precise purpose that is in line with the organisational initiatives (Hameed et al., 2010).

Information Technology and KS

The role of information technology (IT) has been emphasised in theliterature because it aids the information flow and coherence in KM applications in organisations (Lagerström and Andersson, 2003). Several studies report alack of technological infrastructure as a major organisational barrier to KS (Riege, 2005; Jain et al., 2007; Santos et al., 2012).

Individual barriers to KS

Lack of time was recognised by several studies as a major individual barrier to KS (Riege, 2005; Santos et al., 2012; Ling et al., 2009). Fear and uncertainty are included in the list of personal factors that can adversely affect KS by many researchers (Cheng et al., 2009). It is obvious that the existence of knowledge does not guarantee its sharing and most individual barriers are as a result of lack of socialization (Fong et al, 20011). Thus, there is the possibility that physical distance between team members can hinder adequate KS (McLaughlin et al., 2008). By contrast, the fact that tacit knowledge is socially embedded increases the possibility that simulation of closer physical proximity will lead to improved KS (Cardinal and Hatfield, 2000). As noted by Hansen et al. (1999), not having access to knowledge is a barrier while no knowledge about the existence of valuable knowledge was reported by Santos et al, (2012). In another context, the belief that one has no knowledge or relevant information to offer has been noted as a major personal barrier to KS (Lilleoere and Hansen, 2011). Jain et al, (2007) note that one of the major individual barriers to KS is the assumption that knowledge equals power which was seen as an asset by employees. The significance of information in aiding the development of ideas and decisions has made the open sharing of information important between co-workers. However, the absence of trust affects social relationships within teams working together (Burke, 2007; Von Krogh et al., 2000; Lilleoere and Hansen, 2011). The lack of a clear understanding to KS processes within the organisation is due to a lack of proper communication of KM activities to employees (Riege 2005). In the studies of Teng and Song (2010) and Sandhu et al. (2011), it wasnote that even though knowledge is undoubtedly defined in the questionnaire, most subjects were not certain if they shared information or knowledge. In another perspective, lack of communication would hinder the externalization of knowledge by those who possess it so that it can be shared with those who need (Hendriks, 1999; Fernie et al., 2003). In the study of healthcare professionals, Esmaeilzadeh et al. (2013) stated that the emphasis on professional autonomy by physicians was responsible for the physicians' indifference to other subordinate groups in the hospital; thereby preventing them from accessing their knowledge.

Organizational barriers to KS

The focus of amajority of literature on organisational culture has been on factors whose absence or presence will reduce or encourage KS respectively (Alavi et al., 2005).The failure of KS in a firm can be due to analteration of the organisational culture to meet KS initiatives (Riege, 2005) or the adaptation of KS to fit into the organizational Culture (McDermott and O'Dell, 2001). Organisation's culture affects the ability of its members to retrieve and store information, and ability to absorb and share knowledge (absorptive capacity) (Griffith et al., 2003; Chou, 2005). The different groups involved in KS in an organization have different programming of their minds that affects all daily routines (Hofstede, 1991). This heavy involvement of culture has led to the understanding that people and their cultural background are important in the concept of knowledge management. Thus, there is empirical evidence of the positive effects of cultural elements like trust, collaborative working environment, shared vision, (Al-adaileh, 2011), and communication, management practices and motivation (Islam et al., 2011).

In the views of Zarraga and Bonache (2003) and

Robbins and DeCenzo (2008) absence of organisational practices like motivation and reward will adversely affect KS by reducing performance. In another study, the absence of a good working environment will prevent the team members from engaging in KS (Goh, 2002). In their study of KS during the new product development (NPD), Huang et al. (2008) note that organisational business strategy can pose impediments to KS within a firm. The role of organizational structure was emphasized by Willem and Buelens, (2009) and in medical practice, the hierarchical distance between the consultants, the juniors and nurses can be an impediment to KS (Payne et al. 2007). However, Chen and Huang, (2009) noted that hierarchy and centralization had no negative effect on knowledge sharing. There are challenges in KS in multicultural organizations especially by the influences of its two major characteristics: cultural and linguistic differences due to reduced communication (Lauring and Selmer, 2011).

Knowledge sharing strategies

The barriers to KS can be counterbalanced through measures of best practices which present dynamic interactions between linkages and help in the improvement of KS and KM. The study by Alam et al. (2009), observed that four key factors that would positively influence KS among the employees of small and medium enterprises (SMEs) were reward system, culture, trust and technology.

The implementation of specific human resource (HR) practices such as training, teamwork, incentives and performance appraisal systems, help in fostering knowledge sharing, and influence the willingness of individuals to share and create knowledge in organizations (Tan and Nasurdin, 2011; Leidner et al., 2006). The study by Ling et al. (2009) supported linking rewards and performance appraisal while most studies emphasised on right incentives, rewards and recognition (Cheng et al., 2009; Jain et al., 2007). However, Islam et al. (2011) found that reward system does not play a significant role in KS.

The use of appropriate technologies is an important mediating factor in KS (Kim et al., 2003) and provides the perfect environment to encourage KS (Coakes, 2006). For instance, a literature survey reveals several applications of ICT that have helped in ameliorating the challenges of KM in the hospitals,through storage systems like the electronic medical record (EMR) system and the Automated Medical Knowledge Elicitation System (Ting et al., 2011; Evangelista et al. (2010). The use of knowledge officers can improve knowledge sharing.

However, according to Hackett, (2000), several organizations have embraced KM without applying the strategy of having a knowledge office.

RESEARCH DESIGN AND METHODOLOGY

The study is descriptive and a quantitative survey-based method in which questionnaires were administered to staff of the Ophthalmology hospital to get their views on various aspects of KS identified in literature. The measurement instruments (questionnaires) are adopted from previous studies by Sandhu et al. (2011), Jain et al. (2007) and Lauring and Salmer (2011). All the scales were reported as having excellent reliability results internal consistency and inter-item correlation from previous studies. The structured and standardised close-ended questionnaire was divided into six sections with a total of 41 questions (sections 2 to 7). It has been reported that closed-ended survey questions have the advantage of limiting respondents to answer within the framework set by the researcher (Jacobsen, 2002) resulting in smaller variations in answers (Trost, 2001). Jacobsen (2002) had also noted that a higher degree of standardization was necessary for a quantitative data collection method. The demographic profile was captured in section one and was adjusted in line with the hospital characteristics. To maintain the confidentiality of respondents, the employment position was omitted. This was expected to reduce the “social desirability bias” (Sandhu et al., 2011). The main parts of the questionnaire, sections two to six, were adapted from Sandhu et al. (2011) and Jain et al. (2007) while section seven was from Lauring and Salmer (2011). There were seven questions related to general perception of KS in section 2, while section 3 had four questions relating to willingness to share or receive. Other sections include: Section 4: seven items related to organizational barriers to KS; Section 5: Eight items relating to individual barriers to KS; Section 6: eight questions related to strategies to encourage KS in the organization; and section 7: seven questions on personal knowledge. In general, a five point Likert Scale was adopted in accordance with three literatures - 5-Strongly Agree; 4- Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree. One items in section 6 (item 1) and two items in section 7 (items 2 and 5), had reverse polarity and were converted accordingly during statistical analysis.

Sample selection

This study was conducted in an Ophthalmology hospital in Malaysia. The sampling method employed was based on purposive and targeted the medical and non-medical staff in the position of supervisor or higher, who have stayed at least one year at the hospital. This sample was necessary to be defined as such to ensure adequate understanding of the questionnaire in terms of sharing information and the capture of those that were more likely to have participated in KS through either schedules or decisions. Previous studies on KS have also used this method of purposive sampling (Boateng, 2007; Jain et al., 2007; Islam et al., 2011; Lilleoere and Hansen, 2011; Sandhu et al., 2011).

Data Collection

Eighty questionnaires were distributed among the staff of the hospital and 55 were returned. Considering the senior staff strength of the hospital and a minimum sample size of 50 that was targeted, this figure was considered be a representation of the staff, given a response rate of 68.8%. With only one of the returned questionnaires declared invalid due to incomplete responses, the overall usable questionnaires were 98.8% of the returned questionnaires.

Statistical analysis

Statistical analysis was carried out using SPSS version 19 for

Table 1. Human capital terminology

Human capital terminology	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Human assets	9.10	0.00	9.10	54.50	27.30	100.00	4.17	0.753
Human resources	0.00	0.00	6.60	46.70	46.70	100.00	4.17	0.753
Human value	0.00	0.00	22.23	33.33	44.44	100.00	4.33	0.816
Human capital	0.00	0.00	11.10	55.60	33.30	100.00	4.17	0.753

Table 2. Human capital features

Human capital features	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Capability/Abilities	0.00	11.10	22.20	55.60	11.10	100.00	3.67	0.866
Commitment	0.00	0.00	40.00	40.00	20.00	100.00	3.80	0.789
Work-related competence	0.00	0.00	40.00	20.00	40.00	100.00	4.00	0.943
Creativity	0.00	50.00	0.00	0.00	50.00	100.00	3.50	2.121
Expertise	0.00	0.00	23.10	53.80	23.10	100.00	4.00	0.707
Innovation	0.00	16.67	16.67	16.66	50.00	100.00	4.00	1.265
Learning	0.00	6.70	26.70	46.60	20.00	100.00	3.80	0.862
Loyalty	0.00	20.00	40.00	40.00	0.00	100.00	3.20	0.837
Skill	0.00	18.20	9.10	45.40	27.30	100.00	3.82	1.079
Teamwork	0.00	0.00	40.00	60.00	0.00	100.00	3.60	0.548
Personal experience	0.00	0.00	40.00	60.00	0.00	100.00	3.60	0.548
Professional experience	0.00	0.00	44.40	55.60	0.00	100.00	3.56	0.527
Entrepreneurial spirit	0.00	20.00	20.00	40.00	20.00	100.00	3.60	1.140

descriptive purposes. Subsequently, all the data of the variables were tested for normality, reliability and independent sample test (Mann-Whitney).These measures had been used elsewhere in researches relating to KS (Sandhu et al., 2011; Lauring and Salmer, 2011). Generally, all the items were not normally distributed following Shapiro-Wilk test.

FINDINGS AND DISCUSSION

Reliability Analysis

All items in sections 2 to 7 of the questionnaire were subjected to reliability analysis using Cronbach's Alpha. This was to enable the analysis of the internal consistency among the various items in each variable. Even though George and Mallery (1999) stated that there is no set interpretation in acceptable Alpha values, this study adapted a Cronbach's Alpha value of 0.7 or greater as reliable in line with Sekaran (2003) and Jain et al. (2007). As shown in table 1, the results of the average inter-item correlation were between 0.835 and 0.841. This indicates an acceptable level of internal consistency that qualified for further analysis.

Demographic Analysis

The background information of respondents showed among others that the majority of respondents were female (79.6%) and there was an almost equal representation of medical and non-medical staff in the study (Table 2).

General Views on KS

The results of respondents' views on the existence of KS

Table 3. Human capital relations.

Human capital relations	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Chairman's statement	5.30	0.00	36.80	36.80	21.10	100.00	3.68	1.003
Operating review	0.00	0.00	27.80	27.80	44.40	100.00	4.17	0.857
Financial statement	0.00	12.50	6.30	31.20	50.00	100.00	4.19	1.047
Employee appreciated	0.00	0.00	23.10	30.80	46.10	100.00	4.23	0.832
Workforce profile	6.30	0.00	31.30	43.60	18.80	100.00	3.69	1.014
Company culture	0.00	0.00	50.00	37.50	12.50	100.00	3.63	0.719
Communication channel	0.00	0.00	36.40	45.40	18.20	100.00	3.82	0.751
Leadership	0.00	0.00	31.20	50.00	18.80	100.00	3.88	0.719
Succession plan	0.00	0.00	12.50	50.00	37.50	100.00	4.25	0.707
Meeting style	12.50	25.00	12.50	37.50	12.50	100.00	3.13	1.356
Recruitment policies	10.00	0.00	20.00	40.00	30.00	100.00	3.80	1.229
Employee interview	0.00	20.00	20.00	40.00	20.00	100.00	3.60	1.140
Union activity	0.00	0.00	35.70	42.90	21.40	100.00	3.86	0.770
Community service	6.30	6.30	12.40	50.00	25.00	100.00	3.81	1.109

culture in the hospital were shown in table 3. The respondents affirmed that KS was very important for the hospital systems and they believed that it could lead to a competitive advantage. The study of Sandhu et al. (2011) also showed a strong respondents' approval of the importance of KS. However, the studies by Jain et al. (2007) and Ling et al. (2009) showeda less positive affirmation of the item. The observation that more than half of respondents (77.8%), representing those that disagree (33.4%) or were undecided (44.4%), were not sure of the existence of KS strategy at the hospital was in agreement with the finding that almost half of the respondents (40.2%) were not sure if the importance of KS was clearly communicated. A similar scenario was reported in previous studies (Sandhu et al., 2011). This was seen as an indication of inadequate sensitization and lack of emphasis on all activities geared towards encouraging KS in the hospital. This was corroborated by the fact that almost half of the respondents were either not sure or disagreed to the presence of a knowledge culture in the hospital (66.6%). This re-echoes the hospital system as a complex culture, made up of people of different backgrounds. According to Lauring and Selmer (2011), cultural difference is a major challenge to multicultural organizations. The implication will be on the absorptive capacity of employees (Griffith et al., 2003) and the effect of their interactions on other cultural elements like trust, communication and shared value (Islam, 2011; Al-adaileh, 2011). Therefore, management must ensure that a clearly defined knowledge culture that will shape respective minds for effective KS participation is implemented.

The result of the Mann-Whitney test for difference between the views of medical and non-medical staffs for all the items in sections 2 to 7 showed that there was no significant difference on all items except for items shown in table 4. The fact that in all items on general views on KS, there was no significant difference in the means showed that the thinking of both the medical and non-medical staffs on all items were alike.

Willingness to Share

The views expressed by respondents on their willingness to share were shown in table 5. The results followed the same trend as reported in previous studies (Jain et al., 2007; Sandhu et al., 2011). Everyone reported a willingness to share knowledge as no one disagreed on the subject (100%). However, the self-serving bias disposition of individuals (Sandhu et al., 2011), was also brought to the fore as their response to colleagues' willingness to share work related information showed that they had reservations about their colleagues willingness to share. This was a clear indication of lack of trust. Itwas not surprising since they had not been formally made to regulate their respective beliefs and practices to align with the organisational culture (Lilleoere and Hansen, 2011). However, the fact that the means of all the four items approximate to the scale of agree (likert scale = 4) was a positive development and showed that they were

Table 4. Human capital measurements.

Human capital measurements	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Employee number	30.00	0.00	20.00	40.00	10.00	100.00	3.00	1.491
Employee breakdown by age	0.00	33.33	33.33	33.34	0.00	100.00	3.00	1.000
Employee breakdown by seniority	42.90	0.00	57.10	0.00	0.00	100.00	2.14	1.069
Employee breakdown by gender	22.20	11.10	66.70	0.00	0.00	100.00	2.44	0.882
Employee breakdown by nationality	0.00	25.00	25.00	25.00	25.00	100.00	3.50	1.291
Employee breakdown by department	0.00	50.00	50.00	0.00	0.00	100.00	2.50	0.707
Growth/renewal ratios: average professional experience	0.00	0.00	100.00	0.00	0.00	100.00	3.00	0.00
Growth/renewal ratios: average education level	0.00	0.00	0.00	0.00	100.00	100.00	5.00	0.00
Efficiency ratios: value added per expert	0.00	0.00	100.00	0.00	0.00	100.00	3.00	0.00
Efficiency ratios: value added per employee	0.00	20.00	40.00	40.00	0.00	100.00	3.20	0.837
Name and age of board members	7.70	15.40	38.40	30.80	7.70	100.00	3.15	1.068
Board members educational background (academic career)	0.00	21.40	14.30	50.00	14.30	100.00	3.57	1.016
Board members work experience (professional career)	0.00	15.40	23.10	53.80	7.70	100.00	3.54	0.877
Comments on the abilities of the Board	0.00	0.00	44.43	44.43	11.14	100.00	3.67	0.707
Name and age of top management team	0.00	22.23	44.44	33.33	0.00	100.00	3.11	0.782
Their educational background (academic career)	0.00	25.00	37.50	37.50	0.00	100.00	3.13	0.835
Their work experience (professional career)	0.00	42.80	28.60	28.60	0.00	100.00	2.86	0.900
Comments on the abilities of top management team	0.00	0.00	50.00	25.00	25.00	100.00	3.75	0.957
Stability ratios: expert seniority	0.00	0.00	100.00	0.00	0.00	100.00	3.00	0.00

Table 4. Contd.

Human capital measurements	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Stability ratios: median age of employee	0.00	0.00	100.00	0.00	0.00	100.00	3.00	0.00
Human capital return on investment	0.00	0.00	50.00	0.00	50.00	100.00	4.00	1.414
Training return on investment	0.00	0.00	50.00	50.00	0.00	100.00	3.50	0.707
Cost of absence	0.00	0.00	100.00	0.00	0.00	100.00	3.00	0.00
Cost of resignations	0.00	50.00	50.00	0.00	0.00	100.00	2.50	0.707
Annual pay audits	0.00	0.00	33.30	0.00	66.70	100.00	4.33	1.155
Workforce turnover	0.00	0.00	28.60	57.10	14.30	100.00	3.86	0.690
Retention rates	0.00	0.00	33.30	16.70	50.00	100.00	4.17	0.983
Performance and productivity	0.00	0.00	25.00	25.00	50.00	100.00	4.25	0.957
Dependence on key employee	0.00	0.00	50.00	0.00	50.00	100.00	4.00	1.414

Table 5. Human capital training and development.

Human capital training and development	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Knowledge	0.00	0.00	40.00	60.00	0.00	100.00	3.60	0.548
Education	0.00	16.70	33.30	33.30	16.70	100.00	3.50	1.049
Vocational qualifications	0.00	20.00	20.00	40.00	20.00	100.00	3.60	1.140
Career development	0.00	0.00	16.70	66.60	16.70	100.00	4.00	0.632
Training programmes	0.00	0.00	9.10	54.50	36.40	100.00	4.27	0.647
Talent management	0.00	0.00	14.20	42.90	42.90	100.00	4.29	0.756
Competence development programmes	0.00	0.00	0.00	60.00	40.00	100.00	4.40	0.548
Job rotation opportunities	0.00	0.00	50.00	50.00	0.00	100.00	3.50	0.707

willing to participate in any knowledge management initiative. There was significant difference in the means of responses for the medical and non-medical staff on “colleague’s willingness to exchange ideas outside the scope of work”. The mean for medical staff on this item was 3.89, which was close to the scale of ‘agree” (Likert scale = 4) while the mean of the non-medical staff (3.19) was significantly close to “neutral” (Likert scale = 3). It

Table 6. Human capital remuneration and welfare.

Human capital remuneration and welfare	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std.Dev.
	%	%	%	%	%	%		
Executive compensation plan	0.00	7.60	30.80	30.80	30.80	100.00	3.85	0.987
Employee compensation plan	0.00	10.00	30.00	20.00	40.00	100.00	3.90	1.101
Employee benefits	0.00	0.00	16.70	16.70	66.60	100.00	4.50	0.837
Employee share scheme	0.00	20.00	20.00	40.00	20.00	100.00	3.60	1.075
Employee share option scheme	0.00	20.00	10.00	50.00	20.00	100.00	3.70	1.059
Employee job satisfaction	0.00	33.30	16.70	33.30	16.70	100.00	3.33	1.211
Recognition and reward	0.00	14.30	14.30	14.30	57.10	100.00	4.14	1.215
Employee Asset Acquisition Scheme	0.00	0.00	0.00	100.00	0.00	100.00	4.00	0.00

was concluded that while non-medical staff were indecisive on the willingness of colleagues to share knowledge outside their job scope, the medical staff actually agreed that colleagues were willing to share outside the work scope. This might be a sign that despite their diversity (Lauring and Selmer, 2011), greater level of interaction and cooperation existed among the medical staffs.

Organisational Barriers to KS

The mean ranking of each item of the organisational barriers (Table 6) showed that the major organizational barriers noted by staff of the Ophthalmology hospital were no system to identify colleagues with whom to share knowledgeand the lack of formal and informal activities to cultivate KS. These assertions by the respondents showed their willingness to work in teams if they were consciously exposed to formal and informal activities within and outside the hospital. According to Zarraga and Bonache (2003) such team activities enhance KS. The lack of reward and recognition and inadequate IT system were the next items ranked in order of importance by respondents.In aprevious study on public sector employees, Sandhu et al (2011) noted that technology was the highest ranked followed by reward system and no system to identify colleagues. The study of Ling et al. (2007) and Santos et al. (2012) corroborated the implication of technology as a major organizational barrier to KS in the public sector. The respondents therefore recognised the importance of IT in aiding information flow within the hospital (Lagerström and Andersson, 2003). Meanwhile the study by Jain et al. (2007) which related to the academics, noted the highest ranked organizational barrier as thelack of areward system followed by thelack of formal and informal activities. It becomes visible therefore, that even though the respondents in this study recognised similar external factors at organizational level as barriers, their rating of the factors were different from most previous studies. Comparatively, the respondents in this study did not see technology as a major barrier. No doubt, as a tertiary eye care centre, relevant medical infrastructure must be in place and in use. This might have made the respondents not to see technology as an organisational barrier in the hospital. A further review of this study showed a strong assertion by respondents that physical environment was not considered a hindrance to KS as it had the lowest ratingof the mean scores. Thesefindingsweresupported by the study by Jain et al. (2007) where physical environment were rated lowest. This showed a possible approval of the infrastructures at the hospital and the presence of a conducive working environment. According to Goh (2002), good working environment promotes team interactions. The respondents also believed that the management was eager to retain highly skilled staff, however, almost half (45.5%) of the respondents were of the opinion that the existing organisational culture did not support KS sufficiently. This finding agreed with the

Table 7. Human capital equity issues.

Human capital equity issues	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Race, gender and religion	0.00	0.00	57.10	42.90	0.00	100.00	3.43	0.535
Disabled employees	0.00	0.00	80.00	0.00	20.00	100.00	3.40	0.894
Disabled applicants	0.00	0.00	0.00	100.00	0.00	100.00	4.00	0.00

earlier assertion by the respondents that there were lack of clarity on the existence of KS strategy and KS culture.When the views of medical and non-medical were compared, the result showed that the views of both the medical and non-medical staff were the same on all items on organizational barriers (table 4). The equal perception of the organisational barrierswas an indication that they were equally influenced by the interplay of various external and internal factors that affect the hospital.It was also an indication that the respondents were ready to work together despite the cultural and linguistic differences of the hospital system (Lauring and Selmer, 2011).There was therefore a general implication of a lack of management initiative in overall organisational barriers.

Individual Barriers to KS

The respondents' views about individual barriers to KS were shown in table 7. The recognition of lack of interaction between those who need knowledge and those who can provide it and poor communication and personal skills as main individual barriers was an assertion that communication was a major hindrance to KS in the hospital. This wassupported by the studies by Sandhu et al. (2011) and Riege (2005) in which most critical individual barriers included lack of interaction between provider and seeker and poor communication and personal skills.However, contrary to the views of this study, poor communication was rated low by Jain et al. (2007). The high rating of poor communication and personal skills in this study was evidence of the multicultural nature of the hospital and will pose a serious obstacle to implementation of strategies. Therefore, it must be primarily addressed for easy understanding of initiatives. According to Lauring and Salmer (2011) a multicultural organisation could face challenges in communication due to linguistic and cultural diversity.The affirmation that there was lack of interaction between those who need and those who can provide implies that there is urgent need to close the gap within the hierarchical medical structure (Payne et al., 2007) and encourage communication perspective in knowledge sharing (Hendriks, 1999) and socialization among the nurses, doctors and consultants for an effective knowledge sharing practice(Fong et al., 2011). According to Esmaeilzadeh et al. (2013), the thought of professional autonomy by physicians can hinder access to them by juniors. This uncooperative atmosphere was responsible for the expression of fear in seeking knowledge from superiors as majority agreed that it did exist (59.3%).Another major barrier was the lack of trust, which was also corroborated by some studies(Ling et al., 2007; Willem and Buelens, 2007). However, a previous study by Sandhu et al. (2011) had noted that lack of trust was not a serious individual barrier for public servants, as it was scored lowest in their study. The recognitionof trust as a major barrier was consistent with theearlier assertion by respondents on colleague's willingness to share knowledge.It also implicated the multicultural make-up of the hospital (McLaughlin et al., 2008; Burke, 2007).Furthermore, itshowed that they believed that the coordination and interaction among departments in the hospital were important and inevitable in the overall management of patientsirrespective of the diverse backgrounds (Hofstede and Hofstede, 2005). It was interesting to note that there was significant difference in the perception of the medical and non-medical staffs on both items (Table 4). Again, in considering the mean values, it was concluded that while the non-medical staffs "agreed" that "lack of trust" was a major individual barrier to KS, the medical staffs were apparently indecisive on it. This therefore, substantiated their respective views on colleague's willingness to share information outside work scope. Thus, the medical respondents seem to trust each other more and believed in the multidisciplinary approach of medical practice than the non-medical respondents. This will definitely have implication on overall policy implementation because lack of trust could have the capability of marring management initiatives. The four least rated individual barriers showed interesting synergy as their mean values gave indication that the respondents were neutral on them. For instance, contrary

Table 8. Human capital environmental safety

Human capital environmental safety	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Statement of working environment policy	0.00	0.00	28.60	28.60	42.80	100.00	4.14	0.900
Statement of employee safety policy	0.00	11.12	11.12	44.43	33.33	100.00	4.00	1.000
Description of community involvement	7.70	0.00	15.40	46.10	30.80	100.00	3.92	1.115
Statement of policy regarding corporate social responsibility	8.30	0.00	16.70	33.30%	41.70	100.00	4.00	1.206
Statement of ethical business policy	8.30	0.00	16.70	33.30%	41.70	100.00	4.00	1.206

to previous studies which noted lack of time as a prominent barrier (Ling et al., 2007; Riege, 2005; Santos et al., 2012), it was rated very low in this study (mean = 3.39). This was therefore, a positive outcome and showed their willingness to be part of any KS initiativesdespite the busy hospital schedules.It also showed that team work,which required time to be together,can flourish among them (Burke, 2007). Another surprising outcome was that more than half (52.2%) of respondents did not see “knowledge is power”as a serious hindrance. This was a positive development given the tacit nature of healthcare knowledge and the purported emphasis on professional autonomy by medical Physicians (Esmaeilzadeh et al., 2013; Payne et al., 2007), A similar representation of neutrality were made regarding difficulty in convincing colleagues about the benefits of knowledge and the inability to share due to undue credits to undeserving parties. These responses towards the neutral scale were positive indication of a general readiness of employees to embrace knowledge management applications and KS initiatives in the hospital.

Strategies to KS

There was a general confirmation by the respondents that all the strategies proposed through the questionnaire were able to encourage knowledge sharing (Approval ratings were fifty percent and above). The most prominent KS strategies suggested by respondents were the use of technology, use of the hospital newsletter, management encouragement of publications in website and a link of KS with performance appraisal (Table 8). Previous studies had also noted that technology and management support were favoured KS initiatives (Kim et al., 2003; Ting et al., 2011; Evangelista et al., 2010). This showed that the respondents were aware of the role of technology in present day business and especially in the health sector where technological innovations and acquisitions had remained prominent. The prominence of newsletter and website publications was an indication that the staff wanted to be heard and this corroborated the hierarchical structure in the medical field which had the tendency to reduced communication among staff (Esmaeilzadeh et al., 2013). The roles of human resource strategies like reward and performance appraisal in knowledge sharing were recognised by the respondents as did most previous studies (Tan and Nasurdin; 2011; Leidner et al., 2006). However, the study by Islam et al. (2011) concluded that among the cultural elements studied, reward system did not play significant role in KS. In this study, the recognition of these two items could be seen as a willingness to participate, a readiness to be appraised for participating and the audacity to accept incentives without prejudice. This collective affirmation was revealed further by the fact that despite thestatistical significant differences in the responses of the medical and non-medical staff, the conclusion with respect to their means showed a general agreement by both groups (Means approx. = 4) (Table 4). The respondents also confirmed their belief in rewards by the majority approval of linking non-monetary rewards to KS (53%) (Table 8). Surprisingly, there was a significant statistical difference between the means for medical and non-medical staffon this item and it was concluded that while the non-medical staff agreed to the view (mean approx. = 4), the medical staff were indecisive about that strategy (mean=approx. 3). Conversely, on the use of designated knowledge officer, the medical staff agreed that this strategy would

Table 9. Human capital health and wellness.

Human capital health and wellness	No contribution	Weak contribution	Moderate contribution	Strong contribution	Very strong contribution	Total	Mean	Std. Dev.
	%	%	%	%	%	%		
Social wellness	0.00	14.30	71.40	14.30	0.00	100.00	3.00	0.577
Occupational wellness	0.00	22.20	55.60	0.00	22.20	100.00	3.22	1.093
Intellectual wellness	0.00	50.00	50.00	0.00	0.00	100.00	2.50	0.707
Emotional wellness	0.00	0.00	100.00	0.00	0.00	100.00	3.00	0.000
Physical wellness	0.00	0.00	55.60	11.10	33.30	100.00	3.78	0.972
Financial wellness	0.00	0.00	75.00	0.00	25.00	100.00	3.50	1.000
Spiritual wellness	0.00	0.00	100.00	0.00	0.00	100.00	3.00	0.000

encourage KS (Meanapprox. 4), while the non-medical staff were indecisive (Mean approx. = 3). As a result, it was concluded that these may be indications of the high degree of importance placed on KS by the medical group and therefore found it germane to designate somebody for the sake of monitoring the progress with a view to ensuring proper appraisal without emphasis on recognition. These different conceptual views of the professional and administrative staffswere evidence of the complex nature of a hospital system. The implication is therefore that much advocacy and sensitization may be required during initiation and implementation of strategies to ensure that everyone is carried along.

Personal Knowledge

Personal knowledge involves a close social interactions and communication and may include the sharing of information about non work issue(Lauring and Salmer, 2011). The results of the respondents' analysis showed that even though there were no hindrances towards communication and exchange of personal information among department members (Reversed Items 2 and 5), they had not sort such information exchange with zeal (item 1) and so have neither known each other's family (Item 3) nor consciously debate on non-work issues (item 4) (Table 9). There was a significant difference in the response of the medical and non-medical staffs on communication about personal issues (table 4). It was concluded that while the medical staff agreed to communication and exchange of personal issues in their department, the non-medical staffs were undecided. This was consistent with the earlier recognition of 'lack of trust" as a major individual barrier to KS among the non-medical staff. It also showed that the professional autonomy approach is not deep-rooted within the hospital system.

Implication

There are quite a number of implications that are relevant for the hospital management. The different views observed between the medical and non-medical staff, especially in the area of "lack of trust" showed that the diverse nature of the hospital personnel must be given adequate consideration to ensure flexibility and dynamic KM and KS applications. Management should therefore encourage organizational shared values, team work and collaboration in order to enhance trust among the employees. The study revealed that there was reasonable display of awareness of the importance of knowledge sharing and a general willingness to share by the staffs, however, the contrary perception by respondents that the importance of KS was not adequately communicated was an indication of a lack-lustre approach towards KS in the hospital. Therefore, management must try to create an enabling environment through conscious staff engagements, communications on all KS strategies and explanations of theimportance of all KS proxies within the hospital environment.

CONCLUSION

It is important that as the concept of KS in organizations continues to gain relevance, adequate insight about how it can be encouraged, improved and implemented should be sought. Given the heavy tacit endowment in the hospital setting, effective KS remains a major process in ensuring a successful hospital system. This was

recognized by themajority of respondents in this study. Major organizational barriers identified in this study include no system to identify colleagues with whom to share knowledge, lack of reward and recognition, lack of formal and informal activity to cultivate KS and inadequate IT systems. Major individual barriers identified include the lack of interaction between those who need knowledge and those who can provide, lack of trust, poor communication and fear of undue credit to colleagues (knowledge is power). The respondents suggested strategies to KS which include management encouragement to allow publications on newsletters and websites, linking KS with performance appraisal and rewards and use of designated knowledge officers.There was astatistically significant difference in the views of medical and non-medical staff of the hospital in the areas of trust, communication and linking KS to rewards. KS remains important function for a high performance organisation. Therefore, the different strategies suggested by respondents and the differences observed in the views of the medical and non-medical respondents showed that within the hospital complex system, no one method can be adapted to encourage KS.

Future research

This study presented several opportunities for future research in the areas of hospital “know-how” so that the scope of the study can be extended. Therefore, there may be aneed to study the inter-relationship of thesefactors with each other within the organizational context. Secondly, there may be need to examine the most appropriate strategy out of all the strategies suggested by respondents, that will lead to successful KS practice. This is important because of the need to streamline the strategies for easy application in a hospital complex system.

Study limitations

The scope of this studyis limited to arelatively small sample size involving the senior staff and professionals working in the single Ophthalmology hospital. Due to the need for generalization of research results, further studies can be carried out in multiple Ophthalmology hospital settings before generalizations can be attempted. It is possible that, given the implicit nature of knowledge, some respondents may not have given their best response in some of the statements due to a possible effect of the wordings of the questionnaire.

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Conflict of interest

The authors declare no conflict of interest.

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