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# The Effects of Knowledge Management Process on Knowledge Management Effectiveness of Physicians: An Empirical Study in Multi-Speciality Hospitals

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**ABSTRACT**

*In the present knowledge economy, organizations need to assimilate Knowledge Management (KM) practices in their business process for achieving sustainable competitive advantage. For effective implementation of the KM practices, organization needs to focus on KM process (viz. acquisition, creation, sharing, storage and application of knowledge) that enables them for leveraging the existing knowledge and creating the new knowledge. Hospitals are highly relying on the knowledge of its physicians. Therefore hospitals need to develop a capability for managing KM process that will enhance the knowledge flow across various specialties and increase KM effectiveness of physicians at the point of care. In the background, the purpose of this paper is to explore various elements of KM process prevailing in the hospitals. It also attempts to examine the effects of KM process on KM effectiveness of physicians. Primary data was collected from the physicians in multi-speciality hospitals in Bangalore & Chennai. The results confirmed the relationship between KM process and KM effectiveness of physicians. It also revealed that 'knowledge creation' has significant effect on KM effectiveness of physicians. This paper provides insights into how to develop and sustain KM process in hospitals and guides the hospital managers in the implementation of KM practices. It could be a basis for further studies on the relationship between KM and hospital performance.*

**Keywords:** Knowledge, Knowledge Management, Knowledge Management Process, Knowledge Management Effectiveness, Physicians.

## INTRODUCTION:

Today, business organizations operate in the highly competitive VUCA (stands for volatility, uncertainty, complexity, ambiguity) environment. It is imperative for organizations to adopt right strategies to survive and excel in the VUCA environment. One of the key strategies for operating in the VUCA environment is to convert itself as a learning organization (George Forsythe et al., 2018). Garvin (2000) defined learning organization is an organization skilled at creating, acquiring, interpreting, transferring and retaining knowledge and at purposefully modifying its behaviour to reflect new knowledge and insights.

Accordingly, knowledge is considered as a most important strategic resource that enables organization for achieving sustainable competitive advantage. Davenport & Prusak (1998) defined knowledge as a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knower. In organizations, it often becomes embedded not only in documents and repositories but also in organizational routines, process, practices and norms. Generally, organizations view knowledge in two perspectives: (i)

Resource perspective – knowledge is a fundamental resource in addition to the traditional resources such as land, labour and capital; (ii) Process perspective - organizations are considered as information processing and knowledge generation systems (Grant, R., 1996).

Knowledge without a proper management will become obsolete and useless (Karimi & Javanmard, 2014). A firm's competitive advantage depends more than anything on its knowledge: on what it knows – how it uses what it knows – and how fast it can know something new (HR Magazine 2009:1). Knowledge Management (KM) is getting the right knowledge to the right people at the right time so that they can make the best decision (Petrash, 1996). KM has been studied on various aspects such as knowledge sharing behaviour of individuals, KM enablers & barriers and KM practices (viz. socio-technological & industry specific practices). However, for leveraging the benefits of both internal & external knowledge and existing & new knowledge, KM should be studied as a *'process'* comprising of acquisition, creation, sharing, storage and reuse of knowledge. With a focus on process, KM is defined as the management discipline concerned with the systematic acquisition, creation, sharing and use of knowledge in organizations, aiming to improve organization's competitiveness (Dimitriades, 2005). Therefore, organizations need to implement and apply a series of process for them to manage their knowledge (OuYang, 2014).

Knowledge intensive organizations are relatively high dependence on knowledge, not capital or labour, as a basis for productivity (Starbuck, 1992). Though hospitals are considered as knowledge intensive organizations, an effective utilization of KM practices is in the embryonic stage. In 2013, a Harvard University study estimated that 52 lakh injuries occur across India each year (out of 430 lakh globally) due to medical errors and adverse drug reactions (Times of India, 2016). However, knowledge already exists in hospitals to prevent or at least reduce several the medical errors. Hence, hospitals need to manage its knowledge assets (both tacit and explicit knowledge) effectively through the process of acquisition, creation, sharing, storing and application of knowledge.

In the above background, this study aimed at exploring KM process prevailing in hospitals and its effect on KM effectiveness of physicians. To explore the role of KM process, this study adopts five key KM process elements - acquisition, creation, sharing, storage and application of knowledge.

## OBJECTIVES OF THE STUDY:

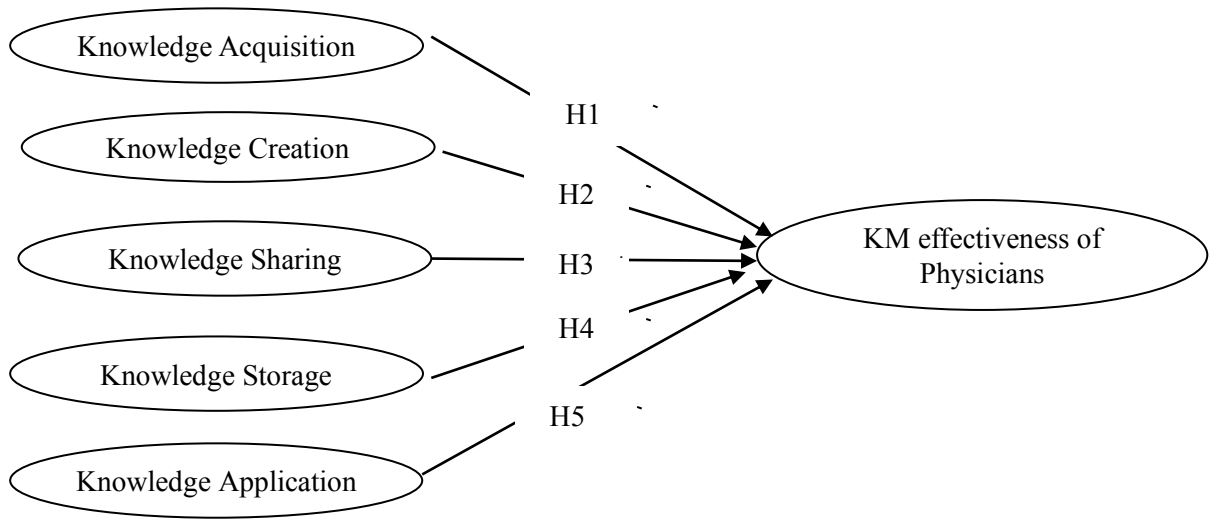
- To identify the elements of KM process prevailing in the hospitals.
- To identify the elements of KM effectiveness of physicians.
- To ascertain the effects of KM process on KM effectiveness of physicians.
- To suggest the measures for sustaining KM process in the hospitals.

## RESEARCH MODEL AND HYPOTHESES DEVELOPMENT:

This study is based on both primary and secondary data. A range of KM literature pertaining to various industries is explored. The following research model is proposed to explore the effects of KM process on KM effectiveness of physicians.

Knowledge Management Process

**Figure 1: Research Model**



The following five hypotheses are formulated for testing the above research model:
**H1.** There is a significant effect of knowledge acquisition on KM effectiveness of physicians.
**H2.** There is a significant effect of knowledge creation on KM effectiveness of physicians.
**H3.** There is a significant effect of knowledge sharing on KM effectiveness of physicians.
**H4.** There is a significant effect of knowledge storage on KM effectiveness of physicians.
**H5.** There is a significant effect of knowledge application on KM effectiveness of physicians.

## LITERATURE REVIEW:

### Knowledge Management Process:

Researchers have divided KM into several process elements. Alavi & Leidner (2001) identified four KM process - creation, storage, transfer and application of knowledge. KM process capabilities are comprised of a series of coordinated knowledge process that reflect the abilities of an organization to effectively utilize knowledge assets so as to produce knowledge synergy (Wu and Hu, 2012). KM process occurs concurrently rather than sequentially and independently in organizations.

### Knowledge Acquisition:

Knowledge acquisition is the process of acquiring knowledge from either inside or outside of the organizations (Cho & Korte, 2014). Before acquiring knowledge, organization should assess the knowledge stock within the organization and the knowledge gap (exists between what an organization knows and organization must know). It is known as knowledge audit. Therefore, based on the knowledge stock, organization should devise a strategy to acquire the external knowledge from other organizations. Organization need to develop an absorptive capacity that is the ability to recognize the value of new information, to assimilate it, and apply it to commercial ends (Cohen & Levinthal, 1990).

### Knowledge Creation:

The creation of knowledge is the interaction between tacit knowledge and explicit knowledge. Nonaka et al. (1996) defined the knowledge creation process as a "never-ending spiral of tacit and explicit knowledge through four modes of knowledge conversion". The four modes of knowledge conversion are: (i) From tacit knowledge to tacit knowledge – it is the process of socialization where one individual shares tacit knowledge directly with another. (ii) From explicit knowledge to explicit knowledge – it is the process of externalization where an individual can combine discrete pieces of explicit knowledge into a new whole (iii) From explicit knowledge to explicit knowledge – it is the process of recombining discrete pieces of explicit knowledge into a new form (iv) From explicit knowledge to tacit knowledge – it is the process of internalization where one individual absorb explicit knowledge through learning by doing.

### Knowledge Sharing:

Knowledge sharing is the process by which existing knowledge is shared and disseminated within the organization. Knowledge sharing involves knowledge contribution and knowledge seeking behaviour (He and Wei, 2009). They identified the factors that play an important role in knowledge sharing: (i) factors that influence knowledge contribution - image, enjoyment and reciprocity; (ii) factors that influence knowledge seeking - perceived usefulness and knowledge growth; (iii) factors that influence knowledge contribution and knowledge sharing - organizational reward, management influence and effort. Explicit knowledge can be shared by IT systems, but also through social interaction of people (Argote et al., 2003). Organizations should also create an environment for facilitating knowledge sharing among employees informally. For instance, community of practices are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly (Wenger, 1998).

### Knowledge Storage:

Organizational memory is the ability of the organization to acquire, store, disseminate and retrieve knowledge. If an employee leaves the organization, their knowledge, skills and expertise do not necessarily leave with them (Nory B Jones et al., 2003). Knowledge storage and retrieval systems enable the storage, organization and retrieval of knowledge in various forms such as documents, databases, codified knowledge such as expert systems, documented processes and tacit knowledge possessed by individuals (Alavi and Leidner, 2001). The quality of knowledge content is determined by the ability to present the knowledge via appropriate presentation formats (text, graphics, video) as well as the usefulness of the content to the user (Kulkarni et al., 2007). It is also essential for the organization to update the knowledge content on regular basis.

**Knowledge Application:**
In KM process, knowledge application is final process and actual use of knowledge. The purpose of KM is knowledge application and it can make the organizations to attain the effectiveness of KM. This also implies knowledge transfer and knowledge utilisation (Gold et al., 2001) as and when required by its employees. While IT support and knowledge application are significant, there is also a need to indicate the significance of creating an organizational environment which can facilitate the application of knowledge (Said Abdullah Al Saifi, 2015). Without consistent use, there is a high probability that new knowledge systems will decay in quality and the investment will be wasted (Probst, 1997).

**KM Effectiveness of physicians:**
KM effectiveness are considered as improved communication, enhanced collaboration, improved employee skills, better decision-making and improved productivity (Sangeeta Shah Bharadwaj et al., 2015). In hospital, KM increases knowledge flow across speciality and increases accessibility of knowledge to the physicians. It enables physicians to practice evidence-based medicine that integrates individual clinical expertise and the best external evidence found in research for clinical decision-making (Sackett et al., 1996). KM enhances the collaboration among the employees. Gagliardi et al. (2008) found that many physicians actually receive more clinical knowledge from colleagues than from journals or conferences. KM implementation in Boston-based Partners Healthcare found that KM-based decision making can help doctors to reduce medical errors and thereby healthcare cost (Davenport & Glaser, 2002).

**Effects of KM process on KM effectiveness:**
Soleyman Iranzadeh et al. (2013) examined the relationship between KM and creativity of employees in an Iranian organization. They found that KM process (creation, storage, sharing and application of knowledge) had positive effect on increasing the creativity of the employees.
Vitor Ferreira et al., (2015) examined the relationship between KM process and employee relations in Small & Medium Enterprises in Portugal. They found that KM process (acquisition and sharing of knowledge) had positive effect on the employee relations and also on the company work environment. In similarity, Ritika Saini (2015) explored the impact of KM process (capturing, sharing, transfer, storage, reuse of knowledge) on innovation of the Small & Medium Enterprises in North India. The elements of innovation are increased number of markets, better client or customer relations, new products or services, flexibility in production and innovation, adaptation of products or services to client requirements and prevented duplicate research & development.
Aino Kianto et al. (2016) conducted a study to find out whether KM can increase individual employees' job satisfaction. Data was collected from the employees of Finnish municipal organization. They found that the existence of KM process (acquisition, sharing, creation, codification and retention of knowledge) in one's working environment was significantly linked with high job satisfaction. Especially intra-organizational knowledge sharing was a key KM process, promoting satisfaction with one's job in most employee groups.
In South African healthcare system, Badimo and Buckley (2014) found that KM process (sharing, creation and application of knowledge) had positive and significant relationship with efficient healthcare service delivery and organizational performance.

**RESEARCH METHODOLOGY:**

**Sampling:**
This research design of the study is descriptive and the sampling design is non-probability judgemental cum convenient sampling. The primary data was collected through a structured questionnaire form. The questionnaire was administered to the physicians who are practicing in clinical specialities at private multi-speciality hospitals with minimum 500 beds capacity, in Bangalore & Chennai. Out of the 200 questionnaire distributed, 60 filled questionnaires were received. The response rate of the questionnaire was 30%. The primary data was supported by the secondary data collected from the research articles published in the journals.

**Research Instrument:**
An instrument used in this study was questionnaire comprised of three parts. The first part comprised of the demographic details of the respondent. The second part comprised of 20 items under 5 constructs of KM process i.e., knowledge acquisition, knowledge creation, knowledge sharing, knowledge storage, knowledge application. The third part comprised of 6 items under the construct - KM effectiveness of physicians. The questionnaire is designed with a 5-point Likert Scale (strongly disagree-1; disagree-2, neither agree nor

disagree-3; agree-4; strongly agree-5). The details of constructs and the items are shown in Table. 2. The items are adapted from previous studies which were used and validated for other industries. These items are modified for the hospital work environment. The SPSS tool was used for statistical analysis.

**Measure of variables:**

**Reliability:** Construct reliability was assessed using Cronbach's Alpha to find out whether the scales are consistent or not. According to Hair et al (2006), alpha values which are more than 0.7 are acceptable. In Table 2, alpha values ranged from 0.813 (knowledge sharing) to 0.910 (knowledge application) which is acceptable and reliable.

**Validity:** Kaiser-Meyer-Olkin (KMO) measure the sampling adequacy for factor analysis and Barlett's Test of Sphericity indicates further appropriateness of factor analysis. KMO and Bartlett's Test showed value of 0.877 at significant level of 0.000. This shows that the degree of common variance among the variables was high and therefore factor analysis could be conducted.

**Table 1: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test**

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.877 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1037.413 |
| | df | 190 |
| | Sig. | 0.000 |

The Exploratory factor analysis was applied on 26 items resulting into 6 factors. All factor loadings are higher than 0.5, ranging from 0.508 to 0.936.The resulting items and factors are shown in Table 2.

The higher values of reliability and validity imply that the items as shown in Table 2 are adequate and the outcome of this analysis will be reliable and valid.

**Table 2: Operationalization of constructs**

| Constructs | Factors | Items | Factor loading | Cron -bach α |
|---|---|---|---|---|
| Knowledge Acquisition | Knowledge Gap | My hospital has process to identify the knowledge gap in each specialty. | 0.672 | 0.830 |
| | Clinical Knowledge | My hospital has process to capture new clinical knowledge from other hospitals. | 0.819 | |
| | Patients Knowledge | My hospital has process to capture adequate information about patients' health condition. | 0.795 | |
| | Absorptive Capacity | My hospital has process to absorb external knowledge with internal knowledge for clinical benefits. | 0.602 | |
| Knowledge Creation | Personalisation | My hospital has process to share my knowledge to the group of other physicians. | 0.588 | 0.879 |
| | Externalisation | My hospital has process to document the tacit knowledge of physicians. | 0.538 | |
| | Combination | My hospital has process to develop new written reports from already available information. | 0.508 | |
| | Internalisation | My hospital has process to deliberate the contents of clinical protocols for its implementation. | 0.624 | |
| Knowledge Sharing | Tacit knowledge | My hospital has process to share my tacit knowledge with others. | 0.814 | 0.813 |
| | Explicit knowledge | My hospital has process to share explicit knowledge with others. | 0.797 | |
| | Formal knowledge sharing | My hospital has process to conduct various knowledge sharing programs. | 0.738 | |
| | Informal knowledge | My hospital has process to create an environment where physicians can share their | 0.711 | |

| Constructs | Factors | Items | Factor loading | Cron -bach α |
|---|---|---|---|---|
| | sharing | knowledge informally. | | |
| Knowledge Storage | Organization memory | My hospital has process to store knowledge. | 0.643 | 0.829 |
| | Knowledge harvesting | My hospital has process to store tacit knowledge of physicians. | 0.703 | |
| | Avoiding knowledge loss | My hospital has process to protect tacit knowledge attrition of physicians due to their retirement. | 0.803 | |
| | Content updation | My hospital has process to update the stored knowledge on regular basis. | 0.781 | |
| Knowledge Application | Knowledge reuse | My hospital has process to reuse knowledge in clinical areas. | 0.633 | 0.910 |
| | Knowledge from mistakes | My hospital has process to reuse knowledge gained from mistakes. | 0.674 | |
| | Knowledge connectivity | My hospital has process to identify the source of knowledge to the clinical problems. | 0.622 | |
| | Knowledge adoptability | My hospital has process to utilize knowledge gained from any source. | 0.636 | |
| KM effectiveness of physicians | Clinical knowledge | KM enables me to increase the clinical knowledge | 0.801 | 0.881 |
| | Clinical Errors | KM enables me to control the clinical errors in clinical areas. | 0.902 | |
| | Decision making | KM enables me to take prompt and right decisions in clinical areas. | 0.838 | |
| | Collaboration | KM enables me to interact more with other physicians across speciality. | 0.779 | |
| | Best Clinical Practices | KM enables me to implement best clinical practices. | 0.795 | |
| | Cost reduction | KM enables me to reduce the cost of care by reusing available knowledge. | 0.936 | |

**FINDINGS AND DISCUSSION:**

Demographic characteristics of the respondents are shown in Table 3 below:

**Table 3: Demographic characteristics of the respondents**

| Demographic Variable | | Values [a] |
|---|---|---|
| Gender | Male | 39 (65) |
| | Female | 21 (35) |
| Age | 30 years & below | 35 (58.3) |
| | 31 to 40 years | 13 (21.7) |
| | 41 to 50 years | 6 (10) |
| | 51 to 60 years | 3 (5) |
| | 61 years & above | 3 (5) |
| Qualification | Bachelor's Degree | 2 (3.3) |
| | Master's Degree | 51 (85) |
| | Super Speciality Degree | 7 (11.7) |
| Clinical Experience | 10 years & below | 45 (75) |
| | 11 to 20 years | 9 (15) |
| | 21 to 30 years | 3 (5) |
| | 31 years & above | 3 (5) |

[a] Data are presented as No. (%).

Table 3 shows that out of the total 60 respondents, 65% were male and 85% were holding Master's Degree. 58% of the respondents were in the age group of less than 30 years. 75% of the respondents had clinical experience of less than 10 years.

**Descriptive Statistics:**
From Table 4, the highest mean score is 4.49 for patient's knowledge and the lowest mean score is 3.61 for avoiding knowledge loss. The small variation in mean score is 0.568 for patient's knowledge and the high variation in the mean score is 1.034 for avoiding knowledge loss.

**Table 4: Dimensions of KM process and KM effectiveness of physicians**

| Constructs | Factors | Mean | Standard Deviation |
|---|---|---|---|
| Knowledge Acquisition | Knowledge Gap | 3.88 | 0.767 |
| | Clinical Knowledge | 3.94 | 0.797 |
| | Patients Knowledge | 4.49 | 0.568 |
| | Absorptive Capacity | 4.03 | 0.642 |
| Knowledge Creation | Socialization | 4.00 | 0.719 |
| | Externalization | 4.06 | 0.715 |
| | Combination | 3.88 | 0.789 |
| | Internalization | 4.18 | 0.655 |
| Knowledge Sharing | Tacit knowledge | 4.23 | 0.652 |
| | Explicit knowledge | 4.08 | 0.701 |
| | Formal knowledge sharing | 4.33 | 0.604 |
| | Informal knowledge sharing | 3.98 | 0.754 |
| Knowledge Storage | Organization memory | 4.00 | 0.742 |
| | Knowledge harvesting | 3.89 | 0.884 |
| | Avoiding knowledge loss | 3.61 | 1.034 |
| | Content updation | 3.89 | 0.824 |
| Knowledge Application | Knowledge reuse | 4.11 | 0.767 |
| | Knowledge from mistakes | 4.20 | 0.804 |
| | Knowledge connectivity | 4.00 | 0.787 |
| | Knowledge adoptability | 3.96 | 0.889 |
| KM effectiveness of Physicians | Clinical knowledge | 4.35 | 0.659 |
| | Clinical errors | 4.43 | 0.673 |
| | Decision making | 4.28 | 0.715 |
| | Collaboration | 4.17 | 0.763 |
| | Best clinical practices | 4.37 | 0.637 |
| | Cost reduction | 4.10 | 0.877 |

**Hypotheses Testing:**
Multivariable regression analysis was used to explore the effects of KM process on KM effectiveness of physicians and to identify the best predictor of KM effectiveness of Physicians. The results of multivariable regression analysis are as follows:

**Table 5: Model Summary for KM process**

| R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|
| 0.833[a] | 0.694 | 0.666 | 0.339 |
| **a. Predictors:** (constant), Knowledge Acquisition, Knowledge Creation, Knowledge Sharing, Knowledge Storage, Knowledge Application | | | |

The correlation coefficient (R) shows the high degree of positive relationship between KM process and KM effectiveness of physicians (R=0.833). The coefficient of determination ($R^2$) shows that 69.4% of the modifications of dependent variable (KM effectiveness of physicians) are due to the independent variables (KM process) discussed in the study. This confirms the effect of KM process on KM effectiveness of Physicians. The remaining changes (30.6%) are due to other independent variables which were not discussed in the study.

**Table 6: Multivariable Regression and ANOVA[b]**

| ANOVA[b] | | | | | |
|---|---|---|---|---|---|
| **Model** | **Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** |
| Regression | 14.054 | 5 | 2.811 | 24.511 | 0.000[a] |
| Residual | 6.192 | 54 | 0.115 | | |
| **Total** | **20.246** | **59** | | | |

**a. Predictors:** (constant), Knowledge Acquisition, Knowledge Creation, Knowledge Sharing, Knowledge Storage, Knowledge Application

**b. Dependent Variable:** KM effectiveness of physicians

As shown in Table 6, $p$=0.000 which is less than 0.05, indicates that the model obtained from multivariable regression analysis are statistically significant. All five predictors significantly combine together to predict KM effectiveness of physicians.

**Table 7: Coefficients for KM process**

| Coefficients[a] | | | | | |
|---|---|---|---|---|---|
| **Model** | **Unstandardized Coefficients** | | **Standardized Coefficients** | **t-value** | **Sig.** |
| | **B** | **Std. Error** | **Beta** | | |
| (Constant) | -0.069 | 0.455 | | -0.152 | 0.880 |
| Knowledge Acquisition | 0.141 | 0.127 | 0.129 | 1.104 | 0.275 |
| Knowledge Creation | 0.428 | 0.137 | 0.414 | 3.125 | 0.003 |
| Knowledge Sharing | 0.254 | 0.134 | 0.232 | 1.901 | 0.063 |
| Knowledge Storage | 0.115 | 0.114 | 0.114 | 1.007 | 0.319 |
| Knowledge Application | 0.070 | 0.120 | 0.085 | 0.584 | 0.562 |
| **a. Dependent Variable:** KM effectiveness of physicians | | | | | |

Table 7 provides the coefficient of proposed model in multivariable regression. The five independent variables were expressed in terms of standardized factor scores (beta coefficients). It is observed that knowledge creation has high significant effect on KM effectiveness of physicians ($\beta$=0.414, t=3.125, p<0.05). Other elements (knowledge acquisition, knowledge sharing, knowledge storage, knowledge application) are also important though they do not have a significant effect on KM effectiveness of physicians. The beta values also show positive relationship (0.428 for knowledge creation). Therefore, knowledge creation was best predictor of KM effectiveness of Physicians. It is observed that one-unit increase in knowledge creation would lead to a 0.428 unit increase in KM effectiveness of physicians. One-unit increase in knowledge sharing would lead to a 0.254 unit increase in KM effectiveness of physicians.
The summary of findings of hypotheses testing is shown in Table 8 below:

**Table 8: Summary of Findings**

| Hypotheses | Sig. | Result |
|---|---|---|
| **H1:** There is a significant effect of knowledge acquisition on KM effectiveness of physicians. | 0.275 | Rejected |
| **H2:** There is a significant effect of knowledge creation on KM effectiveness of physicians. | 0.003 | Supported |
| **H3:** There is a significant effect of knowledge sharing on KM effectiveness of physicians. | 0.063 | Rejected |
| **H4:** There is a significant effect of knowledge storage on KM effectiveness of physicians. | 0.319 | Rejected |
| **H5:** There is a significant effect of knowledge application on KM effectiveness of physicians. | 0.562 | Rejected |

## CONCLUSIONS:

The study aimed at exploring the imperatives of KM process in hospitals. The findings confirmed the positive relationship between KM process elements and KM effectiveness of physicians. Whereas 69.4% of the dependent

variable (i.e., KM effectiveness of physicians) is affected by the independent variables (KM process) investigated in this study, there are other variables that affect KM effectiveness of physicians which were not in the scope of the study. Hence, hospitals need to focus on KM enablers for complementing its effects on KM process elements. KM enablers are considered as organizational culture, organizational structure and Information Technology (IT). IT-enabled KM systems (viz. knowledge portal, repositories containing clinical protocols, research articles & best practices, tele-medicine, online discussion forums, clinical decision-support system etc) facilitates KM process in hospitals. It is essential to emphasize 'knowledge-friendly' HR practices (viz. learning & development, reward & recognition, mentoring, clinical rotations, knowledge sharing as a measure in performance appraisal, knowledge-based exit interview, and team building activities) for stimulating KM process in hospitals.

The findings revealed that knowledge creation has a significant effect on KM effectiveness of physicians. According to Nonaka & Takeuchi (1995), Knowledge is created only by individuals. An organization cannot create knowledge on its own without individuals. Hence, hospitals should enable physicians to create knowledge through the following KM practices:

- Tacit knowledge to tacit knowledge - brainstorming, knowledge sharing sessions (lessons learned, story-telling & after action reviews) and community of practices around specific healthcare topics.
- Tacit knowledge to explicit knowledge – codification of case based discussions / clinical protocols and developing concepts.
- Explicit knowledge to explicit knowledge – benchmarking the best clinical practices from other hospitals.
- Explicit knowledge to tacit knowledge - learning by doing, clinical rotations in various specialty and workshops / seminars on emerging healthcare topics.

This study contributed empirically to the existing KM literature. The findings of this study are a basis for the researchers to establish further relationship between KM and hospital performance.

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