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Investigating the Relationship between Knowledge Management and Patient Relationship Management and the Mediating Role of Knowledge Sharing

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ABSTRACT

Background: Individuals and their skills in learning and sharing knowledge are regarded as fundamental factors in the competitive success of organizations. Hence, this study aims to investigate the relationship between knowledge management and patient relationship management and the mediating role of knowledge sharing among the staff of Shahid Ayatollah Dastgheib Hospital in Shiraz.

Methods: This study employs a descriptive, cross-sectional, and correlational design. The statistical population included all the staff of Shahid Dastgheib Hospital in Shiraz in 2023, totaling 250 individuals. The sample size was determined to be 155 individuals using Morgan table and was selected through stratified random sampling as the final sample, based on quotas. 1-Knowledge Management Questionnaire and Dixon's Standardized Knowledge Sharing Questionnaire . Data were analyzed via Pearson correlation coefficient and univariate regression analysis using SPSS-25 software.

Results: The findings indicated a significant relationship between the mean score of knowledge management and the mean score of patient relationship management (P = 0.001). Knowledge management can positively and significantly predict communication with the patient (P=0.001, β=0.276) and knowledge sharing can positively and significantly predict communication with the patient (P= 0/001, β = 0.255).

Conclusion: It appears that enhancing knowledge management, knowledge sharing, and relationships among hospital staff are concepts closely linked to productivity, effectiveness, and performance of personnel and organizations.

Keywords: Knowledge management, Professional-patient relations , Information sharing

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Introduction

Since 1970s, with the rapid advancement of superior technology, particularly in the fields of communications and computing, the global economic growth model has fundamentally changed. Consequently, knowledge has replaced monetary and physical capital as the most valuable asset (Chen et al.,2004).Knowledge management, as a response to the increasing environmental changes, is considered one of the most recent and critical topics in management (Jashapara,2004). Malhotra defines knowledge management as "a process through which organizations gain skills in learning (internalizing knowledge), codifying knowledge (externalizing knowledge), and distributing and transferring knowledge" (Salvati et al., 2019). Depending on where knowledge is physically located, it can be categorized into two types: explicit (formal) knowledge and tacit (informal) knowledge (Maravilhas & Martins,2019). Nonaka et al. describe explicit knowledge as that which can be encoded and codified, making it easily communicated, processed, transmitted, and stored in databases. Tacit knowledge, on the other hand, is personal and difficult to formalize. This type of knowledge, which is acquired through sharing experiences via observation and imitation, is rooted in individuals' actions, practices, commitments, values, and emotions. It cannot be codified and is not conveyed through language. Tacit knowledge, as a distinct element, cannot be transferred or sold in the marketplace (Anderews & Delahay, 2000).

In the context of today's evolving business landscape, knowledge has become a pivotal factor in driving the economic, social, and cultural growth of societies. Knowledge management aims to leverage the skills and capabilities of each organization to build a competitive edge by generating, sharing, and preserving knowledge (Drucker, 1992; Afrazeh et al., 2010).

Healthcare organizations, due to their broad scope, their direct interaction with the public, issues related to individual health, and rising public expectations along with high costs, face significant challenges. Additionally, they are confronted with environmental and food pollution, shifting disease patterns, the spread of drug resistance, and the emergence of new and recurring diseases.

To address these challenges, it is essential to enhance professional competencies and education of dedicated, capable, and innovative healthcare personnel, enabling them to provide high-quality and standardized healthcare services (Ahadi et al., 2022). Consequently, healthcare delivery is inherently a knowledge-driven process (Bordoloi & Islam, 2012).In this regard, what adds value to the healthcare system today is the establishment of continuous communication with patients. Successful organizations are those that can meet patient needs promptly, with the highest quality and at the lowest cost (Yaghoubi et al., 2012).

Knowledge management involves creative, effective, and efficient utilization of all the knowledge and information available within an organization to benefit the customer (patient) and ultimately serve the organization’s interests (McDonald et al., 1997). It is widely recognized that the most valuable asset for most organizations is their customers (Abbasi & Turkmeni, 2010).In this context, competition has evolved, and maintaining continuous, long-term relationships with customers (patients) has become the cornerstone of organizational success (Hajikhani et al., 2016). Customer relationship management (CRM) encompasses a series of actions aimed at establishing, developing, maintaining, and optimizing long-term and valuable relationships between customers and the organization. When implemented correctly, this system significantly enhances customer satisfaction and retention, while also facilitating the acquisition of new customers in the future (Yaghoubi et al.,2017). Consequently, the skills and learning abilities of individuals are crucial to the competitive success of organizations.

One of the biggest challenges in contemporary knowledge management is developing, disseminating, and sharing knowledge within the organization. Knowledge sharing refers to the act of

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transferring knowledge to colleagues during internal or external communications. It pertains to the knowledge that individuals acquire while working within the organization. Knowledge sharing is exchanging of useful and relevant information, ideas, suggestions, and expertise with others. In an organizational context, it involves behaviors that require the mutual exchange of information. When we say that individuals share their knowledge, it means they are using their insights and experiences to guide and support others in enhancing their own positions.

The significance of knowledge sharing in organizations is due to its numerous advantages, including cost reduction, performance improvement, enhanced patient services, decreased costs associated with new product development, reduced delays in delivering goods to customers (patients), and ultimately, lower costs related to finding and accessing valuable knowledge within the organization (Mirzandedel et al.,2022).Therefore, given the points discussed, the aim of the present study is to investigate the relationship between knowledge management and patient relationship management, and the mediating role of knowledge sharing among the staff of Shahid Dastgheib Hospital in Shiraz in 2023.

Methods

This study employed a descriptive cross-sectional correlational design. The statistical population consisted of all the staff members of Shahid Dastgheib Hospital in Shiraz, totaling 250 individuals in 2023. The sample size was determined to be 148 participants based on the Morgan table. However, to account for a potential 5% attrition rate, the final sample size was increased to 155 individuals. Considering that approximately 60% of the population was categorized into different strata, 60% of each stratum was selected using quota sampling. The staff were categorized based on their job positions, which included senior management, administrative and financial staff, medical staff, operating room personnel, service staff, maintenance staff, physical security staff, and paraclinical personnel.

Inclusion criteriaconsisted of being employed as staff in any of the hospital unitsvoluntary consent to participate in the study, and a minimum of three years of work experience at Shahid Ayatollah Dastgheib Hospital in Shiraz.

Exclusion criteriaincluded declining to participate in the study and withdrawal from participation at any stage of the study.

Data collection instruments

Data were gathered through a combination of library research, database searches, computer networks, and structured questionnaires.

1- Knowledge management questionnaire

The standardized Knowledge Management Questionnaire developed by Lawson (2003) was used as the measurement tool in this study. The questionnaire consists of 24 items, scored on a 5-point Likert scale, and encompasses six subscales: knowledge creation, knowledge acquisition, knowledge organization, knowledge storage, knowledge dissemination, and knowledge application. The items are distributed as follows: items 1 to 4 correspond to the knowledge creation subscale, items 5 to 8 relate to the knowledge acquisition subscale, items 9 to 12 pertain to the knowledge organization subscale, items 13 to 16 are associated with the knowledge storage subscale, items 17 to 20 correspond to the knowledge dissemination subscale, and items 21 to 24 are related to the knowledge application subscale.

2- Vakili standardized Patient Communication Questionnaire (2012)

The Patient Communication Questionnaire was developed by Vakili et al. (2012) to assess interpersonal communication skills. This scale consists of 30 items, each rated on a 5-point Likert scale ranging from "very poor" to "excellent," with values from 1 to 5. It includes questions such as “paying attention to the physical conditions of the communication environment” and “encouraging the patient to continue the conversation through

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appropriate body language," which measure patient communication skills.

The questionnaire's validity was established through evaluation by experts and specialists in the relevant field (Vakili et al., 2012). In the same study, the reliability of the instrument was measured using Cronbach's alpha, resulting in a coefficient exceeding 0.70, which reflects strong reliability.

3- Dixon's standardized Knowledge Sharing Questionnaire (2000)

The standardized Knowledge Sharing Questionnaire was developed by Dixon in 2000 and consists of 15 items organized into four dimensions. Items 1 to 3 correspond to the procedural knowledge subscale, items 4 to 8 to the explicit knowledge subscale, items 9 to 11 to correspond the tacit knowledge subscale, and items 12 to 15 correspond to the strategic knowledge subscale. The questionnaire uses a 5-point Likert scale ranging from "very high" to "very low."

The validity of the questionnaire was verified through assessments conducted by academic supervisors and advisors (Hajizadeh et al.,2016) applied this tool to examine how knowledge management infrastructures influence the adoption of knowledge management systems in organizations. The content validity was carefully reviewed, and reliability was measured using Cronbach's alpha, yielding a coefficient of 0.797, demonstrating strong internal consistency**.**

After determining the sample size and obtaining the necessary approvals, the researchers visited Shahid Dastgheib Hospital in Shiraz. Following the required coordination with hospital authorities and management, and securing the necessary permissions, the sample participants were identified. A briefing session was then held for these individuals, during which they were encouraged to participate and were assured of the confidentiality of their personal information. Those willing to participate were selected, and the research questionnaires were distributed to them both in person and online. Upon completion, the questionnaires were collected and subjected to statistical analysis using SPSS software version 25**.**

For data analysis, two statistical methods were employed: **Descriptive statistics,** which included frequency, mean, and standard deviation

And inferential statistics encompass various tests, including the Kolmogorov-Smirnov test used to assess the normality of the data, the Pearson correlation coefficient, and univariate regression analysis.

Or: Encompassing inferential statistics: including the Kolmogorov-Smirnov test for assessing data normality, Pearson correlation coefficient, and univariate regression analysis.

Results

The descriptive findings of this study are as follows:

The demographic characteristics of the sample included gender, age, education level, work experience, marital status, and employment status. The majority of the sample were women, with 104 individuals (67%). Participants aged over 40 accounted for 83 individuals (54%), those with a bachelor's degree were 88 individuals (57%), and 84 (54%) participants had 11 to 20 years of work experience . Regarding employment status, 118 individuals (76%) were permanently employed, and 120 participants (78%) were married. Table 1 summarizes the frequency and percentage distribution of these demographic variables (Table 1).

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Table 1. Frequency and percentage distribution of participants by gender, age, education, work experience, employment status, and marital status

Variable	Group	Frequency	Percentage
Gender	Female	104	67%
	Male	51	33%
Age	20 to 30 years	15	9%
	31 to 40 years	57	37%
	Over 40 years	83	54%
Education level	Below bachelor's	48	30%
	Bachelor's degree	88	57%
	Above bachelor's degree	19	13%
Work experience	1-10 years	38	24%
	11-20 years	84	54%
	21-30 years	33	22%
Employment status	Contractual	37	24%
	Permanent	118	76%
Marital Status	Single	35	22%
	Married	120	78%

Subsequently, the mean, standard deviation, minimum, and maximum values of the main research variables were calculated as follows: the mean and standard deviation of knowledge management, patient communication, and knowledge sharing among the participants are presented in Table 2 (Table 2).

Table 2. Mean and standard deviation of knowledge management, patient communication, and knowledge sharing

Variable	Mean	SD	Minimum	Maximum
Knowledge management	58.09	7.65	32	88
Patient communication	86.42	8.95	50	124
Knowledge sharing	42.10	6.44	24	57

Subsequently, Pearson correlation test was conducted to examine the relationship between research variables. A positive and significant relationship was found between knowledge management and both patient communication and knowledge sharing (Table 3).

Table 3. Pearson correlation matrix between knowledge management, patient communication, and knowledge sharing

	Knowledge Management	Knowledge Sharing	Patient Communication
Knowledge management	1		
Knowledge sharing	0.435 (p = 0.006)	1	
Patient communication	0.398 (p = 0.015)	0.311 (p = 0.037)	1

Note: $p \leq 0.05$ indicates significance at the 0.05 level.

Subsequently, the relationships between the research variables were examined using univariate regression analysis.

The obtained results were as follows

Knowledge management significantly and positively predicted patient communication ($\beta = 0.398$, $p = 0.001$), and knowledge sharing ($\beta = 0.311$, $p = 0.001$) significantly and positively

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predicted patient communication.

Furthermore, knowledge management significantly and positively predicted knowledge sharing (β = 0.435, p = 0.001) and patient communication (β = 0.276, p = 0.001). Additionally, knowledge sharing significantly and positively predicted patient communication (β = 0.255, p = 0.001).

Given the reduction in beta coefficient for knowledge management at this stage, it can be concluded that knowledge sharing serves as a mediating factor in the relationship between knowledge management and patient communication among the hospital staff (Table 4).

Table 4: Univariate and multivariate regression analysis for predicting the relationship between research variables

Criterion variable	Predictor Variable	R	R^2	F	p	β	t	p
Patient communication	Knowledge Management	0.398	0.158	28.985	0.001	0.398	6.332	0.001
	Knowledge sharing	0.311	0.096	26.221	0.001	0.311	5.095	0.001
Patient communication	Knowledge management	0.500	0.250	53.117	0.001	0.276	3.431	0.001
	Knowledge sharing					0.255	3.215	0.001
Knowledge sharing	Knowledge management	0.435	0.189	39.774	0.001	0.435	7.146	0.001

Discussion

As observed, the participants' knowledge management was slightly above average, patient communication was significantly above average, and knowledge sharing was slightly below average.

Considering that the mean and standard deviation of knowledge management of the participants were equal to 58.09 and 7.65, the level of knowledge management of the participants (staff of Shahid Dastghib Hospital, Shiraz) was slightly higher than the average. The results of this research finding were consistent with the results of the studies

(Taheri & Azizi, 2019; Vendrell-Herrero et al.,2019; Farzan et al., 2019; Gao et al., 2008).

The mean and standard deviation of communication with the patient were equal to 86.42 and 8.95. This showed that the average scores of the participants (Shiraz Shahid Dastghib Hospital personnel) were much higher than average which was very good.

The results of this study were consistent with the results of studies by (Mirfakhredini et al.,2012; Collins,2003).

Moreover, the mean and standard deviation of the participants' knowledge sharing was equal to 42.10 and 6.44. This showed that the level of knowledge management of the participants (Shiraz Shahid Dastghib Hospital personnel) was slightly lower than the average.

The results of this research finding were in line with the results of the studies by (Sarkhosh et al., 2016 ;Gaviria et al., 2019).

There was a significant relationship between the average score of knowledge management and the average score of patient relationship management among the personnel of Shahid Dastghib Medical Education Hospital in Shiraz. Therefore, knowledge management predicted the communication with the patient of the hospital staff.

Also, according to the regression Tables of 4-11, the amount of R was equal to 0.398, and the amount of R2 was equal to 0.158. In other words, knowledge management explained 15% of the variance of patient communication scores. Knowledge management can also positively and significantly predict communication with the patient (p=0.001, β=0.398).

The results of this study were in line with the studies of (Asheim ,2007;Gao et al., 2008; Nilipour et al., 2018).

Given that in organizations, experience, skill, knowledge and expertise lead to the development and increase of intellectual assets, they may be in the form of documents, images, software programs, data, processes, etc(Sullivan, 1998).

The positive and significant relationship

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between knowledge management and patient communication aligned with the findings of (Asheim ,2007). In organizations, experience, skills, knowledge, and expertise contribute to the development and enhancement of intellectual assets (Sullivan, 1998).Therefore, knowledge has been one of the most popular topics in business philosophy for a very long time. In this context, knowledge management is recognized as a key factor in identifying such components. It represents information combined with scientific relations that lead to the creation of products and services (Akar & Yildirim, 2009). Moreover, the positive and significant relationship between patient communication and knowledge sharing was consistent with the findings of (Gaviria-Marin et al., 2019).

One of the key strategies in knowledge management process is the sharing of knowledge. Organizations must accurately identify, control, and manage the types of knowledge most pertinent to their operations, recognizing knowledge as a vital resource for gaining and maintaining a competitive edge. A particular emphasis should be placed on knowledge sharing to enhance organizational processes within a competitive landscape. In the context of knowledge management, knowledge sharing plays a critical role in facilitating the distribution and transfer of knowledge throughout the organization.

The complexity and intangible nature of tacit knowledge prevents the complete and immediate transfer of it Therefore, its full transmission requires subsequent collaboration with source organization.

This emphasizes the need for ongoing and long-term interaction to facilitate effective knowledge transfer.

Ongoing interaction provides opportunities to review and enhance the transfer of tacit knowledge. The source organization, by receiving feedback from the recipient, can offer more detailed instructions about the nature of the knowledge and facilitate its understanding for the recipient. Close relationships depend on the quality of the information exchanged, the desirability of maintaining the relationship, and the value that both parties place on each other. When shared knowledge is timely, accurate, and useful, both parties are more likely to maintain the relationship. As a result, effective knowledge sharing can contribute to better and more beneficial communication with patients. Given the positive and significant relationship between knowledge management and knowledge sharing, the findings of this study were consistent with the study (Taheri & Azizi, 2019). This study was conducted among the staff of Shahid Dastgheib Hospital in Shiraz. Therefore, caution should be exercised when generalizing the results to other groups and populations.

1- The findings of this research were obtained through self-reported questionnaires, which may influence the results.
2- The study did not control for extraneous variables such as cultural, economic, and social factors, which could affect the research outcomes.

Conclusion

Emphasizing managerial expectations and the long-term commitment of managers to knowledge-sharing activities, along with their supportive role, is crucial for fostering a culture of knowledge sharing and acquiring technology. This is an essential prerequisite for effective organizational knowledge sharing.

Organizations must carefully identify and manage the types of knowledge that are most relevant to their operations, treating knowledge as a crucial asset for building and maintaining a competitive advantage. It is essential to prioritize the sharing of this knowledge to boost the efficiency of organizational processes within a competitive setting. In knowledge management, knowledge sharing is fundamental for facilitating the distribution and accessibility of information across the organization.

One of the key reasons for necessity of knowledge sharing is its ability to enhance performance and service delivery to patients, lower

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costs, reduce the development time for products and services, and minimize delays in delivering care and goods to patients. Furthermore, it helps decrease the expenses related to accessing different valuable types of knowledge within the organization. Thus, it can be concluded that knowledge management, knowledge sharing, and interpersonal relationships (with patients) are closely tied to the productivity, effectiveness, and overall performance of staff and organizations, particularly in hospitals.

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Conflicts of interest

The authors declared no conflict of interest.

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Ethical considerations

Approval for the study was obtained from Islamic Azad University, Shahrekord Branch, under the ethics code IR.IAU.SHK.REC.1402.059. The research objectives and the necessity of conducting the study were explained to the participants, and all their rights were fully respected. Confidentiality of all information provided by the participants was assured, and to this end, their names and personal details were not recorded. Additionally, the results of the study will be made available to the participants upon their request.

Code of ethics

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Authors' contributions

This article was derived from a master's thesis in healthcare management, conducted under the supervision of Professor M.M., with SH.P. as the corresponding author, and N.K. overseeing the final editing and submission. The research was completed at Shahid Ayatollah Dastgheib Hospital in Shiraz in 2023. All authors reviewed and approved the final version of the paper and assumed responsibility for any inquiries related to its content.

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