Perceived Head Nurses' Servant Leadership and Knowledge Sharing Behavior of Nurses in Kunming Medical University Hospitals, the People's Republic of China*
ภาวะผู้นำใฝ่บริการของหัวหน้าหอผู้ป่วยและพฤติกรรมการแบ่งปันความรู้ของพยาบาล ในโรงพยาบาลมหาวิทยาลัยการแพทย์คุนหมิง สาธารณรัฐประชาชนจีน*

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Abstract

This descriptive correlational study aimed to explore the relationship between the servant leadership of head nurses and the knowledge sharing behavior of nurses in Kunming Medical University Hospitals, the People's Republic of China. The samples included 414 nurses from three university hospitals in the People's Republic of China. The instruments were the Servant Leadership Scale (SLS) and the Knowledge Sharing Behavior Scale (KSBS). The reliability coefficients of the SLS and KSBS were .96 and .93, respectively. Data were analyzed using descriptive statistics and Pearson's correlation coefficient analysis.

The results of this study revealed that the overall mean score of servant leadership was at a high level, the overall mean score of knowledge sharing behavior was at a moderate level, and there was a moderate positive relationship between servant leadership and knowledge sharing behavior.

The results of this study present information for nursing administrators to develop strategies to improve the servant leadership of head nurses and the knowledge sharing behavior of nurses in university hospitals, China.

Keywords: Servant leadership, Knowledge sharing behavior, Nurses, Medical University Hospitals, the People's Republic of China

บทคัดย่อ

การวิจัยเชิงพรรณาหาความสัมพันธ์นี้ มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างภาวะผู้นำใฝ่บริการ ของหัวหน้าหอผู้ป่วยกับพฤติกรรมการแบ่งปันความรู้ของพยาบาล ในโรงพยาบาลมหาวิทยาลัยการแพทย์คุนหมิง สาธารณรัฐประชาชนจีน กลุ่มตัวอย่างเป็นพยาบาลจำนวน 414 คน ในโรงพยาบาลมหาวิทยาลัยในเมืองคุนหมิง ประเทศ-จีน 3 แห่ง เครื่องมือที่ใช้คือแบบวัดภาวะผู้นำใฝ่บริการ และแบบวัดพฤติกรรมการแบ่งปันความรู้ ค่าสัมประสิทธิ์อัลฟา ของครอนบาคของแบบวัดภาวะผู้นำใฝ่บริการ และแบบวัดพฤติกรรมการแบ่งปันความรู้เท่ากับ .96 และ .93 ตามลำดับ วิเคราะห์ข้อมูลโดยใช้สถิติพรรณาและการวิเคราะห์ค่าสหสัมพันธ์เพียร์สัน

ผลการศึกษาพบว่า ภาวะผู้นำใฝ่บริการของหัวหน้าหอผู้ป่วยตามการรับรู้ของพยาบาลโดยรวมอยู่ในระดับสูง พฤติกรรมการแบ่งปันความรู้ของพยาบาลโดยรวม อยู่ในระดับปานกลาง และภาวะผู้นำใฝ่บริการของหัวหน้าหอผู้ป่วยตาม การรับรู้มีความสัมพันธ์ทางบวกอยู่ในระดับปานกลางกับพฤติกรรมการแบ่งปันความรู้โดยรวม

ผลการศึกษาครั้งนี้เป็นข้อมูลสำหรับผู้บริหารการพยาบาลในการพัฒนากลยุทธ์ เพื่อพัฒนาภาวะผู้นำใฝ่บริการของ หัวหน้าหอผู้ป่วย และพฤติกรรมการแบ่งปันความรู้ของพยาบาลในโรงพยาบาลมหาวิทยาลัยการแพทย์ประเทศจีน

คำสำคัญ ภาวะผู้นำใฝ่บริการ พฤติกรรมการแบ่งปันความรู้ พยาบาล โรงพยาบาลมหาวิทยาลัยการแพทย์
สาธารณรัฐประชาชนจีน

Background and Significance

The rising cost of healthcare has become a global issue. In the USA, total health spending reached nearly $3.4 trillion in 2016 (CMS, 2017). In China, the total health expenditure was approximately $700 billion, and health expenditure per capita grew substantially from $45 to $426 (National Health and Family Planning, 2016). Worldwide, the rising cost of healthcare is pushing governments to find more efficient and less costly ways to deliver care, one of which is by encouraging knowledge sharing behaviors among healthcare workers (Yan, Wang, Chen, & Zhang, 2016).

Knowledge sharing behavior (KSB) is defined as the set of individual activities involving sharing one's work-related knowledge and expertise with other members within one's organization, which can contribute to the ultimate effectiveness of the organization (Yi, 2009). It consists of four dimensions: written contributions, organizational communications, personal interactions, and communities of practice. Unlike other organizations, hospitals have the important responsibility of managing knowledge production and distribution while efficiently responding to a constantly changing environment. The use of knowledge sharing in cost reduction strategies would have a positive impact on healthcare delivery since it allows for 1) the decrease of time to achieve employee proficiency, 2) the avoidance of duplicating efforts and repeating past mistakes, 3) the increase of idea generation, and 4) the increase of continuous improvement of best practices, giving a hand to healthcare financial resources management (Rahman, 2011). Also, it can hold and increase the utilization of the investment in intellectual capital even after employees depart from the hospitals (Waring, Currie, Crompton, & Bishop, 2013).

Previous studies identified that knowledge sharing behavior among nurses was not at high levels, whilst nurses experienced different preferences with the degrees of the four components at the same time in different settings (Misuraca, 2013; Li-Ying, Paunova & Egerod, 2016; Shi, Liu & Xu, 2017). Different nurses' work experiences and organizational structures can affect an individual's knowledge sharing behavior. Yunnan province in China is ranked moderate to low in economic develop- ment. Nurses working here have to face many problems that may lead to ineffective know- ledge sharing behavior, such as heavy workloads, long hours of overtime, lack of opportunity to gain new knowledge, and lack of academic platforms to share knowledge (Liu, Wang, Zhang, & Wang, 2013; Shi et al., 2017). Hence, the results of the above studies are not extensive enough to represent the level of knowledge sharing behavior of nurses in Kunming; nurses' knowledge sharing behaviors need to be explored.

There are many factors affecting knowledge sharing behavior. Servant leadership (SL) is a significant factor in increasing knowledge sharing behavior. Servant leadership is an appropriate leadership style for knowledge-based organizations (Wheatley, 2004). Servant leadership is defined as leader behaviors that place the needs of subordinates before their own needs and center their efforts on helping subordinates grow to reach their maximum potential, and achieve optimal organizational and career success (Liden, Wayne, Zhao, & Henderson, 2008). It includes seven dimensions: emotional healing, creating value for the community, conceptual skills, empowering, helping subordinates grow and succeed, behaving ethically, and putting subordinates first.

In China, servant leadership is a new concept applied in nursing research. There are only four studies which were conducted to explore head nurses' servant leadership. These studies showed medium-high levels in the north and high levels in the northeastern areas of China. Encouraging and developing head nurses' servant leadership could reduce nurses' job burnout, and promote nurses' voice behaviors, organizational identification, and perception of organizational support positively (Cai, Liu & Long, 2013; Meng, Sun, & Ma, 2014; Liu, Chi, & Meng, 2014). Kunming is located in the southwest area of China. Are head nurses' servant leadership levels in Kunming similar to those in north or northeastern areas? It is necessary to explore this.

Research studies have found positive correlations between servant leadership and knowledge sharing behavior. Whisnant and Khasawneh (2014) found that servant leadership has a great influence on the knowledge sharing behavior of engineers with over 60% of variance explained (β = 0.80, p < .001). Song, Park, and Kang (2015) presented that servant leadership affected team-level knowledge sharing positively (β = 0.76, p < .001). Similarly, Tuan (2016) mentioned that servant leadership was found to be positively related to knowledge sharing (r = .25, p < .01). More importantly, there have been no studies done to explore servant leadership or knowledge sharing behavior among university hospital nurses in Kunming. Therefore, it is necessary to conduct a study to examine the association between servant leadership and knowledge sharing behavior among university hospital nurses.

Objectives

The objectives of this study were to describe the servant leadership of head nurses perceived by nurses and knowledge sharing behavior, and to explore the relationship between servant leadership of head nurses perceived by nurses and knowledge sharing behavior among nurses in university hospitals in Yunnan Province, the People's Republic of China.

Conceptual Framework

This study explored servant leadership of head nurses as perceived by nurses based on the servant leadership model (Liden et al., 2008). This model was composed of seven dimensions: 1) Emotional healing refers to the act of showing sensitivity to the personal concerns of others; 2) Creating value for the community refers to a conscious, genuine concern for helping the community; 3) Conceptual skills refer to possessing knowledge of the organization and tasks at hand so as to be in a position to effectively support and assist others, especially immediate followers; 4) Empowering refers to encouraging and facilitating others, especially immediate followers, in identifying and solving problems, and determining when and how to complete work tasks; 5) Helping subordinates grow and succeed refers to demonstrating genuine concern for others' career growth and development by providing support and mentoring; 6) Behaving ethically refers to interacting openly, fairly, and honestly with others; and 7) Putting subordinates first refers to using actions and words to make it clear to others that satisfying their work needs is a priority. Additionally, the knowledge sharing behavior of nurses was examined based on the knowledge sharing model of Yi (2009). It included four dimensions: 1) Written contributions, which includes behaviors of employees' contributing their ideas,

information, and expertise through written documentation rather than dialog; 2) Organizational communications, including behaviors of sharing knowledge in formal interactions within or across teams or work units; 3) Personal interactions, including behaviors of sharing knowledge in informal interactions among individuals; and 4) Communities of practice, including behaveiors of sharing know- ledge within communities of practice. Head nurses who practice servant leadership will provide a supportive organizational structure and climate for sharing more of what they know with others, and advocate more opportunities to engage nurses in knowledge-sharing activities (Ahmed, 2013; Hall, 2016; Meng et al., 2014).

Methodology

Research Design

A descriptive correlational research design was used.

Population and Sample

The population of this study was 5,574 nurses who worked in five university hospitals in China. The samples were chosen using the multistage random sampling method: 1) The simple random sampling method was used to select three hospitals from five KMU hospitals according to a ratio of 2:1; 2) A proportionate stratified sampling method was used to select the nurses from each hospital; and 3) A simple random sampling method was used to select participants from the sample frame. The sample size, as calculated based on Yamane's formula (1973), was 374 nurses, with an added 20% for the anticipated loss of samples, resulting in 449 nurses in total. Registered nurses who had worked more than one year within their current unit/department were included in this study. Nurses and nurse administrators (including head

nurses, supervisors and nursing directors) who were on vacation, maternity leave, or study leave were excluded.

Research Instruments

The instruments used in this study included three parts:

1. The demographic data form, which was designed by the researcher and comprised of gender, age, marital status, education level, length of employment, employment status, job title, working department, training and conference attendances, work shift, occupational planning and continuing education.

2. The Servant Leadership Scale (SLS) adopted from Liden et al. (2008) and translated into Chinese language by the developers. It comprised 28 items measured on a seven-point Likert scale. The responses ranged from 1 (strongly disagree) to 7 (strongly agree) with a total score ranging from 28 to 84 (meaning a low level), 84.01 to 140 (meaning a moderate level), or 140.01 to 196 (meaning a high level), and dimension scores ranging from 4 to 12 (low level), 12.01 to 20 (moderate level), and 20.01 to 18 (high level). A higher score means nurses' perception of nurse managers' servant leadership was higher.

3. The Knowledge Sharing Behavior Scale (KSBS) (Yi, 2009) modified and translated into Chinese language by Chen and Wu (2015). It comprised 19 items measured on a five-point Likert scale. The responses ranged from 1 (never) to 5 (always), with mean scores of 1.00-2.33, 2.34-3.67, and 3.68-5.00 meaning a low, moderate, or high level of knowledge sharing behavior, respectively. The construct validity of all these instruments was proven by the developers. Therefore, the validity was not tested in this study. The Cronbach's alpha coefficients of SLS and KSBS were .96 and .93, respectively.

Ethical Considerations

This study was approved by the Research Ethics Review Committee of the Faculty of Nursing, Chiang Mai University, Thailand. Permission for collecting data was obtained from the three Kunming Medical University hospitals in China**.** During the data collection procedure, the participants were informed of study purposes and methods of data collection, and voluntary participation was assured through the consent form. Anonymity and confidentiality of all the information was maintained by using numerical codes in the questionnaires instead of using names of participants.

Data Collection

Two coordinators assigned by the nursing directors distributed and collected research packages, which included a cover letter, a consent form, and a questionnaire. The participants were asked to complete the questionnaire within two weeks and return them in the sealed envelope to the coordinators. A total of 449 questionnaires were distributed, of which 420 were returned with a valid response rate of 93.54%. In all, 414 questionnaires (92.20%) were completed and used for data analysis.

Data Analysis

Data analysis was done by using the Statistical Package for the Social Sciences (SPSS 13.0). Both descriptive and inferential statistics were computed from the completed questionnaires only, at a 0.05 level of statistical significance. Descriptive statistics were used to analyze demographic characteristics. Both servant leadership and knowledge sharing behavior violated the assumption of normality. Therefore, the relationship between servant leadership and knowledge sharing behavior was explored using the Pearson product-moment correlation test. The magnitude of the correlation coefficient and direction of the relationship were interpreted according to Burns and Grove (2012) ($r <$ .30 = weak relationship; .30 $\leq r \leq$ .50 = moderate relationship; $r >$ .50 = strong relationship).

Results

Among the 414 nurses in this study, 96.62% were female, and 68.84% were married. Their average age was 32.66 years old (SD = 7.27), and 80.92% of them held a bachelor's degree. Most of the nurses (71.98%) were temporary employees and 28.02% were permanent. Just over half (53.14%) were senior nurses, and 39.38% of the participants had worked for at least ten years in their unit. More than half of them worked on a rotating shift (59.66%). Meanwhile, 47.10% of participants had clear occupational planning, and 53.38% had trained and attended academic conferences more than once per year. Also, the majority of samples had degrees in continuing education (80.68%).

The findings showed that the nurses perceived overall servant leadership at a high level. Among the seven dimensions, conceptual skills, behaving ethically, creating value for the community, helping subordinates grow and succeed, and emotional healing were perceived at high levels. Empowering and putting subordinates first were at a moderate level (see Table 1). Meanwhile, the nurses had a moderate level of overall knowledge sharing behavior. The four dimensions of knowledge sharing behavior, written contributions, organizational communications, personal interactions, and communities of practice, also were at moderate levels (see Table 2).

In addition, the results of the Pearson Product-Moment correlation coefficient showed that the overall servant leadership of head nurses had a moderate positive relationship with

overall knowledge sharing behavior. Considering the relationships between overall servant leadership and each dimension of knowledge sharing behavior, there were moderate positive correlations among them (see Table 3).

Table 1 Mean, Standard Deviation and Level of Head Nurses' Servant Leadership as Perceived by Samples (n = 414)

Servant Leadership	$\bar{X}$	SD	Level
Overall score	143.22	29.43	High
Conceptual skills	22.91	4.40	High
Behaving ethically	21.77	5.51	High
Creating value for the community	20.64	5.04	High
Helping subordinates grow and succeed	20.37	5.01	High
Emotional healing	20.11	5.38	High
Empowering	19.18	4.21	Moderate
Putting subordinates first	18.25	5.51	Moderate

Table 2 Mean, Standard Deviation and Level of Knowledge Sharing Behavior of the Samples (n = 414)

Knowledge Sharing Behavior	$\bar{X}$	SD	Level
Overall score	2.67	0.84	Moderate
Written contributions	2.43	0.95	Moderate
Organizational communications	2.35	0.96	Moderate
Personal interactions	3.16	0.92	Moderate
Communities of practice	2.70	1.04	Moderate

Table 3 The Pearson Product-Moment correlation coefficient between Servant Leadership and Knowledge Sharing Behavior (n = 414)

	KSB	Dimensions of KSB			
		WC	OC	PI	CP
SL	.39**	.30**	.35**	.39**	.33**

Note: SL= servant leadership, KSB = knowledge sharing behavior, WC = written contributions, OC = organizational communications, PI = personal interactions, CP = communities of practice.

**$p < .01$

Discussion

Servant Leadership of Head Nurses

The results of this study showed that nurses working in KMU hospitals perceived a high level of overall servant leadership. This is incongruent with Hall's (2016) findings in India, which indicated that nurses experienced a moderate level of overall servant leadership. One possible explanation is Chinese culture and environment. The traditional Confucianism and Daoism ideologies are similar to servant leader-ship. Moreover, the management practice of the Chinese ruling party has always advocated the concept of servant leadership, emphasizing altruism and putting people first, and building a harmonious society (Wang & Gao, 2014). The higher the value of a country's humane orien-tation, the more servant leadership the leaders show (Kabasakal & Bodur, 2004). Furthermore, demographic characteristics may be another reasonable explanation. Almost all of the participants were female (96.62%) in this study. Fridell, Newcom-Belcher, and Messner (2009) stated that women perceived and applied servant-leadership styles differently and more often than men did. Also, in connection with the length of employment, the average tenure of the participants was 10.89 years (SD = 8.58), while 39.38% of them had worked more than ten years. Han (2014) reported that as the length of employment increased, employees' perceptions of servant leadership behaviors in present supervisors also increased. In addition, Diehl (2015) found that employees in the healthcare and religious sectors showed the highest tendencies to affirm servant leadership.

Among the seven dimensions of servant leadership, the findings showed that em-powering and putting subordinates first were at a moderate level. This is likely because nurses are placed at the bottom of the hierarchy in the Chinese healthcare system. The nurse has to consult with their head nurse to show respect and obedience before making important decisions. More than half of the sample disagreed with the item, "*When I have to make an important decision at work, I do not have to consult my head nurse first*" (52.17%).

Knowledge-Sharing Behavior of Nurses

The results showed that the nurses had a moderate level of overall knowledge sharing behavior. Also, all dimensions of knowledge sharing behavior were at a moderate level which was consistent with the findings of previous studies (Li-Ying, Paunova, & Egerod, 2016; Chen, Liu, & Wu, 2016; Gao, Li, & Chen, 2016; Shi et al., 2017). One possible reason may be that the KMU hospitals provide financial support to encourage nurses to share their knowledge. For instance, those hospitals will reimburse and award a publication fee according to the influencing factors of periodicals. They also included written contributions in the promotion criteria of nurses' professional titles (Hospital report of 1st AH, 2017). Almost all (96.62%) of the samples were female in this study. Lin (2006) found that women were more willing to share knowledge. Similarly, Boateng, Dzandu, and Agyemang (2015) found that the higher the educational level, the more likely that persons would share their knowledge. Most of the nurses in this study (81.16%) held a bachelor's degree or above. The third possible explanation was increasing organi-zational support. In KMU hospitals, nurses have been provided opportunities to study abroad (such as in Thailand and Ireland) for their master's degree. This promotes nurses' know-ledge and abilities, improves their competi-

tiveness, and creates more enthusiasm in their work. In addition, more opportunities were provided to nurses to present their ideas and thoughts within the department and hospital. The questioning of nurse managers in morning meetings pushes nurses to recognize problems and to seek knowledge purposefully (Pi, 2015). In addition, the Quality Control Circle and mentoring-teaching mode were applied in the nursing area in KMU hospitals. These created chances for nurses to share their ideas and obtain knowledge from others.

However, compared with other countries, Chinese nurses suffered heavy workloads (Liu et al., 2013). Some nurses felt that they had little time to share knowledge because they had to perform their job well first. Also, little new knowledge and expertise were shared in nursing lectures, nursing training and nursing forums in some hospitals. Lack of time and knowledge lead to insufficient knowledge sharing behavior of nurses (Shi et al., 2017). For those reasons, the knowledge sharing behavior of nurses in KMU hospitals was at a moderate level.

Relationship between Servant Leadership and Knowledge Sharing Behavior

The results of this study showed that servant leadership of head nurses had moderate positive correlation to nurses' knowledge sharing behaviors. This finding is similar to the results of studies which were conducted among other professions in countries other than China (Whisnant & Khasawneh, 2014; Song et al., 2015; Tuan, 2016).

Servant leadership is an ideal leadership style for the successful implementation of know-ledge-management strategies in the organi-zation (Lee, Gillespie, Mann, & Wearing, 2010). In hospitals, head nurses with servant leadership

behaviors influence knowledge sharing behavior of nurses by changing the internal and external factors that shape sharing intention and behavior. Also, head nurses determine the culture of a department by articulating the shared values and goals of the hospitals. Head nurses provide ongoing support and guidelines for sharing knowledge effectively. Likewise, head nurses with servant leadership transcend their self-interest, demonstrate empathy and care, and act in the best interest of their nurses, for instance, by investing in the development of competence and values in nurses (Van Dierendonck, 2011). The more the head nurse cares about the nurses, the more the nurses reciprocate by returning transcendent contri-butions socially. Nurses engaged in knowledge sharing as a form of exchange to support and sustain the serving environment in return for the head nurse's serving behavior. Additionally, head nurses with servant leadership created a learning environment in the nursing workplace. They set examples for their followers and looked for opportunities and innovative ways to improve their nursing tendencies. During this process, nurses were sharing knowledge and learning from failures (Van Emmerik, Jawaha, Schreurs, & De Cuyper, 2011).

1. The findings present moderate positive correlation between servant leadership and written contributions. Head nurses with servant leadership always offered nurses a sense of worth and belonging, which motivated them to contribute to the growth and success of the hospital (Northhouse, 2010). Writing documenta-tion is a common pattern of knowledge sharing behavior which can be easily and measurably recognized as nursing performance.

2. The findings show moderate positive correlation between servant leadership and

organizational communications. Head nurses with servant leadership have the ability to encourage nurses to regard themselves as a part of the whole, and as a result, nurses will be willing to share their knowledge with others.

3. The findings indicate moderate positive correlation between servant leadership and personal interactions. As Baker (2001) stated, knowledge was created and shared by the interactions between individuals. In nursing knowledge-sharing activities, head nurses dis- playing servant leadership can provide nurses with a platform for sharing knowledge in an environment built on trust and ethics.

4. The findings reveal moderate positive correlation between servant leadership and communities of practice. A servant leader always puts his subordinates first and helps them to grow and succeed; this is similar to Chinese altruist culture. In the context of knowledge sharing behavior, altruism is seen as an individual motivator when individuals achieve their goal by sharing knowledge and as a result their altruistic behavior will also increase.

Conclusions

The level of overall servant leadership as perceived by nurses in this study was significantly high. Similarly, most of its dimensions were also at high levels except for empowering and putting subordinates first, which were at a moderate level. Both the overall score for knowledge sharing behavior of nurses and the scores of each dimension were at moderate levels. There was a moderate positive correlation between overall servant leadership and overall knowledge sharing behavior. There was also a moderate positive correlation between overall servant leadership and for each of the four dimensions

of knowledge sharing behavior of nurses.

Application of Research Findings

The findings of this study can provide valuable information to nurse administrators to improve the empowerment of their staff by allowing nurses to have more discretion in decision-making. Meanwhile, nurse administrators should identify strategies to improve the knowledge sharing behavior of nurses, such as organizing nursing research capability training programs to improve nurses' handwriting. Since servant leadership is an effective strategy to promote the knowledge sharing behavior of nurses, nurse managers should develop servant leadership training programs, adopt servant leadership techniques in day-to-day management, and make special nursing policy to enhance nurses' knowledge sharing behavior.

Recommendations for Further Study

Future research is needed to replicate this study in primary and secondary level hospitals in Yunnan Province. Other variables which may have an influence on knowledge sharing behavior should be explored.

Acknowledgements

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