Model Development of Professional Nursing Care Method Based-Knowledge Management (Pncm+Km) to Improve Nursing Performance

Syahrir [a]*, Muh. Syafar. [b], Elly L. Sjattar [c], Darmawansyah [d]

[a] Doctoral Study Program of Public Health, Medical Faculty, Hasanuddin University, Makassar

[b] Health Promotion and Education, Faculty of Public Health, Hasanuddin University, Makassar

[c] Nursing Study Program, Medical Faculty, Hasanuddin University, Makassar

[d] Health Policy and Administration Department, Faculty of Public Health, Hasanuddin University, Makassar

Email address: syahrir@gmail.com

Abstract

Nursing is one of the professions in the health care that is often used as a benchmark image of a hospital. The purpose of this study was to analyze the influence of individual variable (X1), psychology (X2), organization (X3), the knowledge transfer process (X4), and technology (X5) for the professional nursing care method (X6). Data collection technique is by questionnaire. The numbers of sample are 140 nurses. The tool analysis is by structural equation model (SEM). From the results of hypothesis testing, the individual variable has sig. 0,003<0,05 (5%), psychological variable has sig. 0,0001<0,05 (5%),and organizational variable has sig. 0,0001<0,05 (5%). This suggests that psychological variable, individual, and organizational variable significantly influence the professional nursing care method based knowledge management (PNCM+KM). While the knowledge transfer process variable has a sig. value 0,115>0,05 (5%), and technology variable has a sig. value0,490>0,05 (5%). This indicates that the knowledge transfer process and technology variables do not significantly affect PNCM.

----

*Corresponding Author.

After the model is formed, the training model is done with the average score of knowledge of nurses experienced a considerable improvement after being trained with t test results as amount of 14,42 and ρ value of 0,001<α=0,05. In order to improve the performance of nursing in the hospital, it is recommended to implement a model PNCM+KM.

Keywords: Nursing; Knowledge Management; Organizational Performance; PNCM+KM.

1. Introduction

Modern organizations today face a turbulent environment. Economic pressure and the uncertainty of the market require fast and flexible response to change the condition. Organization should develop the mechanism to support the flexible response. Changes in the economic system to a market-oriented change many things, not least the management system of the hospital. In carrying out this complex function, the hospital requires resources that are reliable and professional, involving a range of disciplines and expertise to work in collaboration and integrated to achieve the better quality services in accordance with established standards.

To achieve an optimal performance of nursing, the researchers elaborate the management science into nursing by integrating the theory of knowledge management [1], and the theory of performance [2]. Nursing services at hospitals is a sub-system in the healthcare system that is certainly possessed a strategy to improve the performance, especially nursing services which are often used as a benchmark image of a hospital in the public eye since the nurses are the dominant and constant profession continuously for 24 hours. The quality of nursing services still need a good management and an increase in various components, among others are the level of education, mindset, personal knowledge, reward systems, and the ability to use the supporting facilities like technology. All the weaknesses of the components mentioned above can be minimized by strengthening the nursing management system. One of the methods developed in the nursing management is by implementing the professional nursing care model (PNCM). Test model indicates that the average score of knowledge of nurses experienced a considerable improvement after being trained and the t test result also shows a significant figure.

2. Materials and Methods

According to [1], knowledge management has three components interlinked each other and is an important element that can determine the success of the performance of the organization, namely aspects of people, process, and technology. The same thing is stated by [2] that in order to improve the performance of the organization, people need to understand the behavior of individuals well. We must first understand the inherent characteristics of the individual. The characteristics meant according to [3] are the individual factor, psychological factor, and organizational factor. By integrating the two concepts of this theory, namely knowledge management by Batt (2000) and improved service performance by [3] in the implementation of professional nursing care method, it will provide value and high acceleration in improving the performance of nursing. The independent variables consist of five variables, namely individual (X1), psychology (X2), organization (X3), the knowledge transfer process (X4), and technology (X5). The dependent variable is the professional nursing care method based-knowledge management (X6).

The research methodology used is a research and development, a research usedto produce a particular product and to test the effectiveness of that product [4]. The product meant is not confined to a book or a module produced only, but also to a form of procedure or process such as the method of learning or the method of organizing [5]. In this study, the target population was all nurses in Regional Haji Hospital of South Sulawesi in inpatient rooms as many as 147 people. Because the population was more than 100 people, the researchers used a probability sample (random sample), a sample taken based on the principle of the same probability theory to all units of the population with Slovin pattern. Moreover, the total samples were 140 nurses who were in charge in the inpatient room.

Analysis tool used in testing the hypothesis was by using analysis of SEM (Structural Equation Model) with the help of AMOS program. The use of SEM analysis in this research was to expand the ability of the researchers to explain the statistical analysis efficiently; multiple regression, factor analysis, multivariate analysis of variance, and discriminates analysis.

After analyzing the SEM, the next step is the design of the model development of professional nursing care method based knowledge management through the theoretical study. The empirical studies constructed from the variables are individual variable, psychology, organization, knowledge transfer process, and technology. The next step was the validation of the model from the academic expert, practitioner expert, and colleagues. After the model is considered as feasible by a team of verifiers, the next was testing the model by giving a training and applying the model to see the effect of the increase of knowledge before and after the training.

3. Results and Discussion

3.1 Results

After the individual measurement was performed with the construct validity, the variables or dimensions that can be used as indicators of a latent variable can be known. Furthermore, the correlation to explain the causal relationship between Individual (X1), Psychology (X2), Organization (X3), Process (X4), Technology (X5), against PNCM (X6) with Structural Equation Model/SEM.

3.2 Discussion

a. Phase I Introduction Study

1) The Theoretical Study

In nursing management, a developed strategy to achieve the good performance is by implementing the professional nursing care method. Professional nursing care method is a nursing service method that consists of a standard policy, the process of nursing, the education of the patient, and care method system given which allows the professional nursing arrange nursing care, including the environment to support care given [6]. In this study, to be able to implement professional nursing care method, an effort to develop a model is needed by integrating the two theories. The first is the theory of knowledge management by [1] that states that there are

three components that affect the performance; people, processes and technology. The second is the theory about the performance by [2] that says that there are several factors affecting the achievement of the performance; the individual factor, psychology and organization factor.
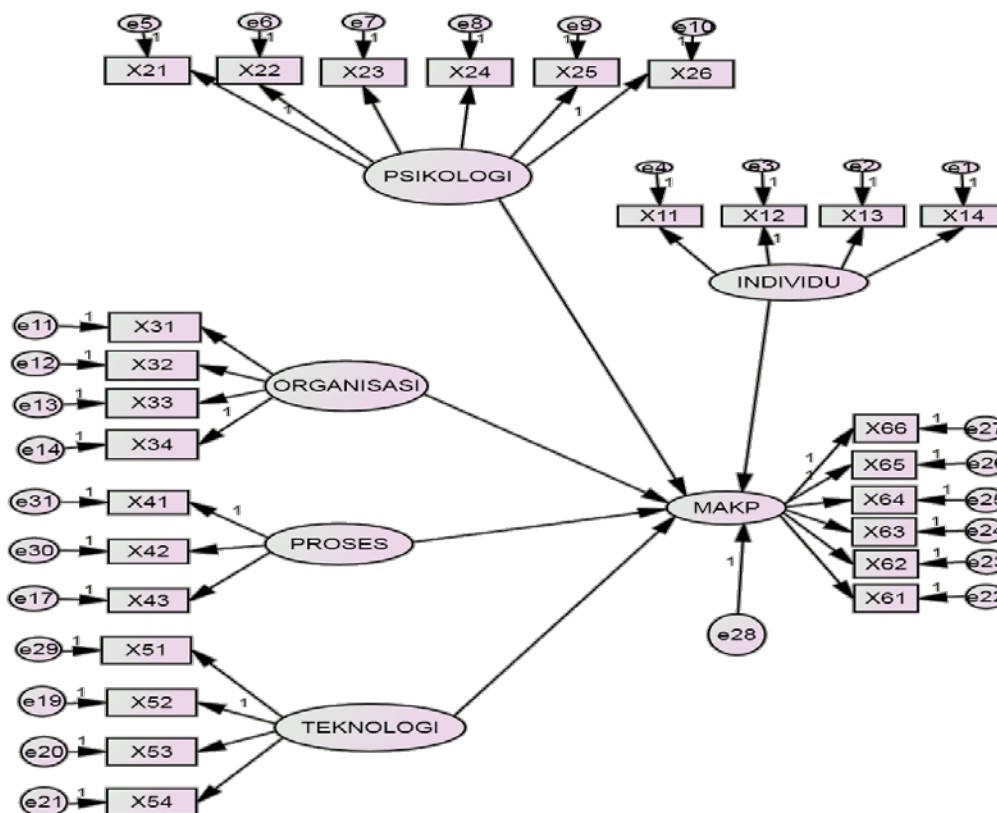

Figure 1: Structural Equation Model (SEM)

Table 1: Regression Weights Table

Variable	Estimation	C.R.	P	Description
Process	.067	1.576	.115	Insignificant
Psychology	6.210	4.420	***	Significant
Individual	.042	2.970	.003	Significant
Technology	.005	.690	.490	Insignificant
Organization	-.035	-3.686	***	Significant

The table above is a hypothesis test (alternative) by comparing the probability value with a significance level

(0,05). If the significance level (0,05) is greater than the probability value, the variable is said to be significant. The process variable has a sig. value 0,115>0,05 (5%). This indicates that the process variable does not significantly affect the professional nursing care method. Technology variable has a sig. value 0,490>0,05 (5%). This shows that the technology variable does not significantly affect the professional nursing care method. Psychology and individual variables have sig. 0,0001 and 0,003<0,05 (5%). This suggests that psychology variable and individual variable have positive and significant effect on the variable of professional nursing care method. Organization variable has sig. 0,0001<0,05 (5%) and the value estimate. This indicates a negative value. This means that the variables negatively affect the organization of professional nursing care method.

2) Empirical Study

Based on the results of construct validity and the model of equation system analysis once to answer the hypothesis of the study, the independent variables on the dependent variable were gained as follows:

a)   Individual Variable and Psychology Variable

Individual variable and psychological variable are two variables integrated into one because both the nature and the behavior are attached to the person or the human resources of nursing as an actor transformation of knowledge within an organization. Significantly, it affects the design of the developmental model of nursing care method based knowledge management with significant values on psychological and individual variables are 0,0001 and 0,003<0,05 (5%). This suggests that psychological variable and individual variable have a positive and significant effect on the professional nursing care method. This is in line with the view of [1] that states that people are the dominant factor in the achievement of the performance. As the findings of [7], the quality of service to the community is dependent on the individual actors and the system used by doctors, nurses, medical and non-medical support staff in the hospital. This is reinforced by the results of [8] that states that individual and psychological factors affect the performance of the employees. In another study conducted by [9, 10], it was found that the characteristics of the individual and the psychology affect the performance of the nurses in the completeness of the medical record in the hospital.

b)   Organization Variable

Organization is defined as a social entity of a group of individuals (people) that interact based on a pattern structured in a certain way, in which each member of organization has the duty and function respectively as a unity that has a certain purpose and a clear limit. This makes the organization can be strictly separated from the environment and the terms and conditions of a person who depends on the institutional support in the form of organization, job design, leadership, and awards. Based on the test results of statistical analysis of SEM, it was found that this variable has a sig. value 0,0001 <0,05 (5%), and the value estimate indicates a negative value. This means that the variables negatively affect the organization of the design variable model of professional nursing care method based knowledge management. This is consistent with the results of the study by [11,12] that the organization has an influence on the increase of the performance and a union that allow people to work together to achieve the goal. In another study conducted by the [13], she stated that the organization has an

influence on the increase of the performance and a union that allows people to work together to achieve goals.

c)   Knowledge Transfer Process Variable

Knowledge transfer process variable is a thing related to the process in taking (capture) the values of knowledge into a medium or knowledge, then distributed and reused. In the study conducted by [14], it was found that the transfer of knowledge has a significant effect on the performance. However, the empirical facts on the research conducted in Regional Haji Hospital, the results of the test data and statistical analysis with SEM on the knowledge transfer process variable has sig. 0,115>,005 (5%). This indicates that the process variable does not significantly affect the professional nursing care method. Based on the analysis above, it is understood that the process of knowledge transfer in Regional Haji Hospital Makassar is not maximized at each nursing unit or team work. Knowledge transfer process variable remains a component in the design developmental model of nursing care method based knowledge management. Several studies recommend that the transfer of this knowledge is an influence variable to the improvement of performance. What it was found in the study site is a casuistic nature and the finding that the knowledge transfer process in the Regional Haji Hospital Makassar is not or has not been maximal.

Various obstacles that can lead the knowledge transfer process is not happened, among others are:

a)   The process of making knowledge or the identification of knowledge in individuals is not stored in the organization. So that, the process of sharing knowledge will not be managed in an organized manner.
b)   The organization does not pay attention to the participants from the creational process of an individual, group, or department in an organization that has the ability to generate new knowledge with their intuition, analytical abilities, experimental, or learn from experience of which is supported by a process of interaction among them.

d)   Technology Variable

Technology variable is a knowledge management, such as a tool to regulate the entry and the store knowledge that is put into a knowledge management system. But in fact, based on the empirical facts, the data have been obtained from the studies and have been processed and tested with statistical analysis of SEM. It was found that these variables were not significant with technology variable values and have a sig. value 0,490>0,05 (5%). This indicates that the technology variable does not significantly affect the professional nursing care method. This is not in line with the research findings from [15] that stated that the framework suggests a critical knowledge management activity in the care process. The use of technology will strengthen the existing theory and the development of the nursing process. Likewise, the research finding of Covington show that 87% of perioperative nurses work beyond scheduled shifts due to lack of human resources.

In addition, 38% of participants stated that most of the extension of working hours is because they have to complete the documentation manually (paper based). Overall, the participants stated that 50% of their working time spent to complete the documentation. Covington research results and other similar studies encourage nurses to innovate and create a more efficient method in documenting and keep the quality of its documentation. One

form of this innovation is the implementation of a computerized system into nursing practice. To get the performance of nursing in the hospital, communication infrastructure (social and technical) should be built well and allow individuals or groups to interact smoothly.

After the existing of supporting infrastructure for sharing knowledge activity, then the existing knowledge must be organized and structured to be accessible, used efficiently and optimally by the organization. Utilization of information technology becomes a necessity that cannot be avoided by any hospitals that want to position the hospital to be the most superior in a health care system.

Hospitals can have a huge effect and can know widely by the public through the use of the informational technology. The information system is responsible for identifying the needs of information, process, and provide information in the appropriate format so that it can be used in the decision process. Various levels of social demand for nursing services require nursing practice has a decision support system that can integrate science and information technology in nursing. This decision support system is needed to improve the quality of service in overcoming the gap between the development of science and nursing practice that is done in the service so the application can be designed computerized that can be used at any time to support nursing practice [16,17].

b. Phase II Models of Developmental Design

1) Model Design Arrangement

Based on the results theoretical and empirical studies above, a model of design can be arranged. Model design of professional nursing care method based knowledge management (PNCM+KM) was formed by four pillars constructed of five variables. They are individual, psychology, organization, knowledge, technology, and knowledge transfer processes that affect the performance. The four pillars meant include the human resources of nursing, the organization, process, and technology.

2) Validation of the Model Design

Validation in this case was performed by the academic experts from Hasanuddin University. In this case, by the consultant and the co. consultant in this study. The feasibility of the model validation was performed by the practitioners in the field. The people involved were the practitioners in the field of management with a background in nursing management master of Hasanuddin University Education Hospital, as well as the validity of the model by involving the colleagues from academia nursing of Islamic University Makassar to assess the model.

3) Hypothetical Design Arrangement

The activities undertaken in the arrangement of hypothetical design is by establishing a draft of developmental model of professional nursing care method based knowledge management (PNCM+KM) as the following picture:
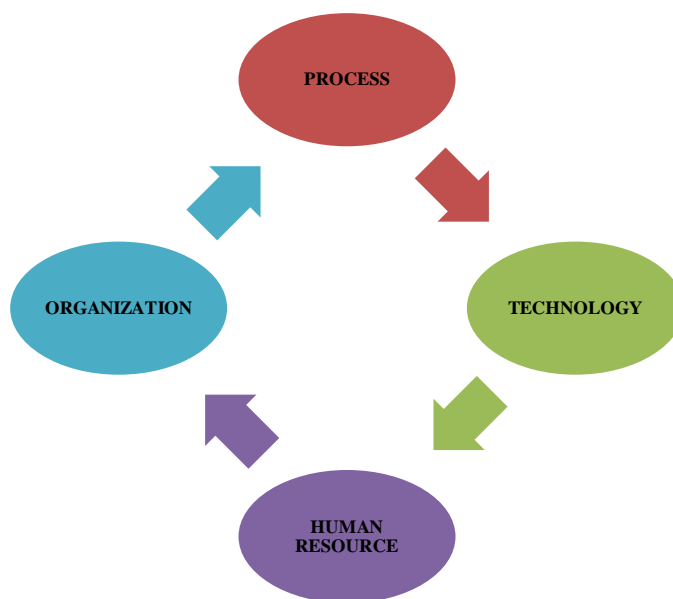
Figure 2: Developmental Model Picture of Professional Nursing Care Method based-

Knowledge Management

In the chart design of developmental model of professional nursing care method based knowledge management mentioned above, there are four pillars that must work together in professional nursing care model components based knowledge management to improve the performance of nursing:

1)   Nursing Human Resources

Individual variable and psychology variable is a characteristic and behavior in a person as a shaper of knowledge. In management science, people or human is one of the resources that affect the performance of the organization. So is the case in this study. The two variables are combined into a single component in the design of the developmental model of professional nursing care method based knowledge management as so-called the human resources in nursing. This human resource is the potential contained within the human beings to realize their role as adaptive and transformative social beings. In carrying out the professional nursing care method based knowledge management, nursing personnel with the qualifications as follows are needed:

a)   Have the educational qualifications as required.
b)   Have the capacity in accordance with the department developed.
c)   Have the skills, expertise, and productivity.
d)   Have integrity with all affective elements.
e)   Have a strong motivation in providing services.
f)   Have a positive perception and attitude towards the profession and the patients.
g)   Have a level of job satisfaction.

h)   Have experience in accordance with the field being developed.

2)   Organization

In the design of the developmental model of nursing care method based knowledge management, the second pillar is the. Organization pillar integrates the concepts of management and organization to maximize the potential of the organization actors in the hospital. In this respect, it is human resources pillar. This can be done by applying the principles of organization that includes:

a)   Principles of formulating vision and mission
b)   Division of working
c)   Delegation of power/authority
d)   The level of supervision
e)   Range management
f)   Unity of command
g)   Coordination
h)   Appreciation

3)   Knowledge Transfer Process

In the model design of professional nursing care method based knowledge management, the concern is the easiness in transferring knowledge process that includes:

a)   The process of making knowledge or identification of knowledge within a nurse should be stored in the hospital so that the process of sharing knowledge can be managed in an organized manner.
b)   Participants of this creation process is a nurse, work team, or a room in a hospital that has the ability to generate new knowledge with their intuition, analytical abilities, experimental, or lessons from the experience must be considered.

4)   Technology

There are three focuses that can be used as a benchmark when a technology is developed to support the model design of professional nursing care method based knowledge management:

a)   Right People is transferring the knowledge from the experts (those who are skilled/experienced in a particular field) to the others needed. One of the obstacles arises is how we can find the right person, who has the knowledge to suit our needs.
b)   Right Information is the development of web technology that allows everyone to be able to contribute in providing information and put on the web so it will be easy to be accessed by the others.
c)   Right Tool is the information technology that is capable of being an appropriate medium for a person in getting information. Besides, there are two approaches, the first is codification and the second is personalization.

c. Phase III Trials Model

Based on the research findings conducted on the subjects, at this stage, it is set nine nurses from the treatment room in the Regional Haji Hospital in Makassar, South Sulawesi Province. This trials model was conducted in the form of training for the purpose to socialize the model design, to introduce, and to ensure that this model can be used later in improving the performance of nursing. The next stage is the processing of data from the pre-test and post-test using statistical calculations to determine the effect model of professional nursing care method based knowledge management using the equation t test.

From the data processing, it can be assumed that the t value is amount of 14,42 and ρ value=0,001<α=0,05 so the hypothesis is accepted. It means that there are differences in the nurse's knowledge of professional nursing care method based knowledge management before and after the training module of PNCM+KM. This difference is seen in the average value of nursing knowledge score before treatment was 1,66 and after treatment was 0,52. Thus, the knowledge of nurses about professional nursing care method based knowledge management after being given a treatment is greater than before the treatment was given. Treatment may increase the average score of knowledge of the nurses about the professional nursing care method based knowledge management. This increase is an indication that the provision of effective treatment increase the knowledge of the nurses about the professional nursing care method based knowledge management

4. Conclusion

In an effort to improve the performance of the nursing, then a draft model of nursing care method based knowledge management was developed in this study to analyze and develop a modelof professional nursing care method based knowledge management. Referring to these objectives, based on the data analysis and discussion as described previously, it can be concluded the following:

4.1   *Individual Variable*

Individual variable is the variable that significantly influence the design of the model development of nursing care method based knowledge management with the significant value 0,003<0,05 (5%). This indicates that the first hypothesis is accepted. Individual variable affects the professional nursing care method based knowledge management.

4.2   *Psychological Variable*

Psychology variable is the variable that significantly influence the design of the model development of nursing care method based knowledge management with the significant value 0,0001<0,05 (5%). This indicates that the second hypothesis is accepted. Psychological variable affects the professional nursing care method based knowledge management.

4.3   Organizational Variable

Based on the test results of statistical analysis of SEM, it was found that the organization variables has sig. value of 0,0001<0,05 (5%), and the value estimate indicates a negative value. This means that the third hypothesis is accepted. Organization variable affects the professional nursing care method based knowledge management.

4.4   Knowledge Transfer Process Variable

In this study conducted in Regional Haji Hospital Makassar, it was found that the results of the test data and statistical analysis with SEM of knowledge transfer process variable were not significant with the value 0115>0,05 (5%). This shows that the forth hypothesis is rejected. It means that the knowledge transfer process variable does not significantly affect the professional nursing care method based knowledge management.

4.5   Technological Variable

In this study, empirical fact data were obtained and tested by statistical analysis of SEM. Results showed that this variable was not significant with sig. value 0,490>0,05 (5%). This means that the fifth hypothesis is rejected. The technology variable does not significantly affect the professional nursing care method based knowledge management.

4.6   Professional Nursing Care Method based Knowledge Management

The conceptual model of the professional nursing care method based knowledge management, which is designed by using theoretical study approach, empirical study, and through the stages of the validity from the expert and colleagues, give a significant contribution in establishing the feasibility of the model developed in this study. The components of developmental model of professional nursing care method based knowledge management include four pillars. They are the nursing human resources, organization, knowledge transfer process, and technology.

The model effectiveness of the professional nursing care method based knowledge management has been proven the feasibility through the techniques of: the quality of the model analysis, expert judgment, and field tests. Results of the analysis of the quality of the model is done systemically about the content, relevance, and the principles of model development in particular. It can be concluded that the model of the professional nursing care method based knowledge management has produced the exact relationship between the components of the model. From the data processing after the training was done about the model of the professional nursing care method based knowledge management, this shows that the average score of knowledge of the nurses experienced a considerable improvement after being given a training and the t test results also shows a significant figure.

5. Recommendation

From this research, a model design was developed with the professional nursing care method based knowledge

management that can be applied in all types of hospitals to improve the performance of nursing.

References

[1] Bhatt, V. and J. Cozzolino. 2000. Total Quality: An Effective Management Tool. www.casact.org.pp.101-123. Agustus 2005.

[2] Gilles, A.G. Nursing Management: A.System Approach, 3rdedition , Philadelphia: WB Company Saunders, 1994.

[3] Liebowitz, Jay.(1999). Knowledge Management Hand Book. CRC Press.

[4] Sugiyono, 2009. Metodologi Penelitian Kuantitatif Kualitatif dan R&D. Bandung : Alfabeta.

[5] Nursalam. Manajemen Keperawatan; Aplikasi dalam Praktik Keperawatan Profesional. Salemba Medika, Jakarta. 2002.

[6] Rowland & Rowland (1984) Hospital Administration Handbook.

[7] Thoha, Miftah. 2002. Perilaku Organisasi Konsep Dasar dan Aplikasinya. Jakarta: Rajawali Grafindo Persada.

[8] Mulan Michelle Imelda (2011), Kompetensi Perawat, Kondisi Pasien dan Kinerja Perawat Dalam Penerapan Model Praktik Keperawatan Profesional di Rumah Sakit Jiwa DR. Soeharto Heerdjan.

[9] Nasution. 2007. Metode Research. Jakarta:Bumi Aksara.

[10] Manoucher Ansar, et, all (2012), A Conceptual Model for Success in Implementing Knowledge Management: A Case Study in Tehran Municipality. Journal of Service Science and Management, 2012, 5, 212-222 http://dx.doi.org/10.4236/jssm.2012.52026 Published Online June 2012 (http://www.SciRP.org/journal/jssm).

[11] Manu Rathee, Kajian Pengetahuan Manajemen di Rumah Sakit Multispeciality, Senior Professor and Head, Department of Prosthodontics, Post Graduate Institute of Dental Sciences, Pt. B.D Sharma University of Health Sciences, Rohtak, Haryana, India. Research Paper. Volume : 2 | Issue : 6 | June 2013 • ISSN No 2277 – 8179.

[12] Mathis, Robert L & John H. Jackson (Terjemahan Jimmy Sadeli dan Bayu Prawira), 2001. Manajemen Sumber Daya Manusia, jilid 2, Penerbit Salemba, Jakarta.

[13] Rivai, Vethzal & Basri. 2005. Peformance Appraisal: Sistem yang tepat untuk Menilai Kinerja Karyawan dan Meningkatkan Daya Saing Perusahan. Jakarta: PT. RajaGrafindo Persada

[14] Prantik Bordoloi and Nazrul. Kinerja Kerangka hubungan Praktek Pengetahuan Manajemen dan Pelayanan Kesehatan. Islam School of Management, Asian Institute of Teknologi, Bangkok, Thailand.

[15] Nonaka, Ikijiro dan Takeuchi, Hirotaka. 1995. The knowledge-creating compay : how Japanese Companies create the dynmics of innovation. New York : Oxford University Press.

[16] Desanctis, Gerardine & Jackson, Brad M. 1994. Coordination of Information Teknologi Management: Team-Based Structures and Computer-Based Communication Systems. Journal O/Managenunt Information Systems. Spring, Vol. 10, No. 4, pp. 85-110.

[17] Depkes/WHO/PMPK-UGM. Implementasi Sistem Pengembangan Manajemen Kinerja Perawat dan Bidan (Pedoman dan Instrumen), Jakarta. 2003.