

## Research on Service Level Improvement Strategy of Basic Nursing Management in College Hospitals Based on Pdca Cycle

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**Keywords:** College hospitals, Pdca cycle, Basic nursing management, Service level improvement

**Abstract:** The objective is to analyze the service improvement strategy of the basic nursing management based on the PDCA Cycle in college hospitals. The clinical data are collected from the 60 nursing staff and 60 patients in college hospitals from January 2017 to February 2018. During January 2017 to December 2017, the PDCA (Plan-Do-Check Action) Cycle nursing management were not applied so that the clinical data collected were regarded as control group contained 30 patients and 30 nursing staff during this period. Those data of other 30 patients and 30 nursing staff collected from January 2018 to December 2018 were taken as study group which the PDCA cycle were implemented in the nursing management. The level of nursing service, adverse events and satisfaction evaluation are analyzed among these two group. The results of the study shows that the scores of environmental management, management monitoring, document management, and nursing safety were  $(23.98 \pm 0.63)$ ,  $(23.76 \pm 0.56)$ ,  $(23.03 \pm 0.61)$  and  $(23.12 \pm 0.71)$  respectively, all improved after the PDCA Cycle carried out ( $P < 0.01$ ). The incidence of adverse reactions was 3.33% in the study group lower than 30.00% of the control group ( $P < 0.01$ ). The clinical satisfaction evaluation in the study group was 96.67% which was higher compared to the control group ( $P < 0.01$ ). The application of basic nursing management based on the PDCA Cycle in college hospitals can enhance the quality of nursing and clinical satisfaction of patients. Beyond that, the incidence of adverse events can also be reduced as well. Therefore, it is significant in clinical applications.

### 1. Introduction

The basic nursing is referred as the most normal regulations and nursing care work (Jing, 2018). The clinical nursing is significant work in the college hospital. The efficient and accurate diagnosis and treatment associated with clinical nursing details are the basic requirement in order to ensure the satisfied clinical effect (Yingzhu, 2018). Related research shows that the level of the basic nursing management can influence the patient's clinical effect and the prognosis of the recovery quality directly as well as specialized nursing level (Qiong, 2018). Consequently, the improvement of the basic nursing level should be taken seriously. The PDCA Cycle includes the planning, doing, checking and action was proposed firstly in 1950s (Fen, 2018) which ensured the content of nursing management routinized, standardized and scientific in order to promote the nursing management level. With the purpose to further study, this paper intended to analyze the influence of the PDCA Cycle nursing management focused on the patients and nursing staff during the period from January 2017 to December 2018 in college hospital.

Some previous studies have indicated that caregivers have enough knowledge of nursing care health (Yangisawa, 2018). Lili evaluated the effects of the blended learning applied in the course of Fundamentals of nursing utilizing the compared group (Lili, 2018). The effect of PDCA circulation model on the standardization of emergency treatment in department of neurosurgery and seek the way to improve the nursing was explored by the Ruiqi (Ruiqi, 2018). The Joanna Briggs Institute Practical Application of Clinical Evidence System and Getting Research into Practice audit and feedback tools were utilized in a evidence implementation project of Huashan Hospital, Fudan University, Shanghai (Huahua, 2016). It aims to improve nursing management of dysphagia in acute stroke patients and prevent the occurrence of aspiration in patients admitted to the neurology

ward. It also shows that the PDCA cycle system can reduce the false rate of occupational exposure evidence (Qingning, 2017). Through the PDCA cycle system, the medical staff had improved the enthusiasm of occupation exposure reporting. Application of PDCA cycle system can effectively reduce the false rate of occupational exposure and remove the obstacles for occupation protection work. The training method and application effect of standardized patients in the fundamental nursing was also discussed by Qian (Qian, 2016). The nursing care system was developed as system theory through participating management with action research following the Deming Cycle (PDCA) divided into 3 phases (Mongkonthawornchai, 2012). The characteristics of best and worst clinical educators were investigated (Edwards, 2009). The effect of PDCA cycle on control of the hospital infection management quality was provided. The hospital infection rates was reduced with the PDCA which should be utilized in the clinical promotion (Lin, 2017).

## **2. Data and Method**

### **2.1 Data**

The clinical data were collected from the 60 nursing staff and 60 patients in college hospitals from January 2017 to February 2018. The control group contained 30 patients and 30 nursing staff from January 2017 to December 2017 in which the PDCA (Plan-Do-Check Action) Cycle nursing management were not applied. However, the other 30 patients and 30 nursing staff's data from the January 2018 to December 2018 were referred as study group which the PDCA cycle were implemented in the nursing management including plan, executing, inspection and conduction. The 30 nursing staff in the control group are all female aging from 20-55. The mean and deviation of the age are 29.35 and 9.25 years old respectively. As for the education background, there are 6 staff having bachelor degree or above, 12 staff with college degree in control group while other 6 staff graduated from technical secondary school. In the study group, all the staff are female ranging from 21 to 55 years old. The mean and deviation of the age are 30.34 and 9.34 years old respectively. As for the education background, there are 11 staff having bachelor degree or above, 14 staff with college degree in control group while other 5 staff graduated from technical secondary school. There are 16 male patients and 14 female patients in the control group with average age of 56.25 and deviation is 12.25. The number of male and female patients are both the 15 in the study group. The average and deviation of the age is 55.34 and 13.34 years old. So the data is the same basically ( $P>0.05$ ). There are some other standards such as integrity of information, initiative of the staff and patient's compliance. Some conditions should be excluded for example the malignant, severe liver and kidney disease, psychological and mental disease and drop out patients. Beyond that the research meet the standard of the related medical ethics. All the patients signed the informed consent before treatment.

### **2.2 Method**

All the patients were conducted routine examination and symptomatic intervention. PDCA cycle was not applied in the control group which was only provided routine basic nursing including common first-aid measures (aspiration of sputum, provisions, transfusion, artificial respiration, gastric lavage, common first-aid outfit and so on), general nursing (bed-making, psychology nursing, body temperature, respiratory and oral care), conventional specification (duty, ward round, sterilization, sanitary control), basic nursing knowledge and operation and so on. The PDCA was applied in the study group including four stages namely planning, implement, inspection and conducting. The planning means analyze the problem, affecting factors and causes according to the situation. Meanwhile the nursing care plan could be drawn up and conducted. Inspection refers to comparing the anticipation and actual situation. The conduction refers to discovering the problem and settling it. The nursing efficacy is stabilized as well. The standard and experience has also analyzed and evaluated. The details conducted in the basic nursing management contains plan, setting up cycling management group and combined with the data analysis. So that the detail nursing problem can be found out which are bed sheet and insufficient of the publicity and

education. The reasons is analyzed to be the staff lacking of the nursing concept, poor nursing technique and unskilled operation and so on. It need to appreciate the management level and draw up related objectivity of nursing management correctly. The conducting stage the nursing staff need to be trained in group aimed at handling details problem. The educational propaganda and punishment mechanism need to be paid attention so that the staff would attach importance to basic nursing quality. The quality supervision group is necessary in the check stage. The detail performance is checked in the field investigation. Random sampling and entire check is conducting at regular intervals. The problem should be handled just after it was discovered. The related nursing training manual is studied among the staff. The periodic questionnaire survey is followed as well. The evaluation of basic nursing quality is conducted every months and seasons. So the problem can be discovered and analyzed timely. The nursing plan can also be adjusted according to the situation. The staff and department with excellent performance should be rewarded. After such improvement the basic nursing quality is raised in the end.

### 2.3 Observation Target

The scores of the nursing quality of these two group are analyzed. The nursing adverse event includes the omission, mistake, accident, disputing and unsatisfactory of patients.

### 2.4 Therapeutic Evaluation

The nursing quality of these two group is scored according to the related survey. The management evaluation contains environment, management, file and safety with 25 scores each. Higher scores means the better nursing quality. The degree of the satisfactory of patients were assessed according to the schedule of survey which includes environmental nursing, disease nursing, nursing altitude and nursing effect. The total score is 100. With the score above 90 the patients can be regarded as satisfied very well. With the score between 90 and 60 the patients can be regarded as satisfied basically. With the score below 60 the patients can be regarded as unsatisfied.

### 2.5 Statistics

The statistics were dealt with SPSS 20.0. the related metering statistics such as age and nursing quality are repressed as  $(\bar{x} \pm s)$  which were inspected by t. The related enumeration data such as gender, education background, adverse event and satisfaction degree are illustrated as n which were inspected by  $\chi^2$ . The statistics has the significance only when the  $P < 0.05$ .

## 3. Results

### 3.1 The Scores of the Nursing Quality

After the intervention, the environmental management, management monitoring, file management and nursing security were all improved compared to the control group. Each scores are listed in Table 1 and  $P < 0.01$ .

Table 1 the Scores Of the Nursing Quality ( $\bar{x} \pm s$ , n=30)

| Group               | Environmental management | Management monitoring | File management | Nursing security |
|---------------------|--------------------------|-----------------------|-----------------|------------------|
| Control group(n=30) | 19.23±3.28               | 18.58±2.96            | 18.56±3.59      | 18.16±3.25       |
| Study group(n=30)   | 23.98±0.63               | 23.76±0.56            | 23.03±0.61      | 23.12±0.71       |
| t                   | 7.7896                   | 9.4181                | 6.7235          | 8.1665           |
| P                   | <0.01                    | <0.01                 | <0.01           | <0.01            |

### 3.2 The Adverse Events

The nursing omission and the dispute of the study group is 3.33%. The adverse event is reduced from 30% after the intervention and the detail scores are listed in Table 2 and  $P < 0.01$ .

Table 2 the Adverse Events[n(%)]

| Group               | Nursing omission | Nursing mistakes | Accidents | Nursing dispute | Others  | Adverse events |
|---------------------|------------------|------------------|-----------|-----------------|---------|----------------|
| Control group(n=30) | 2(6.67)          | 3(10.00)         | 1(3.33)   | 1(3.33)         | 2(6.67) | 9(30.00)       |
| Study group(n=30)   | 0                | 0                | 1(3.33)   | 0               | 0       | 1(3.33)        |
| $X^2$               | 0.5172           | 1.4035           | 0.5172    | 0.0000          | 0.5172  | 7.6800         |
| $P$                 | >0.05            | >0.05            | >0.05     | >0.05           | >0.05   | <0.01          |

### 3.3 Clinical Satisfaction Degree

The clinical satisfaction degree is raised to 96.67% in the study group after the intervention. The detail scores are listed in Table 3 and  $P < 0.01$ .

Table 3 Clinical Satisfaction Degree [n(%)]

| Group               | Satisfied very well | Satisfied basically | unsatisfied | satisfaction degree |
|---------------------|---------------------|---------------------|-------------|---------------------|
| Control group(n=30) | 21(70.00)           | 8(26.67)            | 1(3.33)     | 29(96.67)           |
| Study group(n=30)   | 11(36.67)           | 10(33.33)           | 9(30.00)    | 21(70.00)           |
| $X^2$               | 6.6964              | 0.3175              | 7.6800      | 7.6800              |
| $P$                 | <0.01               | >0.05               | <0.01       | <0.01               |

## 4. Conclusion

The PDCA cycle mode is also referred as quality cycle mode which belong to the general model of management theory. It was constituted by four stages namely planning, doing, check and action. The related science procedures was conducted just after this cycle sequence. The basic nursing is one of the most part of the hospital nursing work which affect the specific nursing and nursing quality entirely and directly. Therefore, the hospital should pay attention to the management of basic nursing quality, basic nursing skill's improvement and nursing quality. In such way, the patients can be supplied with better service. Recently, the PDCA cycle mode has been applied in the clinical nursing work extensively with effective results. In order to improve the basic nursing management level, this research focus on the effect of PDCA cycle mode's application in the college hospital's basic nursing management. It may also supplied somewhat reference to related research.

The result of this paper shows that the environmental management, management monitoring, file management and nursing security in the study group have higher score compared to the control group respectively. The results illustrate the application of PDCA cycle mode can help college hospital's basic nursing management to enhance the nursing quality and service's level. The PDCA cycle mode group can draw up and act nursing plan according to the situation and analysis the problem. If there is problem came up, it should be settled down as soon as possible. So the nursing effect can be assured. So that the detail nursing problem can be improved by establishing the cycle management group and analyzing combined with statistics which are bed sheet and insufficient of the publicity and education. The reasons is analyzed to be the staff lacking of the nursing concept, poor nursing technique and unskilled operation and so on. It need to appreciate the management level and draw up related objectivity of nursing management correctly. The reward and punishment mechanism is also necessary to enhance the basic nursing quality. Meanwhile the supervise team should check the basic nursing entirely by field survey and random sampling. The evaluation of basic nursing quality is conducted every months and seasons. Thus the problem can be found and figured out timely. The nursing quality can also be improved with new nursing plan.

The clinical nursing effect and be enhanced with the improvement of the staff's basic nursing skill. The nursing omission and dispute events is 3.33% in the study group in this research less than in the control group. The satisfaction degree of patients is 96.67% in the study group higher than in the control group. It also prove that the application of PDCA cycle mode can help college hospital basic nursing management to improve the nursing service and reduced the adverse incident. Beyond that, the clinical effect is marked. However the long term influence of the PDCA cycle mode is still need to be research.

Above all, the application of PDCA cycle mode in college hospital basic nursing management can improve the nursing quality and patients' satisfaction degree effectively and reduced the adverse incident. It worth certain degree of clinical application.

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