The effects of the application of SIMPRO on the completeness and time efficiency of nursing documentation in the outpatient installation at Dompet Dhuafa Hospital Parung

M Dwisatyadini¹, R T S Hariyati², E Afifah³

¹Department of Biology, Faculty of Mathematics and Natural Sciences, Open University of Indonesia.
²Department of Nursing, Faculty of Nursing, University of Indonesia.

Corresponding author: mdwisatyadini@gmail.com

Abstract. Nursing documentation is clinical information that has a vital role in nursing services. The nursing process includes assessment, diagnosis, intervention, implementation, and evaluation. The purpose of this study was to determine the effects of the application of SIMPRO on the completeness and the efficiency of nursing documentation in the outpatient installation at Dompet Dhuafa Hospital Parung. This study used quantitative method with pre experimental (pre and posttest without control group) design. The mean of the documentation completeness marks before the application of SIMPRO was 1.87 (SD 0.922), and after SIMPRO was applied increased to 3.61 (0.588). This increase indicated an improvement of the nursing documentation completeness after the implementation of SIMPRO. The mean of time needed by nurses in documenting the nursing care before the application of SIMPRO was 476.13 seconds (SD 78.896). The mean of documenting time decreased more than a half after the application of SIMPRO which was 202.52 seconds (SD 196.723). SIMPRO made a nurse easier to take a decision analysis and decision support system to nursing care plan and documentation.

1. Introduction

Technology reduces the inefficiencies of time to the nurse workflow, reduces the nurse's workload, enhances the client's and families' active participation for health information, and improves nurse time to clients, thereby reducing incidents for unwanted complications such as falling patients, decubitus, and other quality indicators. Technology improves nurse satisfaction, helps overcome the shortage of nursing staff, helps prevent nurse work errors, improves nursing process, and provides health information to nurses to be more confident and improve nurse competence (Bolton, Gassert, Cipriano, 2008). Hariyati (2012) tells about the effectiveness of model's nursing management information system. If nurse's use model’s nursing information systems to documentation of nursing care plan are completeness and relevance. Also effectiveness to decision-making functions and legal aspects. Effectiveness and time efficiency indicated by prior to application system information 25.27% of the total time of one shift (7 hours), after the application system information the time needed 9.60% of the total shift time, in addition from the results of her research also shows control group a values of documentation quality (completeness, relevance, continuity, and decision support system (DSS) function there was not significant difference in first observation and second observation.
Purwandari (2013) tells about a completeness of nursing care documentation in the intervention group before and after the application SIMPRO (Management of Nursing Information by Roro) in the adult inpatient room of Dompet Dhuafa Hospital Parung, showed a significant increase of 10.39%, after application of documentation based computer. Also, the completeness of documentation and legal aspects after the implementation of SIMPRO (Nursing Management Information System by Roro) showed a difference between the control group of 6.24 (6.75% of the total score of 58.4) of the control group and the legal aspect of deviation was 3.53 (44.12% of total value 8). The benefits of mobile health include better access to health information and health services, improving patient care and patient safety, coordinating care, and empowering patients and families (Snyder, Wu, Miller, Jensen, Bantug & Wolff, 2011).

2. Methods

This study used quantitative method with pre experimental (pre and posttest without control group) design. Implementation of research by assessing 31th documentation, and efficiency time of nursing documentation at outpatient installation of Dompet Dhuafa Hospital before and after SIMPRO implementation. The pre-test data were collected on 28-30 May 2014 and posttest taking was conducted on 16-18 June 2014. Data analysis was performed with the statistical test of a paired t test, independent t test. Simpro using localhost data base.

Figure 1 Stages of Nursing Assessment

Figure 2 Stages of Nursing Diagnosis
3. Results

The univariate result in the first stage of the researcher identifies the completeness and effectiveness of time in nursing documentation on outpatient installation of Dompet Dhuafa Hospital, Parung. Results obtained as follows:

Figure 3 Stages of Nursing Intervention and Implementation

Figure 4 Stages of Nursing Evaluation
Table 1 Description of Documentation Completion Before and After Implementation of SIMPRO at Outpatient Dompet Dhuafa Hospital Year 2014 (n = 31)

|                     | Completeness Nursing Documentation | Average | SD     | Min-Mak | CI 95%      | p value |
|---------------------|-----------------------------------|---------|--------|---------|-------------|---------|
| Before SIMPRO       | 1.63                              | 1.188   | 0-3    | 0.63-2.62 | 0.0001*    |         |
| After SIMPRO        | 3.13                              | 0.411   | 2-4    | 2.59-3.66 |            |         |

* SD: Standard deviation, * CI: Confidence interval

Based on table 1 shows a mean value of completeness of nursing care documentation before the implementation of SIMPRO is 1.63 (SD 1.188), then after the implementation of SIMPRO increased to 3.13 (SD 0.411).

Table 2 Description of Documentation Time of Nursing Care Before and After Implementation of SIMPRO at Outpatient Dompet Dhuafa Hospital Year 2014 (n = 31)

| SIMPRO Documentation (n=31) | Effectiveness of time in nursing documentation (seconds) | Average | SD     | Min-Mak | CI 95%      | p value |
|-----------------------------|----------------------------------------------------------|---------|--------|---------|-------------|---------|
| Before SIMPRO               | 472,50                                                   | 93,159  | 360-600| 394,62-550,38 | 0,0001*   |         |
| After SIMPRO                | 189,88                                                   | 77,832  | 124,81-254,94 | 124,81-254,94 |         |         |

* SD: Standard deviation, * CI: Confidence interval

Based on table 2 shows an average of time nurses needed to documentation a nursing care before the implementation of SIMPRO is 472,50 seconds (SD 93,159). Mean Time Documentation decreased more than half time after SIMPRO implementation to 189.88 seconds (SD 77,832).

Table 3 Completeness and Effectiveness of Time in Documentation Nursing Care Before and After Implementation of SIMPRO at Outpatient Dompet Dhuafa Hospital Year 2014 (n = 31)

| Variabel                        | Before SIMPRO (n=31) | p value |
|---------------------------------|----------------------|---------|
|                                 | Average | SD     | Min-Mak | 95% CI      |
| Completeness Nursing Documentation | 1.63   | 1.188  | 0-3     | 0.63-2.62   | 0.0001*   |
| Effectiveness of time in nursing documentation (seconds) | 472,50 | 93,159 | 360-600 | 394,62-550,38 |         |

| Variabel                        | After SIMPRO (n=31) | p value |
|---------------------------------|---------------------|---------|
|                                 | Average | SD     | Min-Mak | 95% CI      |
| Completeness Nursing Documentation | 3.13    | 0.411  | 2-4     | 2.59-3.66   | 0.0001*   |
| Effectiveness of time in nursing documentation (seconds) | 189,88 | 77,832 | 82-286  | 124,81-254,94 |         |

*SD: Standard deviation, * CI: Confidence interval
Based on Table 3 shows increase a mean value of documentation completeness before the implementation of SIMPRO of 1.63 (40.75%) of the total value of 4 to 3.13 (78.25%) of the total value of 4 after the implementation of SIMPRO. Based Effectiveness of Time in Documentation Nursing Care have a decrease time needs before the implementation of SIMPRO is equal to 472.50 second (7.9 min) to 189.88 second (3.2 min) after SIMPRO implementation. The result of statistical test shows a difference between a documentation completeness and efficiency of time in documentation with a significant between before and after the implementation of SIMPRO (p = 0.0001 *). The results of analysis shows the implementation of SIMPRO effective for a nurse because it can improve a completeness of nursing care documentation before and after the implementation of SIMPRO. Its can accelerated the time of nursing care documentation in Outpatient Installation Dompet Dhuafa Hospital before and after the implementation of SIMPRO.

Table 4 Analysis of Average Difference Scores of Completeness and Efficiency of Time for Documentation Nursing Care Before and After The Implementation of SIMPRO at Dompet Dhuafa Hospital Parung Year 2014 (n = 31).

| No | Dependend  | Average | SD    | SE   | T         | Pvalue |
|----|------------|---------|-------|------|-----------|--------|
| 1  |  Before    | 1.87    | 0.922 | 0.166| -10.431   | 0.0001*|
| 2  |  After     | 3.61    | 0.588 | 0.100|           |        |
|    |  Deviation | -1.742  | 0.930 | 0.167|           |        |

| Description |  *: Meaning on α 0.05 |

Based on table 4 shows the average value of completeness nursing care documentation before the implementation of SIMPRO 1.87 (46.75%) of the total value of 4. Then after the implementation of SIMPRO 3.61 (90.25%) of the total value 4. The average difference value completeness nursing care documentation -1.742 (43.55%). The average value efficiency of time in documentation before the implementation of SIMPRO was 476.13 (7.9 minutes). Then after the implementation of SIMPRO was 202.52 (3.4 minutes). The average difference value of efficiency of time in documentation 273,613. Based on a results, we made a conclutions, if implementation of SIMPRO have a significant improvement between the completeness nursing care documentation and it has a significant decrease between efficiency of time in documentation before and after the implementation of SIMPRO (p = 0.0001). The results of this analysis shows a differences before and after the implementation of SIMPRO to nursing care documentation. After using a SIMPRO nurse faster for documentation between isnt using it, so its very efficiency of time in documentation. Then it made a completeness nursing care documentation.

4. Discussion

Based on the results of this research is the mean of the documentation completeness marks before the application of SIMPRO was 1.87 (SD 0.922), and after SIMPRO was applied increased to 3.61 (0.588). This increase indicated an improvement of the nursing documentation completeness after the implementation of SIMPRO. The mean of time needed by nurses in documenting the nursing care before the application of SIMPRO was 476.13 seconds (SD 78.896). The mean of documenting time decreased more than a half after the application of SIMPRO which was 202.52 seconds (SD 196.723). The results of this study are corresponding to Iyer and Camp (2005) showing the advantage of documentation using the system can improve the time frame, completeness and quality of nursing
documentation, so that nurses can have heaps of time for patient care. Improve the patient's perception of the nurse. Reduced drug delivery errors, accessibility of documentation records easier to access immediately by nurses and other medical staff. Reduce the risk of loss of documentation records and improve the accuracy and quality of documentation records.

Purwandari (2013) was a research in adult inpatient room of Dompet Dhuafa Hospital Parung concerning a completeness of nursing care documentation in the intervention group before and after implementation of SIMPRO (Nursing Management Information System by Roro) showed a significant increase of 10.39%, after implementation of computer-based documentation. However, the research of Wang, Yu, Hailey (2013) in line with this study there is a significant increase of overall completeness value of documentation with paper mean 3.24, SD 0.54 and electronic mean 3.27, SD 0.42. Seen from the results Nurses can take advantage of their clinical skills, knowledge, computer skills, and critical thinking skills to assessment, nursing care plan, intervention, and evaluate nursing care that has been achieved all a patient needs (LeFevre 2009 in Kelley, Brandon & Docherty, 2011).

The nursing process is regarded as a scientific approach in which critical thinking is used to solve problems and this approach was introduced into nursing practice and education (Wang et al., 2011). Nursing documentation offers various options to enable nurses making choices regarding decision making for optimal care (Jefferies et al., 2010). Hariyati (2012) shows control group a values of documentation quality (completeness, relevance, continuity, and decision support system (DSS) function) there was not significant difference in first observation and second observation. In Nursing Practices and Education, after finished nurses performs the assessment a patient, so nurses must think of the right nursing care problem solving, and after implementation of nursing care, nurses need a time for documentation. Implementation of SIMPRO (Nursing Management Information System by Roro) SIMPRO made a nurses completeness their nursing documentation, and made a effectiveness of time a nursing documentation. So nurses had a improvement about their critical thinking and their decision analysis to give a optimal nursing care for their patient.

5. Conclusions

Improved Documentation completeness prior to SIMPRO implementation and after SIMPRO implementation. Decrease in time required by nurses in documenting nursing care. Implementation of SIMPRO to the executing nurses has an effect to improve the completeness of nursing care documentation in the Outpatient Installation of Dompet Dhuafa Hospital. Implementation of SIMPRO to the executing nurses has an effect can accelerate the time of documenting the nursing care in the Outpatient Installation of Dompet Dhuafa Hospital. The mean value of differences in completeness of nursing care documentation before and after the implementation of SIMPRO was -1.742 (43.55%). The mean value of time difference between nursing care documentation before and after the implementation of SIMPRO was 273.613 (4.6 minutes).

6. Suggestions

Firstly for Dompet Dhuafa Hospital, this research is expected as input to implement SIMPRO in nursing care documentation in outpatient installation. The management needs to improve the routine monitoring of the implementation of nursing care documentation as a process of documentation evaluation that has been done by the outpatient nurse at least once a month by the outpatient coordinator which later the report will be submitted to the head of the nursing care sub-committee and to the chairman of the nursing committee, nurse performance and quality improvement of nursing service. Improving skills and abilities in documenting nursing care is done through ongoing training per year.

Second for Education, improving training, nursing education and nursing students on SIMPRO in nursing practice, the process of preparing them to use technology as a new strategy of health care.
Third for Researchers, this research as an illustration to conduct further research related to information system development and documentation of nursing care. There is a need for further research on the influence of the application of management information system for the documentation of nursing care (SIMPRO) to the completeness and efficiency of documentation time with longer time with more heterogeneous nurse responders, so it can be seen the effect of SIMPRO on the completeness and efficiency of the time of nursing documentation. In addition, it is suggested to extend the research by examining the effect of the application of management information system to the nursing care documentation (SIMPRO) to the quality in the accuracy of nursing care documentation at Profit and Non Profit Hospital.

References

[1] Bolton, L.B, Gassert, C.A, Cipriano, P.F (2008). Smart Technology, Enduring Solutions, Technology Solutions Can Make Nursing Care Safer and More Efficient. *JHIM*, Volume 22, Number 4.
[2] Hariyati .R.T. S (2012). The effectiveness of a computer-based nursing management information system. Dissertation.FIK- UI.
[3] Iyer, P.W & Camp. N.H (2005). *Nursing Documentation a nursing process approach*. Ed. 3. Jakarta: EGC.
[4] Jefferies, D., Johnson, M., Griffiths, R. (2010). A meta-study of the essentials of quality nursing documentation. International Journal of Nursing Practice, 16(2), 112-124
[5] Purwandari R. (2012). Influence of "SIMPRO" to the Completeness and Legal Aspects of Nursing Care Documentation in Inpatient Room Adult Dompet Dhuafa Hospital, Parang Bogor. Tesis. FIK UI.
[6] Snyder C.F, Wu A.W, Miller R.S, Jensen R.E, Bantug E.T, & Wolff A.C. (2011). The Role of Informatics in Promoting Patient-Centered Care. *The Cancer Journal*, Volume 17, Number 4.
[7] Wang, N, Yu. P, Hailey. D (2011). Quality of nursing documentation and approaches to its evaluation: a mixed-method systematic review. *Journal of Advanced Nursing* 00(0), 000–000. doi: 10.1111/j.1365-2648.2011.05634.