Nursing Outcome Documentation in Nursing Notes of Cardiac-Surgery Patients

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Abstract

This study analyzed what nurses wrote in narrative nursing notes for nursing outcome of cardiac-surgery patients. The nursing notes of 46 patients were decomposed into phrases and analyzed based on the nursing process. Eight patterns were extracted according to different combinations of nursing-process components, of which 29.2% have nursing outcome phrases. The content of the nursing notes was also classified into 15 categories, of which nursing outcomes were recorded more frequently in nursing care driven mainly by physician’s order, such as disease-related symptom management, insomnia care, respiratory care, and pain control, than in independent nursing care such as education and emotional care. A survey on the attitudes of nurses toward the nursing record revealed that they do not document nursing outcomes as much as they think they do. The main reasons for this discrepancy were insufficient time for recording and lack of knowledge about why, how, and what to evaluate. Even though there is room for improvement, nursing notes represent a useful resource for determining nursing contributions to patient outcomes.

Keywords:
Nursing documentation; Nursing notes; Nursing Outcome; ICNP; Outcomes research; Cardiac surgery

1. Introduction

The continuing increase in demands for health services and the associated healthcare costs have led both healthcare professionals and consumers to focus on the outcomes such as the effectiveness and efficiency of healthcare. At the same time, as evidence-based practice is emerging as an important method for clinical decision making, healthcare providers are required to demonstrate that their services are effective both clinically and financially [1].

The effectiveness and efficiency of nursing can be evaluated by assessing how patient outcomes are affected by nursing practice. Nursing sensitive outcomes refer to observable and measurable changes in the health status or behaviours of patients as a result of nursing actions [2]. Interest in nursing-sensitive outcomes was stimulated by nurses’ beginning to assert themselves as an autonomous profession rather than having a subservient relationship to physicians [3]. By demonstrating that nurses contribute positively to patient outcomes, a nursing component of care can be identified, a body of knowledge unique to nursing can be accumulated, and the foundation of their professional status can be developed.

Though nursing undoubtedly contributes to the curing of diseases and recovery of health, the effect of nursing cannot be proven unless it is documented. Thus, the nursing record can represent a significant body of evidence supporting the effectiveness of nursing care. To
establish the effectiveness of nursing, nurses should specify nursing inputs (who gives what care, where, and when, and how care is provided) and patient outcomes that are sensitive to and can be attributed to these inputs, since patients are in an increasingly interdisciplinary milieu in a variety of settings and their responses to treatment or care are affected by several healthcare professionals [3, 4]. For this purpose, nursing diagnoses, interventions, and outcomes should be recorded according to the nursing process. However, not all of these factors are included in the nursing record; instead, patient assessments have mainly been emphasized due to the problem-oriented recording [5].

Therefore, the aim of this study was to identify the current status of nursing outcome documentation through an analysis of the nursing record in clinical settings, and to present ways of ameliorating problems with nursing outcome documentation by conducting a survey of nurses who documented the nursing records analyzed.

2. Materials and methods

This study was undertaken in two parts. The first part involved an analysis of narrative nursing notes to identify the current status of nursing outcome documentation. The second part involved a survey of nurses to explore problems with the recording of nursing outcomes.

2.1. Current status of nursing records

The notes related to 518 days of nursing 46 patients who were hospitalized and underwent cardiac surgery from November 1 to November 30, 2002, in a tertiary hospital in Korea were collected. The narrative nursing notes were decomposed into phrases that were divided into three groups according to their content: (i) nursing-phenomenon-related phrases describing problems, signs, and symptoms of the patients and the nursing diagnosis, (ii) nursing-action-related phrases describing the nursing care provided to patients, and (iii) other phrases that could not be classified into either nursing phenomena or nursing actions and were used to describe contextual information, for example, a phrase quoting the statements of a patient or the treatment plan of a physician.

Nursing-phenomenon-related phrases were divided into nursing assessments, diagnoses, and outcomes according to the definitions of the International Classification for Nursing Practice (ICNP) [6]. A nursing assessment is a definitive phrase that is not influenced by the judgment of the nurse (e.g., “BST 60 mg/dl, patient is in a cold sweat”), whereas a nursing diagnosis is influenced by judgment (e.g., “Patient shows hypoglycemia symptoms”). A nursing outcome is the measure of the status of a nursing diagnosis at some time point after a nursing intervention.

Nursing-action-related phrases were divided into nursing actions and interventions, which refer to nursing-action-related phrases with no prior and with prior nursing-phenomenon-related phrases, respectively. A clinical nurse specializing in cardiac surgery and an ICNP expert verified this work.

The nursing notes were classified into eight patterns according to the combinations of nursing assessment, diagnosis, action, intervention, and outcome. Then, the frequencies of each pattern were tabulated and the characteristics of each pattern were explored. Eight patterns were classified into 15 cardiac-surgery patient care categories to determine differences in the eight patterns.

2.2. Survey of nurse attitudes toward nursing outcome documentation

To study the attitude of nurses toward nursing records and problems with nursing-outcome evaluation and documentation, 30 nurses who had documented the nursing records analyzed for this study were surveyed using questionnaires from April 10 to April 14, 2004, of which
27 returned the questionnaires. The survey questionnaire was developed through interviews with a clinical nurse specialist in cardiac surgery and nurses working in the ward, and consists of items asking priorities in 15 nursing-care categories and how often they perform and record each component of the nursing process: nursing assessment, intervention, and outcome. They were also asked to provide reasons for poor outcome recording and ways of improving nursing-outcome documentation. The survey results were compared with the results of our analysis of the actual nursing records.

3. Results

3.1. Characteristics of subjects

The nursing records of a total 46 patients who underwent cardiac surgery were analyzed. Over two-thirds (69.6%) of the patients had coronary heart disease and received a coronary artery bypass graft. The mean hospital stay was 11.3 days (SD=3.4 days), and ranged from 3 to 19 days.

According to the demographic data of the nurse who participated in the survey, two-thirds (66.7%) of the nurses had more than 2 years of work experience in nursing and 85.1% had worked for more than 1 year in cardiac surgery. Twenty nurses (74.1%) had a baccalaureate.

3.2. Analysis of nursing notes according to the nursing process

The narrative notes related to 518 days of nursing the 46 patients were decomposed into 5,099 phrases, which were divided into three groups: 3,448 nursing-phenomenon-related phrases (67.6%), 1,403 nursing-action-related phrases (27.5%), and 248 other phrases (4.9%) (Table 1). The removal of phrases with redundant meanings resulted in 466 unique nursing-phenomenon phrases, 288 unique nursing-action phrases, and 42 unique other phrases. Each unique nursing-phenomenon phrase appeared a mean of 7.4 times, each nursing-action phrase appeared 4.9 times, and other phrases appeared 4.2 times. Out of 466 unique nursing-phenomenon phrases, 25 phrases appeared more than 83 times, representing 60.8% of all nursing-phenomenon-related phrases, and 37 unique nursing-action-related phrases appeared more than 22 times, representing 60.2% of all nursing-action-related phrases.

<table>
<thead>
<tr>
<th>Total no. of phrases</th>
<th>No. of unique phrases</th>
<th>Mean redundancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing phenomena</td>
<td>3,448 (67.6%)</td>
<td>466 (58.5%)</td>
</tr>
<tr>
<td>Nursing actions</td>
<td>1,403 (27.5%)</td>
<td>288 (36.2%)</td>
</tr>
<tr>
<td>Others</td>
<td>248 (4.9%)</td>
<td>42 (5.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>5,099 (100%)</td>
<td>796 (100%)</td>
</tr>
</tbody>
</table>

The phrases in nursing notes were classified into nursing assessments, diagnoses, actions, interventions, and outcomes. These phrases were categorized into eight patterns depending on the different combinations of nursing process components (Table 2). In this process, the 248 phrases that did not relate to nursing phenomena or nursing actions were extracted. The nursing-assessment-only pattern (which was the most frequent) accounted for 45.8% of the 4,851 phrases. Further examination of these eight patterns revealed that phrases containing only nursing assessments or nursing diagnoses represented 48.3% of the total, phrases containing nursing interventions with nursing assessments or nursing diagnoses represented 8.2%, and phrases containing nursing outcomes represented 29.2%.

These eight patterns were classified into 15 categories according to their content in order to explore differences in patterns by category. Nursing outcomes were recorded more often in
the areas of pain control, disease-related symptom management, insomnia care, respiratory care, medication, and vital-sign-related care. However, nursing outcomes were documented less in the preparation for surgery, examination-related care, education, and neurological care.

Table 2 - Frequency of nursing phrases according to nursing-record pattern and category

<table>
<thead>
<tr>
<th>Category</th>
<th>A*</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease-related symptom management</td>
<td>429</td>
<td>6</td>
<td>12</td>
<td>2</td>
<td>16</td>
<td>25</td>
<td>131</td>
<td>2</td>
<td>623</td>
</tr>
<tr>
<td>Vital-sign-related care</td>
<td>353</td>
<td>6</td>
<td>22</td>
<td>53</td>
<td>10</td>
<td>160</td>
<td>68</td>
<td>0</td>
<td>672</td>
</tr>
<tr>
<td>Examination-related care</td>
<td>60</td>
<td>2</td>
<td>117</td>
<td>77</td>
<td>15</td>
<td>126</td>
<td>21</td>
<td>48</td>
<td>466</td>
</tr>
<tr>
<td>Insomnia care</td>
<td>219</td>
<td>13</td>
<td>1</td>
<td>8</td>
<td>9</td>
<td>34</td>
<td>60</td>
<td>0</td>
<td>344</td>
</tr>
<tr>
<td>Preparation for Surgery</td>
<td>22</td>
<td>2</td>
<td>103</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>37</td>
<td>171</td>
</tr>
<tr>
<td>Emotional care</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Education</td>
<td>4</td>
<td>0</td>
<td>76</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>95</td>
</tr>
<tr>
<td>Nutrition and elimination</td>
<td>33</td>
<td>6</td>
<td>65</td>
<td>22</td>
<td>40</td>
<td>42</td>
<td>85</td>
<td>10</td>
<td>303</td>
</tr>
<tr>
<td>Medication</td>
<td>14</td>
<td>0</td>
<td>37</td>
<td>2</td>
<td>5</td>
<td>31</td>
<td>31</td>
<td>14</td>
<td>134</td>
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<tr>
<td>Respiratory care</td>
<td>143</td>
<td>4</td>
<td>89</td>
<td>5</td>
<td>11</td>
<td>41</td>
<td>69</td>
<td>43</td>
<td>405</td>
</tr>
<tr>
<td>Pain control</td>
<td>98</td>
<td>50</td>
<td>5</td>
<td>5</td>
<td>33</td>
<td>28</td>
<td>215</td>
<td>2</td>
<td>436</td>
</tr>
<tr>
<td>Wound care</td>
<td>575</td>
<td>21</td>
<td>25</td>
<td>5</td>
<td>19</td>
<td>7</td>
<td>42</td>
<td>0</td>
<td>694</td>
</tr>
<tr>
<td>Drainage care</td>
<td>51</td>
<td>6</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>67</td>
</tr>
<tr>
<td>Neurological care</td>
<td>23</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td>Bedsore care</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>15</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Others</td>
<td>193</td>
<td>0</td>
<td>132</td>
<td>7</td>
<td>16</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>352</td>
</tr>
<tr>
<td>Total</td>
<td>2222</td>
<td>120</td>
<td>691</td>
<td>205</td>
<td>196</td>
<td>503</td>
<td>753</td>
<td>161</td>
<td>4851</td>
</tr>
<tr>
<td>Percentage</td>
<td>45.8</td>
<td>2.5</td>
<td>14.3</td>
<td>4.2</td>
<td>4.0</td>
<td>10.4</td>
<td>15.5</td>
<td>3.3</td>
<td>100</td>
</tr>
</tbody>
</table>

* A: Nursing assessment only  
  B: Nursing diagnosis only  
  C: Nursing action only  
  D: Nursing assessment + nursing intervention  
  E: Nursing diagnosis + nursing intervention  
  F: Nursing assessment + nursing intervention + nursing outcome  
  G: Nursing diagnosis + nursing intervention + nursing outcome  
  H: Nursing intervention + nursing outcome

3.3. Survey of nurse attitudes toward nursing outcome documentation

The nurses reported that they documented the effectiveness or the patient’s response to nursing actions in more than 78% of nursing-outcome evaluations: pain control, vital-sign-related care, and drainage care in more than 87%, and emotional care and education in less than 65%.

We asked the nurses to provide reasons for nursing outcomes being documented so poorly in actual nursing notes. The reasons provided differed by category, with a lack of time provided as the principal reason for all most categories except for emotional care, respiratory care, and bedsore care. For emotional care, nurses reported insufficient knowledge about how and when to evaluate as a major factor preventing adequate nursing-outcome documentation. Nurses also pointed out that the correct evaluation time for bedsore care and respiratory care was ambiguous.

The largest proportion of nurses commented that they needed more time to make a quality recording in order to improve nursing-outcome recording (42.9%), which was followed by increasing nurses’ awareness of the need for nursing-outcome evaluation (20.0%), education about the evaluation method (17.1%), and nursing-outcome recording in general (17.1%).
4. Discussion

The categorization of nursing notes into eight patterns revealed that the frequency of the nursing-assessment-only pattern was the highest and that the frequency of nursing outcomes with nursing assessments or diagnoses and nursing-intervention patterns were very low. Of the 15 nursing-care categories for cardiac-surgery patients, nurses documented nursing outcomes in the areas of pain control, disease-related symptom management, vital-sign-related care, insomnia, and medication more than the other areas. These areas involve nursing care that is driven mainly by the order of physicians. However, for independent nursing involving aspects such as education, neurological care, and emotional care, nurses documented neither nursing outcomes nor nursing assessments and actions. This has also been revealed by other studies. Davis et al. reported that nursing assessments emphasized biomedical rather than psychosocial concerns [7]. Kim’s study of nursing audits indicated that information on oxygen supply, nutrition, fluid balance, and skin care was well documented, but that on educating patients about health maintenance and illness prevention was hard to find [5].

There is another problem in nursing-outcome documentation. Nurses do not use standard outcome indicators or tools to measure objective changes in nursing outcomes. Even in nursing notes about pain control, which exhibit a high frequency of nursing-outcome recording, the criteria of nursing outcomes are not clear because nurses documented nursing outcomes using their own rephrasing of patients’ self-reporting to describe their response to nursing actions, such as “pain relieved”, “a little bit reduced”, “somewhat reduced”, and “a lot reduced”. This results in a communication problem between not only nurses but also with other healthcare professionals. Therefore, outcome indicators or tools should be developed to facilitate the objective evaluation of nursing outcomes.

When surveyed, there was a prominent discrepancy in the nursing-outcome documentation. The frequency of nursing-outcome documentation was 37.0%, and rest of the total nursing-action-related phrases did not contain nursing-outcome phrases. However, nurses reported that they evaluated and documented nursing outcomes in 78.7% of evaluations. The survey revealed that nurses were unaware of their poor outcome documentation and that they considered themselves as good at evaluation and recording the responses of patients to nursing actions that they provided. On the other hand, nurses agreed that they documented nursing assessments, actions, and outcomes in education and emotional care poorly, even though they considered these areas important. The study by Hale et al. produced similar results, in that there were no discrepancies between what nurses said they did and what was recorded in nursing notes on the pain management of patients with myocardial infarction [8], whereas on anxiety, nutrition, and health education, the intervention nurses reported that they provided to patients was not well documented in the nursing notes. They concluded that nursing documentation did not provide a comprehensive data source for nursing interventions provided to patients or their effectiveness.

Several studies have shown that nurses have significant influence over patient outcomes in areas where nurses play the dominant role, and nursing outcomes can be measured in these areas [9,10]. In the study by Carr-Hill et al. [9], these areas included patient hygiene, nutrition and hydration, pressure sores and skin integrity, intravenous therapy, discharge planning, pain control, education and rehabilitation, and elimination. Cullum [10] showed that nurses contribute to patient outcomes in the following areas: patient education, health promotion, cardiac rehabilitation, postoperative and preoperative care, anxiety prevention and reduction, and pain management. These two studies and the 15 categories of our study have the following areas in common: pain control, nutrition, elimination, bedsore care, education, and emotional care. Out of these areas, nurses documented nursing outcomes well in pain control. Thus, the nursing record can be useful in demonstrating the nursing
contribution to patient outcomes in pain control. However, nursing outcome was barely documented in other areas. According to our survey, the major barrier to the evaluation and documentation of nursing outcomes was a lack of time. To improve accuracy and reduce recording time, new charting formats such as computerization of the nursing record need to be developed, especially given that this barrier has been described many times in previous studies [11, 12]. The main reason for poor recording in education and emotional care was insufficient knowledge about how and when to evaluate. Therefore, comprehensive education on nursing outcomes including when and how to measure the results of nursing actions should be provided to improve nursing-outcome recording.

5. Conclusion

This study reveals that present nursing outcome documentation has many shortcomings. To solve these problems, education and training should be provided on the importance of nursing records based upon the nursing process, and regulations and guidelines should be provided for nursing outcome documentation. Moreover, outcome indicators and tools need to be developed for the objective measurement of nursing outcomes and to facilitate communication between healthcare professionals. To improve nursing-outcome recording, nurses should be provided with continuous feedback based on systematic and regular evaluations and audits. The development of electronic nursing records that take these problems into consideration would further improve nursing records and make them a useful source for information on patient outcomes.

6. References


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