Nurses' Knowledge about the New Tuberculosis Crisis and Attitudes toward Caring for Patients with Tuberculosis

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Abstract

This study was designed to determine nurses' knowledge level about the new TB crisis and their attitudes toward caring for TB patients. A questionnaire was administered to 30 nurses who were either in the emergency room or at a medical-surgical station of a large midwestern teaching hospital. On the attitude subscales, scores indicated slightly positive attitudes toward caring for TB patients. Nurses with more years in nursing practice demonstrated higher knowledge scores. The study findings can be used to identify content areas for continuing education programs that address nurses' needs regarding knowledge about TB prevention and its transmission. Recommendation for educational programming are also included.
From 1953 through 1984, the number of tuberculosis (TB) cases reported in the United States decreased approximately 5% each year. After this long period of decline, concern began to rise as the number of tuberculosis cases reported to the Center for Disease Control (CDC) began to increase in 1985 in association with the increasing numbers persons who were HIV positive or who had AIDS (Yoshikawa, 1991). Another concern was the recognition of multidrug-resistant tuberculosis (MDR-TB) infection in 1990. Moreover, the BCG vaccination coverage of infants in developing countries does not contribute significantly to reducing the transmission of infection (Jamison & Mosley, 1992). In light of the epidemiologic statistics, nurses in countries with high HIV infection rates will probably be called upon to care for patients with TB. Knowledge of TB can improve care of TB patients, reduce transmission, and also reduce the risk of nurses to contract TB in their practice.

Tuberculosis has been considered as an occupational risk for health care providers for many years. Policies and practice guidelines are in place to minimize the risk of transmission of MDR-TB from patients to workers in institutional settings (Villarino, Geiter, & Simone, 1992). However, because surveillance programs have detected new tuberculosis infections in health care workers, it is important to evaluate the knowledge and attitudes of nurses toward the new tuberculosis crisis and caring for TB patients so that TB patients may safely receive high quality care.

Most nurses are aware of HIV infection during their daily practice but they may ignore the risk of tuberculosis infection which may endanger their safety and welfare. Investigating the knowledge and attitudes of nurses toward the new tuberculosis crisis is the first action that should be taken to determine a foundation of knowledge about the potential need for information and to target subsequent educational action. Little literature has been found about the knowledge and attitudes of nurses toward the new risk of tuberculosis. The present study was designed to determine the knowledge level of nurses about the new tuberculosis crisis and nurses' attitudes toward caring for TB patients.

Literature Review

Nurses working with patients in all areas of practice cannot escape from the high risk of contact with infectious organisms such as TB. Two national studies of critical care nurses reveal that personal safety is their number one concern on the job, and two-thirds of the nation’s critical care nurses say their anxiety about personal safety on the job has increased in the last two years, and eight out of ten say the increase is a result of exposure to contagious disease (Larson, 1992).
However, nurses may decrease their risk of contracting TB through acquiring and utilizing knowledge about tuberculosis.

Bond et al. (1990) examined community nurses' knowledge and attitudes in England and Scotland and found limited knowledge with regard to many aspects of diseases. They suggested that fear played a powerful role in influencing personal beliefs about certain patient groups. Meierhoffer (1992) documented the safety for nurses is in knowing the risks, and that lack of education and training for hospital workers contributes to the problem. He also stated that "new hospitals are starting to realize the value of having their own employee health nurses to specifically target their concerns" (1992, p. 5).

A study, conducted between January of 1988 and December of 1990, documented that the occurrence of MDR-TB among patients with HIV infection was significantly higher relative to non-HIV population (Fischl et al., 1992). TB among patients with HIV infection has been a serious problem since their immune function is diminished. These patients are seen in increasing numbers by health care providers. Most published research relates to nurses' knowledge about and attitudes toward caring for patients with AIDS. However, little is known about nurses' knowledge about and attitudes toward tuberculosis.

Melby (1992) conducted research about knowledge and attitudes of nurses in Northern Ireland and reported that lack of knowledge toward infectious disease is a serious problem. It is difficult for nurses to plan and evaluate nursing care if they do not know the relevant facts. Inaccurate knowledge and awareness are potentially dangerous, in that totally inappropriate nursing interventions may be carried out (1992). These may be deleterious to the patients and foster transmission to other patients and health care workers.

Young (1988) conducted a study of 22 nurses to analyze the effectiveness of a workshop in changing negative attitudes toward caring for AIDS patients. The finding of this study indicated that changing nurses' negative attitudes toward people with infectious diseases is possible. This may enable nurses to provide more sensitive, appropriate, and effective nursing care.

Figure 1 is the conceptual model for this study, it is adapted from Ajzen and Fishbein's (1980) Theory of Reasoned Action. According to the Ajzen and Fishbein's theory, a person's attitudes are determined by his or her beliefs that performing the behavior leads to certain outcomes. When attitudes are in a person's mind, intentions are produced. When the intention is used to predict the behavior, the behavioral intention needs to correspond with the behavioral criterion of target, action, context, and time. This model shows the reasonable actions and also shows the relationship of knowledge and safety and effectiveness of nursing practice relevant to a successful surveillance and tuberculosis prevention.
If nurses are more knowledgeable about the new tuberculosis crisis, the safety and effectiveness of nursing practice can be achieved more easily by cooperation as a result of more positive attitudes and informed intervention. The purpose of this study is to gather information to answer the following research questions.

1. What is the level of knowledge of nurses about the new tuberculosis crisis?
2. How positive or negative are nurses' attitudes toward caring for tuberculosis patients?
3. Do the nurses' years in nursing practice affect their knowledge about tuberculosis and attitudes toward caring for patients with tuberculosis?

**Figure 1. Health Promotion Model**

- Behavioral Beliefs
- Normative Beliefs

**Outcome Evaluation**

- Attitude toward the behavior
- Subjective norms

**Knowledge**

- Safe Practice
- Intention to Prevent TB spread
- Effective Practice

**Promotion of public health**

**Successful TB surveillance**

**Methodology**

**Sample**

A convenience sample of nurses was drawn from 2 care areas at a large midwestern teaching hospital. The emergency room (ER) and a Medical-Surgical
unit (M-S unit) were selected as the settings since nurses who were employed in these areas were likely to encounter patients with TB.

A total of 30 (42.8%) nurses responded: the response rate for the ER was 60%, and for the M-S unit, 30%. The sample was 90% female: the mean age was 37.5 years (SD = 7.06) with a range of 26 to 52 years. The mean number of years in nursing practice was 13.9 (SD = 6.99) with a range of 3 to 28 years. Two nurses were prepared at the Diploma level (6.7%), 9 nurses were prepared at the AD level (30%), 17 nurses were prepared at the BS level (56.7%), and 2 nurses were prepared at the MS level (6.7%).

**Instrument**

A demographic questionnaire was used to collect basic demographic information, including educational background, gender, age, site of practice, and number of years in nursing practice. Another 2-part questionnaire was designed to acquire information on nurses' attitudes and knowledge of TB.

**Intentions and Attitudes**

As shown in the Figure 2, the questionnaire was developed by the investigator according to item/questionnaire development guidelines provided by Ajzen and Fishbein (1980). Ten bipolar evaluation adjective items (Likert Scale) in a given pair are placed on opposite ends of these scales. The first part in this questionnaire measures the respondents' intention to provide care for patients with tuberculosis. The next part contained a set of 9 different evaluation pairs that attempted to measure the respondents' attitudes toward providing care for patients with tuberculosis.

Possible responses for each item ranged from 1 to 7 with 1 for "extremely positive attitude", 2 for "quite positive attitude", 3 for "slightly positive attitude", 4 for "neither", 5 for "slightly negative attitude", 6 for "quite negative attitude", and 7 for "extremely negative attitude". The items were summed to form a total score ranging from 0 to 70, with the lower score reflecting more positive attitudes and the higher score reflecting more negative attitudes. If the items reflected a negative statement, for example: Stressful-Not Stressful, the score were scored inversely (from 7 to 1).

**Knowledge**

To assess nurses' knowledge of TB, 20 items were selected from Course #552 Tuberculosis in America (approved from National Center of Continuing Education, Inc.) These questions are all True/False questions to assess nurses' knowledge about the new tuberculosis crisis and some basic knowledge of caring for patients with tuberculosis. Test scores were computed in terms of number of correct responses.

To obtain information about nurses' knowledge about the new tuberculosis
Crisis, nurses were asked to respond to T/F items on each item to indicate how much they knew about the information regarding the new tuberculosis crisis. Thus, the more correct answers the nurses gave, the greater the knowledge level the nurses had about the new tuberculosis crisis. The fewer correct answers the nurses gave, the less knowledge the nurses had about this new crisis.

**Procedure:**

The investigator made the initial contact with groups of staff nurses on the selected nursing stations during staff meetings or nursing report. The consent letters and surveys were distributed. A questionnaire package was sent to each nurse in each of the selected areas (the ER and the M-S unit). Campus mail envelopes with the investigator's address were provided for return of questionnaires.

**Data Analysis and Results**

**Attitudes**

The means and standard deviations of the attitudes are performed in Table 1. Data were collected via the two-part attitude questionnaire with 2 subscales: (1) Intention to care for TB patients and (2) Attitudes toward caring for patients with TB. Using items answered on a 7-point scale, lower scores indicated more positive attitudes and higher scores indicated more negative attitudes. Nurses had higher scores on “Desirable/Undesirable” for providing care for tuberculosis patients (M = 4.23, SD = 1.36), which reflects a slightly negative attitude on this scale. In addition, nurses had a mean of 4.00 on both “Satisfying/Unsatisfying” scale and “Enjoyable/Not Enjoyable” scale, which indicated an average attitude toward caring for patients with tuberculosis. Moreover, nurses had a minimum score of 3.13 on “Stressful/Not Stressful” scale, which indicated that nurses might experience less stressful feelings while caring for TB patients.

Nurses in this study had slightly overall positive attitudes toward caring for patients with tuberculosis because the range of scores on the Likert Scale was 0 to 70 (40 is considered as the average) and this study had a mean of 38.10 (SD = 11.36), this could be said to indicate, overall, on average, only slightly positive attitudes.
The mean score on the 20 true/false questions was 15.66 (78.3%), SD was 1.61, with a range of 12 to 18 correct answers. The percent range of responses was 60% to 90% of items correct. Table 2 shows the details of the response. The mean percent correct response for the "knowledge of new tuberculosis crisis subtest" was 80.2%, the mean percent correct response for the "knowledge of TB prevention" was only 71%, and the mean percent correct response for the "basic knowledge of tuberculosis" was 82.8%. The results indicated a relatively limited knowledge of tuberculosis prevention among this group of nurses.

Table 2. Knowledge Analyses

<table>
<thead>
<tr>
<th>Number of correct answer</th>
<th>Frequency</th>
<th>Cum. Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>10.0</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>16.7</td>
</tr>
<tr>
<td>15</td>
<td>8</td>
<td>43.3</td>
</tr>
<tr>
<td>16</td>
<td>8</td>
<td>70.0</td>
</tr>
<tr>
<td>17</td>
<td>5</td>
<td>86.7</td>
</tr>
<tr>
<td>18</td>
<td>4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Knowledge

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Years in Nursing Practice

The number of nurses, mean, and standard deviation of knowledge scores of three groups of nurses with nurses who have 1 to 5 years (group A), 6 to 10 years (group B), and more than 10 years (group C) in nursing practice were compared on Table 3.

Table 3. Knowledge Scores of three groups of nurses

<table>
<thead>
<tr>
<th>Years in Nursing</th>
<th>No. of Nurses</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (1-5 ys)</td>
<td>5</td>
<td>14.60</td>
<td>1.52</td>
</tr>
<tr>
<td>Group B (6-10 ys)</td>
<td>5</td>
<td>14.60</td>
<td>1.95</td>
</tr>
<tr>
<td>Group C (&gt; 10 ys)</td>
<td>20</td>
<td>16.20</td>
<td>1.52</td>
</tr>
</tbody>
</table>

To determine whether nurses’ years in nursing practice were different in knowledge score for group A, B, and C, one-way Analysis of Variance (ANOVA) was used. This result indicated that there were significant differences within these 3 groups. Therefore, t-tests for independent groups were used to determine if there were significant differences in knowledge between group A and B, group B and C, and group A and C. For group A and there was no difference. For group B and C (t=-2.21, df=23, p=.038), and for group A and C (t=-2.36, df=23, p=.027), the results showed that there were significant differences between group B and C and Group A and C (see Table 4). This data indicated that nurses who have more than 10 years in nursing practice perform better on knowledge items related to TB than those less than 10. These experienced nurses are more knowledgeable about tuberculosis.

Table 4. T-tests between groups of nurses in Knowledge scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>t-value</th>
<th>df</th>
<th>p</th>
<th>SE of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Group A-B</td>
<td>.00</td>
<td>5</td>
<td>1.000</td>
<td>1.11</td>
</tr>
<tr>
<td>Between Group B-C</td>
<td>-2.21</td>
<td>23</td>
<td>.038</td>
<td>.73</td>
</tr>
<tr>
<td>Between Group A-C</td>
<td>-2.36</td>
<td>23</td>
<td>.027</td>
<td>.68</td>
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p<.05, 2-tailed test

Discussion

On the 1 to 7 Likert-type scale for intention and attitude, the sample nurses’ responses tended to fall at the midpoint. However, the responses of some subjects
and also some felt that they should be assigned to care for AIDS patients on a voluntary basis only. It is not possible to determine whether nurses in this sample would actually refuse to care for TB patients or not because this study was not designed to answer these question.

**Conclusion and Recommendation**

Although findings from this study provide important information on nurses' knowledge of tuberculosis and attitudes toward caring for patients with tuberculosis, limitations to the study do exist. The sample included only a limited number of nurses in one ER and one medical-surgical ward, and the results of this study should be interpreted carefully because they are derived from this single preliminary investigation.

In the future, research items that more precisely measure attitudes toward healthcare of patients with tuberculosis and perceived competence in caring for these patients should be added. Generally, more attention should be directed to nurses' deficits in knowledge and understanding of patients with disease.

Caring for patients with tuberculosis is of concern to all nurses who work in any area of practice. Nurses need to feel comfortable in providing care to patients with tuberculosis despite their fears, satisfaction with work assignments or desires as to whether or not to care these patients. Efforts to promote positive attitudes may help to ensure quality of care to patients. We also must elucidate whether lack of intentions will translate into avoidance behavior and clinical effects on the quality care that patients receive. Research along this line may contribute to an understanding of how nurses' beliefs, feelings, and attitudes affect TB patients' care. Studies such as this are also necessary for improvement in the control and prevention of TB spread. The study nature and findings can be used in identifying content areas for continuing education programs to address nurses' needs regarding knowledge about TB prevention and its transmission.

Continuing research about nurses' attitudes and knowledge relevant to tuberculosis can lead to improved care of patients with TB. Further studies should be designed to examine the relationship of their knowledge about tuberculosis and attitudes toward caring for patients with tuberculosis with nurses' social classes, ethics and years since graduated from school. Examining nurses' previous experiences of caring for TB patients might help to identify problems and needs for nurses. Furthermore, tuberculosis studies regarding nurses' knowledge and attitudes in other countries all over the world should begin to be advocated.

In tuberculosis research to date, the role is to find new and more effective ways of utilizing existing technologies to develop new tools and methodologies.
However, emphasis should also be placed on caregivers’ knowledge and attitudes in order to identify the needed educational programs and to improve quality and humanistic care.
References


