The information needs at time of hospital discharge of male and female patients who have undergone coronary artery bypass grafting: A pilot study

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**OBJECTIVE:** To compare the information needs 24 to 48 hours before hospital discharge of male and female patients who have undergone first-time coronary artery bypass surgery.

**DESIGN:** Cross-sectional, descriptive-comparative.

**SETTING:** Teaching hospital in a city in central Canada.

**SAMPLE:** The sample consisted of 20 men and 20 women who had undergone elective coronary artery bypass surgery for the first time.

**INSTRUMENTS:** Patient Learning Needs Scale and open-ended questions.

**RESULTS:** No differences were found in information needs between men and women. The highest areas of information needs included: treatment and complications, activities, medications, and enhancing quality of life.

**CONCLUSION:** Men and women have similar information needs after coronary artery bypass surgery. They both want information concerning treatment and complications, activities of living, enhancing their quality of life, and medications. (Heart Lung® 1997;26:350-7)

Although women have a lower incidence of cardiovascular disease than men do, coronary artery disease (CAD) is the leading cause of death in women in North America.¹ ² In 1993, the rate of coronary artery bypass graftings (CABG) performed in Canada was 56 per 100,000 population, 25% of which involved women.³ Similar statistics exist in the United States. In 1993, 27% of bypass surgeries were performed on women.² Risk factors for CAD are similar for men and women; however, gender differences have been noted at the time of diagnosis of CAD and in the response to treatment. At the time of diagnosis, women have significantly more severe and unstable angina, and a higher incidence of congestive heart failure than men.¹ ⁴ In comparison with men, women undergoing CABG tend to be older and have more comorbidities and less social support after surgery.⁵-⁸

Recent research also has indicated that women have different recovery experiences after CABG than men.³ ⁶ ⁷ ⁹ Hawthorne⁹ conducted an interpretative study that explored how sex and role expectations affected a patient’s perception of CABG. Interviews with 10 women were compared with results from a similar study conducted with six men. Findings revealed several differences in recovery patterns between men and women.
Women recovering from surgery reported more mediastinal incision discomfort and more feelings of bodily change than did men. Women used level of fatigue and home responsibilities to guide activities, in contrast to men—who followed specific discharge instructions from caregivers. In addition, women did not ascribe as much importance to the cardiac surgery experience when compared with men. CABG was perceived by men as a major life crisis, whereas women indicated that surgery was not a major life event and had little effect on their self-perception and lifestyle. Although information needs of men and women were not investigated, the gender differences observed in recovery styles may affect the type of information desired by patients before hospital discharge.

Gender differences in information needs have been observed in two studies with adult medical and surgical patients and equal samples of men and women. Dodge found that all medical and surgical patients expressed a desire to receive information about the nature, cause, and results of their condition. Although the groups were not compared statistically, Dodge suggested that men desired more information related to recovery, such as length of recovery time and lifestyle modifications, whereas women placed more importance on knowing the meaning of symptoms and the side effects of medications. Bubela et al. also found gender differences in information needs of medical and surgical patients (n = 301) before discharge. With use of the Patient Learning Needs Scale (PLNS), it was determined that women had significantly more information needs (X = 161) than men did (X = 149), with higher information needs relating to activities of living and enhancing quality of life contributing to the overall higher mean scores of the women.

Historically, cardiovascular research has been conducted predominantly with male subjects and guided by male life experiences. Nursing research addressing the information needs of patients who have undergone CABG has extrapolated findings from samples that are primarily male-to-female populations. Information needs of patients who have undergone CABG have been investigated in numerous studies. At the time of discharge or after discharge, patients desire information about symptom management, treatments and complications, activities after discharge, and medications. Other information needs identified include information about resumption of work and sexual activity. None of the studies determined whether men and women had different information needs before discharge to home, and all of the studies consisted of samples that were primarily male.

Discharge teaching to assist patients in their transition from hospital to home is a critical component of nursing care. Most hospital-discharge teaching programs are based on clinically derived knowledge or research conducted with predominantly male samples. A better understanding of the similarities and differences in information needs between men and women would ensure that patient education is addressing the needs of all patients.

CONCEPTUAL FRAMEWORK

According to Lazarus and Folkman, stress can occur when an event is appraised by an individual as taxing or exceeding his or her resources and endangering his or her well-being. Cognitive appraisal is the ongoing mental process of judging events with respect to their significance for well-being and of judging the options available for coping with the events. A stress appraisal occurs when an encounter such as CABG is evaluated as threatening one's well-being. Personal characteristics will affect one's stress appraisal. Although not explicitly stated, sex may influence appraisal of a situation through behaviors or role patterns that are socioculturally determined.

Information may assist individuals in expanding their coping options when a stressful experience is encountered by providing them with more knowledge concerning their situation. The judging of the importance of information needs may be influenced by a person's sex, because men and women may have diverse appraisals about recovery from CABG and will have different information needs to manage their self-care. Therefore it is important that the discharge information needs of men and women who have undergone CABG be identified so that nurses provide relevant information to enable them to manage their health care at home.

RESEARCH QUESTIONS

A cross-sectional comparative research design was used to address the following questions:

1. What are the information needs before discharge to home of patients who have undergone CABG?
2. Are there any differences in the information needs before discharge to home of men and women who have undergone CABG?
METHOD

Sample. Data were collected over a 7-week period from subjects on two cardiac surgery wards at a university-affiliated hospital that performed 1328 CABG procedures during the year that the study was conducted; 23% of the patients were women. A nonprobability convenience sampling method was used to select a sample of English-speaking patients who had undergone elective CABG for the first time, and who were to be discharged to a home environment within 24 to 48 hours. Individuals who had experienced a cerebral vascular accident during or after surgery were excluded. All patients received preoperative teaching, conducted by nursing staff before surgery, detailing what patients could expect during their time in hospital.

Instruments. Two measures of information needs were used in this study. The PLNS was used to measure patients' information needs for managing their care when discharged from hospital. The PLNS is a 50-item, self-administered scale that uses a 6-point Likert format to rate how important each item is to learn before going home. The responses can range from 0 (does not apply) to 5 (extremely important). The scale yields seven subscale scores and a total scale score. PLNS items were written to apply to a general patient population. It has been used in studies examining discharge information needs in medical/surgical patients and patients who have undergone CABG.

The PLNS is reported to have face and content validity. Concurrent validity has not been reported. Beginning evidence for the construct validity of the PLNS was demonstrated when factor analysis confirmed that the scale has seven subscales measuring information needs about Medications, Activities of Living, Feelings Related to Condition, Community and Follow-up, Treatment and Complications, Enhancing Quality of Life, and Skin Care. Internal consistency reliability is reported to be high, with a Cronbach's alpha of 0.95 for the total scale and alphas ranging from 0.69 to 0.88 for the subscales. In the current study, alphas ranged from 0.62 to 0.81. In an earlier study, which compared information needs of two different age groups of patients who had undergone CABG, the overall alpha coefficients were 0.95 for subjects more than 65 years of age, and 0.98 for subjects between 40 and 64 years of age.

To obtain subjects' appraisal of their discharge information needs, subjects were asked to answer the following question after completion of the PLNS, "As you think about going home and managing your care, is there any information that would help you that I haven't asked about?" The responses were tape-recorded and transcribed after the interview. Sociodemographic and clinical data were obtained from the subject's current hospital record.

Procedure. The research protocol was approved by the hospital's research review committees. Subjects meeting the inclusion criteria were identified by a clinical nurse specialist and invited to meet the researcher approximately 24 to 48 hours before hospital discharge. Forty-six subjects were approached by the clinical nurse specialist. Of this number, four patients declined to receive an explanation of the study. Two men were withdrawn from the study: one at the onset of data collection as a result of disorientation, the other because it was observed that he did not read the questionnaire but merely answered all questions with the same response. Once consent was obtained from the patient, he or she completed the PLNS, then answered the open-ended question regarding discharge concerns.

RESULTS

The final sample consisted of 40 subjects—20 men and 20 women. The typical subject was married, had more than than a high school education, and was not currently employed. Characteristics of the sample are presented in Table I.

Results of chi-square analysis and t tests revealed no differences between the two groups in sociodemographic and clinical variables, with the exception of intensive care unit stay. The number of intensive care unit days was significantly higher for women than men (t (38) = 2.1; p = 0.04). Women had been in the hospital for a longer period of time than the men at the time of the interview (7.15 days versus 5.65 days); however, the difference was not statistically significant (t (38) = 1.99; p = 0.053).

Demographic data on the study sample were similar to the overall population of patients undergoing CABG at the study hospital. The average age of men and women in this sample was 60.6 years and 60.95 years, respectively, compared with 65.5 and 61.8 years for the overall population.

Ten questionnaires were missing data for one or two items on the PLNS, but the amount was minimal and followed no pattern. Therefore, questions unanswered in the PLNS were given a value equal to the mean score for that item.

Scores on the total PLNS for the men ranged from 106 to 235, where 250 was the highest possible score, and 0 was the lowest. The mean score
was 179.77, with a standard deviation of 32.96 (Table II). The total PLNS score for the women ranged from 101 to 224, with a mean score of 182.57 and a standard deviation of 31.09 (Table II).

The t test for independent samples was used to compare the men and women on overall PLNS scores and each of the seven subscale scores. No statistically significant difference in total PLNS scores nor in any of the subscales scores was found.

Both the men and women ranked the subscales similarly. Because of an absence of differences between the two samples, the two groups were combined for the remaining analysis. Table III presents items from the subscales that received an average score of 4 or 5, with the highest possible score being 5. The subscales that contained the highest number of items rated "extremely important" were Treatment and Complications and Medications.

Correlations between demographic variables and PLNS scores revealed no statistically significant relationships. Clinical characteristics such as concurrent illnesses and complications arising from surgery were not significantly related to PLNS scores.

Eleven men expressed no additional information needs as they thought of managing their care at home. A common reason for having no additional information needs was that their wives would be managing their care at home. In addition, many of them had received printed literature regarding discharge instructions and indicated that this pamphlet and teaching by professional staff would meet their information needs.

Similar to the men, 11 women expressed no additional information needs regarding managing their own care at home. Several women mentioned that family members would be assisting them at home, and five were to receive home care services on discharge.

Overall, 18 subjects identified additional information that could be grouped into the six categories presented in Table IV. The most commonly expressed information need for both subject groups was Resumption of Pre-illness Activities, captured by comments such as "At what rate will I start to recover my strength and regular routine" and "Should I be climbing stairs." Both samples ranked Prevention of Recurrence and Accessing Health Care services similarly. Content that fell under Prevention of Recurrence included information such as diet changes and exercise. Accessing Health Care Services included information needs that addressed home care services and follow-up appointments with physicians. The remaining categories, Medications and Recognizing Complications, were ranked similarly by both samples.

**DISCUSSION**

The results of the study will be discussed in relation to the conceptual framework of Lazarus and Folkman and related literature. Findings from this study, that patients who have undergone CABG for the first time have high information needs, are congruent with Lazarus and Folkman. According to Lazarus and Folkman, individuals may seek out information when experiencing a novel situation. Information needs identified by patients who have undergone CABG included
information related to treatment and complications, enhancing quality of life, activities of daily living, medications, community and follow-up, and skin care. Previous studies that have examined information needs at discharge and after discharge of patients who have undergone CABG have reported similar results.13-19 According to Lazarus and Folkman,21 the appraisal process may be influenced by many factors. Recent studies found that women reported different recovery experiences than men did after CABG.6,7,9 Although not explicitly stated, it was proposed that a person's sex may be one factor that may influence the appraisal process and, subsequently, the person's information needs. In this study, however, it was found that sex did not affect the perceived information needs of patients who had undergone CABG.

One possible explanation to account for this lack of difference may be the similar sociodemographic characteristics of the male and female samples. Differences in age between men and women undergoing CABG, documented in the literature, were not found in this study. Because they were being discharged to convalescent facilities as a result of being unable to manage their care independently at home, a number of female patients were ineligible for the study. Therefore, the female sample in this study may not accurately reflect the population of women undergoing CABG. However, it may be that, irrespective of sex, patients undergoing the same operative procedure have the same information needs.

In addition, although the PLNS asks subjects about their current need for information, some subjects were unclear whether they should rate items irrespective of whether they already had the information. Subjects were instructed to answer the questionnaire based on their current information need. It is unknown whether subjects who did not clarify the directions answered the questionnaire with that perspective. PLNS scores would vary depending on the subject's interpretation. However, total PLNS scores were comparable to results from other studies. In addition, the 10 items with the highest mean scores were similar to those identified in the Galloway et al.24 study. Of particular interest is the observation that, although no items in the community subscale were highly rated, subjects in this study identified information needs related to community services in the open-ended question. The difference in findings may be explained by the fact that less than 50% of the subjects responded to the open-ended question (n = 18). Another possible explanation may be that the questionnaire did not address the specific

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean</th>
<th>SD</th>
<th>Male</th>
<th>SD</th>
<th>Female</th>
<th>SD</th>
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<tbody>
<tr>
<td>Treatment and Complications</td>
<td>36.15</td>
<td>6.10</td>
<td>36.75</td>
<td>5.60</td>
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<tr>
<td>Activities of Living</td>
<td>33.62</td>
<td>7.24</td>
<td>33.67</td>
<td>6.51</td>
<td></td>
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<td>Medications</td>
<td>23.90</td>
<td>4.77</td>
<td>25.0</td>
<td>4.22</td>
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<tr>
<td>Enhancing Quality of Life</td>
<td>30.45</td>
<td>5.20</td>
<td>31.83</td>
<td>4.75</td>
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<td>Feelings Related to Condition</td>
<td>16.44</td>
<td>5.29</td>
<td>16.38</td>
<td>5.27</td>
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<td></td>
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<tr>
<td>Skin Care</td>
<td>15.88</td>
<td>4.14</td>
<td>16.10</td>
<td>4.88</td>
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<tr>
<td>Community (and Follow-up)</td>
<td>23.33</td>
<td>5.42</td>
<td>22.83</td>
<td>7.24</td>
<td></td>
<td></td>
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<tr>
<td>(35)</td>
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<tr>
<td>Total PLNS</td>
<td>179.77</td>
<td>32.96</td>
<td>182.57</td>
<td>31.09</td>
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<td>(250)</td>
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max., Maximum; SD, standard deviation.
Table III
Items rated highest on the PLNS for total sample (n = 40)

Treat and Complications
- Which complication I should seek immediate help for.
- What complications might occur from my illness.
- How to prevent a complication from occurring.
- How to recognize a complication.
- What the purposes of my treatments are.
- What the possible side effects of my treatments are.

Activities of Living
- What physical exercise I should be getting.
- What physical activities I cannot do such as lifting.

Medications
- Why I need to take each medication.
- How each medication works.
- How to take each medication.
- The possible reactions to each medication.
- What to do if I have a reaction to a medication.
- When to stop taking each medication.

Enhancing Quality of Life
- What symptoms may I have related to my illness.
- How to manage the symptoms that I might experience.
- How I can manage stress.
- How this illness will affect my life now.

Feelings Related to Condition
- What caused my illness.

Skin Care
- How to care for my wound or incision.

All items received a score ≥ 4.

Table IV
Rank and frequency of categories for male (n = 9) and female (n = 9) subjects

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency Male</th>
<th>Frequency Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resumption of pre-illness activities</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Prevention of recurrence</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Accessing health care services</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Medications</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Recognizing complications</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Interpersonal relations</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Many subjects expressed more than one information need.

Several reasons may explain the difference in findings between this study and the Dodge and Bubela et al. studies. The sample size in this study was smaller than those studies and may have been too small to detect a difference. In addition, Dodge did not statistically compare information needs between gender groups, so it is unknown whether the difference between groups was significant. The sample used in this study was homogeneous compared with the heterogeneous samples used in the Dodge and Bubela et al. studies. Certain illnesses may be more prevalent in one sex than in the other, and it is unknown whether the illnesses of men and women were equally represented in these studies. Therefore the gender differences reported by Dodge and Bubela et al. may have been confounded with the medical condition of the subject.

North American health care is moving toward shorter hospital stays, fewer professional caregivers, and increased provision of care in the home. This is occurring at a time when hospital populations are increasing in age and acuity. Discharge teaching to assist patients in their transition from hospital to home is a critical component of nursing care. Shorter lengths of stay in the hospital limit opportunities that nurses have to provide patient education, as well as the ability of patients to participate in educational activities.
In addition, retention of information may be limited by factors such as fatigue. Therefore it is important that information needs at discharge be evaluated for all patient populations. This will ensure that patient education interactions are meaningful, because patients will be provided with the information they require—not information that health care providers perceive is important.

LIMITATIONS

Generalization of findings beyond this sample is limited because the sample was selected from one institution. The use of convenience sampling results in a selection bias; however, patients in this sample were representative of those in the institution in terms of demographic characteristics such as age. Although there are limitations to this study, this was an initial attempt to examine the information needs of women who have undergone CABG. Results from this pilot study indicate a need for further studies examining discharge information needs of men and women after CABG, and for an increased awareness of those involved in patient education of potential gender differences in information needs. A study with a larger sample size conducted in several institutions should be pursued in the future.

Confusion in interpreting PLNS instructions—in terms of whether the instrument was asking subjects about the importance of current information needs, or information in general, even if they already had the information—may also limit interpretation of study findings. Instructions for completing the PLNS need to be clearer before it is used in a larger study.

Measurement of confounding factors, such as preexisting knowledge, information received in hospital, mental status, social support and knowledge level of supports, and past experience with CAD, were not examined in this study and may have affected the study outcome. Consideration of confounding factors in future studies examining discharge information needs of men and women undergoing CABG is needed.

IMPLICATIONS

Although the study was only a pilot study, and as a result has a number of limitations, its findings were similar to others reported in the literature. Therefore the following recommendations remain tentative until results are confirmed in a larger study.

Irrespective of sex, patients should be provided with specific information to manage their care at home. Educational programs should include information concerning the purpose and side effects of treatment and how to prevent and recognize complications. Recommendations regarding activity such as physical exercise and lifting should be addressed in discharge education. In addition, information about medications, such as how they work, when and how to take them, and what to do if an adverse reaction occurs, are also important. After CABG, patients indicated they wanted to know what caused their illness, and expressed the need for information to understand the potential impact of their illness on their life. This included information concerning how to manage symptoms and stress. This is clinically significant, because it indicates that information in these areas is important to patients to manage their care at home, and should be included in discharge programs.

Variability in patients' information needs, with some patients wanting more or different information than others was found in this study. This validates the need for individual assessment of learning needs by health care professionals. Providing patients with discharge information that will assist them with managing their care at home may reduce hospital readmissions. The effectiveness of teaching strategies in meeting the information needs, and the impact on hospital readmissions, could be examined in future studies.

REFERENCES