



Patient's Perception of Stressors Associated with Coronary Artery Bypass Surgery

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ABSTRACT

Introduction: Cardiac surgery, due to being associated with stressors, has many physiological, psychological, emotional, growths, and spiritual potential consequences. However, few studies have been conducted about identifying the stressors. Therefore, the objective of the study was to determine patients' perceptions of stressors associated with coronary artery bypass surgery.

Methods: In this descriptive study during the two-month investigation, qualified patients for participation in the study (68 persons) undergoing coronary artery bypass graft surgery on the third to fifth postoperative day were selected and with using of Revised Cardiac Surgery Stressors Scale (RCSSS), interpersonal, intrapersonal, and extra personal stressors were determined.

Results: The findings showed that intrapersonal stressors are perceived more than interpersonal and extra personal stressors by patients. In the analysis of data, the highest stressors were "pain and discomfort", "the need to have heart surgery", "death due to illness or surgery", "being away from home and work", "having chest tube".

Conclusion: In this study the intrapersonal stressors were perceived more than interpersonal and extra personal stressors by patients, which nurses should put emphasis on identification and elimination of intrapersonal stressors based on the needs of patients.

Introduction

Nowadays, coronary artery bypass graft surgery is one of the coronary artery disease (CAD) treatments.¹ Coronary artery bypass graft surgery (CABG) is a major incident with a main psychological and emotional impact on patients and their families.² In Iran, 60% of the total open heart surgery is coronary artery bypass surgery.³ Identified concerns in CABG surgery are known as stressors.^{4,5} CABG is a physical and psychological stress and the surgery is as a life-threatening incident for patients which is along with adapting problems and hospital schedules, they feel suffering and lack of control, and hospitalization separates them from their relatives, friends and everyday life situation.⁶ Patients concerns related to coronary artery bypass graft surgery are chances of successful surgery, length of the waiting period before operation, fear of death, previous negative hospital experience, fear about the recovery process, fear of pain and discomfort, fear about loss of appetite, weakness, sleep disturbances, resumption of normal life activities after surgery, cardiac monitoring, drug addiction, length of hospitalization and

hospital costs.⁷ However, few studies in relation to CABG surgery stressors level is available.⁴ It is believed nursing is a profession that provides comprehensive caring based on organized system and using nursing science. Nurses evaluate and take care of a patient along with health care team on the base of their knowledge, integrated presence planning, programming, and management. Health is understandable by a patient's perspective, therefore, patients' perception of health and stressors is crucial for meaningful nursing and care programs.⁸ In patients who have undergone CABG surgery, stress leads to the feeling of life control loss also increasing sensitivity to pain and cause to feel weakness. The apparent loss of control prevents the patients who have undergone CABG surgery from proper care of themselves, thus renders nursing care more complex and possibly prolongs the improvement process.⁹ It is important to determine the stress levels of patients and patient's concerns related to CABG surgery. Studies show that education given to patients improves them to feel better after surgery.¹⁰ This study is based on the Neuman Systems Model. Neuman system model states

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that patients are an open system constantly interacting with their environment. To ensure that the special needs of the patient are identified, this open system needs to have two-way communication at any time and a thorough assessment of the patient includes looking at all patient's psychological, social, cultural, emotional, developmental, and religious variables.¹¹ Internal and external factors that interact with the client system are part of the environment. The intrapersonal environment is the internal environment that includes influences within the system. The external environment includes interpersonal and extra personal factors.¹² Stressors in the intrapersonal, interpersonal, and extra personal environment can influence the potential or actual reaction in system, therefore, the main purpose of nursing is assessing the client to gain system stability through the attainment, retention, and maintenance optimal health and it is the nurse that creates a link among the client, environment, and health and leads to the stability of the system.¹² Nursing researchers have been increasingly interested in understanding the effects of stressors associated with disease and treatment in the patient's recovery process. It is known that stressors associated with hospitalization have an adverse effect on patient recovery although specific stressors experienced by patients are often not clearly specified but nurses can identify them and help the patients to deal with the hospital stressors.¹³ Detection of stressors for patients undergoing CABG surgery is vital for nurses, because it helps them prioritize and extend effective interventions.⁴ Therefore, there is a need to evaluate the patient's own perceptions of CABG surgery stressors. Advances in health care knowledge and changes in health care providing created new questions and new stressors in the hospital units. These changes have led researchers to identify the new stressors that can affect on patients. Despite the importance of identifying patient needs and psychological stressors in developing strategies of coping and effectively managing stress by nurses, few studies have been done in this connection. According to recent studies in Iran, depression and anxiety in patients awaiting heart surgery were more and on the other hand the training of health professionals can be effective in reducing anxiety in patients.¹⁴ When the stressors are identified by nurses, they can deal with the stressors affecting the patient by manipulating the environment and provide the appropriate care. Therefore, this study is performed to determine patients' perceptions of stressors in recovery period after coronary artery bypass surgery.

Materials and Methods

In a descriptive study conducted in cardiac surgical wards of Madani hospital, Tabriz, Iran between June and August 2011, identification of the patient population meeting the criteria was performed by reviewing the daily CABG surgery census log kept in the cardiovascular intensive care unit, the unit to which all post-operative CABG patients are sent immediately after surgery. Patients undergoing

CABG for the first time, 40-75 years old, alert and aware of time, place, person, and situation, and confined to bed about 3 to 5 days after operation were selected. After a pilot study on 10 patients, using descriptive statistics the number of the patients participating in this study was 68 people. Reliability for the RCSSS was determined using Cronbach Alpha ($r=0.81$) method in a pilot study of 10 patients. Cardiac Surgery Stressors Scale (CSSS) was developed by Carr and Powers in 1986.¹⁵ White in 1998, adding six items to the Cardiac Surgery Stressors Scale (CSSS) introduced Revised Cardiac Surgery Stressors Scale (RCSSS) consisting of 37 questions which has been used in this study. In this study, with the permission of the author, the (RCSSS) were used.¹⁶ The questionnaire consisted of two parts, the first part includes individual and social data and the second part includes RCSSS that is divided into intrapersonal, interpersonal, and extra personal subsystems. Items are scaled in terms of the participant's current level of concern, from 0 (not at all) to 4 (a great deal). In this study, patients were asked to complete questionnaires on the third to fifth postoperative days and it took approximately 25-35 minutes for the patients to complete RCSSS. Some patients had to be assisted with the completion of the data sheet and survey, for various reasons including poor eyesight, weakness, and illiteracy.

Statistical analysis

All statistical analysis was performed using SPSS 13 (SPSS Inc., IL, Chicago, USA). With the descriptive statistics, we presented numbers and Mean \pm SD. The overall score on the RCSSS was calculated by summing each individual's responses to the 37 items. We determined the most stressful and least stressful items. We considered the value $P<0.05$ to be statistically significant.

Results

Most patients were male (69.1%), married (92.6%) with no formal education (36.8%) and participated on the fifth post-operation day (50%). In this study, RCSSS scores range was from 0 to 4, and higher scores indicated a greater understanding of the stressors by patient. The mean RCSSS was 1.63 ± 0.36 indicating that the general perception of artery bypass graft surgery stressors is "least concern". According to subsystems mean score, interpersonal stressors perception is "a little", extra personal stressors perception is "more than a little" and intrapersonal stressors perception is "average". The most important top six stressors were ranked according to their mean score. This stressors include "pain or discomfort", "having to have cardiac surgery", "dying because of patients' illness or surgery" from intrapersonal stressors and "being away from home or/and business" and "having chest tube" from extra personal stressors. The lowest stressors perceived by patients are "call light being answered", "The number of doctors involves patients'

care”, “having doctors and nurses discuss about patient or patients” from interpersonal stressors and “explanation of hospital routines and procedures” from extra personal. According to the results obtained it can be seen that intrapersonal stressors perceived more than other stressors and extra personal factors are the second stressors and interpersonal stressors are the lowest stressors perceived by patients (Tables 1,2,3 and 4).

Table 1. Top 6 stressors (ranked by mean scores) in patients undergoing CABG surgery

| Patient stressors | Rank | Mean ±SD |
|---|------|-------------|
| Pain or discomfort | 1 | 2.86 ± 1.23 |
| Being away from home or/and business | 2 | 2.77 ± 1.30 |
| Having to have cardiac surgery | 3 | 2.61 ± 1.50 |
| Having chest tube | 4 | 2.61 ± 1.41 |
| Dying because of patients' illness or surgery | 5 | 2.51 ± 1.38 |
| Time lapse before actual surgery | 6 | 2.39 ± 1.45 |

Table 2. Intrapersonal stressors

| Stressors | Rank | Mean ± SD |
|---|------|-------------|
| Pain or discomfort | 1 | 2.86 ± 1.23 |
| Having to have cardiac surgery | 2 | 2.61 ± 1.50 |
| Dying because of patients' illness or surgery | 3 | 2.51 ± 1.38 |
| Time lapse before actual surgery | 4 | 2.39 ± 1.45 |
| Needing pain medications | 5 | 2.35 ± 1.32 |
| Change in diet and eating habit | 6 | 2.22 ± 1.36 |
| Increasing activity | 7 | 2.10 ± 1.18 |
| Resuming previous lifestyle | 8 | 1.89 ± 1.31 |
| Being thirty | 9 | 1.47 ± 1.48 |
| Resuming sexual activity | 10 | 1.38 ± 1.14 |
| The progress she/he making | 11 | 1.35 ± 1.12 |
| Total intra personal stressors | | 2.10 ± 0.65 |

Table 3. Interpersonal stressors

| Stressors | Rank | Mean ± SD |
|--|------|-------------|
| Needing assistance with various activities eg. bathing, getting out of bed, using bedpan or urinal | 1 | 2.22 ± 1.18 |
| Sharing the room with one or more patients | 2 | 1.43 ± 1.11 |
| Different nurses caring for patient | 3 | 1.33 ± 1.00 |
| Taking medications | 4 | 1.30 ± 1.21 |
| Discussing patient concerns about surgery with doctors and nurses | 5 | 1.29 ± 1.35 |
| Explanation of hospital routines and procedures | 6 | 0.94 ± 0.84 |
| Having doctors and nurses discuss about patient or patients | 7 | 0.94 ± 1.19 |
| The number of doctors involves patients' care | 8 | 0.72 ± 1.00 |
| Call light being answered | 9 | 0.55 ± 1.15 |
| Total interpersonal stressors | | 1.20 ± 0.66 |

Table 4. Extra personal stressors

| Stressors | Rank | Mean ± SD |
|--|------|-------------|
| Being away from home or/and business | 1 | 2.77 ± 1.30 |
| Having chest tube | 2 | 2.61 ± 1.41 |
| Having visitors only certain hours | 3 | 2.0 ± 1.41 |
| Sleeping in strange and uncomfortable | 4 | 1.85 ± 1.18 |
| Having patients' sleep interrupted | 5 | 1.85 ± 1.18 |
| Having tubes in patients' nose and mouth | 6 | 1.76 ± 1.58 |
| Problems that other patients are having | 7 | 1.72 ± 1.24 |
| Being stuck with needles | 8 | 1.67 ± 1.32 |
| Payment of hospital and medical bills | 9 | 1.54 ± 1.45 |
| Being restrained | 10 | 1.51 ± 1.35 |
| Being transferred from intensive care unite | 11 | 1.26 ± 1.31 |
| Loss of income because of disease | 12 | 1.23 ± 1.63 |
| Not having thing within easy reach eg. call light, phone, drinks | 13 | 1.16 ± 1.16 |
| Following hospital schedule rather than own | 14 | 1.08 ± 1.01 |
| Having the monitoring equipment discontinued | 15 | 1.07 ± 1.24 |
| Having a foley catheter (urine drainage tube) | 16 | 1.07 ± 1.24 |
| Cardiac monitors and other equipment | 17 | 0.66 ± 0.82 |
| Total extra personal stressors | | 1.60 ± 0.49 |

Discussion

Surgery is a major stressor for patients that with reduced functional reserves cause the deduction of muscle mass, and is associated with hypoxemia, sleep and mental disorders. Anxiety, depression and stress, is associated with more complications after heart surgery.^{17,18} In this study perception of post-operative patients from intrapersonal, interpersonal and extra personal stressors were determined and according to the Likert were classified as “a little” rate. But intrapersonal stressors were perceived more than interpersonal and extra personal stressors by patients, in this regard; nurses can help through individual assessing and training according to individual needs in patient's compliance with these factors. Also cultural beliefs in different forms can be underlying or resonator factor for stressors. Understanding and explanation of these beliefs to provide effective education to patient is essential. It seems the chronical interventions are most effective when they appropriate with each individual coping style.¹⁹ In our study “pain and discomfort” (mean=2.86) is the first stressor among the other intrapersonal stressors perceived by patients; it is also the first among the other stressors of coronary artery bypass graft surgery perceived by patients. In 2007 a study by Gallagher and Mckinley related to stressors and anxiety in patients undergoing coronary artery bypass surgery was performed. 172 patients before surgery, before discharge 143 patients and 130 people after discharge participated in this study. King *et al.* stressors

scale was used and five items were added to this scale. This study showed that "pain and discomfort" stressor (mean=1.45) among operative patients before discharge was the third stressor, that is not congruent with our study, in our study, patients perceiving stress reported more pain and discomfort and it may be due to low number of nurses caring of more patients, and as nurses' perception of patient pain is an important factor in the strategy of decision making about pain relief, therefore, in our study it is important for the nurses to pay more attention to patient's pain. Postoperative pain is a common experience for patients in the surgical ward.²⁰ Extensive clinical observations suggest that usually pain is caused after surgery and lack to comfort the post operation pain in patients especially patients undergoing coronary artery bypass graft surgery, cause death and complications from it. Therefore, effective management of pain is the most common topics of today's society, especially the medical community and health professionals.²¹

In our study, "being away from home and work" stressor (mean= 2.77) is the first factor in extra-personal stressors, and the second stressor among all coronary artery bypass surgery stressors perceived by patients. Also in 1998, a study by White related to the patient - the nurse perception of the stressors in coronary artery bypass surgery conducted with 35 patients, showed that "being away from home and work" (mean = 2.86) as the seventh rate stressors perceived by patients¹⁶, despite different ranking in two studies, the mean scores are the same, so that White study is congruent with our study. In our study, although "being away from home and work" is the second stressor among the patients, the average score is less than White's study; again, in our study most patients wanted to be nearby their family during the convalescence period before they return home. To reduce this concern, the proper way is for patient to spend recovery period of surgery with family away from stress in the hospital at particular hours. Similar to pain concern, being away from home and work is also serious for patients and most patients come from a long distance to reach the hospital traveling long distance is not only uncomfortable for patients, It also has consequences for the patient's family. So it is not surprising that the patients report extra primary concern that disease impact on their families. Again it is not surprising that this concern to continue after discharge.⁴

In our study, "having to have cardiac surgery" (mean= 2.61) is the second factor in intrapersonal stressors and the third factor in the all coronary artery bypass surgery stressors. White study in 1998 showed, "having to have cardiac surgery" stressor (mean= 3.37) as the first stressor perceived by patients, that with our study is not congruent. This difference in patients' understanding of stressors is because of education and psychological support from nurses. Nurses can somewhat reduce the patient's concerns with appropriate training about coronary artery

bypass surgery, risk factors of heart disorders and pre-operative education and establish a relationship among with confidence.

In our study, "fear of death" (mean= 2.51) is the third stressor among intrapersonal stressors and fifth stressor between all CABG surgery stressors. Gallagher and McKinley in 2007 found that, "fear of death" (mean = 1.63) was the fifth stressor among operative patients before discharging⁴, that is not congruent with our study. It is better for the nurses to encourage the patients and help them by expressing and repeating their anxiety. The assessing of patient perception like their fear and anxiety may help to detect patients at risk of progressing psychological stress.²² In addition, it can help the nurses to encourage patients to tell their feelings of anxiety and to deal with fear as a source of stress.²³

In this study, "Time lapse before actual surgery" (mean = 2.39) is the fourth factor of stressors within the intrapersonal stressors and the sixth among all stressors perceived by patients. In Gallagher and McKinley study "Time lapse before actual surgery" (mean = 2.02) was the first stressor among patients⁴ that is congruent with our study, in our study, this stress factor can be minimized by proper hospital management. Any pre-operation intervention refers to the stress of waiting for surgery. Because the waiting for surgery is a major concern for patients and strongly associated with anxiety. Waiting for surgery is very stressful.²⁴ In addition, often long period of waiting for heart surgery can exacerbate the stress and anxiety.²⁵ And adversely affects on the physical and social functioning.²⁶ Therefore current cardiac surgical patients may benefit from preoperative interventions to speed healing and reduce surgical complications.

Conclusion

The main emphasis of this study was to determine patients' perceptions of stressors associated with recovery process during coronary artery bypass surgery. The present study showed that CABG surgery intrapersonal stressors are perceived more than interpersonal and extra-personal stressors by patients and "pain and discomfort" from intrapersonal stressors is the most important stressor perceived by patients. It is necessary for the nurses to assess the patients individually, do proper nursing activities, and create an open relationship among patients and themselves, and nurses should not assume that the patient understands everything in a certain way without validating this with the patient. It is necessary to ask patients questions to know how they perceive stressors.

Suggestion

Considering the research results it is suggested that nurses should assess and recognize properly the nature of stressors, know the prior needs of patients, plan training and care taking programs according to individual needs of every

patient in order to eliminate and adjust the stress factors so that the interventions could ultimately lead to prevention of complications, improvement of physiological function and provide physical, mental and emotional comfort of patients. Planning and implementing nursing care help to achieve maximum performance and affect on the health and well-being of a patient. It is important to consider a patient as an individual character and while reviewing his needs, all aspects of his personality like physical, psychological, social, cultural, intellectual, and environmental aspects should be taken in to consideration.

Limitations

One of the limitations of our study was small sample size and sampling was restricted to the cardiac surgery wards.

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Ethical issues: The study was performed after receiving approval from the university research council and obtaining ethical license, furthermore, the investigator explained the logical reason of the study to each patient and insured them that their decision to participate in the study would have no affect on the care that they received.

Conflict of interests: The authors declare no conflicts of interest.

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