PSYCHOLOGICAL SYMPTOMS UNDERMINE THE EFFECTS OF PATIENT EDUCATION AND SOCIAL SUPPORT FROM NURSES – A STRUCTURAL EQUATION MODELLING OF CORONARY ARTERY BYPASS GRAFTING PATIENTS

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Abstract

Background: Coronary artery bypass grafting patients often suffer from persistent fears, anxiety and depression after surgery, but no studies are available to show how these psychological symptoms are linked to each other and affect the perceived social support.

Objectives: We developed and estimated a hypothetical model to assess the relations of anxiety, fears and depression on perceived social support and the quality of patient education among coronary artery bypass grafting patients.

Design and methods: The sample consisted of 171 coronary artery bypass grafting patients three months after surgery. The State Trait Anxiety Inventory, the Hospital Anxiety and Depression scale and the Zung Self-Rating Depression Scale were used to assess anxiety and depression. Fear was measured using the Bypass Grafting Fear Scale. Support received from nurses and the quality of patient education was measured using the Social Support from Nursing Staff scale and the Quality of Basic Cardiac Information scale. The proposed model was assessed using structural equation modelling.

Results: The fears, anxiety and depressiveness were associated with patients' feelings about perceived support from the nurses and the quality of patient education. Patients' fear and anxiety increased depressiveness, leading to situations in which it is more difficult for a patient to receive emotional, informational and tangible support and patient education in general.

Conclusions: Psychological symptoms of CABG patients undermine the effects of patient education and social support from nurses.

Key words: anxiety ; coronary artery bypass grafting; depression; fear; patient education; social support; structural equation modeling

Introduction

A growing body of evidence suggests associations between Coronary Heart Disease (CHD), patients' negative psychological state and cardiovascular events (Frasure-Smith & Lesperance 2005; Kubzansky, Davidson, & Rozanski, 2005; Whooley, 2006). Depressiveness is present in 20 % of CHD outpatients, and as many as 50 % of patients recently hospitalized for coronary artery bypass grafting (CABG) surgery (Goyal, Idler, Krause,& Contrada 2005; Whooley, 2006). Besides depression, CHD patients also often have other symptoms like fears and anxiety related to surgery and the recovery process. (Heikkilä, Paunonen, Virtanen, & Laippala, 1998; Koivula, Paunonen-Ilmonen, Tarkka, Tarkka, & Laippala, 2001; Koivula, Tarkka, Tarkka, Laippala, & Paunonen-Ilmonen, 2002a ; Kubzansky et al., 2005).

Recent study has suggested that early identification of depression and initiating the treatment at an early stage are important in the prevention of new cardiac events after CABG and to enhance the patient's quality of life (Doering, 2005). Depressive patients are often isolated from their social network (Rozanski, 2005; Sheps & Rozanski, 2005). On the other hand receiving sufficient social support facilitates recovery after CABG (Hämäläinen, Smith, Puukka, Kallio, Kuttila, & Rönnemaa, 2000). Network members who provide the most emotional and concrete social support are spouses and family (Koivula, Paunonen-Ilmonen, Tarkka, Tarkka, & Laippala, 2002; Rantanen, Kaunonen, Åstedt-Kurki, & Tarkka, 2004), but health care professionals also give social support to heart patients through patient education (Martin & Turkelson, 2006; Rantanen et al., 2004). Gallo, Malek, Gilbertson and Moore (2005) found that heart patients with anxiety

and depression have only limited ability to benefit from the counseling and social support offered to them.

Recently Lopez, Ying, Poon, and Wai (2007) pointed to the association of depression and poor recovery after CABG surgery. They stressed the importance of the development of adequate teaching and rehabilitation programmes conducted by nurses. We wanted to examine in greater detail the fears, anxiety and depression which are common on CHD patients and the relation of these to social support and patient education received from nurses. In the present study we conceptualized the term fear as the CABG patients' subjective emotional response to threatening events or dangerous situations when the patients express nervousness, tension, and lack of confidence. If the fear focuses on a particular object, the patients themselves are usually aware of the degree of fear. Anxiety differs from fear in being disproportionate to the 'threat' and a more generalized state than fear without any specific focus (Spielberger, Gorsuch, Lushane, Vagg, & Jakobs 1983.) In this study, we do not assess clinical depression; our focus is on depressive symptoms perceived by CABG patients. Depression occurs when worries, fears, and discouraged mood are intense and continuous (Zung, 1965).

Social support is here defined as emotional, informational, and tangible support given by nurses (Kahn & Antonucci, 1980). The quality of patient education means here the patient's perceived satisfaction with the education received (Theobald & McMurray, 2004).

Next in this paper we present the hypothetical model, which is based on earlier research. The model consists of ten hypotheses (H_{11}- H_{110}). The model was empirically tested with the data collected from CABG patients by self-assessment measures. We

chose structural equation modeling (SEM) analysis as a method, because SEM makes it possible to identify many of the hypothesized associations among variables (CABG patients' fear, anxiety, depression, social support and patient education), including indirect effects and multiple outcomes.

CABG patients' fear, anxiety, depression, social support and patient education – developing the hypothesis

The hypothetical model (Figure 1) depicting relationships between CABG patients' anxiety, fears, depression, social support and patient education was developed on the basis of sub-models reported earlier (Koivula et al., 2001; 2002a; 2002b). After CABG the fears seem to focus on coping with the daily routines, returning to work, pain, death, another heart attack, financial problems, sexuality, deteriorating health status, uncertainty about heart disease, being separated from significant others, dependence on help and care, and recovery (Heikkilä et al., 1998; Kattainen, Meriläinen, & Jokela, 2004; Theobald & McMurray, 2004). Severe and persistent fear has been proposed to be in close association with CABG patients' anxiety ($Hypothesis_{11}$) (Koivula et al., 2001, Koivula, 2002) and disposes to depressive symptoms ($Hypothesis_{12}$) (Koivula, 2002). There are also assumptions that the fears limit the patients' ability to benefit from social support ($Hypothesis_{13}$) and patient education ($Hypothesis_{14}$) (Gallo et al., 2005; Koivula, 2002; Koivula et al., 2001).

Anxiety can be divided into two dimensions: anxiety-prone disposition or trait anxiety, a part of a person's personality structure and anxiety due to different stressors

called state anxiety, a response to a situation or event (Spielberger et al., 1983). Anxiety can be assessed as pathological when it disturbs normal everyday life; depression often appears simultaneously with anxiety ($Hypothesis_{15}$) (Goyal et al., 2005). The high level anxiety among CABG patients is also thought to impair the ability to benefit from informational, emotional and tangible social support ($Hypothesis_{16}$) and patient education ($Hypothesis_{17}$) (Gallo et al., 2005; Snaith & Zigmond, 1994; Spielberger et al., 1983).

The decisive symptom in depression is low-spirited and discouraged mood, but in addition, there are several other possible symptoms (Snaith & Zigmond, 1994; Zung, 1965). The emergence of depression is directly connected to the amount of received social support ($Hypothesis_{18}$) (Koening, 1998; Luttik, Jaarsma, Moser, Sanderman, & Veldhuisen, 2005). There is no irrefutable evidence that psychological interventions, aimed to improve the stress management of CHD patients, have a positive effect on depression (Dysseldorp, van Elderen, Maes, Meulman, & Kraaij, 1999; Rees, Bennet, West, Davey, & Ebrahim, 2004). Although there is little knowledge about the association between depression, patient education and support, it is assumed that CHD patients with depression suffer from lack of information, difficulties in understanding information received and missing emotional support ($Hypothesis_{19}$) (Stewart, Davidson, Meade, & Makrides, 2000).

The patient education of CABG patient deals with themes on which every patient needs information to cope in daily life and recovery (issues like pain management, exercise, diet and medication). Social support given by nurses is closely connected to

patient education. During patient education nurses can give information, and also emotional and tangible support. ($Hypothesis_{110}$). (Theobald & McMurray, 2004.)

The objective of the present study was to assess the applicability to empirical material of a measurement model describing CABG patients' anxiety, fears, depressiveness, social support perceived from nursing staff and quality of patient education.

Methods

Participants

The data of the present study was collected by questionnaires three months after CABG surgery. All consecutive patients admitted to Tampere University Hospital in Finland, in 1998 (N= 270) for elective CABG formed the sample of the present study. Questionnaires were mailed to 228 patients who had expressed their willingness to participate in the study. The final response rate was 75 %, N=171. One out of five (19 %) patients was female, which is slightly less than the total share of females undergoing CABG surgery in Finland in 2003 (23 %). (Register of Cardiac Surgery in Finland, 2003). Problems related to the recovery process were reported by 42 % of participants. About half of patients (51 %) reported that their present health status was good and almost 3 out of 4 patients (69 %) assessed their health status as improved during the last half year. Of the patients 33 % still reported moderate or severe pain. Almost 80 % of patients were cohabiting or married. Over half of the patients were retired (64 %) which is partly due to their high average age (63 years).

Measures

The Bypass Grafting Fear Scale (BGFS) (Koivula, 2002), was used to assess 12 common fears about coping in their everyday lives: difficulties in returning to work, pain, death, myocardial infarction, financial problems, sexuality, deterioration of health, uncertainty, being away from relatives, dependence on others' care and help, and recovery from surgery (Biley, 1989; Heikkilä et al., 1998; 1999). Respondents assessed the intensity of fear on a scale ranging from 1 (no fear) to 10 (extremely severe fear). The class boundaries used were based on 25% (low fear) and 75 % quartiles (moderate or intense fear). The construct validity and reliability of the BGFS have been reported to be good (Cronbach's alpha .88-.90) (Koivula et al., 2002a,b). Means, standard deviations and reliabilities for all measures used in testing the model are presented in Table 1.

The Spielberger State Trait Anxiety Inventory (STAI) is a self-administered instrument used to measure both anxiety resulting from acute stressors (state anxiety [STAI-S]) and intrinsic levels of anxiety irrespective of any particular acute stressor (trait anxiety [STAI-T]). The basic dimensions evaluated by the scale are feelings of apprehension, tension, nervousness and worry. The instrument consists of (STAI-S) and (STAI-T) subscales, each of which has 20 4-point Likert-scale items (Spielberger et al., 1983). The internal consistency (Cronbach's alpha coefficient) in Finnish studies has been between .89 and .93 (Heikkilä et al., 1998; Koivula et al., 2001; 2002b). A score of 60 is used as a cut-off value for intense anxiety (range 20-80).

The Hospital Anxiety and Depression Scale (HADS) was designed for screening for mental problems in medically ill patients and has been used effectively in assessing the

anxiety and depression of cardiac patients (e.g. Heikkilä et al., 1999; Koivula et al., 2001; 2002a). Respondents assess the intensity of present mood states like restlessness, tension, hesitance, nervousness, gladness and uneasiness (Snaith & Zigmond, 1994). The 14 -item questionnaire is divided into two separate subscales: seven items for both depression (HADS-D) and anxiety (HADS-A) (range 0-21 for both subscales). The scores of 14/15 are used as a cut-off point for intense anxiety or depression. According to a recent review (Bjelland, Dahl, Haug, & Neckelman, 2002), Cronbach's alpha for HADS-A has varied from .68 to .93 (mean .83) and for HADS-D from .67 to .90 (mean .82). Correlations between HADS and other commonly used anxiety and depression questionnaires have been in the range .49 to .83. (Bjelland et al., 2002). The Finnish versions of the STAI and HADS were translated with the back-translation method (White & Elander, 1992) and the Finnish versions were found to be reliable (Heikkilä et al., 1998; Koivula et al., 2001; 2002a).

For increasing the concurrent validity of the study another measure for depressive symptoms, ***the Zung Self-Rating Depression Scale*** (ZSDS) was used (Zung, 1965). The ZSDS consists of 20 items which screen for three depression and mood symptom categories: affective, psychological and somatic. The Finnish version of the ZSDS has been used effectively among elderly heart patients and a cut-off point of ≥45 has been found valid indicating mild depression (Salminen, Isoaho, Vahlberg, Ojanlatva, & Kivelä, 2005). Among elderly Finnish population the sensitivity of the ZSDS has been found to be 72 % and the specificity 83% compared to the clinical diagnosis of depression (Salminen et al., 2005).

The questionnaire on ***Social Support from Nursing Staff*** (SSNS) was used to assess the amount of informational, emotional and concrete support received during the hospital stay (Koivula, 2002). The SSNS consists of ten 5-point Likert-items (1= not at all to 5 = very much) by which the patient assesses perceived social support during hospitalization. The measure comprises four nursing specific items for informational support and three items for both emotional and concrete support. The items related to informational support were information about the treatment of illness, information that helps patients to understand treatment and information about treatment to the family. Emotional support was operationalized in questions about nurses' enquiries about patients' sensations, the opportunity to discuss feelings and whether patients felt that they were treated with respect. The questions on concrete aid were how the hospital gives advice on how to act and how nurses will help when a patient is unable to cope. The variables of social support were classified using the quartiles as class limits (no/low social support Q1<34, and much support Q3 >42) The content validity of the instrument is based on the theory of social support (Kahn & Antonucci, 1980). The reliability coefficients (Cronbach's alpha) for total SSNS have been reported to be .87 and for subscales between .71 and .77. (Koivula, 2002).

The Quality of Basic Cardiac Information (QBCI) scale is a 10-item questionnaire (Koivula, 2002). Respondents assess their satisfaction with the counseling received during hospitalization on a five-point Likert –scale (1=very satisfied, 2 =fairly satisfied, 3 = somewhat dissatisfied, 4 = totally dissatisfied, 5= no information received). The QBCI

contains questions concerning the basic information seen as essential for CABG patients. The patient education themes measured were causes of chest pain, emotional effects of severe illness, personal risk factors, heart medication, diet, exercise, general description of CABG, use of nitroglycerin, terms of reference during chest pain and information to significant others. The class boundaries used were based on 25 % (excellent counseling Q1≤ 14) and 75 % quartiles (inadequate or poor counseling Q3≥20). The Cronbach's alpha coefficient has been reported to be .86 among patients waiting for CABG (Koivula et al., 2002b).

Procedure

In Finland, with a population of 5.1 million, 4334 CABG procedures were performed in the year of the data collection. This study was carried out at a University Hospital in Finland, which performs 700 to 800 CABG operations annually. Permission to conduct the study was obtained from the hospital's ethics committee. The inclusion criteria for the study were: 1) scheduled elective CABG, 2) ability to read, write and speak Finnish and 3) ability to understand the instructions related to the study and to complete the questionnaire independently. Informed consent was obtained from all participants.

The CABG patients arrived at the hospital on the day before the operation. For about the five first postoperative days the patients recover in the University Hospital and are then transferred to the regional hospital for about one week. The length of sick leave for working age patients after CABG is normally three months.

Data analysis

This study consists of two components: a measurement model, which specifies how the hypothetical constructs (latent variables) are measured in terms of observable variables, and the structural equation model, which specifies the hypothesized causal relations among these constructs. The proposed model was assessed using LISREL 8. The LISREL method estimates the unknown coefficients of a set of linear structural equations. It was designed specifically to accommodate models that include latent variables and interdependence. As some non-normality was present in several scales (skewness/ standard error greater than ± 2; HADS-D 8.22, HADS-A 6.32, STAI-S 5.68, STAI-T 3.70, BGFS 4.62, QBCI 6.77), the asymptotic covariance matrix was used as data input (Table 2) implemented by Prelis 2.14. The weighted least squares estimation (WLS) procedure was chosen since it does not make strong distributional assumptions on the maximum likelihood procedure. (Jöreskog & Sörbom, 1996.)

Several goodness-of-fit indices provided by LISREL were used. The χ^2 value depicting error between data and model was divided by degrees of freedom (Hayduk, 1987), a situation where the value obtained < 5 is propitious for data-model fit. An additional indicator of appropriateness here was the Goodness of Fit Index (GFI), which should come out at .9 or over. The Adjusted Goodness of Fit Index (AGFI) also takes into account the degrees of freedom of the model; here the acceptable limit for the present study was likewise .9. Error variance is estimated by the Root Mean Square Residual (RMSR) and Root Mean Square Error (RMSEA) values, these in a good model being <.05. (Jöreskog & Sörbom, 1996.) In addition to assessing the overall model fit, it is

essential to take note of the significance and the assumed direction of all paths. T-values were calculated to assess the degree of variance accounted for in each dependent variable (as the sample size is appreciable, t-values exceeding t= 2.0 are considered statistically significant) (Burns & Grove, 1997).

Results

Description of variables in the model

Measured by the BGFS, the fears of the CABG patients on average three months after the surgery were mild (Table 1). The socio-demographic variables used and risk factors did not have any connection with fears (Table 3).

According to the STAI-S, the proportion of anxious patients was 19 % (cut-off point ≥ 60). Four out of ten patients (39 %) had a moderate or intense personal disposition to anxiety (STAI-T) (cut-off point ≥ 60). According to the HADS-A (cut-off point 15), the proportion of anxious individuals were slightly lower, 11 %.

The prevalence of depressiveness was 7 % measured by the HADS-D (cut-off point ≥ 15) and 19 % measured by the ZSDS (cut-off point ≥ 45). The proportion of depression by the ZSDS was greatest among females [t (154)=2.05, p=.042] and those who had many emotional [t(154)=-3.91, p<.001] or health –related problems [t(154)=-2.56, p=.011]. Measured by the HADS-D depression was somewhat more intense among single,

divorced or widowed [t(169)=2.32, p=.022] and retired individuals [t(169)=2.13, p=.034]. (Table 3.)

On average the quality of patient education was moderately good (Table 1), females assessing it lower than males [t(139)=2.82, p=.006]. The perceived social support was also lower among females [t(168)=-2.03, p=.044] and those patients whose health status was fairly poor or poor [t(168)=2.17, p=.032] and who had emotional problems [t(168)=2.84, p=.005]. (Table 3.)

Testing the model

As Figure 2 shows, not all hypotheses in the theoretical structural model were upheld. There were no significant direct paths between anxiety and perceived patient education, fears and depressiveness or between fear and perceived support in the final model. The final model fitted the data moderately well: χ^2 (df = 40, N = 171) = 71.61, p =.002; RMSEA = .07; RMSR = .13; GFI = .97; AGFI = .96.

Patients' fears exacerbated anxiety in the recovery phase (t= 9.12). The anxiety exacerbated depression (t=10.93). Patients with anxiety assessed the social support received from nurses to be inadequate (t= -4.65). Patients with depression assessed the amount of informational, emotional, and tangible support from nurses to be insufficient (t= -4.83). The quality of patient education was directly associated with support received from nurses (t= -7.51); patients who reported the counseling to be inadequate, also assessed social support from nurses to be inadequate. (Figure 2)

In addition to the above-mentioned direct associations the model also revealed significant indirect associations. Patients' fears indirectly increased the amount of depression via increasing anxiety (t= 7.94). Likewise fears had an indirect link to lack of social support received from nurses via increased anxiety and depression (t= -6.20). Fears had also an indirect link to quality of patient education via anxiety, depression and received social support (t= 5.03); fearful patients also often had anxiety and depression, and they reported that the patient education and social support were inadequate. The anxiety of patients increased depression and these diminished social support (t= -7.07) and patient education (t= 5.88) received by the patients. The CABG patients' depression also exerted a negative indirect effect on perceived patient education via inadequate social support (t= 6.70).

Discussion

Discussion of results

We found that in the recovery phase, three months after the operation, a considerable share of CABG patients experienced fears, anxiety and depressive symptoms. These problems were linked to each other. A major goal of this study was to estimate the validity of the hypothetical model describing the effects of CABG patient's fears, anxiety and depressive symptoms on social support and patient education. We tested altogether ten hypotheses of which six could be verified. The main result of this study was that patients with these symptoms reported both social support and patient education from

nurses to be inadequate. As far as we know this was the first study to show that these phenomena are linked to each other.

We found a strong direct path between fear and anxiety. According to our model fear exacerbated anxiety. The life situation of CABG patients makes it understandable that they have fears with exact foci but also many unexpected worries relating to the prognosis of heart disease and coping in the future, which create anxiety. (Koivula et al., 2002a). Contrary to the earlier literature, fear alone did not exacerbate depression. In our final model fear and anxiety together increased depression. The background variables used did not have any connection to fear, but anxiety differed by employment status and perceived health problems. It was interesting to observe that retired patients reported more anxiety than patients on sick leave. Retired patients' anxiety may be connected to older age, poorer health status or social isolation.

The final model supports the hypothesis evinced that CABG patients' fears, anxiety, and depressiveness are linked to each other, and have effects on patients' perceived social support and patient education from nurses. According to earlier research CABG patients get valuable information and support from health care professionals (Rantanen et al., 2004) and emotional social support alleviates patients' fears and anxiety (Koivula et al., 2002b). However, our results indicate that the standard support and counseling are not enough for depressive patients. According to our results poor quality of counseling also has a negative impact on perceived social support in hospital. This is understandable, because counseling is the most important way for health care professionals to give

patients informational support. On the other hand, there is evidence that emotional and concrete support are also important for CABG patients in the recovery period (Barry, Kasl, Lichtman, Vaccaniro, & Krumholz, 2006).

Strengths and Limitations of this study

There are several limitations in this study. It was possible to use only self-report inquiries to measure the various psychological symptoms and social support and the quality of patient education. A major limitation is that this study was cross-sectional in nature. The multivariate analysis used was a sophisticated one, but it should be kept in mind that the assumptions about the "causality" between the different psychological symptoms we used in the model are theoretical and need to be verified with a prospective study design. Another limitation is that the model was tested only in one phase of the treatment – the rehabilitation process of CABG patients. More studies need to be conducted on other phases. Criticism can also be focused on the moment of social support measurement, because the respondents assessed in-hospital perceived social support retrospectively. However, there is evidence that patients remember and can assess their subjective experiences relating to coronary artery bypass surgery retrospectively (Tolmie, Lindsey, & Belcher, 2006).

A strength of this study is the representativeness of data. The sample was drawn from a university hospital district. The hospital is responsible for the health care of one million people. In Finland there are no regional differences in the treatment of CABG patients, so the results obtained can be generalised to all Finnish CABG patients. We wanted to

increase the validity of the study by using two instruments to measure anxiety and depression. The number of subjects in the analyses was satisfactory (Jöreskog & Sörbom, 1996). However, no extensive analysis of non-respondents could be done. In the circumstances we not know if the respondents were different from non-respondents. This has to be taken into account when interpreting the results**.** The method used for the modelling was SEM, because it makes it possible to analyze several direct and indirect associations between the dependent and independent variables. High GFI and AGFI, the inner consistency and stability of the measures, together with the reliability of statistical solutions and adequacy of the sample advocate the acceptance of the model. Its general appropriateness and explanatory power are enhanced by the fact that all paths in the final model are statistically significant.

Conclusions

Based on the results of the present study we present the following conclusions: 1. It is important to recognize that the fears, anxiety and depression of CABG patients are linked to each other .2. It is important to try to relieve the anxiety as early as possible to prevent the escalation of psychological problems. 3. CABG patients with fears, anxiety and depression need more social support and patient education than other patients.

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Figure caption

Figure 1. Measurement model of CABG patients' fear, anxiety, depressiveness, social support received from nurses and quality of patient education.

Note: Exogenous (independent) variables indicated by the letter [ksi] (ξ) and endogenous (dependent) by [eta] (η). Intervariable relations are marked by the letters [beta] or [gamma], depending on whether the relationship is between two endogenous (β) or an exogenous and an endogenous (γ) variable. Indexation is by numbering of target and source variable. Loadings are represented by [lambda] (λ) and measurement errors by [epsilon] (ε) for endogenous and [delta] (δ) for exogenous variables.

Figure 2. Direct links in final model depicting CABG patients' psychological symptoms and perceived social support and counselling.

Note: $t \geq 2.0$ are considered statistically significant

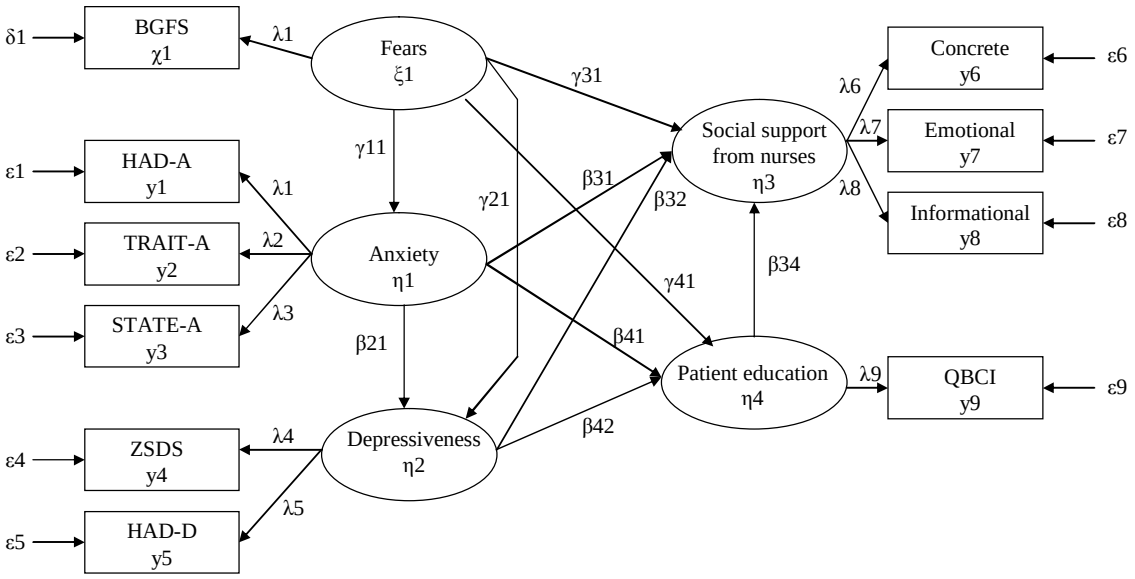
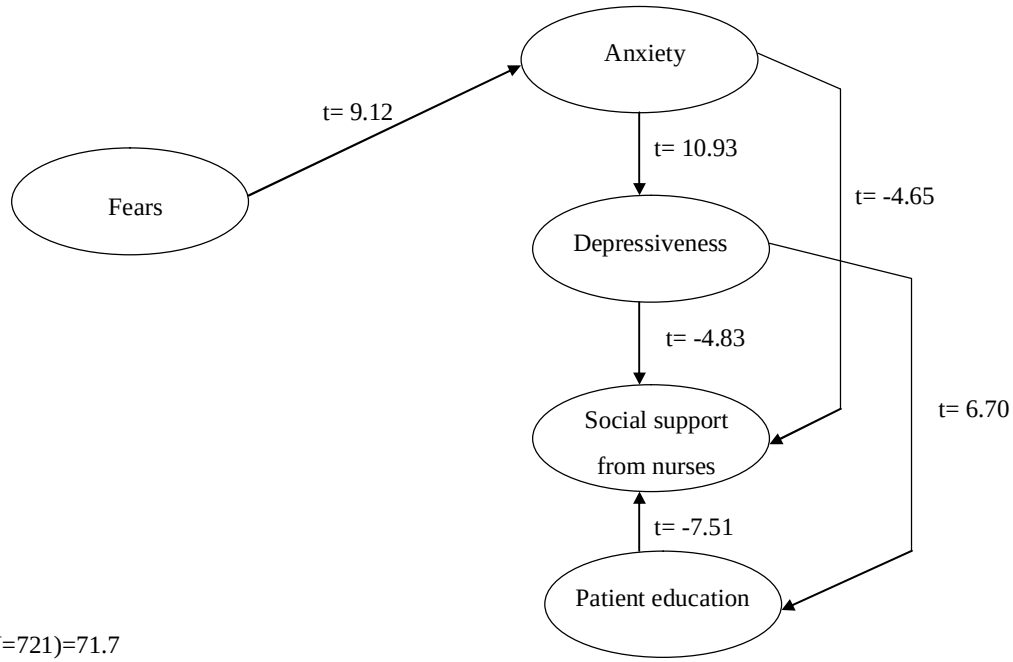

δ1
BGFS
χ1
λ1
Fears
ξ1
γ31
Concrete
y6
ε6
λ6
ε1
HAD-A
y1
λ1
γ11
γ21
β31
β32
λ7
Emotional
y7
ε7
Social support
from nurses
η3
ε2
TRAIT-A
y2
λ2
Anxiety
η1
λ8
Informational
y8
ε8
β34
γ41
ε3
STATE-A
y3
λ3
β21
β41
Patient education
η4
λ9
QBCI
y9
ε9
ε4
ZSDS
y4
λ4
Depressiveness
η2
β42
λ5
ε5
HAD-D
y5

Figure 1.



$\chi^2(40, N=721)=71.7$

RMSEA= 0.07

SRMR= 0.13

GFI= 0.97

AGFI= 0.96

Figure 2.

Table 1. Means, standard deviations and reliabilities for variables used in testing the model

Variable	Measure	Mean (SD)	Range	Items	Cronbach Alpha
Fear	BGFS[1]	38.72 (20.20)	12-120	12	.88
Anxiety					
	STAI-S[2]	31.79 (9.12)	20-80	20	.91
	STAI-T[3]	37.46 (9.67)	20-80	20	.91
	HADS-A[4]	3.63 (2.99)	1-21	7	.84
Depressiveness	ZSDS[5]	40.16 (6.02)	20-80	20	.73
	HADS-D[6]	2.82 (3.09)	1-21	7	.79
Social support from nursing staff					
	SSNS[7]	37.58 (6.32)	10-50	10	.88
	Concrete support	12.59 (1.98)	3-15	3	.72
	Emotional support	10.67 (2.51)	3-15	3	.79
	Informational support	14.31 (2.02)	4-20	4	.85
Patient education	QBCI[8]	17.86 (6.51)	10-50	10	.88

[1] **BGFS** = Bypass grafting fear scale
[2] **STAI-S** = Spielberger State-Trait-Anxiety Inventory, the State Anxiety Scale
[3] **STAI-T** = Spielberger State-Trait-Anxiety Inventory, the Trait Anxiety Scale
[4] **HADS-A** = Hospital Anxiety and Depression Scale, the Anxiety Scale
[5] **ZSDS** = Zung Self-rating Depression Scale
[6] **HADS-D** = Hospital Anxiety and Depression Scale, the Depression Scale
[7] **SSNS** = Social Support from Nursing Staff
[8] **QBCI** = Quality of Basic Cardiac Information