

Is it important to give patients verbal-visual information about the operation to improve their psychological functions in coronary artery bypass graft surgery?

Koroner arter bypass greft cerrahisinde hastalara işlem hakkında sözel-görsel bilgilendirme yapmak psikolojik fonksiyonlar açısından önemli midir?

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Abstract

Purpose: Being well informed can help with developing strategies to cope, can contribute to the psychological well-being of patients and improve their quality of life. It is aimed to investigate the effect of verbal-visual information compared to only written information before the procedure on coping methods, quality of life and disability in patients who will undergo coronary artery bypass surgery.

Materials and methods: Forty-eight patients were divided into two equal groups. While the first group was informed about the risks of the operation process and post-operative care verbally and visually, the other group was given only written information. All patients underwent standardized psychiatric interviews according to DSM V, before and after surgery The Brief Disability Questionnaire (BDQ), Coping Scale (COPE), Hospital Anxiety and Depression Scale (HADS), Health Related Quality of life Short-Form 36 (HRQOL-BRIEF SF-36) was applied.

Results: Although psychiatric disorders are more common in women than men, no statistical difference was found. It was observed that the most common diagnosis was adjustment disorder. Although there was no significant difference between the groups in terms of anxiety and depressive symptoms and quality of life, it was observed that the use of religious coping decreased and disability increased after surgery only in the written-informed group. Further, disability scores were positively correlated with the endpoint depression and anxiety scores in the group given only written information.

Conclusion: Being well-informed verbally and visually about the surgery process effects patients' coping strategies and reduces disability by helping them to adapt in the post-operative period. Further longitudinal researches are needed in various cultures to determine the modifiable risk factors that may affect the psychological functions of the patients in the postoperative period.

Key words: Coronary artery bypass grafting surgery, disability, coping skills, quality of life.

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Öz

Amaç: İyi bilgilendirilmiş olmak, başa çıkma stratejileri geliştirmeye yardımcı olabilir, hastaların psikolojik iyilik hallerine katkıda bulunabilir ve yaşam kalitelerini iyileştirebilir. Bu çalışmada koroner arter by-pass cerrahisi yapılacak hastalarda işlem öncesi sözel-görsel bilgilendirme yapılmasının sadece yazılı bilgilendirme yapılmasına kıyasla hayat kalitesi, yeti yitimi ve başetme yöntemleri üzerine nasıl bir etkisinin olacağını araştırılması amaçlanmıştır.

Gereç ve yöntem: Çalışmamıza 48 hasta alınmış ve hastalar iki eşit gruba bölünmüştür. Birinci gruba, ameliyat süreci ve olası riskler ayrıntılı bir şekilde sözel-görsel olarak anlatılmış, ikinci grup ise yalnızca yazılı olarak bilgilendirilmiştir. Tüm hastalara DSM V'e göre standardize psikiyatrik görüşme yapılmış, ameliyat öncesinde ve sonrasında Kısa Yeti Yitimi Anketi (KYA), Başa Çıkma Tutumlarını Değerlendirme Ölçeği (COPE), Hastane Anksiyete ve Depresyon Ölçeği (HAD), Kısa form 36 Yaşam Kalitesi Ölçeği (SF-36) uygulanmıştır.

Bulgular: Psikiyatrik bozukluklar genel olarak kadınlarda erkeklere göre daha fazla olmakla birlikte istatistiksel fark saptanmamıştır. En sık konulan tanının, uyum bozukluğu olduğu gözlenmiştir. Gruplar arasında anksiyete ve depresif semptomlar ile yaşam kalitesi açısından anlamlı fark saptanmamasına rağmen, yalnızca yazılı olarak bilgilendirilmiş grupta ameliyat sonrası dini olarak başa çıkma kullanımının azaldığı ve yeti yitiminin arttığı gözlenmiştir. Ayrıca, yazılı bilgilendirilmiş grupta depresyon ve anksiyete puanları ile yeti yitimi arasında pozitif yönde korelasyon olduğu saptandı.

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Sonuç: Ameliyat hakkında ayrıntılı sözel-görsel bilgilendirme yapılması hastaların ameliyat sonrası süreçte başetme stratejilerini etkilemekte ve daha sağlıklı bir şekilde uyum sağlamalarına yardımcı olarak yeti yitimini azaltmaktadır. Ameliyat sonrası dönemde hastaların psikolojik fonksiyonlarını etkileyebilecek modifiye edilebilir risk faktörlerinin de belirlenmesi açısından farklı kültürlerde uzun dönem çalışmalara ihtiyaç duyulmaktadır.

Anahtar kelimeler: Koroner arter bypass greft ameliyatı, yeti yitimi, başetme becerileri, yaşam kalitesi.

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Introduction

Coronary heart disease is an important physical illness, and one of the important causes of death in the world [1]. To prevent early and sudden death, serious surgical interventions have to be applied, and the most common of these interventions is coronary artery by-pass surgery (CABG). CABG is an operation to reduce symptoms, to protect the patient from possible complications, and to improve the quality of life. This operation not only helps to increase physical activity by providing oxygenation of the heart muscle but also reduces chest pain and breathlessness, which are the most obvious symptoms of the disease and which we know have a direct impact on quality of life [2, 3]. It is also known that these operations, which are known to extend survival, also contribute to the psychological well-being of patients, improve their quality of life, improve their general functioning, regulate their emotions, and help them develop strategies to cope with different areas of life [4, 5]. Studies conducted in patients who had coronary artery bypass surgery show that 19 to 61% of depressive symptoms are observed postoperatively and that postoperative measures can provide positive emotional changes such as increased quality of life and reduced depressive symptoms [6]. It is also known that the occurrence of depression in the postoperative period increases the incidence of cardiac pathologies within the first year, increases the rate of angina episodes, and decreases the five-year survival rate [7-9]. Symptoms of anxiety were noted at an equal rate to depression, between 34% and 44.9%. While it was reported that the operation sometimes eliminated anxiety, in some cases anxiety increased [10, 11]. However, in these studies, collecting data via self-reporting may have prevented clear evaluation of post-operative social support or other areas of compensatory remediations such as awareness and resolution

of the problem. Nevertheless, previous studies have reported the relationship between patients' anxiety pain perception in the postoperative period and that the occurrence of anxiety increased the incidence of cardiac pathologies [12,13]. Therefore, identifying the modifiable risk factors of post-op depression and anxiety can be helpful in reducing the harmful effects of these diseases and in developing interventions to improve psychological function. In a previous study, it was found that the most important risk factor for post-op depression and anxiety rates was the presence of depressive symptoms in the pre-operative period in the patients, and it was also observed that post-op depression and anxiety rates increased in patients with a less optimistic pre-op attitude [14].

The aim of the study is to assess the presence of psychiatric disorders, level of quality of life, level of disability, and presence of coping strategies in patients who were candidates for CABG surgery and to compare the scores of these measures between two groups, one that had been informed verbally-visually about the operation and postoperative care and one that had been given only written information, and to assess whether being informed in a verbal-visual manner about the surgery process has an effect on quality of life, level of disability and presence of coping strategies.

Materials and methods

Patients: Forty-eight patients who underwent elective coronary artery bypass surgery participated in the study. All participants were randomly selected from a group consisting of individuals 18 to 80 years of age who were literate, had no visual or auditory problems to disrupt compliance with interview or test procedures, had no neurological disease history including stroke and head trauma which could cause disability; and who had not undergone a cardiac operation before.

Exclusion criteria: Patients who were not between 18-80 years of age, who were illiterate, who had visual or auditory problems to disrupt compliance with interview or test procedures, who had neurological disease history including stroke and head trauma which could cause disability, who had undergone any previous cardiac operation, and who had a poor prognosis (ejection fraction <30%) were not admitted to the study.

Procedure: The forty-eight patients admitted to the study were divided into two equal groups randomly. While the first group was given information about the operation procedure, the post-operative situation, and possible risks verbally and visually, the second group was given the same information in written form only; questions were answered if they had any. Verbal visual information was given to all patients similarly by the same surgeon who performed the surgery with the same method. The clinical interview for DSM-V disorders was administered to all subjects by a consulting psychiatrist to establish any psychiatric diagnoses. Each subject was evaluated with psychological tests at baseline (pre-operative) and endpoint (first month post-operative). These were Hospital Anxiety Depression Scale (HAD) [15], Health Related Quality of life Short-Form 36 (HRQOL-BRIEF SF-36) [16], the Coping Scale (COPE) [17], and the Brief Disability Questionnaire (BDQ) [18]. Patients and their partners given the tests at least one week before the surgery and were asked to take them home and to return them after completion. The same test procedure was applied one month after the operation.

Informed consent was taken from all the participants, in accordance with the principles of the Helsinki Declaration. Approval for the study was ratified by the Clinical Research Ethics Committee of the University.

Surgical procedures: The approval forms were received from all the patients and their relatives regarding the surgical procedure at least twenty-four hours before the procedure. Anesthesia was made by desflurane after fentanyl and midazolam induction. The same surgeon and anesthetist executed all the surgical procedures. CABG surgery was performed with a Jostra QUADROX + VHK 2000 membrane oxygenator (oxygenator with venous hardshell cardiomy reservoir) using moderate systemic hypothermia (28°C-32°C). During CPB, blood pressure was

retained between 50 and 80mg Hg, hematocrit between 20% and 25%, and pump flow at 2.4. Proximal and distal anastomoses were performed in a single cross-clamp period. The surgeon was blind to the groups until the onset of the bypass procedure.

Scales

The Brief Disability Questionnaire (BDQ)

This scale was developed to evaluate physical and social disability [18]. The reliability of its Turkish version is available [19]. The questionnaire evaluates one month of persons life and consists of 11 questions. It also includes two items for the number of days being in bed and the disruption of the patient's business. The disability in the physical and social area is scored as 0 (no), 1 (sometimes slightly), or 2 (always somewhat), and the total disability scores are calculated by sum of the points.

Coping Scale (COPE)

Scale was improved by Carver et al. [17] to determine coping strategies used in stressful situations. The reliability and validity (Cronbach alpha: 0.79) study of the Turkish version of this scale was made by Acargun et al. [20]. The questionnaire has been used previously with cardiac patients [21]. Sixty different situations responded to with through four options. These are: 1= Never; 2= rarely; 3= sometimes; 4= often. The scale consists of sixty questions. Subscales provides information about a different coping attitude. Thus, the high scores that are taken from the subscales allowed us insight into which strategy is used more by the person. Subscales are; positive reinterpretation, planning, mental disengagement, focus on and venting of emotions, denial, instrumental social support, active coping, humor, behavioral disengagement, distancing, turning to religion, emotional social support, acceptance, suppression of competing activities and substance use.

Health Related Quality of life Short-Form 36 (HRQOL-BRIEF SF-36)

This Scale was improved by the Rand Corporation and is used to evaluate quality of life [16]. A reliability and validity form of the Turkish version of this scale was performed by Koçyiğit et al. [22]. It is a self-assessment scale with generic criteria consisting of 36 items providing

eight dimensional measurements: physical function, social function, disabilities due to physical, emotional issues, mental health, and general feeling of health. The evaluation is done in a Likert type scale except for some items, and it asks the patient to consider the previous four weeks. The subscales evaluate health between 0-100, 0 indicating a poor health status and 100 a good health status. As reported in the literature, it has been used to assess the quality of life in patients with physical illnesses [23]. It is a widely used measurement and has previously been used in cardiac patient groups [24].

Hospital Anxiety and Depression Scale (HADS)

This is a self-report scale developed to measure the level of anxiety and depression, the severity of illness; and the risk of depression and anxiety in patients with physical illness or in primary health care departments [15]. The reliability and validity study of the Turkish version of this scale was improved by Aydemir et al. [25]. It has fourteen questions. Single numbers measure anxiety symptoms and double numbers measure depression symptoms. It

makes quadruple Likert-type measurements. In Turkey, a cut-off score of 10/11 was found for the anxiety subscale and 7/8 for the depression subscale. Areas above these rates are high-risk groups. HAD is preferred because it does not contain any material related to the patient's physical state.

Data analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25.0. Preop and postop statistical analyses were performed with the non-parametric wilcoxon test. Mann Whitney-U test was used to compare continuous variables with not normal distribution. The differences between the two groups were tested by non-parametric Mann-Whitney U test.

Results

As presented in table 1, socio-demographic and clinical variables such as educational status, age, residence and employment showed no difference between the verbal-visual informed and written-only informed groups (Table 1).

Table 1. The socio-demographic and clinical variables between the groups

Socio-demographic variables		Verbal-Visual Informed Group (n:24) N (%)	Written Informed Grup (n:24) N (%)	χ^2	df	p
Age		55.87 ± (SD 11.47)	53.91± (SD 10.77)	Z:-0.568		>0.05
Sex	Female	5 (27.8)	13 (72.2)	5.689	1	0.017
	Male	19 (63.3)	11 (36.7)	5.689	1	0.017
Primary education (at least 5 years)		7 (70)	3 (30)	2.021	1	>0.05
High School graduate		17 (44.7)	21 (55.3)	2.021	1	>0.05
Employed		14 (50)	14 (50)	0.000	1	>0.05
Unemployed		10 (50)	10 (50)	0.000	1	>0.05
Psychiatric diagnosis		3 (33.3)	6 (66.6)	1.231	1	>0.05
Physical disease		7 (58.3)	5 (41.7)	0.444	1	>0.05
Duration of surgery		148.75±64.40	129.25±77.46	Z:-1.598	1	p>.05

Non parametric- Mann Whitney U Test

A total of 48 patients attended in the study between the ages of 32-76 participated in the study: 30 of them were male (62.5%) and 18 were women (37.5%). The vast majority of the participants lived in an urban area (72.9%, n:35).

The most common complaint was angina pectoris (75%, n:36) and other major complaints were dyspnea (14.6% n:7), palpitation (8.3% n:4), and weakness (2.1% n:1).

Although the number of psychiatric diagnoses was higher in women than in men (respectively; 16.7% (n:8) and 2.1% (n:1), χ^2 :12.481, df: 1, $p<.001$), there was no difference significantly in psychiatric diagnosis between the verbal-visual informed group and the written-only informed group (Table 1). It was found that the most common diagnosis was adjustment disorder (Verbal-visual group: 2.1% (n:1), written informed group: 6.3% n:3). Other psychiatric diagnoses

were anxiety disorder (verbal-visual group: 0, written-only informed group: 4.2%), major depression (verbal-visual group: 2.1%, written-only informed group: 0), and obsessive-compulsive disorder (verbal-visual group: 2.1%, written-only informed group: 2.1%).

Although there was no difference for physical disease between the groups (Table 1); the most common diseases were diabetes mellitus (n:6) and hypertension (n:6). There was no difference statistically between the groups in terms of the duration of surgery (Table 1).

Although there was no difference between groups in regards to anxiety and depressive symptoms and quality of life, it was observed that, compared with the verbal-visual informed group, in the written-only informed group, the use of coping strategies turning to religion decreased, and disability scores increased after surgery (Table 2). In addition, in the written-only informed group; it was observed that as anxiety and depressive symptoms increased, disability scores increased. Disability scores were moderate degree positively correlated with the endpoint depression and anxiety scores in the group given only written information (Spearman correlation analyses, $p:0.006$ $r:0.544$).

Discussion

The main result of our study is that, the use of religious coping decreased and disability increased after surgery only in the written-informed group. Further, disability scores were positively correlated with the endpoint depression and anxiety scores in the group given only written information. In other words, being well informed decreases disability and disability is also correlated with depression and anxiety symptoms.

Coronary bypass grafting is a treatment for patients with ischemic heart disease that is widely used, and has proven medical benefits. There are studies in the literature about the fact that psychological factors affect surgery and post-surgical care, and attention has increasingly been focused on the postoperative prognosis and the role of psychological factors in prognosis [26, 27]. There are also studies indicating that psychosocial factors (psychological well-being, vital fatigue) may be more important in predicting post-operative quality of life in patients with coronary artery disease compared to objective determinants such as ejection fractions [27].

Subjective difficulties in emotion and cognitive processes are quite common after cardiac operations. It had been reported that mental disorders, especially depression, are common in the post-op period for CABG [28]. In accordance with the literature, adjustment disorder, anxiety disorder, and depressive disorder are the most common psychiatric diagnoses observed in our study.

However, improvement of the quality of life is one of the most important positive results of cardiac surgery [29, 30]. Even though it is generally shown that physical function, social function, and psychological well-being develop positively after cardiac operations, it is also known that some patients do not show these improvements [31, 32]. Previous studies have reported that the most important determinants of quality of life in the post-op period are age, education level, comorbid diseases, and social isolation [33].

According to our hypothesis, detailed verbal and visual informations about the operation and post-operative process could positively affect patients' coping strategies and increase their quality of life. Although there is no significant difference in the quality of life in the groups with verbal-visual information and written-only information, when compared with the verbal-visual informed group, it was observed that in the written-only informed group, the use of post-operative coping strategies such as turning to religion decreased, and disability increased. We think that the quality of life results were due to the short-term evaluation in the postoperative period. Because of this, long-term results are needed to measure quality of life. Cultural differences can also change the results. In the literature, COPE had been used in another study, and it was observed that acceptance and focusing on problems were more frequently observed in patients [4].

Heart surgery is one of the most stressful and life-threatening surgeries. In a study in the United Kingdom, the possible risks of an elective cardiac surgery were researched, and during the study patients were asked what questions they had. It was observed that patients responded, "I wanted to be informed about the possibility of death" [34]. In fact, these findings indicate that the real problem is the fear of death rather than a fear of decreased quality of life. Major operations such

Table 2. Baseline and endpoint psychometric measures between two groups

Psychometric Measures	Verbal-Visual Informed Group			Only-Written Informed Group		
	Preop Scores	Postop Scores	p1	Preop Scores	Postop Scores	p1
HAD	15.41±6.85	13.70±6.23	-0.835	12.08±6.79	12.33±8.50	-0.017
BDQ	10.37±7.14	8.54±6.01	-0.747	9.12±5.82	12.33±5.45	-2.362
COPE						
Turning to religion	13.83±2.89	13.58±2.70	-0.418	15.41±0.92	14.25±3.05	-2.188
Substance use	6.29±3.79	5.83±3.10	-0.893	4.75±2.21	4.95±2.23	-0.660
Active-coping	11.29±2.31	10.75±3.01	-1.136	11.58±2.20	11.16±2.14	-0.551
Planning	11.83±2.76	12.04±2.82	-0.315	12.20±2.99	11.16±2.47	-1.869
Humor	8.54±2.63	8.70±3.22	-0.491	9.70±3.67	8.25±3.01	-1.953
Instrumental Social Support	11.33±3.05	10.95±2.54	-0.771	12.04±2.64	11.29±2.27	-1.127
Emotional social support	10.12±3.13	10.37±2.39	-0.572	11.58±2.56	10.16±3.03	-1.760
Acceptance	11.66±2.82	11.12±3.18	-1.163	11.79±3.02	11.00±2.78	-0.788
Focus on & venting emotions	11.00±2.73	11.25±2.45	-0.416	11.16±2.74	10.08±2.73	-1.792
Positive reinterpretation	12.37±2.55	12.16±2.89	-0.516	12.70±2.61	11.20±2.76	-1.941
Denial	8.79±3.20	8.58±2.44	-0.066	9.00±2.55	8.16±2.38	-1.526
Behavioral disengagement	8.12±2.45	8.04±2.44	-0.122	8.12±2.41	8.33±3.04	-0.229
QUALITY OF LIFE	52.23±16.8	50.62±18.0	-0.608	51.68±14.4	55.15±15.5	-0.643

P1: Non parametric- Wilcoxon Test differences between preop post op scores. P2: Non parametric- Mann Whitney U Test differences between groups
 Abbreviations: HAD: Hospital Anxiety and Depression Scale, BDQ: The Brief Disability Questionnaire, COPE: Coping Scale

as brain surgery and cardiac surgery are much more stressful than others, and the patients feel themselves to be at the edge of death in these surgeries. In Turkey, coronary artery bypass graft surgery is one of the most risky operations from socio-cultural and religious aspects. In Islamic thinking, after death a person will be held accountable for their sins, and a new life will continue in heaven or in hell. Therefore, in relation to their life experiences, the meaning of death and anxiety about death may be different for each individual. For some people, death is seen as the attaining of heaven while for the others it is a fear of hell. For this reason, coping strategies such as turning to religion may have calming and inculcating effects in patients.

Small sample size, cross-sectional study, and the lack of evaluation of the patient's personality inventory, the lack of matching groups by gender are our limitations which make it difficult to generalize our results. In addition, evaluation of findings in the short term post-op period is another limitation of our study. Supportive long-term studies are needed, especially in different cultural groups, to determine the modifiable risk factors that may affect the psychological function of patients in the postoperative period.

In conclusion, our study suggests that if patients are informed better about the operation process, the possible risks and postoperative care; their adaptations can be better and the rates of disability can also be decrease.

Conflict of interest: No conflict of interest was declared by the authors.

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Contributions of the authors to the article

O.O., A.B. and G.O. constructed the main idea and hypothesis of the study. O.Z.T., O.I.O., A.B. and G.O. developed the theory and organized the materials and methods section. O.I.O. and O.Z.T. collected data and made the analysis. O.Z.T. and O.I.O. wrote the first manuscript; A.B. and G.O. reviewed and made necessary corrections. All authors discussed the entire study and approved the final version.