

# Quality of Life after Cardiac Surgery

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## ABSTRACT

*The aim of this study was to determine a health-related quality of life two or more years after a cardiac surgery using the MOS-36 item short-form health survey questionnaire. 330 members of »Croatian society of patients who underwent cardiac surgery« were asked and 196 responders, 122 men and 74 women, were included in survey, all of them more than two years after surgery and older than fifty years of age. The answers were collected by phone. Women gained better results for Physical Functioning ( $p < 0.003$ ) and men estimated better scores for psychical health ( $p < 0.001$ ). Our patients gained some different results in respect to the Croatian sample of healthy people of the same age. They declared better General Health ( $p < 0.001$ ), less Bodily Pain ( $p < 0.001$ ), but inferior Role-Emotion ( $p < 0.001$ ) and Social Functioning ( $p < 0.001$ ). The estimations of QOL improving were comparable with the results of numerous shorter follow-ups.*

**Key words:** benefit of cardiac surgery, quality of life, elderly patients, SF-36 questionnaire, interview by phone, HUOSB (Croatian society of patients who underwent cardiac surgery), psychical changes after cardiac surgery, self-estimated health status, gender difference

## Introduction

The patients covered in this study self-estimated a better health-related quality of life (HRQOL) after cardiac surgery (CS), in accord with results of several other studies<sup>1–5</sup>. Some investigations covered the short postoperative period ranging from several weeks to several months<sup>2,3,5–14</sup>. Other studies investigated a longer period from 6 to 12 months after CS<sup>1,3–5,12,14–16</sup>. They all found an improvement of QOL, but a number of authors found that some components of health were still not improved even after a longer follow-up<sup>11,14–16</sup>. Both groups of investigations, shorter and longer follow-ups, frequently found a significant difference related to gender, men usually gaining better results<sup>3,11,12,14,15</sup>.

In a society of transition, some factors probably could influence to results of this study making it different to results of other studies from developed Western countries. For example, pauperized state health programs, inexistence of database with patients who underwent CS, lack of a broad preventive action against CVD and secondary prevention for cardiac patients<sup>17,18</sup>. The cardiovascular mortality in Eastern Europe reached levels five times the EU average, due to addictions, metabolic syn-

drome, unemployment and social insecurity<sup>17</sup>. For this purpose we compared the answers of our patients with the same age healthy Croatian people.

The most of cited studies used the MOS short form 36 items questionnaire<sup>1,19,20</sup>. We investigated the members of »Croatian society of the patients who underwent CS« and distributed a questionnaire to the members by the quarterly journal of Society. After a week we collected the answers by phone.

## Patients and Method

The SF-36 questionnaire has been sent to 330 members of HUOSB in May 2004, and the answers were collected by phone during the following week. In this study we included 196 responders, 74 women and 122 men, which answered to questions. The response rate was 59%. 41% of examined didn't answer questionnaire because they are afraid for their privacy (loosing invalid pension, thinking that polling by telephone isn't appropriate).

The included patients differed with respect to the period of life after CS (two years or more), to different surgical procedures they were subjected to, and to age, but all were older than fifty years of age. 82 responders were younger than 65 years of age (31 women, 51 men), 79 were between 65 and 75 (27 women, 52 men), and 35 were older than 75 (16 women, 19 men). There were 101 cases of valve repair (41 women, 60 men), 84 cases of coronary artery bypass grafting (CABG) (33 women, 51 men), and 11 cases of other procedures (11 men). All of examined people were symptomatic with reduced quality of life.

*Health assessment*

The Croatian version of the Medical Outcome Study 36-item short-form health survey (SF-36) was used for self-estimation of general health<sup>19,20</sup>. This questionnaire is routinely used to compare relative influence of some disease on the subjective estimation of health. This questionnaire was validated in great number of investigations<sup>19</sup>. It contains 36 questions in subscale profile of scores: Physical Functioning, Role-Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role-Emotional, Mental Health, and Health Transition. Each scale describes a certain aspect of functional health. Each SF-36 scale score was transformed to a 0 to 100 scale. The transformation converted the lowest and highest possible scores to 0 and 100, respectively. A score between those values represented the percentage of the total possible score achieved. The higher result means better subjective estimation of health. A probability value of  $p < 0.001$  (two-tailed t-test) indicated a statistically significant difference.

**Results**

A total of 196 responders completed questionnaire. All responders, 122 men and 74 women, were older than 50 years. The data presented in Table 1 show descriptive statistics of health-related quality of life scale scores for our sample.

We compared our results with the results from a study of the healthy Croatians focusing on the group of similar age (1586 persons from 45 to 64 years of age)<sup>20</sup>. It

**TABLE 2**  
THE SUBSCALES WITH SIGNIFICANT DIFFERENCE BETWEEN PATIENTS AFTER CARDIAC SURGERY AND HEALTHY CROATIANS OF THE SAME AGE

Subscale	t	p
Bodily pain	-4.662	$p < 0.001$
General health	-2.97	$p < 0.001$
Social functioning	8.72	$p < 0.001$
Role-emotional	4.394	$p < 0.001$

is important to mention that only 82 our patients were younger than 65. As SF-36 is very sensible to age and even 79 patients were older than 65 years and 35 patients were older than 75 years, we have to evaluate our results with care. There were four subscales with significant difference as in Table 2. The patients after cardiac surgery had less bodily pain ( $p < 0.001$ ) than is expected for this age group and they declared their general health perception better ( $p < 0.001$ ) than expected. Nevertheless they had worsen social functioning ( $p < 0.001$ ) and they had more emotional problems ( $p < 0.001$ ).

Using t-tests for independent samples the next significant gender differences were found. The four of subscales gained different results in respect to gender as in Table 3. Women declared significantly better results only for Physical Functioning ( $p < 0.003$ ). In other subscales, related to psychical health, men had significantly better scores two or more years after surgery. Men declared better perception of General Health ( $p < 0.001$ ) and Social Functioning ( $p < 0.018$ ) and Role-Emotional ( $p < 0.001$ ). These results are comparable to the results of other studies with shorter follow-ups, where women declared inferior QOL in respect to emotional sphere subscales.

**Discussion**

Improvement in survival and quality of life are the primary indications for CS<sup>4,16</sup>. Subjective perceptions among cardiac patients, of physical and psychological well-being changed significantly from before surgery to some months after<sup>2,4,6-8</sup>. Many studies found that measures of mood state, physical functioning, vitality and so-

**TABLE 1**  
THE DESCRIPTIVE STATISTICS OF SF-36 SUBSCALES FOR OUR SAMPLE

	N	M	SD	Minimum	Maximum
Physical functioning	191	67.099	16.47	30	95
Role-physical	196	56.633	47.84	0	100
Bodily pain	194	68.314	23.8	21	100
General health	192	52.130	15.22	22	87
Vitality	191	50.916	11.82	5	95
Social functioning	194	57.989	19.89	12.5	100
Role-emotional	195	54.872	43.12	0	100
Mental health	193	60.601	10.8	28	92

**TABLE 3**  
THE SUBSCALES WITH SIGNIFICANT GENDER DIFFERENCE

Subscale	t	p	Towards
Physical functioning	-2.984	p<0.003	W
General health	3.501	p<0.001	M
Social functioning	2.378	p<0.018	M
Role-emotional	4.394	p<0.001	M

cial functioning improved significantly over time<sup>2,3,8-11</sup>. A majority of studies repeatedly used SF-36, before and after operation<sup>5,7-11,16</sup>. The results of post-surgery QOL improvements after some weeks, months or a 12-months follow-ups were alike<sup>3,5,12,14,16</sup>. However, improvements were not found in all investigations. A satisfaction with socio-economic domain decreased significantly from before surgery to 3 months after surgery<sup>8</sup>. The recovery of women, usually after CABG, have a worse medical condition and fewer social and financial resources than men<sup>3,12</sup>. Strategies to increase social support may be important for health and well-being of women with cardiac disease<sup>3,6,14,15</sup>. CABG is associated with lower functional gains and higher readmission rates and depressions during the time in women compared with men<sup>3,11,13</sup>. CABG patients do not recover during the time as well as patients having undergone heart valve surgery<sup>3,5,12</sup>. The patients with preoperative health status deficits are likely to have an improvement in their QOL following CABG surgery. Alternatively, patients with good health status are unlikely to have a QOL benefit from surgery<sup>7</sup>. Elderly patients not only have higher mortality and morbidity but also derive less benefit from CABG regarding certain aspects of QOL<sup>16</sup>. Many studies concluded that age does not limit QOL, but on the other hand, some studies concluded that age is a predictor of QOL<sup>1,4,7,10,16</sup>. High age limited patients in such activities as daily training and other ways for gaining physical strength, due to osteoporosis, arthrosis, obesity, vertebral deformities and other concomitant diseases of aged. In old people the main goal of surgery is not necessarily to prolong life, but to improve the health-related QOL. In another study even octogenarians declared better QOL after CS<sup>1</sup>.

Patients after CS were less concerned about other symptoms or disturbances than according to most important symptoms of the heart activity. This concentrated everyday care and fears deprived them in emotional and social life as in Table 3. Patients remember their disease and serious problems before surgery. They exaggerated

excellent result of a surgery and they overstated in evaluation of their health status after CS as the best possible. They were highly satisfied after surgery, in respect to more aspects of life as bodily pain and general health. Nevertheless it is necessary to respect the influence of their high age, because 114 (more than 50%) of our patients were older than 65 years of age. More sleeping disturbances in elderly and negative psychical changes as a cause, anxiety and depression, influence to lower emotional and social functioning.

In our study women gained results not as well as men, in respect to psychical health, as in Table 2. Nevertheless women lived less risky, more often had medical check-ups, more strictly used prescribed drugs and medical advices, they perceived HRQOL lower than men, before and after surgery. Women indicated lower QOL than men over the course of a year longitudinal follow-up<sup>12</sup>. Women with coronary artery disease, even without influence of the surgery, consistently reported lower health-related QOL at a year follow-up compared to men<sup>14,15</sup>. A few studies concluded that women, older than 61 years of age, significantly improved their general QOL three months after CABG surgery, but demonstrated poorer physical QOL<sup>10,11</sup>. Moreover, women incline to anxiety and frequently have serious depressive mood and cognitive difficulties<sup>12</sup>. The social life and social activity is a more important factor among women than men. Social support among relatives, especially a sense of belonging or companionship, was significantly connected with emotional QOL (MCS from MOS SF-36) among women<sup>15</sup>. This association aggravate with age, because a lot of elders with 75 years and more, are widowed and alone. They need the family care and support. High levels of social support were associated with improved health status postoperatively<sup>6</sup>.

Men were more unsatisfied with new physical boundaries but in general they declared better health and lower emotional problems than women.

## Conclusion

Patients who have had CS demonstrate a high life satisfaction with an acceptable degree of physical and mental HRQOL. The results were alike to those from other but shorter follow-ups. However, they are inferior in a psychical health to the same age healthy people. Looking for gender difference, the very similar relation was found as women after CS were inferior to men in a psychical domain of health.

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## KVALITETA ŽIVOTA NAKON OPERACIJE SRCA

### SAŽETAK

Cilj ovog rada bio je ispitati subjektivnu procjenu zdravlja ispitanika, koji su operirali srce prije dvije i više godina, razlike obzirom na spol i razlike između naših ispitanika i zdravih vršnjaka. Očekivali smo poboljšanje kvaliteta života, obzirom na zdravstveno stanje, nakon operacije na srcu, kao što su već utvrdila mnoga ispitivanja provedena u kraćem periodu nakon operacije (samo do 12 mjeseci). U tu svrhu upitnik SF-36 poslan je na više od 330 adresa članova Hrvatske udruge operiranih srčanih bolesnika u glasilu udruge. Slijedeći tjedan 196 ispitanika (74 žene i 122 muškarca) odgovorilo je na pitanja telefonskim putem. Svi su operirani pred više od dvije godine i stariji su od 50 godina. 82 su mlađi od 65 godina, 79 između 65 i 75, a 19 su stariji od 75. Bila je 101 operacija zalistaka, 84 samo premosnice i 11 drugih zahvata. Nađene su značajne razlike obzirom na spol, u odgovorima za četiri područja: fizičko funkcioniranje, opće zdravlje, socijalno funkcioniranje i emocionalna ograničenja. Žene su značajno bolje u fizičkom funkcioniranju ( $p < 0,003$ ), dok su muškarci značajno bolji u područjima procjene općeg zdravlja ( $p < 0,001$ ), socijalnog funkcioniranja ( $p < 0,018$ ) i ograničenja u ostvarenju životnih uloga zbog emocionalnih problema ( $p < 0,001$ ). Uspoređujući odgovore zdravih Hrvata vršnjaka (njih 1586 u dobi od 45 do 64 godine života) operirani srčani bolesnici lošije ocjenjuju svoje socijalno funkcioniranje ( $p < 0,001$ ) i emocionalni problemi više utječu na njihov život ( $p < 0,001$ ). Operirani srčani bolesnici procjenjuju značajno bolje svoje zdravlje od zdravih vršnjaka ( $p < 0,001$ ) i doživljavaju manje tjelesne boli nego li je očekivano za njihovu dob ( $p < 0,001$ ). Neprijeporni boljitak postignut operativnim zahvatom kod srčanih bolesnika je dugotrajan. Nakon dvije i više godina, operirani ispitanici iskazuju i dalje bolje zdravstveno stanje od onog prije zahvata, kao što su već mnoge jednogodišnje studije pokazale. Operirani srčani bolesnici imaju slabije psihičko zdravlje od zdravih vršnjaka.

### ABBREVIATIONS:

MOS = medical outcomes study

SF-36 = 36-item short form health survey

HUOSB = »Croatian society of the patients who underwent cardiac surgery procedures«, Kneza Mislava 13, 10 000 Zagreb, Croatia

HRQOL = health-related quality of life

CS = cardiac surgery

CABG = coronary artery bypass graft