

# Subjective Quality of Life and Cardiovascular Risk Factors in a Croatian Adult Population

Tomislav Benjak<sup>1</sup> and Gorka Vuletić Mavrina<sup>2</sup>

<sup>1</sup> Croatian Institute for Public Health, Zagreb, Croatia

<sup>2</sup> »Andrija Štampar« School of Public Health, School of Medicine, University of Zagreb, Zagreb, Croatia

## ABSTRACT

*The objective of this study was to examine prevalence of cardiovascular (CV) risk factors and presence of cardiovascular diseases (CVD) in people with low subjective quality of life (SQoL) in comparison with group of people with normal SQoL. A total of 9070 participants, 2890 men and 6180 women completed a questionnaire. SQoL was assessed with single item question on satisfaction with life as a whole, and data on risk behaviors and diagnosed CVD were obtained through self-reports. Biomedical measures were administrated by public health nurse at participant's home. Results have shown that people with low SQoL have significantly more CV risk factors, and have higher prevalence of obesity and physical inactivity, all irrespective to age group. The most pronounced difference in prevalence of CV risks was found in an age group 35 to 64 years of age where people with low SQoL have significantly higher prevalence of all measured risk behaviors, and physical conditions. Participants with low SQoL perceive their general health poorer, and experience negative and depressive feelings more frequently than those with normal SQoL, in all three age groups ( $p < 0.001$ ). Implications of the results have been discussed. Low SQoL was recognized as a psychological state that represents potential risk factor for the CV health. Prospective studies are needed to allow causal inferences to be drawn.*

**Key words:** Subjective quality of life, cardiovascular risks, Croatian adult health survey, Croatia

## Introduction

Chronic diseases are considered major threats to the quality of life of western populations<sup>1</sup>. Given the growing number of people with multiple chronic conditions in Croatia, more information is needed on the effects of specific conditions for preventive purposes. Prevalence rates of most chronic diseases increase with age, a substantial part of the elderly population suffers from more than one chronic disease. Since chronic diseases and conditions became part of the everyday life for the large proportion of our population it is considerable to research the subjective quality of life (QoL) of those people. It is known that health is one of the significant factors that influence person's QoL. However, health status, either objective or subjective, can not be considered equal to general QoL<sup>2</sup>. Measurement of quality of life is increasingly being required and used in evaluative research and the planning of health services. Talking about measuring QoL, it is important to distinguish objective from subjective QoL. Somebody's own perception of life needs to be recognized as valuable. Failure to consider the patient's viewpoint

will underestimate disability and may also lead to failure to recognize worthwhile benefits of treatment. Successful heart failure treatment may have only modest demonstrable effects on cardiac function and measured exercise capacity but may enable basic everyday activities to be carried out with much greater ease and satisfaction<sup>3</sup>. Quality of life is defined as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, and their relationships to salient features of their environment<sup>4</sup>.

Quality of life is accepted as being important in cardiovascular disease, but there has been widespread skepticism about whether it can be measured in any meaningful manner. Many of the attempts to assess quality of life have relied on conceptually and psychometrically in-

adequate measures, measures that fail to cover the full impact of heart disease and its treatment on the lives of patients and their families. In contrast, there is now an increasingly wide range of standard measures of quality of life, and an increasingly impressive body of knowledge about the methods of generic and specific measures and the ways in which they should be derived and applied. Such measures are increasingly being used in other areas of medicine, are being expected by funding agencies, and used by planners<sup>3</sup>. We have reached a time when quality of life assessment is both being expected in cardiovascular disease and is realistically possible and worthwhile<sup>3</sup>. But QoL is increasingly referred to as health related quality of life. Health-related quality of life, like subjective health status, is patient based, but focuses more on the impact of a perceived health state on the ability to live a fulfilling life<sup>5</sup>. As it was said it's health related QoL, and it is distinct construct from quality of life as a whole which comprised more than just health domain<sup>6</sup>.

Physical conditions such as high blood pressure or BMI as well as risk behaviors (such as smoking, alcohol drinking and poor nutritional habits) have been recognized as risk factors for cardiovascular diseases. In addition, psychosocial factors have been suggested as risk factors for atherosclerotic disease<sup>7</sup>. Most of the previous studies have examined the relationship between several psychosocial factors and coronary heart disease. However, a few studies also suggest a relationship between psychological states and CV risks and diseases.

Like unhealthy behaviors and biomedical conditions are recognized risk factors for CV diseases we proposed that low SQoL as undesirable psychological state also represent risk factor for chronic diseases in general and we will focus on it's relation to CV diseases.

The aim of this study is to investigate the associations between the level of subjective quality of life (SQoL) and the prevalence of CV risk factors (biomedical, behavioral and psychological) and presence of specific cardiovascular disease and in Croatian open adult population, and to examine whether these associations differ in the two groups.

## Materials and methods

This study was a part of a broader research – Croatian Adult Health Survey (CAHS) which covered a wide range of health-related variables<sup>8</sup>. Survey targeted persons aged 18 years or older who are living in private dwellings in The Republic of Croatia. The 2001 Croatian Census of Population has been used to select a representative sample of households to be included in this survey. A total of 10,766 households were selected to participate in the 2003 CAHS based on multistage stratified cluster sampling design. A questionnaire was administered face to face to respondents at their home by trained community nurses.

Subjective quality of life was measured by single item question »How satisfied are you with your life as a whole« and answer was rated on a 11 points (0–10) end-defined response scale where 0 indicated complete

dissatisfaction and 10 indicated complete satisfaction. This measure was chosen on the basis of a previous study which proposed that the essence of SWB is best reflected by the most abstract and personal questions of satisfaction<sup>9</sup>. Thus, »your life as a whole« reflects the »core« of subjective well-being and so represents the most suitable target for our investigation into affective content<sup>10</sup>.

Data on risk behaviors (physical activity, smoking, drinking) and CVD diagnoses were self-reported by participants and it was a part of the health survey questionnaire. Biomedical measures (blood pressure, height and weight) were administrated by public health nurse. Questionnaire was administered face to face to respondents at their home by trained community nurses. Anthropometric measures such as height, weight and blood pressure were taken firstly, after which a series of questions were administered to respondents and recorded by the interviewer.

## Statistical analysis

Since we expected different results according to age, all results were presented stratified to this characteristic.

Results from SQoL scale were transformed and presented in a standard form »percentage of scale maximum« (%SM) where original results were transformed to a 0–100 point scale. This conversion does not alter the statistical properties of the data, since the process is a simple linear conversion, but it has the advantage that data from the different researches using other scales (with different number of points) can be directly compared in terms of their means and standard deviations<sup>11</sup>. Differences in means and proportions were tested with two-tailed t-tests and  $\chi^2$  statistics respectively. Statistical significance was set at  $p < 0.05$ .

## Results

The study comprised 9070 participants, more women (68.1%) than men (31.9%). The average age was 53.96 years (SD=17.02) ranging from 18 to 101 years of age.

The average satisfaction with life as a whole for the whole sample was 56.97 %SM (SD = 22.19 %SM); with the median score 50%SM. All further analysis were done and presented on the age group basis.

Participants were grouped according to SQoL level in the two groups. Based on the findings from international researches, SQoL level equal or below 50%SM was considered as a »low SQoL«. SQoL level 60 %SM and above was considered as normal SQoL. Average level of SQoL and proportion of participants with low SQoL according to age group was presented in table 1.

Proportion of people with low SQoL increase with the age. From 25.7% in youngest age group to as much as 64% in oldest age group.

In order to examine differences in prevalence of cardiovascular risk factors and present CV diseases between respondents with low and normal SQoL, t-test and  $\chi^2$  statistics was performed. The means and standard devia-

**TABLE 1**  
DESCRIPTIVE STATISTICS FOR THE SQoL AND PROPORTION  
OF PARTICIPANTS WITH LOW SQoL ACCORDING TO AGE  
GROUP

	Age group		
	18–34	35–64	65 +
N (%)	870 (9.6)	5248 (57.9)	2952 (32.5)
SQoL			
X %SM	70.32	58.41	50.47
SD %SM	18.90	21.37	22.67
Low SQoL			
N (%)	224 (25.7)	2610 (49.7)	1890 (64.0)
Normal SQoL			
N (%)	646 (74.3)	2638 (50.3)	1062 (36.0)

**TABLE 2**  
MEANS, STANDARD DEVIATIONS AND SIGNIFICANCE OF DIFFERENCE IN CVD RISKS AND BIOMEDICAL RISK CONDITIONS BETWEEN RESPONDENTS WITH LOW AND NORMAL SQoL ACCORDING TO AGE GROUP

Age group	18–34	35–64	65 +
SQoL	low / normal	low / normal	low / normal
Number of risks	0.88 ± 0.98	1.77 ± 1.23	2.36 ± 1.07
(range 0–6)	0.59 ± 0.80	1.45 ± 1.20	2.22 ± 1.09
	p < 0.001	p < 0.001	p = 0.001

**TABLE 3**  
PREVALENCE OF CARDIOVASCULAR RISK FACTORS AND SIGNIFICANCE OF DIFFERENCE BETWEEN GROUP WITH LOW AND GROUP WITH NORMAL SQoL, ACCORDING TO AGE GROUP

Age group	18–34		35–64		65 +	
SQoL	low / normal		low / normal		low / normal	
Risk factors						
Waist circumferences	n.sg.		51.5%	45.4%	n.sg.	
Obese	8.9%	3.9%	24.9%	20.7%	27.5%	23.9%
Passive	28.6%	19.8%	25.1%	18.8%	50.8%	40.4%
Smoking	52.7%	39%	34.9%	29.6%	n.sg.	
Drinking	n.sg.		3.9%	2.3%	n.sg.	
High blood pressure	10.7%	7.1%	43.1%	34.4%	n.sg.	
Health						
General health perception	p < 0.001		p < 0.001		p < 0.001	
Diseases						
Heart attack	n.sg.		3.3%	1.3%	8.3%	7%
CVI	n.sg.		2.8%	1.7%	8.1%	6.1%
			p = 0.006		0.049	

tions of the number of CV risks for each group according to age are presented in Table 2.

The between-group comparisons showed that groups with low SQoL reported a significantly more CVD risk factors irrespective to age group. But average number of risks increase with the age irrespective to SQoL level.

The most pronounced difference in prevalence of CV risks was found in an age group 35 to 64 years of age where people with low SQoL have significantly higher prevalence of all measured risk behaviors, and physical conditions such as high blood pressure (systolic blood pressure > 140 and diastolic > 90), obesity (BMI > 30) and waist circumferences (> 88 for women and > 103 for men). Prevalence of obesity was significantly higher in the groups with low SQoL in all age groups. Furthermore, people with low SQoL perceive their general health poorer in comparison to those with normal SQoL and it was found irrespective to age group (Table 3). In participants 35 to 64 as well as in older than 64 years, prevalence of diagnosed CVD was significantly higher. This was not found in the group from 18 to 34 years old (Table 3).

In addition to registering their behavioral risks and biomedical risk conditions, participants were asked about the frequency of depressive feelings during the last month. They've been asked to rate on a 6 point Likert scale (from never to always) how often they felt low & downhearted, and how often they felt so down that nothing can cheer them up. Group with low SQoL experience negative and depressive feelings more frequently than group with normal SQoL in all three age groups. Differ-

ence was tested with  $\chi^2$  test for each age group, and difference is significant at the level of  $p < 0.001$ .

## Discussion

Literature focusing on the SQoL levels of populations as a whole has found that the data do not fit a normal curve, but are instead consistently negatively skewed<sup>12–14</sup>. A considerable body of research has demonstrated that most people are satisfied with their own life<sup>15</sup>. In Western nations, the average value for population samples is about 75%, with a normal range from 70% to 80%. Based on a meta-analysis of data from 47 different countries Cummins (1998) reported that a population life satisfaction scores yielded an average value which could be approximated to  $70 \pm 5\%SM$ <sup>6</sup>. Thus world normative population levels can be expected within range 60–80 %SM. The normative range for individual SQoL level can be expected in a range 50–100% of scale maximum<sup>16</sup>.

Average life satisfaction in our sample of Croatian adult population was 56.97 %SM what was much lower than expected normative values for non-western countries. Women in average reported slightly higher satisfaction with life than men (57.31 %SM and 56.24 %SM respectively). Such a low average level of SQoL in Croatian adult population is of the concern for the psychological as well as physical and social health of the population. Further research was suggested in order to find main restraints of the population SQoL.

Results have shown that people 35 to 64 years with low SQoL have higher prevalence of all measured risk behaviors (passive life style, smoking, drinking), and risk physical conditions (BMI >30, risk waist circumferences, high blood pressure). According to reports from National statistical bureau about 1/3 of Croatian population were between 35 and 64 years of age which was also called working productive years. This population subgroup has two important life roles – private/parental and professional as a part of a working force of the Country. Almost

50% of our participants in this age reported low SQoL. As a undesirable psychological state of dissatisfaction with the life as a whole it was concerning founding by itself. Adding already recognized cardiovascular risk factors in this group this put them in a challenged life situation. We point them out as a vulnerable population subgroup that needs public health attention.

People with low SQoL have in average more risk factors than those with normal SQoL. They have higher prevalence of obesity and physical inactivity, all irrespective to age. However, none causality can be drawn from the presented results. Prospective studies are needed to allow causal inferences to be drawn. Our participants with low SQoL perceive their general health poorer in comparison to those with normal SQoL and it was found irrespective to age group. Another notable finding is that respondents with low SQoL reported significantly more depressive feelings than respondents with normal SQoL irrespective to age group. Some researcher arguing that depression may be conceptualized as a lack of life satisfaction<sup>17</sup>. The negative impact of depression on one's health was increasingly recognized, thus low subjective QoL can be viewed as a psychological risk factor for cardiovascular diseases.

In participants in age group 35 to 64 as well as in older than 64 years, prevalence of diagnosed CVD was significantly higher. Although this was not found in a younger participants, that doesn't mean that they are not under risk. They young age still can be protective factor.

The recognition of subjective quality of life as separate indicator from the health related QoL is one of the most important steps forward in the health promotion of the patients as well as healthy people.

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G. Vuletić Mavrincac

»Andrija Štampar« School of Public Health, School of Medicine, University of Zagreb, Rockefellerova 4, 10000 Zagreb, Croatia  
e-mail: gorka.vuletic@snz.hr

## **SUBJEKTIVNA KVALITETA ŽIVOTA I KARDIOVASKULARNI RIZICI U HRVATSKOJ ODRASLOJ POPULACIJI**

### **S A Ž E T A K**

Cilj ovog istraživanja bio je istražiti prisutnost kardiovaskularnih rizičnih čimbenika i kardiovaskularne bolesti u osoba s niskom subjektivnom kvalitetom života u odnosu na osobe s dobrom subjektivnom kvalitetom života. Uzorak se sastojao od 9070 ispitanika, od čega je bilo 2890 muškaraca i 6180 žena. Subjektivna kvaliteta života mjerena je jednim kroz pitanje o općem zadovoljstvu životom na skali 0–10, a podaci o rizičnom ponašanju i biomedicinskim stanjima prikupljeni su upitnikom kroz samoiskaz ispitanika. Podatke je prikupljala pratronažna sestra u domu ispitanika. Rezultati su pokazali da osobe s niskom kvalitetom života imaju registriran veći prosječan broj rizičnih čimbenika, imaju veću prevalenciju pretilosti i bolesti (srčani infarkt i CVD) bez obzira na dob. Najveće razlike u prevalenciji rizičnih čimbenika su nađene za dobnu skupinu od 35 do 64 godine, gdje osobe s niskom kvalitetom života imaju veću prevalenciju svih mjerenih rizika. U sve tri dobne skupine ispitanici s niskom kvalitetom života procjenjuju svoje opće zdravlje lošijim i navode značajno veću učestalost negativnih i depresivnih raspoloženja u odnosu na osobe s dobrom kvalitetom života ( $p < 0,001$ ). Implikacije ovih rezultata su raspravljene. Niska subjektivna kvaliteta života predstavlja psihičko stanje koje je potencijalni rizični faktor za kardiovaskularno zdravlje. Prospektivne studije su potrebne da bi se utvrdila uzročno-posljedična povezanost.