Quality of life for Cardiovascular Patients in Saudi Arabia

Mohammed M.Mougrabi (1)
Nouran K.Althumali (2)
Raghad S.AL-juaid (2)
Thekra M.Alsalmi (2)
Ohoud D.Alotaibi (2)
Waad S.Alzahrani (2)
Najla J.Alkhaldi (2)

(1) Consultant of invasive cardiology, King Faisal Medical Center Taif, Saudi Arabia.
(2) Medical student, Taif University, KSA

Corresponding author:
Dr. Najla J.Alkhaldi
Faculty of Medicine, Taif University, College of medicine,
Taif, KSA
Tel.:0537397106
Email: Najlaalkhaldi97@hotmail.com

Received: November 2021; Accepted: December 2021; Published: January 1, 2022.
Citation: Mohammed M.Mougrabi et al. Quality of life for Cardiovascular Patients in Saudi Arabia. World Family Medicine. 2022; 20(1): 87-100 DOI: 10.5742/MEWFM.2022.95214

Abstract

Background: Cardiovascular diseases (CVD) are a global issue bearing a heavy burden of illness. The studies conducted on the quality of life for Cardiovascular patients is still limited in Saudi Arabia. The current study aims to investigate Quality of life for Cardiovascular Patients in Saudi Arabia 2020. We want to assess the quality of life for cardiac patients and its connection with certain factors.

Objectives: assess the extent of effect of mental and physical wellbeing and social relations on the quality of life of patients with cardiovascular disease .

Methods: It was a descriptive cross sectional study of all adults Saudi patients who had cardiovascular diseases or who had cardiac surgery at least for the previous 5 years, performed between February 2021 And December 2021 at different regions in Saudi Arabia. We used a form of online survey SF-36 that was distributed through the network.

Results: 470 participants were included in the study; 47.9% females and 52.1% males. Overall, female, divorced, high BMI, patients with co-morbidities, patients aged above 55 years, patients who have low education level and the patients who were working in the non-health sector showed poor quality of life compared to other participants.

Conclusion: Recognizing the factors that lower the quality of life for cardiovascular patients in the Saudi community is important and essential to address their needs and give better Quality of Life.

Key words : Quality of life, Cardiovascular diseases, Cardiac surgery, Saudi Arabia, survey SF-36.

List of abbreviation :
(CVD): Cardiovascular diseases
(CHD): Coronary Heart Disease
(QoL): Quality of life
(HRQoL): Health-Related Quality of Life
(BMI): Body Mass Index

Introduction

Cardiovascular diseases (CVD) are a global issue bearing a heavy burden of illness and it's prevalence in KSA was 5.5%, recorded by the only nationally representative research conducted in Saudi Arabia[1]. The World Health Organization (WHO) defined CVD as a general term for a group of disorders that affect the heart and blood vessels[2]. Patients with CVD experience severe physical and mental consequences [3]. Traditional outcome indicators such as morbidity and mortality are not adequate to determine the benefits of medical treatment for chronic diseases such as CVD [4].This is because functional ability, psychological status, and social interaction are not measured by traditional measures [5]. The health-related quality of life (HRQoL) is widely used as an indicator of the outcome of CVD and it includes measurements of physical, mental, emotional and social functioning. Several studies have reported the relevance of HRQoL to CVD [5]. In 2015 research conducted in Saudi Arabia found that in all domains Saudi patients with HF reported low QoL [6]. Quality of life of heart failure patients is lower than that of the general population and of other patients with other chronic diseases. In these patients, female sex, being older, comorbidity, symptoms that are advanced, and recent hospitalizations are important determinants in the health-related quality of life [7]. In HF patients, bad HRQoL is correlated with hospital readmission and death [8]. Also women with heart disease significantly have poorer quality of life than men [9]. The incidence of impaired HRQoL in both men and women was higher among the high-risk category [5]. The levels of educational attainment, socioeconomic status, the primary source of income, age, social support, and total spiritual well-being were found to be important predictors of QoL[10]. Another study reported that physical activity was the lowest among the four general areas of quality of life and multiple studies reported the most important factors affecting the quality of life were sex, age, education, marital status, occupational status, duration of suffering, and number of hospitalizations [11]. Later in 2019, a study conducted among 100 HF outpatients showed that HF has a significant influence on QoL [12]. Another research conducted in Jeddah for post-cardiac surgery showed that HRQoL impairment was linked to the prevalence of comorbidities such as hypertension, diabetes, and prior cerebrovascular stroke [13]. Regarding QoL after cardiac surgery studies have shown that, five-year survival and HRQOL could be equal to the general population[14]. Better quality of life after coronary artery bypass graft surgery was associated with a lower level of anxiety and women scored lower on the physical dimensions of quality of life [15]. Major variations in the quality of life of cardiac patients are related to gender and exercise performance [16]. The studies conducted on the quality of life for cardiovascular patients is still limited in Saudi Arabia, and it is considered the principal cause of disability and death among young individuals. This study aims to investigate Quality of life for cardiovascular patients in Saudi Arabia 2020. We wanted to assess the quality of life for cardiac patients and its connection with certain factors. The final aim is to assess the extent of effect of mental and physical wellbeing and social relations on the quality of life of patients with cardiovascular disease.

Methodology

Study design: a descriptive cross-sectional study

Study setting: an electronic online survey was conducted

Study population: The inclusion criteria were as follows: All male and female cardiac patients or those who have cardiac surgery above 18 years old from the general population and who agreed to participate. The exclusion criteria were as follows: All non-cardiac patients and those below 18 years.

Study instrument:.
The newly developed self-administered English version of the Questionnaire was adopted from the The Short Form (36) Health Survey (SF-36). The draft of our initial questionnaire was made in the English language. The questionnaire included three sections: section A consisted of sociodemographic, details, Section B had items with Numerical Rating Scale for eight dimensions: vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social role functioning, and mental health.

Section C included medical history and other associated risk factors of cardiac disease. A standardized methodology was followed in the validation of this questionnaire that included focus group discussion, expert evaluation, pilot study, reliability and validity assessment, etc. The content validity, face validity, and construct validity of the developed questionnaire were examined. Content validity and face validity were established by expert evaluation and focused group discussions. Construct validity was established by exploratory factor analysis with varimax rotation to test the hypothesized domain structure and examine its substructure. Internal consistency was examined, but test/retest reliability could not be performed because of the paucity of time. The homogeneity of the question items in each domain was evaluated using Cronbach's α coefficient. A coefficient of 0.7 or higher is preferred for a questionnaire to be internally consistent. In the first step, two independent professional bilingual translators translated the original English version of the questionnaire into the Arabic version (forward translation). One of the translators was from a non-medical field and another from the medical field (doctor) and both were native Arabic speakers. The Minimal Translation Criteria were followed with two independent bilingual health professionals for forward translating the questionnaire [14]. Translators were informed of the target audience of the translation and the medium in which the instrument would be administered. In the second step, a meeting involving the two independent professional bilingual translators and a member from the research group was conducted to review, reconcile, and harmonize the forward translation. Another two independent bilingual translators then translated this

then translated this reconciled forward translation back into English. The translated, culturally adapted version of the Questionnaire to assess Physical activity during the pandemic was pilot tested in 20 samples (5) (17).

Ethical considerations: The study was approved by the research ethics committee of Taif university.

Statistical Analysis: The data collected were analysed using SPSS version 23 (IBM Corp. Chicago, USA). The normality of the main continuous variable was tested for normality and found that it was normally distributed (Shapiro–Wilk test, $p>0.05$). Continuous variables were expressed using mean and standard deviations and categorical variables using frequencies and percentages. Student's t test and Analysis of variance were used to compare the differences in DLQI scores between different groups. Pearson's Chi-square test was used to evaluate the statistical relationship between categorical variables. A P-value of ≤0.05 was considered statistically significant.

Result

Our study evaluated the health-related quality of life among cardiovascular patients during the COVID-19 pandemic using the Arabic version of RAND 36-Item Short Form Survey. The study included 470 participants who gave consent to participate and comprised 47.9% females and 52.1% males. The sociodemographic characteristics of the participants are given in Table 1. The 36-Item form is subdivided into nine subdomain scales, namely: Physical functioning, role limitations due to physical health, role limitations due to emotional problems, Energy/fatigue, Emotional well-being, Social functioning, Pain, General health, and health change. The mean scores, variability, and reliability of each of these subdomains are given in Table 2.

When we compared the score of each subdomain items between two genders, it was found that all of the subdomains except general health and health change showed statistically significant differences. The female patients showed lower scores in physical functioning, role limitations due to physical health, role limitations due to emotional problems, Energy/fatigue, emotional well-being, and pain compared to male patients ($p<0.05$) whereas, male patients showed lesser scores (better quality of life) in social functioning than female patients ($p<0.05$) [Table 3].

Patients who were aged more than 55 years showed lesser scores in Physical functioning, role limitations due to physical health, role limitations due to emotional problems, Energy/fatigue, pain, general health, and health change compared to those who were less than 55 years old ($p<0.05$). But social functioning scores were lesser in patients aged less than 55 years ($p<0.05$). There was no statistically significant difference observed in emotional well-being between the two age groups [Table 4]. The comparison of scores between different residence types didn't show any statistically significant difference in any of the subdomains ($p>0.05$) [Table 5].

When we evaluated the scores between patients who are working in the health sector and non-health sector, it was found that patients who worked in the health sector showed higher scores (67.1 ± 31.2) in the subdomain of physical functioning compared to others (55 ± 28.3) which showed statistically significant difference ($p<0.05$). The scores of the other eight subdomains didn't show any statistically significant differences [Table 6].

The comparison of scores of 9 subdomains between different educational levels showed higher functioning among patients with post-graduate qualification compared to other scores in all domains except social functioning ($p<0.05$). The social functioning scores were lesser in patients with post-graduate qualifications compared to others ($p<0.05$) [Table 7]. When we evaluated the different item scores according to BMI of the patients, it was found that those who were obese showed lesser scores in Physical functioning, role limitations due to physical health, role limitations due to emotional problems, Energy/fatigue, Pain, General health and Health change that showed statistically significant differences [Table 8].

The comparison of scores of subdomains between the different marital statuses showed that divorced or widower had lesser scores in all domains except social functioning ($p<0.05$). The social functioning scores were lesser among married patients compared to others which also showed a statistical significance ($p<0.05$) [Table 9]. According to different regions, the score comparison of patients showed a statistically significant difference in all domains except the pain scores [Table 10]. When we compared the scores based on the smoking status, patients who never smoked has statistically significantly lesser physical functioning scores, role limitations due to physical health, pain, and health change compared to those who smoked and ex-smokers [Table 11]. The patients who had at least one comorbidity, showed lesser scores compared to those who didn't have any comorbidities, which showed a statistically significant difference [Table 12].

Table 1: Sociodemographic details			
		N	%
Age	<18 years	14	3.0
	18-25 years	40	8.5
	26-35 years	38	8.1
	36-45 years	69	14.7
	46-55 years	93	19.8
	56-65 years	117	24.9
	>66 years	99	21.1
Gender	Male	245	52.1
	Female	225	47.9
Marital status	Married	338	71.9
	Single	73	15.5
	Divorced or Widower	59	12.6
Job sector	Non-Health Sector	430	91.5
	Health sector	40	8.5
Educational level	Primary school	63	13.4
	Middle school	56	11.9
	Secondary or high school	152	32.3
	Graduate	188	40.0
	Post-graduate	11	2.3
Province living/ Residence	North	104	22.1
	South	117	24.9
	East	82	17.4
	West	105	22.3
	Central	62	13.2

Table 2: Mean scores for the domains of RAND 36-Item Health Survey						
	N of items	Alpha	Mean	SD	Minimum	Maximum
Physical functioning	10	0.927	56.07	28.70	.00	100.00
Role limitations due to physical health	4	0.847	50.43	41.33	.00	100.00
Role limitations due to emotional problems	3	0.854	57.16	43.53	.00	100.00
Energy/fatigue	4	0.610	49.24	19.84	.00	100.00
Emotional well-being	5	0.716	57.10	19.21	4.00	100.00
Social functioning	2	0.871	38.99	29.52	.00	100.00
Pain	2	0.639	54.34	20.78	.00	90.00
General health	5	0.616	50.79	18.11	.00	100.00
Health change	1	-	64.10	30.45	.00	100.00

Table 3: Comparison of scale scores between two genders				
		Mean	SD	P value
Physical functioning	Male	62.1	28.1	<0.001
	Female	49.5	27.9	
Role limitations due to physical health	Male	58.4	41.9	<0.001
	Female	41.8	39.0	
Role limitations due to emotional problems	Male	63.0	42.6	0.002
	Female	50.8	43.8	
Energy/fatigue	Male	51.4	19.7	0.012
	Female	46.8	19.8	
Emotional well-being	Male	59.5	19.2	0.005
	Female	54.5	18.9	
Social functioning	Male	35.5	29.9	0.008
	Female	42.8	28.7	
Pain	Male	57.1	23.0	0.018
	Female	51.9	18.3	
General health	Male	52.2	18.2	0.086
	Female	49.3	18.0	
Health change	Male	65.8	30.5	0.201
	Female	62.2	30.4	

Table 4: Comparison of scale scores between two genders				
		Mean	SD	P value
Physical functioning	<=55 years	63.3	24.5	<0.001
	>55 years	47.6	31.0	
Role limitations due to physical health	<=55 years	55.1	39.3	0.005
	>55 years	44.9	43.0	
Role limitations due to emotional problems	<=55 years	63.6	41.1	<0.001
	>55 years	49.5	45.1	
Energy/fatigue	<=55 years	53.7	17.3	<0.001
	>55 years	44.1	21.4	
Emotional well-being	<=55 years	58.9	18.5	0.424
	>55 years	54.9	19.9	
Social functioning	<=55 years	34.4	26.5	0.009
	>55 years	44.4	32.0	
Pain	<=55 years	58.0	18.9	0.023
	>55 years	50.1	22.1	
General health	<=55 years	55.1	14.7	<0.001
	>55 years	45.7	20.3	
Health change	<=55 years	69.5	27.7	<0.001
	>55 years	57.8	32.4	

Table 5: Comparison of scale scores between different residence types				
	Residence	Mean	SD	P value
Physical functioning	Urban	56.8	28.0	0.392
	Rural	54.2	30.5	
Role limitations due to physical health	Urban	52.0	41.6	0.185
	Rural	46.3	40.6	
Role limitations due to emotional problems	Urban	58.3	42.9	0.362
	Rural	54.2	45.2	
Energy/fatigue	Urban	50.0	18.9	0.161
	Rural	47.1	22.2	
Emotional well-being	Urban	56.6	19.6	0.334
	Rural	58.5	18.0	
Social functioning	Urban	38.5	29.3	0.576
	Rural	40.2	30.3	
Pain	Urban	55.2	19.7	0.219
	Rural	52.2	23.3	
General health	Urban	50.5	17.8	0.532
	Rural	51.6	19.0	
Health change	Urban	64.3	30.0	0.854
	Rural	63.7	31.7	

Table 6: Comparison of scale scores between different Job sector				
		Mean	SD	P value
Physical functioning	Health sector	67.1	31.2	0.011
	Other	55.0	28.3	
Role limitations due to physical health	Health sector	52.5	35.7	0.740
	Other	50.2	41.8	
Role limitations due to emotional problems	Health sector	58.3	39.0	0.859
	Other	57.1	44.0	
Energy/fatigue	Health sector	53.1	11.0	0.196
	Other	48.9	20.4	
Emotional well-being	Health sector	51.7	15.1	0.063
	Other	57.6	19.5	
Social functioning	Health sector	35.6	24.6	0.452
	Other	39.3	29.9	
Pain	Health sector	58.8	16.7	0.180
	Other	53.9	21.1	
General health	Health sector	53.5	11.9	0.322
	Other	50.5	18.6	
Health change	Health sector	58.8	29.2	0.246
	Other	64.6	30.5	

Table 7: Comparison of scale scores between different Educational level				
		Mean	SD	P value
Physical functioning	Primary school	28.7	24.6	<0.001
	Middle school	49.6	27.7	
	Secondary or high school	60.3	25.5	
	Graduate	63.1	27.0	
	Post-graduate	66.4	29.9	
Role limitations due to physical health	Primary school	23.4	35.6	<0.001
	Middle school	43.8	41.9	
	Secondary or high school	54.6	40.4	
	Graduate	57.2	40.1	
	Post-graduate	65.9	40.7	
Role limitations due to emotional problems	Primary school	31.7	41.7	<0.001
	Middle school	51.2	46.3	
	Secondary or high school	61.0	42.2	
	Graduate	63.3	41.6	
	Post-graduate	75.8	39.7	
Energy/fatigue	Primary school	36.0	19.5	<0.001
	Middle school	44.8	23.7	
	Secondary or high school	50.8	19.8	
	Graduate	53.2	16.8	
	Post-graduate	58.6	12.9	
Emotional well-being	Primary school	51.9	17.7	0.047
	Middle school	55.8	23.0	
	Secondary or high school	56.1	18.7	
	Graduate	59.7	18.6	
	Post-graduate	62.9	19.8	
Social functioning	Primary school	52.8	31.8	<0.001
	Middle school	47.3	30.4	
	Secondary or high school	35.7	28.7	
	Graduate	35.0	27.3	
	Post-graduate	31.8	31.8	
Pain	Primary school	42.7	19.8	<0.001
	Middle school	51.9	23.3	
	Secondary or high school	56.3	20.3	
	Graduate	58.3	19.0	
	Post-graduate	49.6	24.6	
General health	Primary school	39.5	20.7	<0.001
	Middle school	44.5	21.3	
	Secondary or high school	52.6	14.4	
	Graduate	54.5	16.6	
	Post-graduate	58.6	23.0	
Health change	Primary school	48.0	33.4	<0.001
	Middle school	64.3	32.3	
	Secondary or high school	66.3	28.7	
	Graduate	68.0	28.6	
	Post-graduate	59.1	34.0	

Table 8: Comparison of scale scores according to different BMIs				
		Mean	SD	P value
Physical functioning	Underweight	62.7	24.1	<0.001
	Normal	63.0	28.2	
	Overweight	55.4	27.8	
	Obese	47.8	29.2	
Role limitations due to physical health	Underweight	49.0	40.7	0.005
	Normal	57.6	39.3	
	Overweight	52.5	41.5	
	Obese	40.2	41.9	
Role limitations due to emotional problems	Underweight	55.6	40.1	0.020
	Normal	65.7	40.6	
	Overweight	56.3	43.3	
	Obese	49.3	46.5	
Energy/fatigue	Underweight	52.9	17.9	<0.001
	Normal	53.1	16.5	
	Overweight	49.9	20.0	
	Obese	43.3	22.6	
Emotional well-being	Underweight	61.7	19.3	0.602
	Normal	56.9	17.2	
	Overweight	56.3	20.5	
	Obese	57.9	19.9	
Social functioning	Underweight	38.5	22.1	0.771
	Normal	36.8	28.3	
	Overweight	39.9	29.7	
	Obese	40.2	32.5	
Pain	Underweight	61.9	20.1	0.048
	Normal	55.6	17.1	
	Overweight	55.2	21.5	
	Obese	49.9	23.5	
General health	Underweight	56.5	10.7	0.013
	Normal	53.6	14.1	
	Overweight	50.2	20.0	
	Obese	47.2	20.3	
Health change	Underweight	75.0	28.6	0.015
	Normal	66.5	28.1	
	Overweight	65.6	30.5	
	Obese	57.5	32.2	

Table 9: Comparison of scale scores according to different marital status				
		Mean	SD	P value
Physical functioning	Married	58.3	27.3	<0.001
	Single	64.5	26.0	
	Divorced or Widower	32.7	28.6	
Role limitations due to physical health	Married	53.8	41.4	<0.001
	Single	56.8	36.1	
	Divorced or Widower	22.9	36.3	
Role limitations due to emotional problems	Married	56.9	42.9	0.002
	Single	69.9	40.9	
	Divorced or Widower	42.9	46.3	
Energy/fatigue	Married	50.7	18.3	<0.001
	Single	55.2	20.5	
	Divorced or Widower	33.6	20.4	
Emotional well-being	Married	57.6	18.3	0.003
	Single	60.9	22.3	
	Divorced or Widower	49.8	18.6	
Social functioning	Married	38.8	28.5	<0.001
	Single	29.8	28.8	
	Divorced or Widower	51.7	32.1	
Pain	Married	55.5	20.2	<0.001
	Single	60.2	20.6	
	Divorced or Widower	42.3	19.7	
General health	Married	52.2	17.0	<0.001
	Single	55.6	15.6	
	Divorced or Widower	36.9	20.5	
Health change	Married	65.8	28.6	<0.001
	Single	70.5	31.8	
	Divorced or Widower	46.2	32.8	

Table 10: Comparison of scale scores according to different provinces				
		Mean	SD	P value
Physical functioning	North	53.7	29.8	0.007
	South	55.1	31.8	
	East	63.4	27.9	
	West	59.3	23.0	
	Central	46.8	28.0	
Role limitations due to physical health	North	51.0	38.9	<0.001
	South	48.5	41.0	
	East	64.6	40.1	
	West	51.0	40.9	
	Central	33.5	42.7	
Role limitations due to emotional problems	North	52.9	39.3	<0.001
	South	53.6	45.7	
	East	70.7	39.7	
	West	64.1	43.3	
	Central	41.4	45.4	
Energy/fatigue	North	50.0	13.8	<0.001
	South	48.3	24.7	
	East	53.6	18.0	
	West	54.0	13.9	
	Central	36.0	23.3	
Emotional well-being	North	49.8	14.8	<0.001
	South	60.8	21.2	
	East	65.4	16.8	
	West	57.3	14.7	
	Central	51.2	25.0	
Social functioning	North	40.4	21.8	<0.001
	South	37.0	32.8	
	East	29.3	30.9	
	West	40.5	25.8	
	Central	50.8	34.2	
Pain	North	54.0	14.5	0.061
	South	53.7	24.9	
	East	57.3	22.2	
	West	57.6	18.8	
	Central	47.1	23.7	
General health	North	50.9	11.9	<0.001
	South	54.4	18.5	
	East	54.9	21.0	
	West	53.8	11.2	
	Central	33.2	21.3	
Health change	North	61.3	27.8	<0.001
	South	60.5	32.7	
	East	73.5	29.7	
	West	72.6	22.6	
	Central	48.8	34.9	

Table 11: Comparison of scale scores based on smoking status				
		Mean	SD	P value
Physical functioning	Active smoker	64.4	23.7	0.019
	Ex-smoker	55.0	30.8	
	Never smoker	54.1	28.5	
Role limitations due to physical health	Active smoker	58.8	40.9	0.004
	Ex-smoker	56.1	42.5	
	Never smoker	44.4	40.0	
Role limitations due to emotional problems	Active smoker	62.3	43.4	0.418
	Ex-smoker	58.0	41.5	
	Never smoker	55.0	44.8	
Energy/fatigue	Active smoker	50.1	18.3	0.436
	Ex-smoker	50.6	18.5	
	Never smoker	48.1	21.1	
Emotional well-being	Active smoker	55.4	18.6	0.309
	Ex-smoker	55.8	18.8	
	Never smoker	58.4	19.6	
Social functioning	Active smoker	37.7	29.4	0.762
	Ex-smoker	38.1	28.3	
	Never smoker	39.9	30.4	
Pain	Active smoker	60.5	21.5	0.026
	Ex-smoker	51.5	22.0	
	Never smoker	54.2	19.5	
General health	Active smoker	51.5	17.2	0.612
	Ex-smoker	51.7	16.3	
	Never smoker	50.0	19.4	
Health change	Active smoker	64.0	30.5	0.045
	Ex-smoker	59.2	29.0	
	Never smoker	67.1	31.0	

Table 12: Comparison of scale scores according to Comorbidity				
	Comorbidity	Mean	SD	P value
Physical functioning	Present	53.1	28.7	<0.001
	Absent	67.1	26.1	
Role limitations due to physical health	Present	45.9	40.8	<0.001
	Absent	67.0	39.1	
Role limitations due to emotional problems	Present	52.0	43.6	<0.001
	Absent	76.3	37.7	
Energy/fatigue	Present	46.6	19.1	<0.001
	Absent	59.1	19.5	
Emotional well-being	Present	54.0	18.5	<0.001
	Absent	68.4	17.5	
Social functioning	Present	41.2	29.2	0.002
	Absent	30.8	29.5	
Pain	Present	52.8	20.8	0.001
	Absent	62.2	19.2	
General health	Present	48.4	18.3	<0.001
	Absent	59.8	14.4	
Health change	Present	60.3	31.0	<0.001
	Absent	78.3	23.7	

Discussion

Few studies have analyzed HRQoL in Saudi Arabia. Health-related quality of life (HRQoL) is considered a significant outcome indicator in chronic diseases, including cardiovascular disease (CVD), which is known to be associated with impaired HRQoL. The aim of this research was to assess the quality of life for cardiovascular patients in Saudi Arabia in the year 2020.

The study sample was 470 with 47.9% females and 52.1% males. In an analysis of Gender Differences in Quality of Life Among Cardiac Patients, women scored lower on both the mental and physical components of quality of life. Over the course of a 12-month longitudinal follow-up, women with cardiac disease reported slightly poorer quality of life than men with cardiac disease [9]. A study reported chronic conditions such as arthritis, back problems, diabetes and high blood pressure are found more frequently in women [10]. Males consistently reported significantly higher physical activity levels than females [19].

In our study we found that there is a high association of gender in most of the subdomain items. A similar result was found in Iran and Jordan which showed that there is a relationship between sex and patient quality of life in a way that men have better QoL than women [11,15]. his shows the role of gender as an effective factor for Quality of Life. Despite the fact that normative information shows that women report a lower quality of life than men [9]. The results give us the meaning of that as generally in most of the aspects the women have a lower quality of life than men which could be due to the nature of the body structure and the differences between genders.

The findings of our study showed that patients over 55 years old had lower physical and social performance, physical health, and emotional problems. In most studies, it has been shown that the higher the age, the lower the quality of life of patients, and it has been the case in a study in Iran [11]. In other similar studies, age was associated with a decline in general and psychological health [23][24]. In contrast research done in 2008 [24] , found that there are no independent variables relating to the quality of life in the social realm. In addition, in 2020, a study in Jeddah, Saudi Arabia [13], revealed that there was no relationship between the quality of life of heart patients and age. These results were expected because people who suffer from heart disease have a poor quality of life, especially among the elderly, as there is difficulty in exercising and increasing physical activity. On the other hand, the general health of the elderly is affected by advancing age, and the incidence of chronic diseases increases.

In this study, we found that patients who worked in the health sector showed higher scores (better scores) in the subdomain of physical functioning compared to patients who worked in the non-health sector while other subdomains showed no significant differences. This disagrees with a previous study conducted on nurses with cardiovascular diseases that showed, when they compared the high work burnout group to the low job burnout group, they noticed that both physical and mental functioning deteriorated (by 2.53 and 3.02 points, respectively, p;0.05) [26]. Another study compared between health care workers who worked with COVID-19 patients and those who worked in other departments during the COVID-19 pandemic found, Level of anxiety was high as observed in 31.8 percent of patients in a group of health care workers who treated COVID-19

while only 16.4 percent in other groups of health care workers [27]. This difference could be attributed to the low number of participants in health sector and needs more specification and study.

The comparison of scores of 9 subdomains between different educational levels showed higher functioning among patients with post-graduate qualification compared to other scores in all domains except social functioning ($p<0.05$). Higher educational levels were also linked to better QoL at an Iranian hospital [10]. Association of overall health related quality of life and education of the patient in a Dhaka report showed that among the CHD patients, 24.9% were graduates, 23.5% had secondary education, 20.3% had higher secondary education, and 6.0% were illiterate. The majority of graduates (75.9%) and secondary educated (84.3%) had average quality of life. The majority of primary educated (67.9%) had poor quality of life [22].

In an observational analysis in Europe, important variations in European Quality of Life-5 Dimensions ratings were observed between patients with fewer than 9 years of education and patients with more than 9 years of education (0.72 vs. 0.77; P0.001) [21]. Individuals with a higher level of education could have more access to health-related data, resulting in greater quality care than those with less educational opportunities.

When we evaluated the different item scores according to BMI of the patients, it was found that those who were obese showed lesser scores in physical functioning, role limitations due to physical health, role limitations due to emotional problems, Energy/fatigue, Pain, General health and Health change that showed statistically significant differences. According to Duke activity status index, energy/fatigue, health anxiety, and self-rated health rating, a higher BMI particularly greater than 30 kg/m2 was correlated with lower quality of life [20].

This study showed that divorced or widower had lesser scores in all domains except social functioning. The social functioning scores were lesser among married patients. This finding confirms the previous study which showed that being married had a strong relationship with enhancing some aspects of cardiac patients' quality of life [1-3].

In contrast some studies didn't find any noticeable effect on the patients' quality of life[4].

Our study found that patients who never smoked had statistically significantly lesser physical functioning scores, and role limitations due to physical health, pain, and health change compared to those who smoked and ex-smokers .

Similar results found in other studies showed that smoking affects quality of life [5-7]. A lower quality of life is linked to the existence of cardiovascular risk factors.

This study concluded that the patients who had at least one co-morbidity showed lesser scores compared to those who didn't have any co-morbidities.

Outcomes are comparable with those reported by different studies who concluded that the involvement of comorbidities such as hypertension, diabetes, and prior cerebrovascular stroke was linked to HRQoL impairment. These conditions caused significant impact on decreasing patients' quality of life [1, 2, 8, 9].

Limitation :
Being a study done through an online survey necessitates conducting future studies with different methods in different regions at different hospitals dedicated to their patients to modify the outcome and health care policies towards them

Conclusion

The current study aimed to investigate Quality of life for Cardiovascular Patients in Saudi Arabia 2020. We found lower quality of life for cardiovascular patients associated with many factors like Age, female gender, higher BMI and multiple comorbidities, and identification of these factors requires management plans that can significantly improve the QoL and the outcome of the disease for these patients. We recommend to follow these patients with the QoL survey as part of periodic hospital follow up and educational interventional programs for high risk patients.

References

1-Al-Nozha M, Arafah M, Al-Mazrou Y, Al-Maatouq M, Khan N, Khalil Z, Al-Khadra A, Al-Marzouki K, Abdullah M, Al-Harthi S, Alshahid M, Nouh M, Al-Mobeireek A. Coronary artery disease in Saudi Arabia. Saudi medical journal 2004; 25(9):1165-71.
2. WHO | About cardiovascular diseases [Internet]. Who.int. 2020 [cited 29 October 2020]. Available from: https://www.who.int/cardiovascular_diseases/about_cvd/en/
3- Saquib N, Zaghloul M, Mazrou A, Saquib J. Cardiovascular disease research in Saudi Arabia: a bibliometric analysis. Scientometrics. 2017;112(1):111-140. http://dx.doi.org/10.1007/s11192-017-2393-z
4- Cepeda-Valery B, Cheong A, Lee A, Yan B. Measuring health related quality of life in coronary heart disease: The importance of feeling well. International Journal of Cardiology. 2011;149(1):4-9. http://dx.doi.org/10.1016/j.ijcard.2010.09.048
5 -Ko H, Lee J, Shin J, Jo E. Health-Related Quality of Life and Cardiovascular Disease Risk in Korean Adults. Korean Journal of Family Medicine. 2015;36(6):349. http://dx.doi.org/10.4082/kjfm.2015.36.6.349
6- AbuRuz M, Alaloul F, Saifan A, Masa'deh R, Abusalem S. Quality of Life for Saudi Patients With Heart Failure: A Cross-Sectional Correlational Study. Global Journal of Health Science. 2015;8(3):49. http://dx.doi.org/10.5539/gjhs.v8n3p49

7- Comín-Colet J, Anguita M, Formiga F, Almenar L, Crespo-Leiro M, Manzano L et al. Health-related Quality of Life of Patients with Chronic Systolic Heart Failure in Spain: Results of the VIDA-IC Study. Revista Española de Cardiología (English Edition). 2016;69(3):256-271. http://dx.doi.org/10.1016/j.rec.2015.07.030
8- Rodríguez-Artalejo F, Guallar-Castillón P, Pascual C, Otero C, Montes A, García A et al. Health-Related Quality of Life as a Predictor of Hospital Readmission and Death Among Patients With Heart Failure. Archives of Internal Medicine. 2005;165(11):1274. http://dx.doi.org/10.1001/archinte.165.11.1274
9- Emery C, Frid D, Engebretson T, Alonzo A, Fish A, Ferketich A et al. Gender Differences in Quality of Life Among Cardiac Patients. Psychosomatic Medicine. 2004;66(2):190-197. http://dx.doi.org/10.1097/01.psy.0000116775.98593.f4
10- Soleimani MA, Zarabadi-Pour S, Motalebi SA, Allen KA. Predictors of quality of life in patients with heart disease. Journal of Religion and Health. 2020. http://dx.doi.org/10.1007/s10943-019-00968-7
11- Yaghoubi A, Tabrizi J, Mirinazhad M, Azami S, Naghavi-behzad M, Ghojazadeh M. Quality of Life in Cardiovascular Patients in Iran and Factors Affecting It: A Systematic Review2012;4(4):95–101. http://dx.doi.org/10.5681/jcvtr.2012.024
12- Polikandrioti M, Panoutsopoulos G, Tsami A, Gerogianni G, Saroglou S, Thomai E et al. Assessment of quality of life and anxiety in heart failure outpatients. Archives of Medical Science - Atherosclerotic Diseases. 2019;4(1):38-46. http://dx.doi.org/10.5114/amsad.2019.84444
13-Murshid S, Al Garmoushi O, Aljezani K. Post-Cardiac Surgery Health Related Quality of Life : A Saudi Cross Sectional Study in Jeddah. World Family Medicine Journal/Middle East Journal of Family Medicine. 2020;18(1):119-124. http://dx.doi.org/10.5742/MEWFM.2020.93743
14- Gjeilo K, Wahba A, Klepstad P, Lydersen S, Stenseth R. Survival and quality of life in an elderly cardiac surgery population: 5-year follow-up. European Journal of Cardio-Thoracic Surgery. 2013;44(3):182-8. http://dx.doi.org/10.1093/ejcts/ezt308
15 -Tung H, Hunter A, Wei J. Coping, anxiety and quality of life after coronary artery bypass graft surgery. Journal of Advanced Nursing. 2008;61(6):651-663. http://dx.doi.org/10.1111/j.1365-2648.2007.04557.x
16. Mohmmad O, Hasheesh ABU, Almostafa O, Ahmed M. Health Related Quality of Life Among Cardiac Disease Patients At Queen Alia Heart Institute. Jordan Medical Journal 2010; 44(3):282-9.
17- 36-Item Short Form Survey from the RAND Medical Outcomes Study [Internet]. Rand.org. 2020 [cited 31 October 2020]. Available from: https://www.rand.org/health-care/surveys_tools/mos/36-item-short-form.html
18- [Internet]. 2020 [cited 29 October 2020]. Available from: https://www.stats.gov.sa/en/indicators/1
19-McDonnell, L., Riley, D., Blanchard, C., Reid, R., Pipe, A., Morrin, L., Beaton, L., Papadakis, S. and Slovinec D'Angelo, M., 2010. Gender differences in satisfaction with life in patients with coronary heart disease: physical activity as a possible mediating factor. Journal of Behavioral Medicine, 34(3), pp.192-200. http://dx.doi.org/10.1007/s10865-010-9300-x
20- Oreopoulos A, Padwal R, McAlister FA, Ezekowitz J, Sharma AM, Kalantar-Zadeh K, Fonarow GC, Norris CM. Association between obesity and health-related quality of life in patients with coronary artery disease. International journal of obesity. 2010 Sep;34(9):1434-41. http://dx.doi.org/10.1038/ijo.2010.73
21- Ose D, Rochon J, Campbell SM, Wensing M, Freund T, Lieshout JV, Längst G, Szecsenyi J, Ludt S. Health-related quality of life and risk factor control: the importance of educational level in prevention of cardiovascular diseases. The European Journal of Public Health. 2014 Aug 1;24(4):679-84. http://dx.doi.org/10.1093/eurpub/ckt139
22- Mandal S, Ghosh SK, Rahman M, Majumder A, Ranjan R, Adhikary D, Hasan K, Islam MZ, Adhikary AB. Health related quality of life among the coronary heart disease patients. Cardiovascular Journal. 2016 Sep 7;9(1):43-8. http://dx.doi.org/10.3329/cardio.v9i1.29541
23- Komalasari R, Nurjanah N, Yoche MM. Quality of Life of People with Cardiovascular Disease: A Descriptive Study. Asian/Pacific Isl Nurs J. 2019;4(2):92–6. http://dx.doi.org/10.31372/20190402.1045
24- Loup O, von Weissenfluh C, Gahl B, Schwerzmann M, Carrel T, Kadner A. Quality of life of grown-up congenital heart disease patients after congenital cardiac surgery. Eur J Cardio-thoracic Surg. 2009;36(1):105–11. http://dx.doi.org/10.1016/j.ejcts.2009.03.023
25- Martinelli LMB, Mizutani BM, Mutti A, D'elia MPB, Coltro RS, Matsubara BB. Quality of life and its association with cardiovascular risk factors in a Community Health Care Program population. Clinics. 2008;63(6):783–8. http://dx.doi.org/10.1590/S1807-59322008000600013
26- Zhang, M., Loerbroks, A. and Li, J., 2018. Job burnout predicts decline of health-related quality of life among employees with cardiovascular disease: A one-year follow-up study in female nurses. General Hospital Psychiatry, 50, pp.51-53. http://dx.doi.org/10.1016/j.genhosppsych.2017.10.004
27- Stojanov, J., Malobabic, M., Stanojevic, G., Stevic, M., Milosevic, V. and Stojanov, A., 2020. Quality of sleep and health-related quality of life among health care professionals treating patients with coronavirus disease-19. International Journal of Social Psychiatry, p.002076402094280. http://dx.doi.org/10.1177/0020764020942800