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An assessment of the quality of life in chronic heart failure patients

Ocena jakości życia pacjentów z przewlekłą wadą serca

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STRESZCZENIE

OCENA JAKOŚCI ŻYCIA PACJENTÓW Z PRZEWLEKŁĄ WADĄ SERCA

Cel pracy. Celem badań przekrojowych była ocena jakości życia (QoL) oraz wybranych aspektów pacjentów z przewlekłą niewydolnością serca.

Materiał i metody. Do oceny QoL wykorzystano kwestionariusz Minnesota Living with Heart Failure. Uzyskano dane dotyczące depresji, postrzegania choroby, wsparcia społecznego, samowystarczalności oraz ciężkości niewydolności serca według klasyfikacji NYHA. Dane analizowano za pomocą statystyki opisowej, testu Kruskala-Wallisa i Manna-Whitneya oraz współczynnika korelacji Spearmana. Przeprowadzono również analizę regresji liniowej.

Wyniki. Analiza korelacji ($p < 0,05$) wykazała, że pacjenci z obniżoną samodzielnością ($r = -0,3529$) oraz pacjenci z cięższą niewydolnością serca ($r = 0,2642$) zgłaszali gorszą QoL. Gorsze postrzeganie choroby ($r = 0,4113$), częstsze występowanie depresji ($r = 0,5470$) oraz gorsza subiektywna ocena stanu zdrowia ($r = 0,4394$) wskazywały na gorszą jakość życia. Predyktorami całkowitej punktacji QoL były depresja ($p = 0,000$), postrzeganie choroby ($p = 0,001$), samowystarczalność ($p = 0,008$) oraz subiektywna ocena stanu zdrowia ($p = 0,005$).

Wnioski. W opiece nad chorymi z przewlekłą niewydolnością serca konieczne jest kompleksowe podejście z naciskiem na poprawę jakości życia.

Słowa kluczowe: **jakość życia, ocena, przewlekła niewydolność serca, aspekty psychospołeczne**

ABSTRACT

AN ASSESSMENT OF THE QUALITY OF LIFE IN CHRONIC HEART FAILURE PATIENTS

Aim. The aim of this cross-sectional study was to evaluate quality of life (QoL) and selected aspects of patients with chronic heart failure.

Material and methods. The Minnesota Living with Heart Failure Questionnaire was used for an assessment of QoL. Data were obtained on depression, illness perception, social support, self-sufficiency, and severity of heart failure according to NYHA classification. Data were analysed using descriptive statistics, the Kruskal–Wallis and Mann-Whitney test, and the Spearman correlation coefficient. Linear regression analysis was also performed.

Results. Correlation analysis ($p < 0.05$) indicated that patients with reduced self-sufficiency ($r = -0.3529$) and patients with more severe heart failure ($r = 0.2642$) reported a poorer QoL. Worse the illness perception ($r = 0.4113$), more frequent depression ($r = 0.5470$) and a worse subjective assessment of the state of health ($r = 0.4394$) indicated a worse QoL. The predictors of the total QoL score were depression ($p = 0.000$), illness perception ($p = 0.001$), self-sufficiency ($p = 0.008$), and subjective assessment of the state of health ($p = 0.005$).

Conclusions. A comprehensive approach with an emphasis on improving QoL is necessary in the care of patients with chronic heart failure.

Key words: **quality of life, assessment, chronic heart failure, psychosocial aspects**

INTRODUCTION

The incidence of heart failure has been continuously increasing and has been referred to as an epidemic since the 1970s [1]. The prevalence is around 1 to 2% in the population, but it is likely that the actual prevalence is even higher, as the studies work only with diagnosed cases of heart failure [2]. Although the aetiology of chronic heart failure is diverse, in general, the disease significantly affects the patient's quality of life due to burdensome symptoms such as shortness of breath, related stress intolerance, swelling, fatigue, etc. [1]. In addition, heart failure is also associated with an increased risk of mortality, recurrent hospitalisations, and high health care costs [3], which are other factors that can affect quality of life.

The symptoms and, above all, their consequences affect the quality of life experienced by the individual. However, this construct is also influenced by the patient's mood and general mental state. The social background, integration into society, as well as the economic background of the family in which the patient lives, have an equally significant influence. Some patients also mention the level of spiritual needs saturation as an important factor that affects quality of life. [4].

Without knowing the data on the patient's quality of life or other aspects that can affect it, it is not possible to talk about comprehensive care. Not only the objective indicators (such as echocardiographic data, etc.) reflect how the patient is burdened by the disease, but also how he or she manages the disease and how the disease is reflected in the his/her life. Data on quality of life and the aspects that can influence it must be known so that specific interventions can be applied that could improve the quality of life. The systematisation of heart failure management that emphasises the multidisciplinary character is in its infancy in Czech clinical practice. Any evaluation of quality of life in patients with chronic heart failure is not a routine part of Czech clinical practice. The Czech environment has very limited data on quality of life and the aspects that can influence it. Foreign findings about the quality of life for patients with heart failure may not be universally valid around the world. The quality of life of patients with heart failure can also be influenced by sociocultural conditions and may differ between geographical regions [5]. Therefore, it is necessary to address this topic also at the local level and work to improve the care of these patients in specific local hospital facilities.

AIM

The purpose of this cross-sectional study was to evaluate quality of life and selected aspects that can be related to it (severity of heart failure, sex, age, self-sufficiency, social support, illness perception, depression and subjective assessment of the state of health) in patients with chronic heart failure.

MATERIALS AND METHODS

Data collection

Data collection was carried out from July 2020 to November 2021 in the cardiovascular ward of the chosen university hospital. Inclusion criteria were a diagnosis of chronic heart failure, age over 18 years, and consent to participate in the research.

Minnesota Living with Heart Failure Questionnaire (MLHFQ)

Quality of life was assessed using this specific tool, which comprises a total of 21 items. In these items, patients evaluate whether heart failure has prevented them from living the way they would like to live during the past month on a scale from 0 to 5 (0 – no, 5 – very much). The physical, emotional and socioeconomic consequences are assessed. The total score ranges from 0 to 105 points; the higher the score, the worse the quality of life. This tool includes two evaluation domains: physical (items 2, 3, 4, 5, 6, 7, 12, 13; score 0–40) and emotional (items 17, 18, 19, 20, 21; score 0–25) [6].

Patient Health Questionnaire-9 (PHQ-9)

This 9-item tool was used to assess depression. On a scale from 0 to 3, patients evaluate how often during the last 2 weeks they were troubled by the given problems (0 – not at all, 1 – several days, 2 – more than half of the days, 3 – almost every day). The total score may range from 0 to 27 points, and the individual categories are determined based on the number of points obtained. Depression is not determined if the score ranges from 0 to 4 points. Mild depression is identified if the score is between 5 and 9 points, and moderate depression if the score is between 10 and 14 points, moderately severe depression is detected if the score is 15–19 points and severe depression if the score ranges 20–27 points [7].

The Barthel Index (BI)

Self-sufficiency in activities of daily living was assessed using the Barthel Index. The total score ranges from 0 to 100 points, and individual categories of self-sufficiency are determined based on the number of points obtained. Patients are highly dependent if they reach a score in the range of 0–40 points, the score of 45–60 points corresponds to moderate dependence, the score of 65–95 points to mild dependence, and the score of 100 points to independence [8].

ENRICHD Social Support Inventory (ESSI)

Social support was evaluated using this 7-item instrument. Patients evaluate their current situation on a scale from 1 to 5 for the first 6 questions (1 – no, never, 2 – rarely, 3 – sometimes yes, 4 – mostly yes, 5 – yes, always). The last item is answered either „yes" (4 points) or „no" (2 points) by the respondent. The total score ranges from 8 to 34 points, and the higher the score, the better the patient's social support [9].

The Brief Illness Perception Questionnaire (Brief-IPQ)

This generic 9-item illness perception assessment tool was developed from the Illness Perception Questionnaire--Revised (IPQ-R). The cognitive representation, emotional perception of the disease, and causal factors are evaluated based on the subjective impression, which are the only ones evaluated by the last open question. The patient evaluates other questions on a scale of 0–10 points. The total score ranges from 0 to 80 points, and the higher it is, the worse the subjective perception of the given disease [10].

New York Heart Association (NYHA)

This functional classification represents the simplest tool used to describe the severity of heart failure in terms of symptoms [2]. The classification is based on four classes and categorises patients according to the limitations of their physical activity caused by heart failure [11]. If the patient is classified as class I, he or she has no limits in terms of physical activity. Class II represents a slight limitation of physical activity because normal physical activity causes the patient to experience excessive shortness of breath, fatigue, or palpitations. Class III represents a significant limitation of activity, as the patient's heart failure causes disproportionate shortness of breath, fatigue, or palpitations, even during less demanding activity compared to normal activity, and thus the patient has no problems only when he or she is resting. If the patient is classified as Class IV, he or she cannot perform virtually any physical activity without experiencing discomfort. Shortness of breath, fatigue, or palpitations may be present even at rest [2].

Data analysis

Data were analysed using descriptive statistics, the Kruskal–Wallis and Mann-Whitney test, and the Spearman correlation coefficient. Linear regression analysis was also performed. The level of significance was established at 5%, SW Stata v. 14.

Ethics approval, conflict of interest, and funding

The study was approved by the Ethics Committee of the Faculty of Medicine of the University of Ostrava (reference number 08/2020) and the Ethics Committee of the University Hospital Ostrava (reference number 250/2020). Participation was voluntary and anonymous. The authors declare that they have no potential conflicts of interest. This study was supported by the University of Ostrava, project SGS01/LF/2020-2021.

RESULTS

Sample characteristics

The research sample included 173 respondents. The average age in the research group in our study was 71.51 years (SD = 8.62; min. 50; max. 92), 56.07% of the respondents were male (Tab. 1). The mean overall quality of life score assessed by the MLHFQ was 44.86 (SD = 19.31)

Tab. 1. Sample characteristics

Sex	**n**	**%**
male	97	56.07
female	76	43.93
Age (mean 71.51; SD = 8.62)	**n**	**%**
50–64	31	17.92
65–74	73	42.20
75–84	58	33.53
over 85	11	6.36
Marital status	**n**	**%**
single	16	9.25
married	96	55.49
divorced	32	18.50
widowed	29	16.76
Living…	**n**	**%**
alone	41	23.70
with family member or another person	132	76.30
Education	**n**	**%**
primary	24	13.87
vocational	57	32.95
secondary	57	32.95
secondary professional	6	3.47
tertiary	29	16.76
New York Heart Association (NYHA) classification	**n**	**%**
NYHA I.	1	0.58
NYHA II.	48	27.75
NYHA III.	84	48.55
NYHA IV.	40	23.12
Self-sufficiency	**n**	**%**
independence	49	28.32
slight dependence	86	49.71
moderate dependence	31	17.92
severe dependence	7	4.05
Depression	**n**	**%**
no depression	91	52.60
mild depression	54	31.21
moderate depression	17	9.83
moderately severe depression	9	5.20
severe depression	2	1.16
Subjective assessment of the state of health	**n**	**%**
very good	0	0
good	30	17.34
fair	69	39.88
poor	63	36.42
very poor	11	6.36
Total	**173**	**100**

SD – standard deviation

Tab. 2. Correlation analysis between analysed aspects

Spearman's rank correlation coefficient	Self-sufficiency	Age	Subjective assessment of the state of health	Quality of life-PD	Quality of life-ED	Quality of life-TS	Depression	Social support	Illness perception	NYHA
Self-sufficiency	1									
Age	-0.4238*	1								
Subjective assessment of the state of health	-0.3194*	0.2114*	1							
QoL-PD	-0.4489*	0.1629*	0.4572*	1						
QoL-ED	-0.2610*	0.0807	0.3845*	0.6834*	1					
QoL-TS	-0.3529*	0.1209	0.4394*	0.9187*	0.8263*	1				
Depression	-0.3871*	0.1625*	0.4520*	0.5322*	0.4497*	0.5470*	1			
Social support	0.1658*	-0.0847	-0.1488	-0.0219	-0.136	-0.0639	-0.2439*	1		
Illness perception	-0.2490*	0.1628*	0.4426*	0.3642*	0.4751*	0.4113*	0.5371*	-0.2333*	1	
NYHA	-0.4252*	0.1956*	0.2004*	0.2913*	0.0636	0.2642*	0.2749*	0.0857	0.1914*	1

QoL-PD – quality of life physical domain; QoL-ED – quality of life emotional domain; QoL-TS – quality of life total score; NYHA – New York Heart Association; * $p < 0.05$

Tab. 3. Differences in quality of life according to self-sufficiency, age and NYHA

	Quality of life score	n	mean	median	SD	min.	max.	p-value.
Self-sufficiency								
severe + moderate dependence	MLHFQ-PD	38	28.00	30	8.04	11	40	**0.0001***
slight dependence	MLHFQ-PD	86	21.40	21.50	8.71	2	38	
independence	MLHFQ-PD	49	17.10	17	8.68	0	32	
severe + moderate dependence	MLHFQ-ED	38	10.20	10	5.42	0	21	**0.0491***
slight dependence	MLHFQ-ED	86	8.60	7	5.46	0	23	
independence	MLHFQ-ED	49	7.40	7	4.76	0	19	
severe + moderate dependence	MLHFQ-TS	38	56.00	57	16.41	21	84	**0.0002***
slight dependence	MLHFQ-TS	86	43.30	40	18.59	9	85	
independence	MLHFQ-TS	49	39.00	39	19.43	0	73	
Age								
50–64	MLHFQ-PD	31	19.90	19	7.05	7	33	**0.0224***
65–74	MLHFQ-PD	73	20.50	20	9.46	0	40	
75–84	MLHFQ-PD	58	22.60	24	9.27	3	40	
85+	MLHFQ-PD	11	28.80	33	11.74	2	40	
50–64	MLHFQ-ED	31	7.80	7	3.63	2	19	0.2220*
65–74	MLHFQ-ED	73	8.00	7	4.59	0	18	
75–84	MLHFQ-ED	58	9.30	8	6.62	0	23	
85+	MLHFQ-ED	11	11.60	12	5.32	2	19	
50–64	MLHFQ-TS	31	43.30	40	15.02	21	73	0.0690*
65–74	MLHFQ-TS	73	41.80	39	18.92	0	81	
75–84	MLHFQ-TS	58	47.20	49.5	20.11	10	84	
85+	MLHFQ-TS	11	57.60	65	23.69	12	85	
NYHA classification								
I + II	MLHFQ-PD	49	17.40	17	10.34	0	38	**0.0007***
III	MLHFQ-PD	84	22.40	22	8.46	5	40	
IV	MLHFQ-PD	40	25.30	25	7.96	11	40	
I + II	MLHFQ-ED	49	8.10	7	5.61	0	23	0.6866*
III	MLHFQ-ED	84	8.80	8	5.06	0	21	
IV	MLHFQ-ED	40	9.00	7	5.59	0	21	
I + II	MLHFQ-TS	49	37.10	33	21.91	0	85	**0.0028***
III	MLHFQ-TS	84	46.10	43	17.47	16	84	
IV	MLHFQ-TS	40	51.70	53	16.65	21	84	

MLHFQ-PD – Minnesota Living with Heart Failure Questionnaire physical domain score; MLHFQ-ED – Minnesota Living with Heart Failure Questionnaire emotional domain score; MLHFQ-TS – Minnesota Living with Heart Failure Questionnaire total score; NYHA – New York Heart Association; * Kruskal-Wallis test in our study. In the physical domain of the MLHFQ, the mean score was determined at 21.65 (SD = 9.34) and in the emotional domain at 8.64 (SD = 5.32). The mean score of self-sufficiency according to BI was 82.17 (SD = 18.86), and the mean score of illness perception was 42.70 (SD = 9.95). The mean PHQ-9 depression score was 5.65 (SD = 4.61) points, with depression identified in 47.40% of the patients.

Differences in quality of life according to self-sufficiency, age, sex, education, and NYHA classification

The relationships between quality of life and sex and education were not significant. Our research found a statistically significant relationship between quality of life and self-sufficiency, also between quality of life in the physical domain and age, between NYHA and quality of life in the physical domain, and also between NYHA and total score of quality of life. The trend of these relations was shown by Spearman correlation coefficient (Tab. 2). Patients who reported a poorer quality of life had a poorer self-sufficiency (r = -0.3529; p < 0.05). Older patients reported a worse quality of life in the physical domain than younger patients (r = 0.1629; p < 0.05). Patients with more severe heart failure (which means an increase in NYHA class) reported a poorer quality of life in the physical domain (r = 0.2913; p < 0.05). The same was true for the total quality of life score and the NYHA classification (r = 0.2642; p < 0.05). The description of the quality of life mean scores in relation to these variables is mentioned in Tab. 3. (for the interpretation of the description of the mean quality of life score in NYHA classes was combined NYHA I and II, in self-sufficiency was combined severe and moderate dependence also due to the low representation of respondents in these categories).

The connection between quality of life and other aspects

In the correlation analysis using the Spearman correlation coefficient, a relationship was found between depression and the total quality of life score (r = 0.5470; p < 0.05), a relationship between the total quality of life score and illness perception (r = 0.4113; p < 0 .05), and the relationship between the total quality of life score and subjectively assessed health status (r = 0.4394; p < 0.05). Significant links were also found between scores within the individual domains of quality of life, depression, illness perception, and subjectively assessed health status. The worse the quality of life, the worse was the illness perception, the subjective assessment of the state of health, and depression also occurred more frequently. Illness perception was also correlated with the subjective perception of health status (r = 0.4426; p < 0.05). The worse the patients perceived their disease, the worse they also assessed their general state of health (Tab. 2).

Predictors of quality of life

Based on the variables that were significant in the univariate analyses, a linear regression analysis was performed (Tab. 4). Three models were created: the first model included the total quality of life score, the second model included the total score in the physical domain, and the third included the total score in the emotional domain. Statistically significant predictors of the total quality of life score were depression, illness perception, self-sufficiency, and subjective assessment of the state of health. The presence of depression, worse illness perception, reduced self-sufficiency, and a worse subjectively assessed state of health predicted poor quality of life. The presence of depression, worse illness perception, reduced self-sufficiency, and worse subjectively assessed state of health statistically significantly predicted poor quality of life in the physical domain as well. The statistically significant predictors of the quality of life in the emotional domain were only the presence of the depression and worse illness perception.

■ Tab. 4. Linear regression analysis

Model 1	F (7, 165) = 18.04; Prob > F = 0.0000, R-squared = 0.4336			
QoL total score	**Coefficient β**	**95% confidence interval**		**P > |t|**
Depression	1.098495	0.4951791	1.70181	**0.000**
Social support	0.3361266	-0.2848662	0.9571193	0.287
Illness perception	0.4668569	0,1834966	0.7502173	**0.001**
Self-sufficiency	-0.2013932	-0.350285	-0.0525013	**0.008**
NYHA	1.911484	-1.594627	5.417594	0.283
Age	-0.1703471	-0.4517229	0.1110287	0.234
Subjective assessment of the state of health	4.552528	1.38029	7.724766	**0.005**
Model 2	F (7, 165) = 19.48; Prob > F = 0.0000, R-squared = 0.4525			
QoL physical dimension score	**Coefficient β**	**95% confidence interval**		**P > |t|**
Depression	0.4516276	0.1645613	0.738694	**0.002**
Social support	0.2100351	-0.0851264	0.5058285	0.162
Illness perception	0.1864278	0.0516008	0.3212548	**0.007**
Self-sufficiency	-0.1457751	-0.2166201	-0,0749302	**0.000**
NYHA	0.9652752	-0.702984	2.633534	0.255
Age	-0.0598112	-0.193694	0.0740715	0.379
Subjective assessment of the state of health	2.320847	0.8114493	3.830245	**0.003**
Model 3	F (7, 165) = 13.79; Prob > F = 0.0000, R-squared = 0.3691			
QoL emotional dimension score	**Coefficient β**	**95% confidence interval**		**P > |t|**
Depression	0.274201	0.0986899	0.4497122	**0.002**
Social support	0.0266205	-0.1540331	0.2072742	0.771
Illness perception	0.1858199	0.1033873	0.2682526	**0.000**
Self-sufficiency	-0.032434	-0.0757483	0.0108803	0.141
NYHA	-0.8797056	-1.899672	0.1402607	0.090
Age	-0.0121589	-0.0940142	0.0696965	0.770
Subjective assessment of the state of health	0.8752456	-0.0475936	1.798085	0.063

QoL – Quality of Life; NYHA – New York Heart Association

DISCUSSION

Heart failure cannot be assessed without the social, psychological, and behavioural aspects of the disease. It is a complex issue that requires a comprehensive and multidimensional assessment to be applied in patient care when considering the best approach to heart failure management [12]. According to Hobbs et al., heart failure tends to worsen quality of life to a greater extent than other chronic diseases [13]. The reason may be the high burden with symptoms such as shortness of breath, loss of appetite, fatigue, pain, depression, or anxiety [14, 15]. Therefore, improving the quality of life should be one of the main goals of care of these patients. In addition to addressing physical symptoms, these patients also need to address spiritual issues, which supports the importance and need for holistic care. The quality of life of patients, especially those with advanced heart failure, is related to psychological, and existential well-being [16].

In our study, a significantly worse overall quality of life score was found according to the MLHFQ (44.9 points), compared to other studies [17,18]. In our opinion, the difference in results can be caused, for example, by the different age composition of the sample group and the different environment in data collection. In these studies [17,18] the analysed population was significantly younger and worked with outpatients. Our results in terms of the overall mean quality of life score are closest to the study in the United Kingdom [19], where the overall mean MLHFQ score of 40.9 was found. However, this study also worked with outpatients in tertiary care. These results may indicate that the patient's current hospitalisation may not have a direct effect on quality of life.

Depression is a recognised comorbidity of heart failure [2], with a prevalence from 10 to 79%, with a mean of approximately 29% [20]. In patients with heart failure, it also leads to a significant deterioration in quality of life [21], which was also confirmed in our study, where depression was a predictor of poor quality of life. We identified depressive symptoms in approximately 47% of patients, a result close to the study by Jani et al. [22]. According to Albus et al. [23], all patients diagnosed with congestive heart failure should be tested for depression and anxiety disorders. If the screening is positive, specialised diagnostics with subsequent treatment must be initiated. Among other things, psychotherapy, especially cognitive behavioural therapy, and additional exercise training should be considered as part of a therapy. Routine screening is also recommended in the American College of Cardiology and the American Heart Association guidelines [24]. However, depression screening is almost non-existent in the Czech environment, even though depression has the potential to worsen some of the patient's clinical results.

The main concern of elderly patients can often be, for example, functional limitations and altered conditions that lead to problems in daily activities [25]. In our study, it was found that a poorer quality of life is significantly related to a lower self-sufficiency of the patient. Lower self-sufficiency even predicted a poor quality of life, which is consistent with other studies [26, 27]. In our study, older patients reported a poorer quality of life in the physical domain. We believe that this finding is related to the ageing process during which physical functions decline. Wang and Yang also determined a similar finding [28]. However, there are also studies [29,30] that have shown that patients younger than 65 years have a poorer quality of life compared to older patients, which does not correspond to the results of our study. We also did not find a statistically significant difference in quality of life by sex. However, other studies have shown a poorer quality of life in women [29]. The heterogeneity of the results is probably due to the disproportionate representation of respondents under the age of 65 compared to older respondents in our sample. Despite the fact that the inclusion criterion in our study was an age over 18 years, the youngest respondent in our sample was 50 years old. Our sample also included just under 18% of respondents under the age of 65 years.

The severity of heart failure also plays an important role in the deterioration of quality of life [31]. The connection between a worsening quality of life and a higher NYHA class has been demonstrated in a number of studies [17,26,32,33]. More severe heart failure was associated with a poorer quality of life in our study. Poor quality of life is generally associated with heart failure classified by severity in NYHA class III [34] and NYHA IV [35].

Worse quality of life was associated with a more frequent occurrence of depression, worse illness perception, and worse subjective assessment of the state of health. According to AbuRuz [36], patients with heart failure generally have a poor quality of life, accompanied by a high incidence of depression and anxiety, which are also predictors of a poor quality of life. The most important correlates of illness perception are, among other factors, poor quality of life, anxiety, depression, or negative affectivity [37]. The belief in serious consequences, strong identity of the illness, stronger emotions and fears are associated with poor quality of life, depression, etc. [38].

Quality of life has been shown to be a significant predictor of mortality and hospitalisation in patients with heart failure. Therefore, it is a simple and inexpensive prognostic indicator that is useful to assess the severity and prognosis of symptoms in patients with heart failure [39]. Worse quality of life in terms of the overall score and the score in the physical domain was predicted by both more frequent depression, worse illness perception, and worse subjective assessment of the state of health. The presence of depression was also, according to Warraich et al. [27], a strong predictor of poor quality of life. Other studies have also confirmed the importance of these psychosocial aspects in the context of predicting certain outcomes in patients with heart failure [38,40]. Subjective health assessment data can provide useful information. For example, self-reported assessment of health status as excellent or very good is associated with a lower long-term mortality in patients with heart failure [41].

Exercise-based cardiac rehabilitation can have a positive effect on quality of life in patients with heart failure [3]. In addition to interventions in the field of exercise programmes and palliative care interventions, supportive care or psychospiritual interventions also appear to be effective in terms of improving quality of life [42]. Future research should focus on finding other interventions that can improve the quality of life of patients with heart failure. There is also a need to focus on the application of these interventions in clinical practice.

This study has several limitations, including sample size and data collection in a single hospital. However, to our knowledge, this is the only study realized in the Czech Republic that evaluated more psychosocial aspects in addition to the severity of heart failure in the context of quality of life. The results indicate the need for a holistic approach with multidisciplinary elements for these patients, which is not widely used in Czech practice. This approach to the patient must combine both the assessment of objective parameters that relate to heart failure and the patient's state of health in general, with the assessment of indicators that reflect the patient's subjective view of their own condition and life. However, due to unicentric data collection, the results cannot be generalized to the entire Czech population.

CONCLUSIONS

Poor quality of life was predicted by reduced self-sufficiency, the presence of depression, worse illness perception and subjective assessment of the state of health, which indicates the necessity of a comprehensive approach to the care of patients with chronic heart failure. Only a comprehensive solution to physical, psychosocial, and spiritual problems is the way to improve the quality of life of these patients. Palliative care intervention, exercise-based cardiac rehabilitation, supportive care, or psychospiritual intervention appear to be effective according to current knowledge. Patients with reduced self-sufficiency, the presence of depression, and patients who perceive their disease and health status more poorly could benefit more from these interventions.

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REFERENCES

1. Ziaeian B, Fonarow GC. Epidemiology and aetiology of heart failure. Nat. Rev. Cardiol. 2016; 13(6): 368-378.
2. McDonagh TA, Metra M, Adamo M, et al. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. Eur. Heart J. 2021; 42(36): 3599-3726.
3. Long L, Mordi IR, Bridges C, et al. Exercise-based cardiac rehabilitation for adults with heart failure. Cochrane Database Syst. Rev. 2019; 1(1): CD003331.
4. Heo S, Lennie TA, Okoli C, et al. Quality of life in patients with heart failure: ask the patients. Heart Lung. 2009; 38(2): 100-108.
5. Johansson I, et al. Health-Related Quality of Life and Mortality in Heart Failure: The Global Congestive Heart Failure Study of 23 000 Patients From 40 Countries. Circ. 2021; 143(22): 2129-2142.
6. Rector T, Kubo S, Cohn J. Patient´s self-assessment of their congestive heart failure. Part 2: content, reliability and validity of a new measure, The Minnesota Living with Heart Failure Questionnaire. Heart Fail. 1987; 3: 198-209.
7. Kroenke K, Spitzer R., Williams JB. The PHQ-9: validity of a brief depression severity measure. J. Gen. Intern. Med. 2001; 16(9): 606-613.
8. Mahoney FI, Barthel DW. Functional Evaluation: The Barthel Index. Md. State Med. J. 1965; 14: 61-65.
9. Mitchell PH, Powell L, Blumenthal J, et al. A short social support measure for patients recovering from myocardial infarction: the ENRICHD Social Support Inventory. J. Cardiopulm. Rehabil., 2003; 23(6): 398-403.
10. Broadbent E, Petrie KJ, Main J, et al. The brief illness perception questionnaire. J. Psychosom. Res. 2006; 60(6): 631-637.
11. American Heart Association. Classes of Heart Failure. American Heart Association, National Center. 2017. https://www.heart.org/en/health-topics/heart-failure/what-is-heart-failure/classes-of-heart-failure
12. Gorodeski EZ, Goyal P, Hummel SL, et al. Domain Management Approach to Heart Failure in the Geriatric Patient: Present and Future. J. Am. Coll. Cardiol. 2018; 71(17): 1921-1936.
13. Hobbs FD, Kenkre JE, Roalfe AK, et al. Impact of heart failure and left ventricular systolic dysfunction on quality of life: a cross-sectional study comparing common chronic cardiac and medical disorders and a representative adult population. Eur. Heart. J. 2002; 23(23): 1867-1876.
14. Ezekowitz JA, O'Meara E, McDonald MA, et al. 2017 Comprehensive Update of the Canadian Cardiovascular Society Guidelines for the Management of Heart Failure. Can J Cardiol., 2017; 33(11): 1342-1433.
15. Whellan DJ, Goodlin SJ, Dickinson MG, et al. End-of-life care in patients with heart failure. J. Card. Fail. 2014; 20(2): 121-134.
16. Chan HY, Yu DS, Leung DY, et al. Quality of life and palliative care needs of Iderly patients with advanced heart failure. J. Geriatr. Cardiol. 2016; 13(5): 420-424.
17. Zahwe M, Isma'eel H, Skouri H, et al. Validation of the Arabic Version of the Minnesota Living with Heart Failure Questionnaire. Heart Lung: J. Acute Crit. Care. 2020; 49(1): 36-41.
18. Kularatna S, Senanayake S, Chen G, et al. Mapping the Minnesota living with heart failure questionnaire (MLHFQ) to EQ-5D-5L in patients with heart failure. Health Qual. Life Outcomes. 2020; 18(1): 115.
19. Gallagher AM, Lucas R, Cowie MR. Assessing health-related quality of life in heart failure patients attending an outpatient clinic: a pragmatic approach. ESC Heart Fail. 2019; 6(1): 3-9.
20. Sokoreli I, de Vries J, Pauws SC, et al. Depression and anxiety as predictors of mortality among heart failure patients: systematic review and meta-analysis. Heart Fail. Rev. 2016; 21(1): 49-63.
21. Herrmann-Lingen C. Chronische Herzinsuffizienz und Depression. Der Internist. 2018; 59(5): 445-452.
22. Jani BD, Mair FS, Roger VL, et al. Comorbid Depression and Heart Failure: A Community Cohort Study. PloS One. 2016; 11(6): e0158570.
23. Albus C, Waller C, Fritzsche K, et al. Significance of psychosocial factors in cardiology: update 2018: Position paper of the German Cardiac Society. Clin. Res. Cardiol. 2019; 108(11): 1175-1196.
24. Heidenreich PA, Bozkurt B, Aguilar D, et al. 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure: Executive Summary: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Circulation. 2022; 145(18): e876-e894.
25. Klindtworth K, Oster P, Hager K, et al. Living with and dying from advanced heart failure: understanding the needs of older patients at the end of life. BMC Geriatr. 2015; 15: 125.
26. Morcillo C, Aguado O, Delás J, et al. Utility of the Minnesota Living With Heart Failure Questionnaire for assessing quality of life in heart failure patients. Rev. Esp. Cardiol. 2007; 60(10): 1093-1096.
27. Warraich HJ, Kitzman DW, Whellan DJ, et al. Physical Function, Frailty, Cognition, Depression, and Quality of Life in Hospitalized Adults ≥60 Years With Acute Decompensated Heart Failure With Preserved Versus Reduced Ejection Fraction. Circ. Heart Fail. 2018; 11(11): e005254.
28. Wang G, Yang Q. Factors associated with health-related quality of life in Chinese patients with heart failure: a cross-sectional study. Collegian. 2020; 27(5): 512-520.
29. Hou N, Chui MA, Eckert GJ, et al. Relationship of age and sex to health-related quality of life in patients with heart failure. Am. J. Crit. Care. 2004; 13(2): 153-161.
30. Masoudi FA, Rumsfeld JS, Havranek EP, et al. Age, functional capacity, and health-related quality of life in patients with heart failure. J. Card. Fail. 2004; 10(5): 368-373.

31. Samartzis L, Dimopoulos S, Manetos C, et al. Neuroticism personality trait is associated with Quality of Life in patients with Chronic Heart Failure. World J. Cardiol. 2014; 6(10): 1113-1121.
32. Garin O, Ferrer M, Pont À, et al. Evidence on the global measurement model of the Minnesota Living with Heart Failure Questionnaire. Qual. Life Res. 2013; 22(10): 2675-2684.
33. Moon JR, Jung YY, Jeon ES, et al. Reliability and validity of the Korean version of the Minnesota Living with Heart Failure Questionnaire. Heart Lung. 2012; 41(1): 57-66.
34. Figueiredo J, Oliveira G, Pereira BB, et al. Synergistic Effect of Disease Severity, Anxiety Symptoms and Elderly Age on the Quality of Life of Outpatients with Heart Failure. Arq. Bras. Cardiol. 2020; 114(1): 25-32.
35. Polikandrioti M, Panoutsopoulos G, Tsami A, et al. Assessment of quality of life and anxiety in heart failure outpatients. Archives of Medical Sciences. Atherosclerotic Diseases. 2019; 4: e38-e46.
36. AbuRuz ME. Anxiety and depression predicted quality of life among patients with heart failure. J. Multidiscip. Healthc. 2018; 11: 367-373.
37. Timmermans I, Versteeg H, Meine M, et al. Illness perceptions in patients with heart failure and an implantable cardioverter defibrillator: Dimensional structure, validity, and correlates of the brief illness perception questionnaire in Dutch, French and German patients. J. Psychosom. Res. 2017; 97: 1-8.
38. Broadbent E, Wilkes C, Koschwanez H, et al. A systematic review and meta-analysis of the Brief Illness Perception Questionnaire. Psychol. Health. 2015; 30(11): 1361-1385.
39. Johansson I, Joseph P, Balasubramanian K, et al. Health-Related Quality of Life and Mortality in Heart Failure: The Global Congestive Heart Failure Study of 23 000 Patients From 40 Countries. Circ. 2021; 143(22): 2129-2142.
40. Giardini A, Pierobon A, Callegari S, et al. Optimism may protect Chronic Heart Failure patients from depressive symptoms: Relationships between depression, anxiety, optimism, pessimism and illness perception. Psicoter. Cogn. e Comportamentale. 2017; 23(1): 27-39.
41. Bundgaard JS, Thune JJ, Torp-Pedersen C, et al. Self-reported health status and the associated risk of mortality in heart failure: The DANISH trial. J. Psychosom. Res. 2020; 137: 110220.
42. Bobčíková K, Bužgová R. Interventions in care of patients with heart failure for improvement of quality of life. Cor. Vasa. 2020; 62(6): 588-594.

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