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Assessment of the Quality of Life in Elderly and Senile Age Patients with Chronic Heart Failure

Olga A. Osipova[1*], Tatiana P. Golivets[1], Igor I. Khamnagadaev[1], Elena V. Gosteva[2], Oksana N. Belousova[1]

Abstract

Background: The Improvement of quality of life (QOL) and its dynamics among patients with chronic heart failure (CHF) is an important task and one of the leading criteria for the therapy effectiveness among patients with CHF.

Aim: The present study aimed to compare the QOL in patients with heart failure with mid-range ejection fraction (HFmrEF) in different age groups, taking into account gender differences.

Method: This cross-sectional study was conducted on 377 participants with CHF and a control group of 30 subjects matched in age without CHF in Belgorod, Russia, in 2020. The participants were selected by the purposive sampling method. All patients were assigned into three groups, including middle age, elderly age, and senile age. The participants completed the Minnesota Living with Heart Failure Questionnaire (MLHFQ), Zung Self-Rating Anxiety Scale, and Zung Self-Rating Depression Scale. The collected data were analyzed with nonparametric statistic methods.

Results: It was revealed that the QOL was significantly lower in patients with HFmrEF of ischemic genesis than in the control group. The lowest QOL, according to the MLHFQ questionnaire, was revealed in old age. In the female population, the QOL was significantly lower than in men in the same age group. Moreover, the most pronounced manifestations of anxiety and depressive disorders were observed in middle-aged men and middle-aged women, respectively.

Implications for Practice: According to the findings of this study, it is suggested that physicians and therapists pay special attention to the QOL of the elderly and senile aged people with CHF.

Keywords: Aged, Heart diseases, Quality of life

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Introduction

The improvement of quality of life (QOL) and its dynamics is an important task and one of the leading criteria for the therapy effectiveness among patients with chronic heart failure (CHF) (1). According to the World Health Organization (WHO), quality of life is the person's perception of the state of life in the culture and value systems in which they live, which is related to goals, expectations, criteria, and important matters (2). Quality of life can be categorized as an individual's awareness and fulfillment of their position in their living experience in the social, value-related, and ethical environment in which they live and in association with their purposes, anticipations, norms, and considerations (3, 4). Despite the enhancement in treatments, numerous elderlies suffer from cardiovascular complications, such as CHF, that are much more common in an older fragile heart (5). During CHF, the QOL is understood as the patient's self-assessment of his well-being and the effectiveness of treatment. It is recognized that the patients with CHF have a poorer QOL as compared with healthy individuals (6). The results of various studies have demonstrated the effect of decreased exercise tolerance on QOL aggravation among patients with CHF (7-9).

The Minnesota Living with Heart Failure Questionnaire (MLHFQ) is most often used to measure the QOL of patients with CHF (10, 11). It is generally accepted to analyze the total amount of points obtained when completing the MLHFQ although it is possible to assess the physical and emotional components of the QOL separately. According to the results of (12, 13), which assessed the validity and reliability of various questionnaires, the MLHFQ met these criteria to the greatest extent.

However, to the best of our knowledge, no study has been dedicated to investigating the QOL among CHF patients with an intermediate fraction (mid-range) of left ventricular ejection (HFmrEF) of ischemic genesis at old and senile age. Therefore, the present study aimed to compare the QOL in patients with HFmrEF in different age groups with considering gender differences.

Methods

This cross-sectional study was conducted based on a causal-comparative design. The samples included 377 patients with HFmrEF and 30 patients without HFmrEF in Belgorod, Russia, in 2020 (In total, 403). The participants were selected by the purposive sampling method from different ages and genders. The sample size was calculated by the G*Power software (version 3.1.9.7) with an effect size of 0.215, alpha error of 0.05, and power of 0.95 for four groups. The group of patients with HFmrEF ischemic genesis consisted of 377 people. Regarding the gender of the participants, 151 (40%) and 226 (60%) of the cases were women and men, respectively. The mean age of the subjects was obtained at 65.9±15.3 years (age range of 45-82 years). Moreover, the mean disease duration was estimated at 12.4±7.1 years (range of 5-20 years). The participants were divided into three groups depending on age, namely middle age (45-59 years; n=129), advanced age (60-74 years; n=128), and senile (>75 years; n=120). The control group consisted of 30 patients without CHF who were matched in terms of age (mean age of 65.2±15.29 years). The inclusion criteria were being over 45 years and having heart disease. On the other hand, the individuals who had another physical illness and received psychiatric treatment or other psychotherapy were excluded from the study. The participants completed the MLHFQ, Zung Self-Rating Anxiety Scale (SAS), and Zung self-Rating Depression Scale (SDS).

Instruments
Minnesota Living with Heart Failure Questionnaire
The MLHFQ (14) was used in the present study to make it possible to examine the severity of symptoms and features of the psych respectively. The patients of average age (Δ46.2%, P<0.001) and elderly patients (Δ57%, P<0.001) also had a significant difference from the control group. Elderly patients had the worst physical activity score, compared to the middle age (Δ22.2%, P<0.01).ological state among elderly and senile patients. The items are scored on a 6-point Likert scale, reflecting the severity of violations in ascending order. The total score of this tool is calculated at the range of 0-105, with higher scores representing worse QOL. The Cronbach's alpha coefficients for the components of MLHFQ (overall score and physical and emotional components) were 0.75, 0.71, and 0.76, respectively. The construct validity of MLHFQ was measured by confirmatory factor analysis. The MLHFQ had divergent validity with the physical factor (r=-0.38) and psychological factor (-r=0.41) of the 12-item Short-Form Health Survey.

Zung Self-Rating Anxiety Scale
To assess the level of anxiety, the SAS developed by Zung (15) was used. This 20-item self-report assessment instrument measures anxiety levels based on four subscales, namely cognitive, autonomic, motor, and central nervous system symptoms. The items are replied to according to how much the statements apply to a person within 1-2 weeks prior to completing the scale. Each item is rated on a 4-point Likert scale of 1=a little of the time, 2=some of the time, 3=good part of the time, and 4=most of the time. Some items are inversely expressed to prevent the delinquent of set answers. The total score determines the overall assessment.

The participants individually filled out the questionnaire in 3 min, after being instructed by a medical worker. They put a mark in the appropriate boxes of the scale according to the severity levels of "very rarely", "rarely", "often", "most of the time or all the time". The final scores of the anxiety level obtained at the ranges of 20-40, 41-60, and 61-80 represent a low, average, and high level of anxiety, respectively. The Cronbach's alpha coefficient of this instrument was estimated at 0.80 in the present study and its correlation coefficients with the Fear Survey for Adults with Mental Retardation, the anxiety subscale of the Psychopathology Instrument for Mentally Retarded Adults, and Taylor Manifest Anxiety Scale were 0.40, 0.44, and 0.30, respectively. Zung used a sample of 225 psychiatric patients and 343 nonpatients and measured the correlation between a self-administered and clinic-administered version of the SAS test -0.66 overall and 0.74 for patients (12).

Zung Self-Rating Depression Scale
The Zung SDS (16) was used to assess the level of depression. Each item is rated on a 4-point Likert scale of 1=never, 2=sometimes, 3=often, and 4=constantly. The total scores are obtained at four ranges, including 25-49, 50-59, 60-69, and > 70 showing normal state, mild depression, moderate depression, and severe depression, respectively. All clinical interviews were conducted during the initial clinic visit. The optimal cut-off point for the SDS was calculated at 39. The sensitivity and specificity parameters for this cut-off point were 79.2% (95% confidence interval [CI]: 57.8-92.9) and 72.2% (95% CI: 67.9-76.1), respectively. Positive and negative predictive values were 12.5% (95% CI: 7.7-18.8) and 98.6% (95% CI: 96.7-99.5), respectively. Moreover, there was no statistically significant difference in diagnostic accuracy indices of the cut-off points of 39 and 40. In a receiver operating characteristic analysis, the area under the curve was 0.85 (95% CI: 0.77-0.92) for the SDS total score and 0.89 (95% CI: 0.83-0.96) for the Beck Depression Inventory-21 (P=0.137).

Statistical processing was performed using the Statistica software package (version 10.0). The tables containing the results of patients were formed using Excel MS Office 2010 tables. Quantitative indicators were presented as a median and interquartile range (Me, Q25%; Q75%). Differences were considered statistically significant with the delta method (17) at a significance level of P < 0.05.

All ethical considerations were observed in this study. The participants were explained about the purpose and procedures of the research, and they were assured of the confidentiality of their information. They were also informed about the possibility of study withdrawal at any research stage, and if they desired, the research results would be available to them. Written consent was obtained from the subjects. The principles of the Helsinki Convention were also observed.

Results
Table 1 presents the results of the QOL of patients with HFmrEF, according to which, the elderly had a worse total QOL index (91.3 (75.2; 104.8) points) than the control group (45.1 (42.1; 48.4) points) based on the results of the MLHFQ questionnaire analysis. Based on the results, the patients of average age (Δ34.2%, P<0.01) and elderly patients (Δ41.9%, P<0.001) had a significant difference from the control group. Elderly patients had a worse score, compared to middle-aged patients (Δ11.7%, P<0.05).

According to the scale of physical assessment, elderly HFmrEF patients had the worst results; accordingly, the median was estimated at 33.2 points, which was 66.3% (P<0.001), 37.3% (P<0.01), and 21.4% (P<0.01) higher than that in the control group, middle-aged patients, and the elderly,

Table 1. Initial assessment of the QOL according to the MLHFQ in patients with HFmrEF depending on age (Q25%, Q75%)

Parameters, measurement units	Control group (n=30) 1	HFmrEF Middle age 2	HFmrEF Elderly 3	HFmrEF Senile age 4
Total score	45.1 [42.1;48.6]	68.5 [60.4;81.2]	77.6 [65.3;86.7]	91.3 [75.2;104.8]
	P2-3<0.05; P2-4<0.01; P1-2<0.01; P3-4<0.05; P1-3<0.001; P1-4<0.001			
Physical score	11.2 [8.1; 14.3]	20.4 [16.1; 27.3]	26.1 [21.6; 29.8]	33.2 [28.9; 36.9]
	P2-3<0.01; P2-4<0.01; P1-2<0.01; P1-3<0.001; P3-4<0.01; P1-4<0.001			
Emotional evaluation, score	12.1 [9.2; 13.4]	14.4 [9.8; 18.5]	18.5 [14.2; 22.3]	22.6 [17.5; 25.9]
	P2-3<0.01; P2-4<0.01; P1-2<0.05; P3-4<0.01; P1-3<0.01; P1-4<0.001			

HFmrEF: Heart failure with mid-range ejection fraction; QOL: Quality of life; MLHFQ: Minnesota Living with Heart Failure Questionnaire; *P<reliability of differences between the groups of patients

respectively. The patients of average age (Δ46.2%, P<0.001) and elderly patients (Δ57%, P<0.001) also had a significant difference from the control group. Elderly patients had the worst physical activity score, compared to the middle age (Δ22.2%, P<0.01).

According to the emotional assessment scale, elderly patients with HFmrEF had the worst results, with the median of 22.6 points, which was 46.5% higher (P<0.001) than the control group, 36.3% (P<0.01) higher than the average age patients, and 18.1% (P<0.01) higher than the elderly. The middle-aged patients (Δ15.9%, P<0.05) and elderly patients (Δ34.5%, P<0.01) had a significant difference from the control group.

Table 2 tabulates the QOL in patients with HFmrEF according to the MLHFQ, depending on the age and gender differences of Me (Q25%, Q75%).

Regarding the analysis of gender differences, it was found that women had higher values than men in terms of the total score for middle age (Δ11.9%, P<0.05), old age (Δ9.6%, P<0.05), and senile age (Δ16.0%, P<0.01) participants, which indicated a poorer QOL than that of men. The difference between men and women in the physical activity scores was Δ17.2% (P<0.01) for the middle age, Δ18.0% (P<0.01) for the elderly, and Δ14.8% (P<0.05) for the senile patients, which indicated a reduced physical activity among the women compared to men.
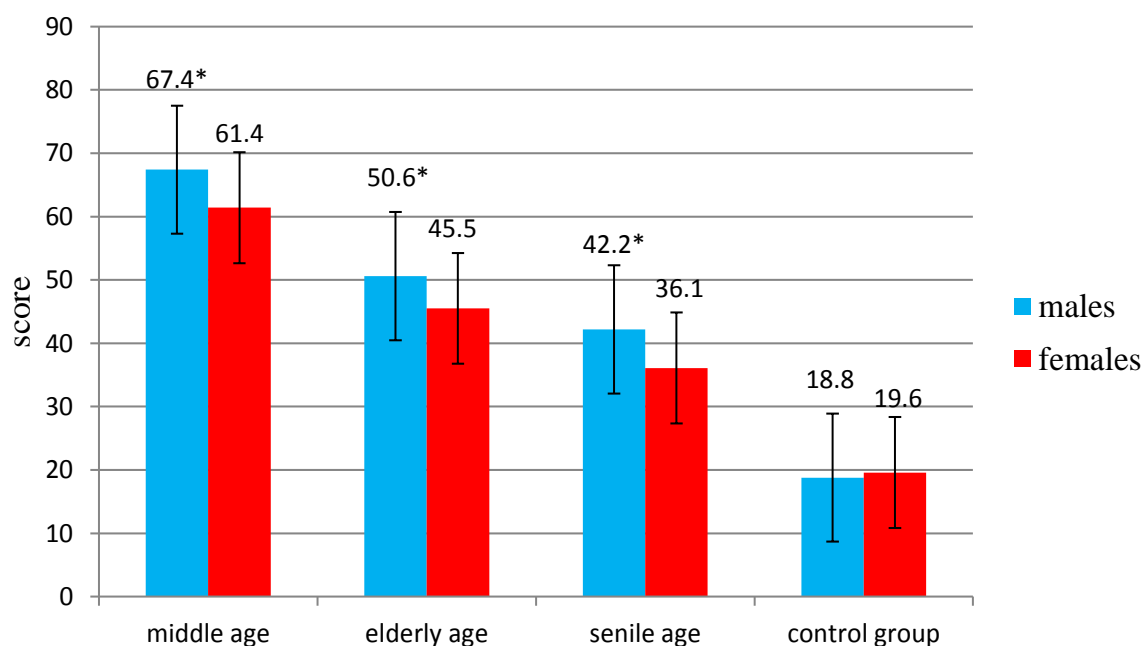
The assessment of the emotional component (in points) revealed that the differences between men and women were Δ17.4%, (P<0.01) among the middle age patients, Δ19.8%, (P<0.01) among the elderly, and Δ18% (P<0.05) among the senile, showing a reduced emotional activity among women, in comparison to men.

The level of anxiety was maximum in HFmrEF patients of middle age with 64.7 (54.1; 70.3) points and accounted for 46.4 (41.2; 54.1) in the old age and 38.5 (33.7; 45.1) in the senile patients, while the lowest anxiety was observed in the control group with 19.4 (16.5; 21.3) points, which was consistent with the literature data on the decrease of anxiety level with aging. The differences of the control group with the middle-aged individuals, the elderly, and the senile were 70.0% (P<0.001),

Table 2. Assessment of the QOL in patients with HFmrEF according to the MLHFQ, depending on the age

HFmrEF patient group		Indicators, measurement units		
Age	Gender	Total score	Physical score	Emotional evaluation, score
Middle	Males	66.2 (60.4; 72.5)	19.2 (16.1; 22.3)	13.3 (9.8; 16.0)
	Females	75.1 (68.3; 81.2)*	23.2 (20.1; 27.3)**	16.1 (12.2; 18.5)**
Elderly	Males	73.3 (65.3; 80.4)	23.2 (21.6; 26.5)	16.2 (14.2; 19.4)
	Females	81.1 (77.2; 86.7)*	28.3 (25.6; 29.8)**	20.2 (16.6; 22.3)*
Senile	Males	80.1 (75.2; 88.1)	29.3 (28.9; 33.4)	19.1 (17.5; 23.3)
	Females	95.4 (80.0; 104.8)**	34.4 (31.5; 36.9)*	23.3 (20.1; 25.9)**

MLHFQ: Minnesota Living with Heart Failure Questionnaire; HFmrEF: Heart failure with mid-range ejection fraction; QOL: Quality of life; *P < 0.05; **P < 0.01- The differences between men and women at the same age

*Differences between male and female indicators are significant at P < 0.05.
Figure 1. Comparative characteristics of the level of anxiety among males and females with HFmrEF depending on age and in the control group
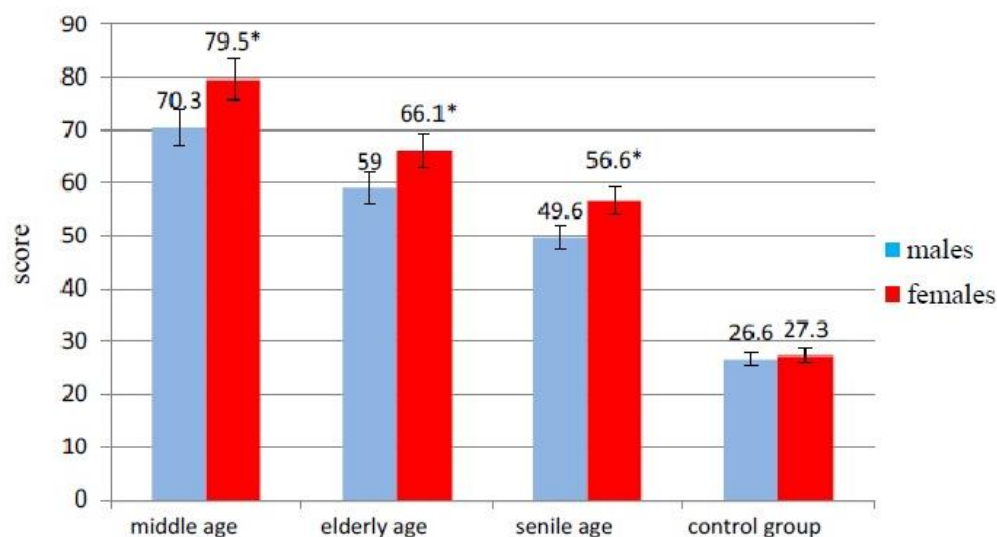
58.2% (P<0.001), and 49.6% (P<0.001), respectively. The differences of middle-aged with elderly and senile patients were 28.3% (P<0.01) and 40.5% (P<0.001), respectively, and was 17.0% (P<0.01) between elderly and senile patients. The test results were analyzed using the Tsung scale to identify the level of anxiety among the patients of different age groups, depending on gender. The results are shown in Figure 1.

The analysis of the anxiety level results did not reveal gender differences in the control group (P>0.05). However, significant differences (Δ8.9%, P<0.05) were observed between men 67.4 (64.4; 70.3) and women 61.4 (54.1; 68.7) at the middle age. In old age, the difference between men 50.6 (46.4; 54.1) and women 45.5 (41.2; 50.0) was estimated at 10.1% (P<0.05). In senile age, the difference between men 42.2 (39.2; 45.1) and women 36.1 (33.7; 38.5) was calculated at 14.5% (P<0.05).

The level of depression among HFmrEF patients was determined depending on age and gender differences according to the Tsung scale. It was found that the level of self-rated depression in the group of middle-aged patients was the highest and amounted to 78.6 (65.4; 86.9) points, which was 65.8% (P<0.001) higher than that in the control group, accounting for 26.9 (25.1; 29.6) points. Based on the results, the level of depression decreased with aging, which was 62.2 (55.3; 70.7) points among the elderly and 20.9% (P<0.01) lower and 56.8% (P<0.001) higher than that in the average age and control groups, respectively. In senile age, the self-reported level of depression was 52.6 (47.3; 62.9) points, which was 15.4% (P<0.05) lower than that in the elderly and lower by 33.1% (P<0.01) than in the middle age patients; the difference with the control group was 48.9% (P<0.01).

The next step in our study was to determine how gender contributed to the experience of depression among HFmrEF patients (Figure 2).

The level of depression was higher in women than in men in all age categories. It was found that the level of depression self-assessment in the group of middle-aged women was the highest and amounted to 79.5 (72.1; 86.9) points, which was 11.6% (P<0.05) higher than that among men (70.3 (65.4; 75.2) points). With age, the level of depression decreased and it was 66.1 (61.4; 70.7) points among older women, which was 10.7% (P<0.05) higher than that in men (59.0 (55.3; 62.7) points). In senile age, the self-assessment of depression level among women was 56.6 (50.3; 62.9) points; that is, it was higher by 12.4% (P<0.05) than that among men at the same age, which accounted for 49.6 (47.3; 51.8) points.

*Differences between the indicators in males and females are significant at P < 0.05.

Figure 2. Comparative characteristics of the level of depression in males and females with HFmrEF depending on age and in the referent group

Discussion

The purpose of our analysis was to assess the QOL according to MLHFQ questionnaire results and compare the rates between men and women by age. A decrease of points on the scale of physical and emotional QOL assessment was found among the patients with HFmrEF according to the MLHFQ questionnaire, both in old and senile age. The results of the present study revealed the deterioration of the studied parameters as the age of the patients increased.

It has been reported that gender contributes to the clinical picture and outcomes among CHF patients; nevertheless, few studies have compared QOL and related factors across gender groups among CHF patients (18). However, gender differences among CHF patients should be taken into account when developing treatment strategies in order to solve the problems associated with the increase in patients' number, especially in older age groups (19).

The QOL was significantly lower in patients with HFmrEF than in the control group, and there was a decrease in QOL with aging. The lowest QOL (total score and physical and emotional components) was found in old age. Among the female population, the QOL was significantly lower than that in men in the same age group.

The results of previous studies have demonstrated the significant role of the emotional status of patients, in particular depressive manifestations and anxiety disorders, reducing QOL among CHF patients (20, 21). In this regard, this study investigated the QOL and the level of anxiety and depression among HFmrEF patients according to age and gender. There are insufficient data on these changes among elderly people with CHF since clinical studies rarely included this category of patients (22).

According to the literature, the use of "double" questionnaire scales for depression and anxiety is of particular interest in old age (23). The results of "double" questionnaire scale use among elderly patients showed that the estimates of depression and anxiety within the analyzed couples demonstrated high levels of correlation (23). A strong correlation was found in old age between the estimates of depression severity according to the Zung SDS and the level of anxiety according to the SAS. In this regard, the assessment of anxiety disorders was carried out in the current study using the Zung SAS (15). Therefore, in our study, it was found that the level of anxiety was higher in men than in women of all age categories.

Depressive disorders are common among CHF patients, with prevalence rates markedly higher than those in the general population. The findings of a meta-analysis of 36 studies showed that clinically significant depressive symptoms affected 21.5% of CHF patients (24). At the same time, CHF patients with depressive symptoms usually had a lower QOL, decreased functional status, greater symptomatic load, and, accordingly, lower adherence to therapy (25). The level of depression decreased with aging,

accounting for 62.2 (55.3; 70.7) points among the elderly, which was 20.9% (P<0.01) lower than that in the average age and 56.8% (P<0.001) higher than in the control group. The obtained data were consistent with the literature data for CHF patients (26).

Implications for Practice

In this study, it was demonstrated that the patients with CHF and a mid-range ejection fraction of ischemic genesis had significantly lower QOL than the control group. There was a decrease in the QOL with aging. The lowest QOL, according to the MLHFQ questionnaire (overall score and physical and emotional components), was revealed in senile age. In the female population, the QOL was significantly lower than that among the men in the same age group. At the same time, the most pronounced manifestations of anxiety were observed among middle-aged men, and the most pronounced manifestations of depressive disorders were found among middle-aged women. Finally, it is suggested that trainers pay attention to gender and age differences in working with older people. For example, experts look at anxiety in middle-aged men and depression in middle-aged women. Moreover, in general, they need to pay more attention to the physical and emotional conditions of the elderly. It is also recommended that physical and emotional state be improved, especially in the elderly, using evidence-based interventions.

This study also had some limitations. The first limitation was related to the sampling method, which was a convenience sampling method. In addition, the sample size of the control group and the other groups was not homogeneous. To reduce the effect of potential variables, it is suggested that the researchers use a randomly selected homogeneous sample size in future studies.

Conflicts of Interest
The authors declare no conflict of interest in the publication of this article.

References

1. Ponomarev DS. Modern view on the problem of quality of life and its assessment in patients suffering from chronic heart failure. Bulletin of Russian Universities: Matematika. 2017;22(2):357-61.
2. Entezari S, Mojtabai M. The efficacy of metacognitive therapy (mct) on anxiety symptoms and it's effect on worry and quality of life of individuals with generalized anxiety disorder. Psychol Res. 2014;16(2):76-91.
3. Hussenoeder FS, Jentzsch D, Matschinger H, Hinz A, Kilian R, Riedel-Heller SG, et al. Depression and quality of life in old age: A closer look. Eur J Ageing. 2021;18:75-83.
4. Moons P, Apers S, Kovacs AH, Thomet C, Budts W, Enomoto J, et al. Sense of coherence in adults with congenital heart disease in 15 countries: Patient characteristics, cultural dimensions and quality of life. Eur J Cardiovasc Nurs. 2020;20(1):48-55.
5. Lucia Cd, Eguchi A, Koch WJ. New insights in cardiac β-adrenergic signaling during heart failure and aging. Front Pharmacol. 2018;9(904).
6. Albuquerque de Almeida F, Al MJ, Koymans R, Riistama J, Pauws S, Severens JL. Impact of hospitalisation on health-related quality of life in patients with chronic heart failure. Health Qual Life Outcomes. 2020;18(1):1-10.
7. Nichols S, McGregor G. Current insights into exercise-based cardiac rehabilitation in patients with coronary heart disease and chronic heart failure. Int J Spo Med. 2021;42(1):19-26.
8. Osipova OA, V. GE, N. FV, V. VL, A. KkN. The role of physical exercise in the mechanisms of progression of chronic heart failure in elderly patients with coronary heart disease. Univ Thera J. 2020;2(3):5-11.
9. Polikandrioti M, Koutelekos I, Panoutsopoulos G, Gerogianni G, Zartaloudi A, Dousis E, et al.

Hospitalized patients with heart failure: the impact of anxiety, fatigue, and therapy adherence on quality of life. Arch Med Sci Atheroscler Dis. 2019;4:e268-e79.

10. Rector TS, Francis GS, Cohn JN. Patients self-assessment of their congestive heart failure. Part 1: patient perceived dysfunction and its poor correlation with maximal exercise tests. Heart Fail. 1987;3(5):192-6.

11. Rector T. Patient's self-assessment of their congestive heart failure: II. Content, reli-ability and validity of a new measure-The Minnesota Living with heart Failure Questionnaire. Heart Fail. 1987;3(1):198.

12. Garin O, Ferrer M, Pont A, Rué M, Kotzeva A, Wiklund I, et al. Disease-specific health-related quality of life questionnaires for heart failure: a systematic review with meta-analyses. Quality of life research. Qual Life Res. 2009;18(1):71-85.

13. Garin O, Herdman M, Vilagut G, Ferrer M, Ribera A, Rajmil L, et al. Assessing health-related quality of life in patients with heart failure: a systematic, standardized comparison of available measures. Hea Fail Rev. 2014;19(3):359-67.

14. Middel B, Bouma J, de Jongste M, van Sonderen E, Niemeijer MG, Crijns H, et al. Psychometric properties of the Minnesota Living with Heart Failure Questionnaire (MLHF-Q). Clin Rehab. 2001;15(5):489-500.

15. Zung WW. A rating instrument for anxiety disorders. Psychosomatics. 1971;12(6):371-9.

16. Zung WWK. Zung Self-Rating Depression Scale and Depression Status Inventory. In: Sartorius N, Ban TA, editors. Assessment of Depression. Berlin, Heidelberg: Springer; 1986.

17. Ver Hoef JM. Who Invented the Delta Method? Am Stat. 2012;66(2):124-7.

18. Shih ML, Tsai ST, Chen HM, Chou FH, Liu Y. Gender differences? Factors related to quality of life among patients with Heart failure. Wom Heal. 2020;60(4):382-95.

19. Truby LK, O'Connor C, Fiuzat M, Stebbins A, Coles A, Patel CB, et al. Sex differences in quality of life and clinical outcomes in patients with advanced heart failure: insights from the pal-hf trial. Circul Heart Fail. 2020;13(4):e006134.

20. AbuRuz ME. Anxiety and depression predicted quality of life among patients with heart failure. J Multid Heal. 2018;11:367-73.

21. Figueiredo JHC, Oliveira GMMd, Pereira BB, Figueiredo AEB, Nascimento EM, Garcia MI, 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.

22. Malykhin FT. Quality of life, conditioned by the state of health of elderly and senile people (Literature review). Kaches Klini Praka. 2011;1:11-18.

23. N. IN, A. KkM, I. AT, A. IT. The possibility of using standardized self-report anxiety and depression scales in elderly patients: Depression scales/questionnaires in elderly. Zh Nevrol Psikh Im S S Korsakova. 2016;116(10):51-9.

24. Mahmood SS, Wang TJ. The epidemiology of congestive heart failure: the Framingham Heart Study perspective. Glob Heart. 2013;8(1):77-82.

25. Celano CM, Villegas AC, Albanese AM, Gaggin HK, Huffman JC. Depression and anxiety in heart failure: a review. Harv Rev Psych. 2018;26(4):175-84.

26. Dekker RL, Lennie TA, Doering LV, Chung ML, Wu JR, Moser DK. Coexisting anxiety and depressive symptoms in patients with heart failure. Eur J Cardiovasc Nurs. 2014;13(2):168-76.