Original paper

Relationship between the level of spirituality and quality of life or psychological well-being in elderly patients hospitalised for heart failure

Związek poziomu duchowości z jakością życia i dobrostanem psychicznym pacjentów w wieku podeszłym hospitalizowanych z powodu niewydolności serca

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Key words: quality of life, patients, spirituality, heart failure.

Słowa kluczowe: jakość życia, pacjenci, duchowość, niewydolność serca.

Abstract

Introduction: Spiritual care is increasingly acknowledged as part of a holistic approach in medicine.
Aim of the research: Establish the level of quality of life, spirituality, and psychological well-being in elderly patients hospitalised for heart failure depending on their gender and NYHA class and the analysis of factors determining spirituality in this group of patients.
Material and methods: A cross sectional study was conducted. A total of 211 patients with heart failure were surveyed. The Self-Description Questionnaire by Heszen-Niejodek, The Polish version of World Health Organisation Quality of Life Instrument Short Form (WHOQOL-BREF), The Minnesota Living with Heart Failure Questionnaire, and the Psychological Well-being Scale were used.
Results: The respondents with heart failure reported high values of general spirituality and were moderately religious and ethically sensitive. A higher level of spirituality means higher quality of life in such domains as general quality of life perception, physical, psychological, social, and environmental. Being male and of higher class of heart failure worsened the quality of life in most domains. The results of multiple regression indicated that the worse the condition of the disease, the more parameters of QoL affected spirituality and its aspects.
Conclusions: Planning any steps aimed at providing spiritual support in patients with heart failure should be dependent upon their gender and NYHA classification. Improving the quality of life of patients with heart failure may be achieved through ensuring spiritual support from medical staff. It would be beneficial to introduce some principles of providing spiritual care into medical staff educational programmes.

Streszczenie

Wprowadzenie: Opieka duchowa jest obecnie coraz częściej uznawana za element holistycznego podejścia w medycynie.
Cel pracy: Ustalenie poziomu jakości życia, duchowości i dobrostanu psychicznego pacjentów w podeszłym wieku hospitalizowanych z powodu niewydolności serca w zależności od płci i klasy NYHA oraz analiza czynników determinujących duchowość w tej grupie pacjentów.
Materiał i metody: Przeprowadzono badanie przekrojowe. Przebadano 211 pacjentów z niewydolnością serca. Wykorzystano *Kwestionariusz Samoopisu Heszen-Niejodek*, polską skróconą wersję *Ankiety oceniającej jakość życia* (WHOQOL-BREF), Kwestionariusz *Minnesota Living with Heart Failure*, *Skalę dobrostanu psychologicznego*.
Wyniki: Respondenci z niewydolnością serca deklarowali wysokie wartości w zakresie duchowości ogólnej oraz byli dość wrażliwi religijnie i etycznie. Wyższy poziom duchowości oznacza wyższą jakość życia w takich obszarach, jak: ogólna percepcja jakości życia, dziedziny: fizyczna, psychologiczna, społeczna i środowiskowa. Płeć męska i wyższy stopień nie-

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wydolności serca pogarszały jakość życia w większości dziedzin. Wyniki regresji wielokrotnej wykazały, że im gorsza jest kondycja chorego, tym więcej parametrów jakości życia (QoL) wpływa na duchowość i jej aspekty.
Wnioski: Planowanie wszelkich działań mających na celu zapewnienie wsparcia duchowego pacjentom z niewydolnością serca powinno być uzależnione od płci pacjenta i klasyfikacji NYHA. Poprawę jakości życia chorych z niewydolnością serca można osiągnąć poprzez zapewnienie wsparcia duchowego ze strony personelu medycznego. Korzystne byłoby wprowadzenie do programów kształcenia kadr medycznych zasad sprawowania opieki duchowej.

Introduction

Spiritual care is increasingly acknowledged as part of a holistic approach in medicine, especially while managing patient care [1]. It seems to have become the way to improve quality of life and patients' outcomes in heart failure, as well [2]. Spiritual well-being is associated with such positive effects as greater physical and emotional tolerance to a disease, lower pain and stress sensation, lower risk of depression or suicide, a higher level of health care satisfaction, better coping with the disease, lower anxiety, and better resilience [3, 4]. A deep sense of spirituality may also help people accept disability and, thus, improve quality of life [5]. Therefore, it must become a potential goal, especially, in palliative care of patients with heart failure (HF). Taking into account their spiritual and religious needs might help them choose less aggressive therapy in terminal moments of their lives, compliant to their values, which may increase the quality of their lives in sickness and prevent rehospitalisations and premature deaths [2, 6].

The provision of spiritual care in terms of the patient's spiritual needs is a vital part of a nurse's role [3]. The conceptual basis of nursing has emphasised the significance of spirituality and spiritual care for a long time. Spiritual care as a key aspect of nursing can be found in Florence Nightingale or Jean Watson's theories as well as in the code of ethics for nurses in which the necessity of developing conditions respecting patients' spirituality are particularly highlighted [7, 8].

Nurses and healthcare staff members, however, find it difficult to interpret and apply the concepts of spirituality in practice. This may stem from its various models and definitions existing in the literature as well as numerous tools used to measure the phenomenon [9]. Spirituality is a complex and subjective human experience. It encompasses a broad belief that includes human rights, personal values, religion, and culture [10]. The research carried out in particular psychological trends clearly shows the variety of perspectives in it may be viewed. According to the concept of Anandarajah and Hight (2001), 3 spirituality contains 3 aspects: cognitive (search for meaning, purpose, and truth as well as the beliefs and values by which we live), experiential (feelings of hope, love, connection, inner peace, and comfort, and can reflect the quality of our inner resources), and behavioural (the manner in which we display or act upon our spiritual beliefs and inner spiritual consciousness) [11]. Delgado [5] claims that 'spirituality is characterised by faith, a search for meaning and purpose in life, a sense of connection with others, and a transcendence of self, resulting in a sense of inner peace and well-being'. According to Puchalski, a contemporary leader of an international movement which combines spirituality and healthcare, it is a human life aspect related to transcendence and existentially important values such as (a) human religiosity, relationship with the God, and religious life practices; (b) existential search for meaning in life, misery, death, human dignity as well as freedom, responsibility, hope, despair, forgiveness, and love; and, (c) relationship with oneself and other people, attitude to work, art, nature, culture, and the choices in terms of morality and ethics. Thus, spirituality is an important part of life, which goes beyond sensory phenomena but, assuredly, affects and shapes each aspect of personal and social life [12, 13].

It is worth highlighting that the concepts of 'spirituality' and 'religion' are not alike and they ought to be differentiated from one another. Spirituality is a broader phenomenon than religion, although, for some, it is still experienced and expressed in terms of religious values, faith, and beliefs [14]. Pesut [15] is of the opinion that 'spirituality is an individualised journey characterised by experiential descriptors such as meaning, purpose, transcendence, connectedness and energy' but 'religion, characterised by institutionalised beliefs and rituals, has in some instances been relegated to a subset of either spirituality or culture'. Religiosity is inseparably connected with beliefs and group practices, whereas spirituality is described as seeking universal truths and forms of activity which involves discovering sense and meaning in the surrounding world. While religiosity is based on cognitive matter, spirituality lies in a more emotional sphere [16].

An essential aspect of spirituality is the fact that, as a human attribute, it is a potential which can constantly develop. It may be formed throughout life and even in old age. The growth in spiritual value depends to external circumstances, especially critical incidents in the field of health such as a serious life-threatening somatic disease and the experience connected with it [17]. Heart failure can be such a disease.

Heart failure is considered to be the disease of the 21st century. Approximately 1.2 million people in Poland currently suffer from HF, and 140,000 of them die annually. Since 2008 the hospitalisation

ratio for HF in Poland has been rising and is the highest among the countries of the Organisation for Economic Cooperation and Development [18]. The Ministry of Health forecasts that by 2029 the number of hospitalisations due to circulatory diseases and HF, in particular, will have increased by 25.5%. The prognosis for patients with chronic HF is still unfavourable despite constant medical progress. According to the NYHA IV classification, the yearly death rate caused by HF exceeds 50% [19]. Many studies proved that most of the patients with heart failure had poor quality of life, especially those with third/fourth degree heart failure or those being elderly with frailty syndrome [20–23]. This probably stems from the fact that in most cases heart failure is a progressing condition with bad prognosis. What is more, strong prognostic factors of low quality of life in the patients are the symptoms and functional severity of heart failure, medical comorbidities, and depression [24].

Among patients with an advanced disease, spiritual distress is prevalent and, what is more, it is associated with poor quality of life and increased healthcare costs [24]. Klimasiński *et al*. [25], who assessed the spiritual distress and spiritual needs of a group of Polish chronically ill patients, concluded that each patient with a severe chronic disease needs primary spiritual healthcare. The research assumed spiritual needs as connected with personal beliefs, while spirituality exceeds beyond religious context because spiritual suffering has nothing in common with the level of religiosity. The examination by Park and Sacco [6] found almost half of the HF patients reporting high levels of unsatisfied spiritual needs and the desire to have them met by their attending physicians or other medical staff. Spiritual constraints and unsatisfied needs were connected with worse spiritual and physical well-being of their patients. In the qualitative study by Ross and Austin [26] conducted among end-stage heart failure patients, participants, except for physical and emotional issues, struggled with spiritual and existential ones such as faith, love, belonging, coping, and future. Having a person who you can talk to, as well as receiving care from medical staff characterised by sensitivity, care, attention, and giving hope, might solve the spiritual problems of most patients.

The topic of spirituality among heart failure patients is quite fresh in the Polish scientific community. Professor Małgorzata Krajnik – the president of the Polish Society of Spiritual Care (PTODM) established at the end of 2015 in Krakow – is a dedicated follower of the movement in favour of introducing spiritual care among patients in Poland. The society's main aim is to increase the level of quality of spiritual care in the bhealthcare system in Poland by applying the standards of good practice in terms of religious care provided by medical staff and spiritual health specialists such as chaplains and lay persons.

Taking into consideration the problems of HF patients, we tried to assess the level of quality of their lives in the domains such as physical, psychological, social, and environmental depending on gender and NYHA class. The study aimed at finding what quality of life looks like depending on the severity of symptoms in correlation to gender and NYHA class, what the level of spirituality is among HF patients, and whether there is a relationship between spirituality and quality of life or psychological well-being.

Aim of the research

The study aimed at (1) establishing the level of quality of life, spirituality, and psychological well-being in elderly patients hospitalised for heart failure, depending on their gender and NYHA class, and (2) the analysis of factors determining spirituality in this group of patients.

Material and methods

Design

A cross sectional study was conducted between July 2018 and May 2019. The sample group consisted of hospitalised HF patients with class II and III of NYHA classification inhabiting Opolskie and Silesian Voivodeships in Poland. The study followed *The Strengthening in the Reporting of Observational Studies in Epidemiology* (STROBE).

Study setting

The research was conducted among the patients of The Department of Internal Medicine in Voivodship Hospital in Opole, the Department of Cardiological Rehabilitation in Upper Silesian Rehabilitation Centre, and the Department of Internal Medicine with its Cardiological Ward in St. Elisabeth Hospital in Biała, Poland.

Inclusion and exclusion criteria

The inclusion criteria included the diagnosis of heart failure class II or III of NYHA classification, age 60–80 years, ability to answer questions logically and individually (assessed with the Mini Mental State Examination [MMSE] questionnaire), written consent for participation in the study, and a qualification procedure performed by a physician or a nurse. In contrast, the exclusion criteria included lack of clinical diagnosis of class II or III of NYHA classification, age under 60 and over 80 years, confirmed mental or cognitive disorders, lack of written consent, and lack of qualification by a physician or a nurse.

The examination of each patient was carried out by the author of the study or, in unique cases, a physician, after receiving the patients' voluntary consent. The examination of each patient started with

the evaluation of their mental state with the MMSE to assess their cognitive functioning and the characteristics of its processes. The functioning of cognitive processes in patients is assessed in the form of numerical results. The patients who achieved scores between 30 and 27 points (no cognitive disorders) were qualified for further examinations [27].

Data sources

The study was carried out according to the diagnostic survey method with the questionnaire technique and the use of the following research tools:

The Self-Description Questionnaire by Heszen-Niejodek [28], which is designed for measuring the level of spirituality. It comprises the following subscales: religiosity (7 statements), ethical sensitivity (7 statements), and harmony (6 statements). The subscales vary in their values: spirituality from 20 to 100, religiosity and emotional sensitivity from 7 to 35, and harmony from 6 to 30, and the subscales cannot be compared with one another. However, it is recommended that the average number of points be calculated per statement and interpreted as follows: 1 – definitely not, 2 – rather not, 3 – no opinion, 4 – rather yes, and 5 – definitely yes. The α coefficient for the general indicator of spirituality is 0.88 and for the specific scales amounts to: religiosity – 0.94, ethical sensitivity – 0.77, and harmony 0.80.

The Polish version of World Health Organisation Quality of Life Instrument Short Form (WHOQOLBREF) was used for assessing quality of life. It consists of 26 questions and 4 domains: Physical, Psychological, Social relationships, and Environmental. The examinees grade each aspect on a 5-grade scale (very bad, bad, neutral, good, very good). The scale includes some questions that are separately analysed: Question 1 applies to general individual perception of one's QOL, and1 Question 2 concerns general individual perception of one's health condition. The domain scoring reflects individual perceptions of the QOL domains and has a positive direction – the higher the score, the higher the QOL. The overall scoring for each domain is calculated by counting the average of all the positions included in each domain. Internal cohesion of Polish version of WHOQOLBREF (Cronbach coefficient) is set at 0.90 [29].

The Minnesota Living with Heart Failure Questionnaire (MLHFQ) evaluates quality of life in patients suffering from HF. It comprises 21 questions related to negative aspects of heart failure and their influence on a patient's life within the last month (4 weeks). A respondent assesses the issue that makes their life difficult on a 6-point scale, where '0' means the issue does not bother the patient, and then from 1 (little impact) to 5 (strong impact). The maximum score ranges from 0 to 105 points and measures the intensity of HF and its negative impact on the patient's life. The overall score of MLHFQ is calculated on the basis of 21 questions. The questionnaire is divided into somatic (questions 2, 3, 4, 5, 6, 7, 12, 13) and emotional (questions 17, 18, 19, 20, 21) aspects, which are assessed by summarising the points of the assigned questions. It is worth noticing that questions 1, 8–11, and 14–16 are not incorporated in emotional or somatic aspects, so the overall score is not the sum of the scores achieved in the 2 aspects mentioned above. The MLHFQ also allows one to compute sub-scores for the physical (eight items, range 0–40) and emotional (5 items, range 0–25) aspects of QoL. Lower MLHFQ scores indicate better QoL [30].

Psychological Well-being Scale PWB designed by Ryff [31] and adapted by Krok [32], serves to evaluate quality of life related to patients' mental health. The authors of the scale, based on the concept of satisfaction and happiness in terms of development and existential challenges, suggested a psychological well-being model with 6 aspects of eudaemonistic approach. The questionnaire consists of 42 statements, each with a 7-degree scale. It allows the assessment of 6 aspects of psychological well-being such as self-acceptance, environment management, personal development, positive relations with others, life goals, and autonomy. The score at each scale ranges from 7 to 49 points, and the higher the score, the more enhanced the welfare. The reliability of the Cronbach coefficient for particular scales ranges from 0.83 to 0.91.

The author's own questionnaire, built up of 12 questions, collects such information as socio-clinical data, family and social situation, occurrence of co-existing diseases, hospitalisations, and spiritual care received.

Sample size and power

According to the data available, there were 4,259,698 patients hospitalised for HF in Poland between 2010 and 2019 [33]. It implies that the average amount of hospitalisations for HF in the given period was 473,299 yearly. As mentioned above, the study was conducted at the turn of 2018/2019 and lasted almost a year. Initially, the required number of patients was collected. Initially, 384 patients were chosen to participate in the study. However, 173 of them were excluded from the course of the study: 15 of them due to their own reservations and fear of answering questions connected with mental and sexual details and 24 because of their cognitive disorders or dementia. 134 of them either withdrew voluntarily or submitted incomplete or incorrectly completed questionnaires. Eventually, the study analysed the outcomes collected from 211 patients: 97 (45.9%) women and 114 (54.03%) men aged 60–80 years (Figure 1).

The results of the post hoc power analyses were conducted to check whether the number of our participants was sufficient for power test effects. The independent variables were the particular dimensions

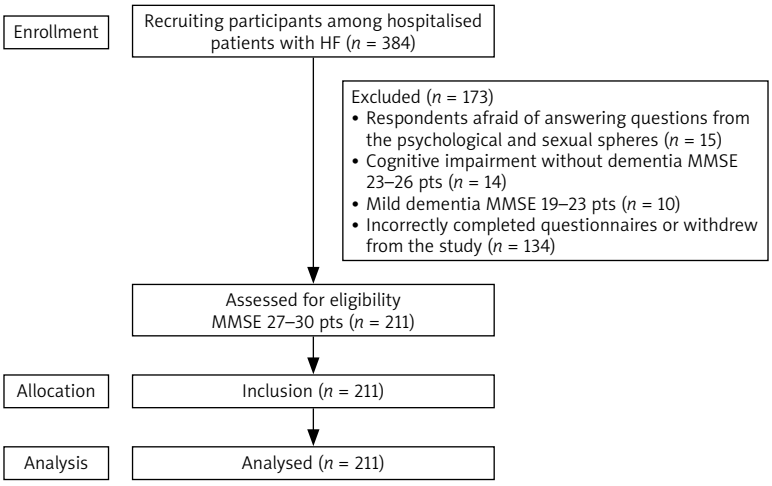

Figure 1. Flow diagram of the study

of WHOQOLBREF, MHLFQ, and PWB. For the purposes of objectivity and statistical validity, the results in each dimension of the independent variables were averaged according to statistical recommendations; G* Power 3.1 test was used [34]. Four consecutive dependent variables were taken into account: the total score of spirituality and its 3 components: religiosity, ethical sensitivity, and harmony. In the first equation with spirituality (total score) as a dependent variable, an effect size of 0.10 and $N = 211$ yielded a power of 0.88. In the second equation with religiosity as a dependent variable, an effect size of 0.12 and $N = 211$ yielded a power of 0.92. In the third equation with ethical sensitivity as a dependent variable, an effect size was 0.09, which with $N = 211$ yielded a power of 0.83. In the fourth equation with harmony as a dependent variable, the effect size was 0.19, which with $N = 211$ yielded a power of 0.98. Thus, all the power of test effects were statistically significant (> 0.80) [34], which proves that the current sample used in our study ($N = 211$) was sufficient for the effects sizes obtained.

Statistical analysis

The normality of the variable distribution was assessed with Shapiro-Wilk test. In addition, visual evaluation of the histogram was performed. The average values, standard deviation, and the coefficient of variation were calculated for the parameters which lacked a basis to reject the normality hypothesis. Student's *t*-test was used to evaluate the significance of the differences between average values. The correlation of quantitative variables in 3 or more groups was assessed with the ANOVA variation analysis (if a variable displayed normal distribution in the groups) or Kruskal-Wallis test (in adverse cases). After statistically significant differences were found, the post-hoc NIR (LSD in English) test was applied (in case of normal distribution) or Dunn's test (in case of lack of normality), to identify statistically different groups.

To evaluate the correlation between a dependent variable and a set of independent variables, the method of multiple regression was applied (stepwise and optimal regression). Stepwise regression joins successively the list of explanatory variables included in the model of variables that affect a dependent variable most significantly. The optimal regression allows us to create a subset of explanatory variables that best forecast the results of the explained variable. Both methods of regression were used to check whether they both lead to similar conclusions, although the methods of their calculation were different and they were applied to different questions. The determination coefficient R^2 was also adopted as a measurement of correlations between variables. The value of the coefficient multiplied by 100% determines the percentage in which the independent variables explain the variability of the results of the dependent variable. The analysis considered a standardised coefficient of partial regression β, which explains how much the dependent variable may change as a result of a standardised change of the independent variable. The level of significance was accepted as 0.05.

Ethical considerations

The study was approved by The Bioethical Commission at Opole Medical School (Poland) with consent no. 7/PI/2018. The research was conducted according to the requirements of the Declaration of Helsinki of 1975 (amended in 2013) and Good Clinical Practice.

Results

Participants

The average age of class II NYHA patients was 69.04±5.09 years for men and 69.67 ±6.07 years for women, and in class III NYHA patients 70.91 ±5.83 years for men and 73.78 ±5.93 years for women. Fe-

male patients were significantly older than male ones ($p < 0.001$), and of higher weight ($p = 0.014$) and body mass index (BMI0 ($p = 0.003$). The patients of class III NYHA were significantly older ($p = 0.022$), of lower height ($p < 0.001$), and higher BMI ($p = 0.009$) than those of class II NYHA. The most numerous groups were those with vocational education (78/36.96%), married (122/57.82%), city residents (121/57.34%), and declaring good economic status (102/48.34%) (Table 1).

The analysis of the level of spirituality

The average level of spirituality in the sample group was very high (77.39 ±12.97) as well as the values in particular subscales: religiosity (27.44 ±6.44) and ethical sensitivity (28.31 ±4.57). Slightly lower results were noted for the harmony subscale (21.64 ±4.38). The average score for each question in particular subscales confirmed that the respondents were rather religious and ethically sensitive (Table 2).

Female class II NYHA patients (WII) achieved slightly lower values in spirituality than those of class III (WIII) (80.91 ±10.35 vs. 83.35 ±9.97, $p = 0.027$, respectively). However, significantly higher levels of spirituality can be observed in male class II NYHA patients in comparison to those of class III NYHA (75.51 ±12.38 vs. 70.28 ±15.57, $p < 0.001$). Higher results in subscales of religiosity, ethical sensitivity, and harmony were also found, contrary to the results collected from women. The results calculated in 4 research groups revealed that the highest level of spirituality can be found in WIII (83.35 ±9.97) while the lowest in MIII (70.28 ±15.57). Women of class II NYHA are characterised by statistically significantly higher levels of spirituality and religiosity than men of the same class. Similarly, women of class III NYHA revealed significantly higher levels of all parameters examined in the study than men of the same NYHA class (Table 2).

The respondents were also asked from who they expected to be receive spiritual care in the hospital environment (a multiple question in gender groups). Most of them pointed at family visiting (men 77/ 67.54%, women 56/57.73%) and, subsequently, doctors (men 43/ 37.72%, women 44/45.36%), while nurses (men 36/ 31.58%, women 41/42.27%) were chosen to a much lesser extent. Surprisingly, a chaplain, who is specially predestined to supply spiritual support, was the fourth choice among men (25; 21.93%) and the fifth among women (24/24.74%). Psychologists (men 22; 21.30%, women 25/25.77%) and acquaintances (men 20; 17.54%, women 16/16.49%) were least frequently chosen.

Psychological well-being

The examinees assessed their well-being in the aspect of positive relations with others the highest (mean ± SD = 34.85 ±7.23). The lowest score was reported in the aspect of personal development (29.76 ±6.06). The differentiating factors for psychological well-being were gender, in the aspects of positive relations ($p = 0.004$), life goals ($p = 0.042$), and self-acceptance ($p = 0.014$) and the degree of HF, in the aspects of environment management ($p = 0.026$), personal development ($p < 0.001$), positive relations ($p = 0.036$), and life goals ($p = 0.002$). The results for subscales of environment management, personal development, and life goals were significantly higher in class II NYHA patients than in class III ones. It means that the level of psychological well-being is better in patients with lower severity of symptoms, and therefore they evaluate their quality of life much higher (Table 3).

The analysis of quality of life in general sense – WHOQOLBREF analysis

The best scores were reported in psychological domain (14.23 ±2.63), a bit lower in social (13.62 ±3.03) and environmental (13.43 ±2.36), and the worst in the physical domain (11.92 ±2.6).

The average values of QoL in women were much higher than in men, regardless of the degree of HF, in general QoL perception ($p < 0.001$), and health condition ($p = 0.032$) as well as in particular domains: physical ($p = 0.036$), psychological ($p = 0.020$), and social ($p = 0.029$). Women's results were found to be higher in almost all the domains except for the environmental one. The class II NYHA patients evaluated their QoL higher in 4 aspects: health perception ($p < 0.001$), physical domain ($p < 0.001$), psychological ($p < 0.001$), and environmental ($p < 0.001$). The findings clearly indicate that patients of class II NYHA evaluate their QoL unequivocally higher compared to those of class III NYHA. The highest scores of QoL were found in women of class II NYHA in all domains except for the social one. While the lowest results were collected from men of class III NYHA. Therefore, we can conclude that women are characterised by much higher QoL than men, and the higher the degree of HF, the lower the QoL (Table 4).

Quality of Life connected with heart failure (MLHFQ)

The average value for the inconvenience of the disease in daily life of the respondents was 48.38 ±23.51 points. However, the average value for the negative impact of the disease on the somatic aspect of life amounted to 20.65 ±9.93 points. The influence of the disease on emotional aspects of life was evaluated at the average level of 9.93 ±6.0 points. The class III NYHA patients evaluated the negative impact on daily life much higher than those of class II ($p < 0.001$). Similar values were found on each scale of somatic ($p < 0.001$) and emotional aspects ($p < 0.001$). The highest scores of QoL connected with the severity of HF

Table 1. Sociodemographic data

Feature	Men		Women		Probabilities for post-hoc tests, NIR test, *p*-value			
	NYHA II *N* = 71	NYHA III *N* = 43	NYHA II *N* = 57	NYHA III *N* = 40	NYHA II–III		Male–female	
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Men	Women	NYHA II	NYHA III
Age [years]	69.04 ±5.09	70.91 ±5.83	69.67 ±6.07	73.78 ±5.93	0.090	< 0.001	0.532	0.022
Body weight [kg]	85.93 ±11.64	89.58 ±16.60	77.67 ±14.04	84.98 ±16.46	0.189	0.014	0.001	0.1456
Height [cm]	174.35 ±7.11	172.93 ±7.09	161.82 ±5.02	160.95 ±4.46	0.233	0.491	< 0.001	< 0.001
BMI	28.33 ±3.71	29.92 ±5.26	29.72 ±5.52	32.91 ±6.62	0.114	0.003	0.1332	0.009
Parameter	**Men**						**Women**	
	NYHA II		NYHA III		Total			
	n	%	*n*	%	*n*	%		
Education level:								
Primary	11	15.49	4	9.30	15	13.16		
Vocational	31	43.66	21	48.84	52	45.61		
Secondary	19	26.76	15	34.88	34	29.82		
High	10	14.08	3	6.98	13	11.40		
Total	71	62.28	43	37.72	114	100.0		
Pearson's χ^2 test	$\chi^2 = 2.72$, $p = 0.4375$						$\chi^2 = 6.05$, $p = 0.1090$	
Place of residence:								
Village	22	30.99	16	37.21	38	33.33		
City	49	69.01	27	62.79	76	66.67		
Total	71	62.28	43	37.72	114	100.0		
Pearson's χ^2 test	$\chi^2 = 0.47$, $p = 0.4945$						$\chi^2 = 0.03$, $p = 0.8545$	
Marital status:								
Single	5	7.04	3	6.98	8	7.02		
Married	41	57.75	33	76.74	74	64.91		
Partnership	4	5.63	0	0.00	4	3.51		
Divorced	3	4.23	2	4.65	5	4.39		
Widowed	18	25.35	5	11.63	23	20.18		
Total	71	62.28	43	37.72	114	100.0		
Pearson's χ^2 test	$\chi^2 = 6.42$, $p = 0.1697$						$\chi^2 = 10.03$, $p = 0.0399$	

Table 1. Cont.

Parameter	Men						Women					
	NYHA II		NYHA III		Total		NYHA II		NYHA III		Total	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Economic status:												
Bad	5	7.04	0	0.00	5	4.39	0	0.00	0	0.00	0	0.00
Average	26	36.62	25	58.14	51	44.74	27	47.37	19	47.50	46	47.42
Good	39	54.93	18	41.86	57	50.00	28	49.12	17	42.50	45	46.39
Very good	1	1.41	0	0.00	1	0.88	2	3.51	4	10.00	6	6.19
Total	71	62.28	43	37.72	114	100.0	57	58.76	40	41.24	97	100.0
Pearson's χ^2 test	$\chi^2 = 7.32$, $p = 0.0623$						$\chi^2 = 1.82$, $p = 0.6098$					

SD – standard deviation.

symptoms were noted in men of class II NYHA and the lowest in women of class II NYHA (Table 5).

Spirituality vs. quality of life and psychological well-being – regression analysis

The results reported in group WII showed that only the environmental domain affected the general score of spirituality, together with its components such as ethical sensitivity and harmony. Religiosity, however, showed no correlations with WHOQOL-BREF, MLHFQ, or DPQ parameters. The coefficient of fitted regression was relatively low for general spirituality R^2 and equalled 0.106. In spirituality subscales it ranged from 0.092 for ethical sensitivity to 0.190 for harmony. Better QoL in the environmental domain in WII affects their higher level of spirituality, stronger need for helping others in terms of ethically-moral aspects, harmonic development, and internal integration. The standardised β coefficient for the environmental domain ranged from 0.304 to 0.436.

While the multiple correlation coefficient in WII was relatively low, it varied in WIII from 0.277 (for ethical sensitivity) to 0.483 (for harmony). It amounted to 0.319 for the general score of spirituality R^2. Higher values of R^2 showed how important QoL is for spirituality and its aspects.

Higher values of the standardised β coefficient for DP environment management and self-acceptance, which affected spirituality and ethical sensitivity, were also reported. Harmony, in turn, was affected by social QoL and 2 aspects of DP: environment management and positive relations with others. It is worth noticing that the aspect of DP environment management influenced the scores for spirituality, ethical sensitivity, and harmony. It enhanced spiritual engagement, sensitivity to others' needs, and harmonic personal development.

Lower values of R^2 for the general score of spirituality were observed in MII – 0.225. The sores ranged from 0.079 for religiosity to 0.310 for harmony. Low values of the multiple correlation coefficient in the case of religiosity proved the lower impact of QoL on spirituality in men. Some occasional correlations of explanatory variables of spirituality and its domains were also found. Only once (with ethical sensitivity) di the regression equation include 2 variables (somatic aspect of QoL and relations with others), which might explain the variability of ethical sensitivity at the level of 0.28.

The MIII group revealed the highest R^2, both for spirituality and its aspects, ranging from 0.395 (for harmony) to 0.747 (for spirituality). Such high values for the multiple correlation coefficient is something to think about and shows the huge role played by QoL in spirituality and its aspects. It is also worth noticing that the regression equation usually included similar

Table 2. Statistical characteristics of the level of spirituality in gender and NYHA sample groups with the evaluation of the variation in the mean values of the level of spirituality

Self-description tool	Acceptable range of values	*N*	Mean	SD	Mean per question
Spirituality	20–100	211	77.39	12.97	3.87
Religiosity	7–35	211	27.44	6.44	3.92
Ethical sensitivity	7–35	211	28.31	4.57	4.04
Harmony	6–30	211	21.64	4.38	3.61

The level of spirituality in the surveyed gender and NYHA groups				
Feature	**Men**		**Women**	
	NYHA II *N* = 71	**NYHA III *N* = 43**	**NYHA II *N* = 57**	**NYHA III *N* = 40**
	Mean ± SD	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**
Spirituality	75.51 ±12.38	70.28 ±15.57	80.91 ±10.35	83.35 ±9.97
Religiosity	26.01 ±6.37	24.53 ±7.50	29.28 ±5.35	30.48 ±4.62
Ethical sensitivity	27.89 ±4.59	26.23 ±5.24	29.32 ±4.05	29.85 ±3.56
Harmony	21.61 ±4.07	19.51 ±4.79	22.32 ±4.15	23.03 ±4.07

Evaluation of the variation in the mean values of the level of spirituality in the surveyed groups of gender and NYHA										
Feature	**Main effects**						**Probabilities for post-hoc tests, NIR test, *p*-value**			
	Gender		**NYHA**		**Gender × NYHA**		**NYHA II–III**		**Men–women**	
	F	***P*-value**	***F***	***P*-value**	***F***	***P*-value**	**Men**	**Women**	**NYHA II**	**NYHA III**
Spirituality	28.73	< 0.001	0.66	0.419	4.95	0.027	0.027	0.333	0.013	< 0.001
Religiosity	28.75	< 0.001	0.03	0.868	2.43	0.121	0.209	0.341	0.002	< 0.001
Ethical sensitivity	16.34	< 0.001	0.81	0.370	3.08	0.081	0.053	0.558	0.070	< 0.001
Harmony	12.38	< 0.001	1.33	0.250	5.45	0.020	0.011	0.419	0.348	< 0.001

SD – standard deviation, p – statistical significance, F – Fisher exact test.

explanatory variables (emotions and autonomy, social domain, relations, and self-acceptance).

High standardised β coefficients can also be noticed for 5 parameters affecting spirituality such as social domain (WHOQOL-BREF), emotional aspect (MLHFQ), autonomy, positive relations with others, and self-acceptance (DPQ). Similarly, religiosity was influenced by 5 parameters, namely, the perception of QoL and social domain (BREF), emotional aspect (MLHFQ), autonomy, and personal development (DPQ). Ethical sensitivity was affected by 4 aspects of QoL: somatic (MLHFQ), autonomy, positive relations with others, and self-acceptance (DPQ), while the level of harmony especially depended on the social domain of QoL (WHOQOL-BREF).

More parameters affected spirituality in groups WIII and MIII than in groups WII or MII.

It was also reported that higher QoL in the social domain affected spirituality, religiosity, and harmony, which might mean that the higher the satisfaction with personal relations, the higher the individual level of spirituality, religious engagement, and harmonic personal development. Higher QoL in MIII in the aspect of autonomy, positive relations with others, and self-acceptance affected the growth of spiritual engagement and sensitivity to other people's needs and fate (Table 6).

Discussion

Scientific literature in the field of psychology presents a multidimensional human model as a psychological, physiological, and spiritual being. Psychologists maintain that spirituality and a wide range of practical competences build up spiritual sensitivity in daily life and enhance its quality and personal development and, thus, make us humans [35]. The self-reported study aimed not only at the analysis of the level of QoL, spirituality, and psychological well-being, but, foremost, also at the analysis of the factors determining the phenomena in elderly patients, hospitalised for heart failure, in terms of gender and NYHA class. It was proven that spirituality was affected by various aspects of general QoL, QoL connected with HF, and psychological well-being. No parameter of QoL was

Table 3. Statistical characteristics of psychological well-being in sample gender and NYHA groups with the evaluation of the variation in the mean values of well-being level

Psychological Well-being Scale (PWB)	*N*	Mean	SD	Mean per question
Autonomy	211	32.31	6.83	4.62
Environment management	211	32.48	6.88	4.64
Personal development	211	29.76	6.06	4.25
Positive relations with others	211	34.85	7.23	4.98
Life goals	211	31.43	6.14	4.49
Self-acceptance	211	32.73	7.05	4.68

Psychological well-being in sample gender and NYHA

Feature	Men		Women	
	NYHA II *N* = 71	NYHA III *N* = 43	NYHA II *N* = 57	NYHA III *N* = 40
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Autonomy	7.89 ±6.91	8.74 ±7.08	8.79 ±6.39	7.90 ±7.19
Environment management	1.38 ±6.86	–1.33 ±7.98	1.28 ±5.61	–0.33 ±7.11
Personal development	–1.38 ±5.06	–4.42 ±7.03	–0.40 ±6.25	–4.03 ±5.24
Positive relations with others	10.89 ±6.51	7.70 ±8.84	12.65 ±7.02	11.63 ±5.87
Life goals	–0.54 ±5.81	–2.72 ±6.38	1.61 ±6.06	-1.43 ±5.73
Self-acceptance	8.59 ±6.20	6.30 ±7.54	10.05 ±7.60	9.68 ±6.67

Evaluation of the variation in the mean values of well-being level in sample gender and NYHA groups

Feature	Main effects						Probabilities for Post-Hoc Tests, NIR Test, *p*-value			
	Gender		NYHA		Gender × NYHA		NYHA II–III		Men–women	
	F	*P*-value	*F*	*P*-value	*F*	*P*-value	Men	Women	NYHA II	NYHA III
Autonomy	0.00	0.976	0.00	0.986	0.81	0.369	0.519	0.530	0.460	0.576
Environment management	0.22	0.641	4.97	0.026	0.32	0.570	0.042	0.256	0.934	0.506
Personal development	0.68	0.409	16.12	< 0.001	0.12	0.725	0.008	0.003	0.350	0.760
Positive relations with others	8.11	0.004	4.45	0.036	1.17	0.279	0.020	0.483	0.162	0.012
Life goals	4.15	0.042	9.55	0.002	0.25	0.614	0.060	0.014	0.044	0.325
Self-acceptance	6.03	0.014	1.83	0.177	0.94	0.332	0.090	0.793	0.239	0.028

SD – standard deviation, p – statistical significance, F – Fisher exact test.

found to significantly affect religiosity in the WII or WIII groups. In contrast, the greatest number of parameters influencing the level of spirituality was noted in the WIII and MIII groups (patients with higher degree of HF). Groups WIII and MIII were characterised by higher severity of the disease and daily life functioning difficulties and limitations, and thus reported lower QoL. The results of multiple regression indicated that the worse the condition of the disease, the more parameters of QoL affected spirituality and its aspects. It was also concluded that the disease and its outcomes are closely related to higher spirituality and its parameters.

Quality of life in patients with heart failure

According to numerous research, quality of life of HF patients is low, although one of the treatment aims is to improve it. The research in HF patients conducted by Audi *et al*. [36] looked for factors affecting quality of life connected with health. The data was collected from 300 patients with the use of MLHFQ. The analysis revealed that the respondents evaluated their physical condition lower than the psychological one. Higher QoL was found among unemployed or retired patients who were not hospitalised previously. The authors believe that improving HF patients' QoL

Table 4. Statistical characteristics of WHOQOLBREF in sample gender and NYHA groups with the evaluation of the variation in the mean values of WHOQOLBREF

Quality of life domains	*N*	Mean	SD
Physical domain	211	11.92	2.60
Psychological domain		14.23	2.63
Social domain		13.62	3.03
Environmental domain		13.43	2.36

Quality of life domains in sample gender and NYHA groups

Feature	Men		Women	
	NYHA II *N* = 71	NYHA III *N* = 43	NYHA II *N* = 57	NYHA III *N* = 40
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
QoL perception	3.25 ±0.81	3.14 ±0.86	3.72 ±0.59	3.45 ±0.85
Health perception	2.86 ±0.90	2.30 ±0.83	3.04 ±0.82	2.65 ±0.86
Physical domain	21.56 ±4.48	18.33 ±3.95	22.33 ±3.71	20.10 ±4.89
Psychological domain	21.58 ±4.08	19.60 ±4.16	22.75 ±3.20	20.93 ±3.60
Social domain	10.30 ±2.15	9.35 ±2.66	10.63 ±1.92	10.40 ±2.31
Environmental domain	27.14 ±4.50	24.98 ±5.02	28.33 ±3.72	26.00 ±5.06

Evaluation of the variation in the mean values of WHOOL-BREF in sample gender and NYHA groups

Feature	Main effects						Probabilities for post-hoc tests, NIR test, *p*-value			
	Gender		NYHA		Gender × NYHA		NYHA II–III		Men–women	
	F	*P*-value	*F*	*P*-value	*F*	*P*-value	Men	Women	NYHA II	NYHA III
QoL perception	12.59	< 0.001	3.07	0.081	0.50	0.478	0.446	0.093	< 0.001	0.069
Health perception	4.65	0.032	15.06	< 0.001	0.50	0.480	< 0.001	0.030	0.250	0.066
Physical domain	4.46	0.036	20.60	< 0.001	0.69	0.405	< 0.001	0.011	0.311	0.059
Psychological domain	5.43	0.020	12.59	< 0.001	0.02	0.893	0.007	0.020	0.082	0.114
Social domain	4.81	0.029	3.48	0.063	1.28	0.259	0.029	0.616	0.399	0.033
Environmental domain	2.99	0.085	12.33	< 0.001	0.02	0.895	0.014	0.013	0.140	0.305

SD – standard deviation, p – statistical significance, F – Fisher exact test.

should be prioritised by the whole therapeutic team [36].

The self-reported findings correlate with the above because the HF patients marked their psychological QoL much higher than the physical one. It was also reported that female patients presented higher general QoL (WHOQOL-BREF) than male ones, and the higher the degree of HF, the worse the QoL. The results of the negative impact of HF symptoms on daily functioning, measured by MLHFQ, in patients of class III NYHA, were significantly higher than in class II patients. Comparing the self-reported outcomes to those conducted among HF patients in 5 European countries by Fonseca *et al*. [21], it might be concluded that the former, in the aspect of MLHFQ, are higher and indicate worse QOL in Polish patients connected with the severity of HF symptoms. In our study the overall MLHFQ mean score was 48.38 ±23.51 points and 20.65 ±9.93 for somatic and 9.93 ±6.0 for emotional aspects, whereas the research by Fonseca, *et al*. [21] reported the overall mean score at 35.8 ±21.4 and 17.4 ±9.8 for somatic and 8.4 ±6.2 for emotional aspects. However, the results seem to be consistent with other studies in Europe, in which the overall MLHFQ mean ranges from 29.0 to 57.85 [37–40]. Additionally, Fonseca *et al*. [21], showed that MLHF was consistently higher (e.g. poorer HRQoL) for women vs. men in physical and emotional domains, while the self-reported study did not find gender significantly differentiating the results of MLHFQ – gender was relevant in combination with HF. The highest values of QoL connected with the severity of HF symptoms were reported in male class II NYHA patients, while the lowest were in female class III patients.

Another research by Ochyńska *et al*. [41] on QoL, carried out in Poland among HF patients, revealed

Table 5. Results of QoL related to heart failure

MLHF	Range	*N*	Mean	SD
Total result	0–105	211	48.38	23.51
Somatic aspect	0–40	211	20.65	9.93
Emotional aspect	0–25	211	9.93	6

Statistical characteristics of MLHF in the examined groups of sex and NYHA

Feature	Men		Women	
	NYHA II *N* = 71	NYHA III *N* = 43	NYHA II *N* = 57	NYHA III *N* = 40
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Total result	36.82 ±22.37	63.05 ±19.76	42.12 ±17.96	62.08 ±21.55
Somatic aspect	14.82 ±9.34	26.84 ±6.96	18.53 ±8.43	27.40 ±7.95
Emotional aspect	7.97 ±6.00	13.30 ±5.68	8.39 ±5.13	11.98 ±5.42

Evaluation of the variation in the mean values of MLHF in sample gender and NYHA groups

Feature	Main effects						Probabilities for post-hoc tests, NIR test, *p*-value			
	Gender		NYHA		Gender × NYHA		NYHA II–III		Men–women	
	F	*P*-value	*F*	*P*-value	*F*	*P*-value	Men	Women	NYHA II	NYHA III
Total result	0.56	0.456	63.10	< 0.001	1.17	0.281	< 0.001	< 0.001	0.148	0.830
Somatic aspect	3.24	0.073	77.56	< 0.001	1.76	0.186	< 0.001	< 0.001	0.013	0.760
Emotional aspect	0.33	0.564	31.74	< 0.001	1.21	0.272	< 0.001	0.002	0.678	0.282

SD – standard deviation, p – statistical significance, F – Fisher exact test.

that, on the basis of regression analysis, higher values of NYHA and lower level of the disease acceptance are independent factors determining the decrease of QoL. The severity of the symptoms decreases the level of acceptance of the disease and, in consequence, the QoL. Greater intensity of HF symptoms has a stronger impact on the physical aspect of QoL and general QoL while the degree of acceptance of the disease has a stronger impact on mental QoL [41]. The QoL in our study varied from good to average, and the respondents valued the physical aspect of life the worst. Such evaluation stems from HF progression, deterioration of physical endurance, and loss of vital force. Higher evaluation of the psychological aspect comes from re-evaluation of life so far. The HF progression leads to a higher class of NYHA; therefore, QoL in class II patients it is much higher than in those of class III NYHA. Such aspects of patients' QoL as physical, psychological, environmental, and health self-perception remain of considerable importance while evaluating one's QoL. HF patients also pointed at the importance of environmental and social aspects of QoL in their lives. The sense of safety, health care, good economic and living conditions, access to information, and interests played a major role in the QoL assessment. In positive psychology, achieving satisfactory QoL is connected with the development of mental power. It determines the ability to cope with challenges and difficulties that appear in human life [42].

Spirituality of heart failure patients

The self-reported study showed quite high levels of spirituality in HF patients, and the results of the average score per question for particular subscales confirmed that the respondents were rather religious and ethically sensitive. Klimasiński *et al*. [13] claimed that a high level of spirituality and religiosity affects lifespan. Lifespan of regular religion practitioners may be up to 8 years longer in comparison to those who do not practise religion. The statistical analysis carried out in Poland in 2018 found that 94% of the residents aged over 16 years declared religious conviction. However, the level of religiosity in Poland depends on gender, place of residence, age, and education level. Believers are more frequently female (over 85%) than male (over 74%); village residents (circa 88%) than big cities (500,000 and more) (up to 63%), and over the age of 45 years [43]. The data above correlate with our findings in terms of gender. We found that women of class II NYHA were statistically more spiritualised and religious than men of the same NYHA class, and women of class III NYHA evaluated all the parameters of spirituality much higher than

Table 6. Spirituality vs. WHOQOL-BREF, MLHF, and DP (multiple regression with the choice of variables for the whole group and in groups of gender and NYHA)

Group		Feature	Spirituality		Religiosity		Ethical sensitivity		Harmony	
			Beta (β)	SE(β)	Beta (β)	SE(β)	Beta (β)	SE(β)	Beta (β)	SE(β)
Total group	WHOQOL-BREF	QoL perception								
		Health perception								
		Physical domain								
		Psychological domain	0.265	0.072			0.290	0.072	0.324	0.071
		Social domain			0.200	0.083				
		Environmental domain								
	MLHFQ	Total result	0.186	0.062	0.153	0.066	0.244	0.062		
		Somatic aspect								
		Emotional aspect								
	PWB	Autonomy	–0.270	0.061	–0.218	0.075	–0.219	0.061		
		Environment management			–0.190	0.095				
		Personal development								
		Positive relations with others	0.497	0.070	0.465	0.090	0.471	0.071	0.263	0.071
		Life goals								
		Self-acceptance								
		R^2 adjusted	0.356	0.344	0.257	0.239	0.350	0.338	0.269	0.262
		F, p	28.48	< 0.001	14.17	< 0.001	27.78	< 0.001	38.33	< 0.001
Women NYHA II	WHOQOL-BREF	QoL perception								
		Health perception								
		Physical domain								
		Psychological domain								
		Social domain								
		Environmental domain	0.326	0.127			0.304	0.128	0.436	0.121
	MHLFQ	Total result								
		Somatic aspect								
		Emotional aspect								
	PWB	Autonomy								
		Environment management								
		Personal development								
		Positive relations with others								
		Life goals								
		Self-acceptance								
		R^2 adjusted	0.106	0.090	0.000	0.000	0.092	0.076	0.190	0.175
		F, p	6.54	0.0134			5.58	0.0217	12.89	0.0007

Table 6. Cont.

Group		Feature	Spirituality		Religiosity		Ethical sensitivity		Harmony	
			Beta (β)	SE(β)	Beta (β)	SE(β)	Beta (β)	SE(β)	Beta (β)	SE(β)
Women NYHA III	WHOQOL-BREF	QoL perception								
		Health perception								
		Physical domain								
		Psychological domain								
		Social domain							0.482	0.148
		Environmental domain								
	MHLFQ	Total result								
		Somatic aspect								
		Emotional aspect								
	PWB	Autonomy								
		Environment management	–0.477	0.157			–0.361	0.162	–0.693	0.152
		Personal development								
		Positive relations with others							0.467	0.160
		Life goals								
		Self-acceptance	0.629	0.157			0.607	0.162		
		R^2 adjusted	0.319	0.283	0.000	0.000	0.277	0.238	0.483	0.439
		F, p	8.68	0.0008			7.08	0.0025	11.19	< 0.001
Men NYHA II	WHOQOL-BREF	QoL perception								
		Health perception								
		Physical domain								
		Psychological domain								
		Social domain							0.333	0.125
		Environmental domain								
	MHLF	Total result								
		Somatic aspect					0.254	0.106		
		Emotional aspect								
	PWB	Autonomy								
		Environment management								
		Personal development								
		Positive relations with others	0.474	0.106	0.280	0.116	0.529	0.106		
		Life goals								
		Self-acceptance							0.291	0.125
		R^2 adjusted	0.225	0.213	0.079	0.065	0.280	0.259	0.310	0.290
		F, p	20.00	< 0.001	5.89	0.0178	13.23	< 0.001	15.30	< 0.001

Table 6. Cont.

Group		Feature	Spirituality		Religiosity		Ethical sensitivity		Harmony	
			Beta (β)	SE(β)	Beta (β)	SE(β)	Beta (β)	SE(β)	Beta (β)	SE(β)
Men NYHA III	WHOQOL-BREF	QoL perception			–0.403	0.137				
		Health perception								
		Physical domain								
		Psychological domain								
		Social domain	0.318	0.141	0.628	0.155			0.628	0.122
		Environmental domain								
	MHLFQ	Total result								
		Somatic aspect					0.225	0.095		
		Emotional aspect	0.385	0.096	0.414	0.123				
	PWB	Autonomy	–0.312	0.089	–0.377	0.112	–0.322	0.091		
		Environment management								
		Personal development			0.470	0.143				
		Positive relations with others	0.453	0.153			0.636	0.145		
		Life goals								
		Self-acceptance	0.270	0.132			0.294	0.138		
		R^2 adjusted	0.747	0.713	0.622	0.571	0.701	0.669	0.395	0.380
		F, p	21.86	< 0.001	12.19	< 0.001	22.26	< 0.001	26.72	< 0.001

β – *standardised regression coefficient, SE – standard error, p – statistical significance.*

men of the same NYHA class. The variation analysis revealed that gender was a differentiating factor for the level of spirituality (for spirituality and its 3 subscales, with interactions among factors for spirituality and harmony), while the heart failure factor did not appear to be prognostic for the level of spirituality to any significant extent. What is more, higher level of spiritual sensitivity may also be determined by evolution. Women have always cared for children, home, and family, while men have gone hunting. Therefore, the former developed greater empathy, protectiveness, pro-social behaviours, and the ability to identify the smallest interpersonal signals [35].

The research by Chen *et al*. [44], who examined the evaluation of impact of spiritual care on QoL and spiritual well-being in incurable diseases, concluded that a terminal disease results not only in physical suffering but also in mental torment. Spiritual care should be implemented by medical staff to help patients deal with mental ailments. It may potentially facilitate QoL and mental well-being in terminally ill patients. The authors recommend that medical staff include spiritual care into palliative care, and, in doing so, they should take into account patients' existential needs, preferences, and cultural background [44]. The self-reported study encourages us to think about the role of spirituality in health care in Polish hospital wards and to introduce spiritual help into institutionalised clinical practice. It would be at least beneficial, with the perspective of being implemented in the education process, to acknowledge, more than it is now, that the spiritual sphere is an integral part of a patient's life and one of the elements of overall health care.

American researchers [45] reviewed the literature on spirituality, spiritual well-being, and coping with advanced heart failure. HF is a chronic and incurable disease that affects a lion's share of US population. It is characterised by huge suffering, for which palliative care is recommended. Palliative care standards should include spiritual care in the treatment, but scientific literature lacks examples of successful spiritual interventions in HF patients. The analysis resulted in finding 30 articles that meet the criteria of spirituality and mental coping with HF. The literature selected encompasses descriptive cases of spiritual exception-

ality in the population, quantitative and qualitative attitude to the research, theoretical models of mental coping, and recommended interventions. The article is a starting point for further research and practices in the field of implementing spiritual care [45]. The self-reported study also points out that in the therapeutic work with a patient it is worth addressing their spirituality because it is a resourceful sphere and enhances the level of satisfaction with the sense of being and, thus, increases the quality of life.

Although scientific literature confirms the significance of spiritual care in clinical practice, many American physicians find it difficult to implement in clinical settings. It might be confirmed by de Oliveira, Anderson [46], who, in their article, proved the significance of spirituality in the treatment process and presented the bio-psycho-socio-spiritual care model in primary healthcare practice. They also suggested implementing spiritual care based on a clinical method and focused on the patient. The method was applied in clinical communication and may be used to access patient's spiritual history [46]. In addition, Jahandar *et al*. [47] conducted another study among nurses employed in hospital wards of medical university hospitals in Teheran to determine the concept of spiritual leadership. The training aimed at indicating whether they were ready to provide spiritual care. The results showed that by applying external motivation tools to education and through organisational changes in nurses' work, it is possible to introduce spiritual care into nursing procedures.

The effectiveness of the tool used by nurses to provide spiritual care was examined in the USA (SC) as a form of intervention aimed at simplifying the process of satisfying the needs of hospitalised patients and their families. The Spiritual Care Needs Inventory (SCNI) consists of 2 subscales: a tool created primarily to examine patients' spiritual needs and, after the switch of the distractors, to examine nurses' readiness to provide spiritual care [48]. However, successful implementation and sustainability requires a lot of support in the field of organisation, funding, and staff training [49]. The need to practise spiritual care in nursing is also confirmed by nurses. Research among 4054 nurses examined in the UK revealed that most of them confirmed that spiritual care is the primary aspect of nursing practice and should be included in the education programmes [50]. Following the results of research worldwide and in Poland together with self-reported evidence, it seems to be necessary to implement spiritual care into the process of treatment. The sick in hospitals expect to be provided with spiritual care from their family members, physicians, and nurses and not from psychologists or chaplains. Therefore, spiritual care in Polish hospitals is becoming a new challenge not only for doctors but the whole therapeutic team as well. Interestingly, the respondents do not associate spiritual care with psychologists. But it might be connected with their unavailability, as they do not visit every patient regularly. They only meet those who report their needs for consultations or are reported by their physicians.

The outcomes presented in the study indicate a clear need to undertake new duties connected with providing spiritual care by doctors and nurses. Current procedures do not include such elements. However, to achieve the goal of supplying holistic care by doctors and nurses, there is an urgent need to introduce spiritual care into Polish medical procedures.

Strength and Limitations of the Work

The research conducted for the study was connected with some limitations. The respondents assessed their QoL subjectively, and there is a tendency to make health behaviours and lifestyle look better. Some patients refrained from answering questions connected with psychological, especially sexual, aspects. It might have been linked with the age of the examinees (60–80) and mental taboo. There is no similar research in Poland, and the inability to compare the findings with other results in the field of spirituality and QoL in HF patients (only among oncological and terminal patients) may be its next limitation. However, despite the limitations presented, the results bring new content to the area of the relationship between spirituality and QoL in HF patients. Another upside is the practicality of the hospital environment in which the research was conducted. The topic is quite fresh in the Polish scientific community. It originated in 2015 with the establishment of Polish Society of Spiritual Care in Medicine in Cracow (PTODM), which aims at increasing the quality of spiritual care in healthcare and setting principles of good practice in the field.

Implications for policy and practice

The level of spirituality, as a real need, affects the quality of life of patients with heart failure significantly. It enhances the QoL in sickness which, in turns, affects the level of spirituality, which is an integral part of life. Therefore, taking into account the spiritual aspect is the foundation of holistic care. Undoubtedly, further research is needed to examine the impact of spirituality on quality of life in patients and, not only, those with heart failure, but also other groups, to introduce spiritual care into healthcare and nursing in Polish hospitals and to work out a model of such care. The research also shows that there is a need for education among nurses in terms of evaluating patients' spiritual needs and providing such care in the process of nursing [48, 51, 52]. Therefore, it would be beneficial to introduce some principles of providing spiritual care into medical staff educational programmes.

Conclusions

The individual level of spirituality affects the quality of life in patients with heart failure. A higher level of spirituality means higher quality of life in such domains as general quality of life perception, physical, psychological, social, and environmental.

The respondents with heart failure reported high values of general spirituality and were quite religious and ethically sensitive. Male patients with class III NYHA declared particularly high relationship between spirituality and quality of life as well as psychological well-being. Planning any steps aimed at providing spiritual support in patients with heart failure should be dependent upon their gender and NYHA classification because the level of spirituality depends on these factors.

The examinees evaluated their well-being best in terms of social relations and worst in the personal development aspect. The degree of heart failure influenced the well-being quite significantly. The patients with more intensive heart failure symptoms (a higher NYHA classification) require more support in order to enhance their psychological well-being and let them enjoy life more. In practice, it might be achieved by encouraging a patient to undertake actions that might result in greater satisfaction with life. Medical staff should also react to even small patient successes in various aspects (increase of the environment response).

Patients with heart failure require quality of life improvement in the physical domain, in particular, because the results in this domain were the lowest. Being male and of higher class of heart failure worsened the quality of life in most domains.

Improving the quality of life of patients with heart failure may be achieved through ensuring spiritual support from not only family members and hospital chaplains but also medical staff. Therefore, there is a strong need to educate staff in Poland in terms of patients' spiritual needs and ways of satisfying them, and, in the future, introducing spiritual care into Polish medical procedures.

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Ethical approval

The study was approved by The Bioethical Commission at Opole Medical School (Poland) with its consent no. 7/PI/2018.

Conflict of interest

The authors declare no conflict of interest.

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