Pol. J. Appl. Sci., **2018**, *4*, 18-23

CORRELATION ANALYSIS BETWEEN DISEASE ACCEPTANCE AND SATISFACTION WITH LIFE AMONG PATIENTS HOSPITALIZED DUE TO HEART FAILURE IN CARDIOLOGY DEPARTMENTS

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Abstract: Admission. Heart failure is both a medical and social problem. Despite the progress in medicine, the frequency of diagnosing heart failure is constantly increasing. An additional difficulty is low acceptance of the disease entity by patients, which is associated with a reduced level of life satisfaction among patients.
Objective. Evaluation of the relationship between the acceptance of illness and the level of life satisfaction in patients with heart failure.
Material and methods. The study involved 60 patients (19 women and 41 men) hospitalized for heart failure in the Department of Cardiology, Jan Biziel University Hospital No. 2 in Bydgoszcz. The study was conducted using the AIS questionnaire and the SWLS questionnaire.
Results. Undoubtedly, acceptance of the disease entity, which is heart failure, affects the level of satisfaction with life of hospitalized patients. The most numerous group were patients with low level of acceptance of the disease entity and they constituted as many as 70%. However, referring to the scale of life satisfaction, 48.3% of the respondents showed a low degree of existential satisfaction. It was noted that a slightly higher level was achieved by the older group, where this relationship is less pronounced in younger people.
Conclusions. A greater degree of the disease acceptance determines a higher level of life satisfaction. It is connected with the improvement in the quality of life and patient's functioning, but also the course of disease and its treatment.

Key words: heart failure, disease acceptance, satisfaction with life.

DOI: 10.19260/PJAS.2018.4.1.03

Introduction

Cardiovascular diseases constitute a serious problem among the society and are the most frequent reason for hospitalization and death of Polish population. It is estimated that heart failure affects 1-2% of the adult population in developed countries and more than 10% above the 7^{th} decade of life [1].

In spite of the progress in promoting and implementing prevention, diagnostics and modern methods of treatment, morbidity and mortality due to heart failure (HF) is constantly increasing [2]. The problem is also the fact that the lack of available knowledge of patients on their disease entity contributes to insufficient engagement in treatment of patients with diagnosed heart failure. Thanks to early diagnosis, proper treatment can be implemented, which increases the survival rate among people suffering from heart failure [3, 4]. An important issue, which significantly improves the lives of the ill, is also a proper education [5]. Due to these kinds of activities, the patient is aware of his or her disease and possesses knowledge on procedures with the disease entity. Comprehensive medical treatment and patient's engagement in the course of treatment improve the patient's independence and extends their lives [6].

The aim of the work was the analysis of correlations between the acceptance of the disease and the level of life satisfaction among patients hospitalized due to heart failure in cardiology departments.

Materials and methods

The studies were conducted in Clinic of Cardiology of Jan Biziel University Hospital No.2 in Bydgoszcz in the period from June to December 2017, on the basis of the obtained consent from the Bioethic Committee of the Nicolaus Copernicus University in Toruń functioning at Ludwik Rydygier Collegium Medicum in Bydgoszcz No. KB 397/2017 of 13.06.2017. The studies were conducted on 60 patients hospitalized due to heart failure. The criteria of exclusion from the studies were: patient's denial of cooperation as well as diseases preventing from a logical contact with the patient.

For the purpose of the work, the Acceptance of Illness Scale questionnaire (AIS) was adopted, created by Felton B. et al, in Polish adaptation by Z. Juczyński. This su-

Table 2: Differences in AIS results due to sex.

Position	Sum of ranks Woman	Sum of ranks Man	U	Z	P level	Z-correct	P level	N Important Woman	N Important Man	2*1page. Accuracy. p
1	661,0	1169,0	308,0	1,287	0,198	1,412	0,158	19	41	0,200
2	663,0	1167,0	306,0	1,319	0,187	1,676	0,094	19	41	0,189
3	606,0	1224,0	363,0	0,413	0,679	0,428	0,668	19	41	0,682
4	629,0	1201,0	340,0	0,779	0,436	0,904	0,366	19	41	0,440
5	697,5	1132,5	271,5	1,867	0,062	1,935	0,053	19	41	0,060
6	672,5	1157,5	296,5	1,470	0,142	1,511	0,131	19	41	0,140
7	611,5	1218,5	357,5	0,501	0,617	0,647	0,517	19	41	0,614
8	666,0	1164,0	303,0	1,367	0,172	1,405	0,160	19	41	0,173
AIS	678,5	1151,5	290,5	1,565	0,118	1,959	0,051	19	41	0,116

rvey contains eight statements describing the consequences of bad health condition. These consequences come down to accepting limitations imposed by a disease, lack of self-sufficiency, the feeling of dependence on others and reduced self-esteem. The scale serves to measure the illness acceptance level. The higher the acceptance of the illness, the better the adaptation and the smaller the feeling of psychological discomfort. The answers were grouped by providing them with a point value: 'I definitely agree' – 1, up to 'I definitely do not agree' – 5. Obtaining the smaller number of points (1) expresses approval to the statement asked about and a respondent's negative attitude to the illness and a definite lack of agreement (5) means the approval of a disease entity. The sum of points from 8 – 40 is a general measure of the illness acceptance level.

The next survey was the Satisfaction with Life Scale (SWLS) designer by E. Diener et al. adapted by Z. Juczyński. This scale is composed of 5 statements. However, the point scale from 1 to 7 determines the acceptance level of the particular statement, where 1 means a complete lack of acceptance and 7 – a complete acceptance. The measurement's result is the general indicator of satisfaction with life.

In the descriptive analysis, the tables were adopted where the number and percent of answers to particular questions from the questionnaires were presented. The arithmetic mean and the standard deviation were adopted. The correlation between the two variables was calculated by the R. Spearman correlation coefficient. The nonparametric Mann-Whitney U Test was applied to evaluate the differences of one feature between two populations (groups). It was also checked if the obtained results are differentiated by the variables such as: sex or age (age groups). When analyzing the sex variable, the Mann-Whitney U Test was applied to compare the two independent trials (groups). When analyzing the age group variables, the Spearman's ranks correlation test was adopted. The significance level $p \leqslant 0{,}05$ was assumed to be statistically relevant and the zero hypothesis (H_0) was implemented so that there is no difference among the studied groups. All the calculations and drawings were prepared with Statistica 10.0 and Microsoft Excel spreadsheet by using the basic functions of this program.

Results

60 people took part in the research, 41 men (63.8%) and 19 women (31.7%). The respondents' average age was 67.3 years. The standard deviation amounted to above 19.3% of an average value, which indicates average age diversity. Women occurred to be older with an average age of 70.6 years when an average age for men was 65.8 years. A minimum diversified age was lower in the group of men (29 years) and maximal diversified higher in the group of men (95 years).

The studied people were divided into four age groups: from 60 years, 61-65 years, 66-70 years and above 70 years. The largest group constituted the respondents in the age above 70 years – 21 people 35.0%. The least numerous – in the age from 60 years – 11 people (18.3%). When analyzing the AIS questionnaire, the largest group of respondents included people with low level of illness acceptance – 42 people (70.0%). The smallest number of respondents obtained a high level of illness acceptance – 2 people (3.3%) (Table 1).

Table 1: The results in AIS.

Points	Comment	Level	Number	%
8 – 18 pkt.	to 31,3 %	Low	42	70,0
19 – 29 pkt.	to 68,8 %	Average	16	26,7
30 – 40 pkt.	above 68,8%	High	2	3,3
Total			**60**	**100,0**

Due to the significance level ($p>0{,}05$), no statistically relevant differences were noted between women and men

Table 6: Differences in the results of satisfaction with life on the basis of sex .

Position	Sum of ranks Woman	Sum of ranks Man	U	Z	P level	Z-correct	P level	N Important Woman	N Important Man	2*1page Accuracy. p
1	586,0	1244,0	383,0	0,095	0,924	0,104	0,917	19	41	0,925
2	607,5	1222,5	361,5	0,437	0,662	0,458	0,647	19	41	0,659
3	645,5	1184,5	323,5	1,041	0,298	1,089	0,276	19	41	0,297
4	588,0	1242,0	381,0	0,127	0,899	0,131	0,896	19	41	0,900
5	647,5	1182,5	321,5	1,073	0,283	1,092	0,275	19	41	0,283
SWLS	613,0	1217,0	356,0	0,524	0,600	0,581	0,561	19	41	0,603

pertaining to the level of illness acceptance and its position (Table 2). However, a slightly higher average point result of illness acceptance was noted in the group of women – 18.37 points. While in the group of men – 15.8 points. Women obtained higher results in all the AIS positions (Table 3).

Table 3: AIS average point results in sex groups.

Sex		Woman		Man	
No.	Position	Average	SD	Average	SD
1	I find it difficult to adjust to limitations imposed by a disease	1,89	0,88	1,59	0,77
2	Due to my health condition, I am not able to do the things I like most	1,53	0,70	1,24	0,49
3	The disease makes me sometimes feel unnecessary	2,47	1,26	2,34	1,22
4	Problems with health cause that I am more dependent on others than I would like to	1,63	0,83	1,44	0,67
5	The disease causes that I am a burden to my family and friends	3,16	1,07	2,59	1,32
6	My health condition causes that I do not feel a fully valuable person	3,05	1,27	2,56	1,21
7	I will never be self-sufficient to the extent I would like to be	1,47	0,84	1,32	0,65
8	I think that people who spend time with me are often embarrassed due to my disease	3,16	1,12	2,73	1,27
AKC		**18,37**	**6,26**	**15,80**	**5,64**

The highest level of illness acceptance had the studied people aged up to 60 years. High results – 1 person (9.1%), with the lowest coefficient of low results – 6 people (54.5%). Next, in the age 66-70 years. Low results – 8 people (57.1%), with the lack of high results. The lowest level of illness acceptance was presented with the respondents in the age above 70 years. Low results – 18 people (85.7%), with the lack of high results. In all age groups, a low level of illness acceptance was noted (Table 4).

By relating to the SWLS questionnaire, the respondents as a group present a low level of satisfaction with life. Low results were obtained by 29 people (48.3%). Average results – 25 people (41.7%). High results were obtained only by 6 people (10.0%) (Table 5).

Table 4: AIS results in age groups.

Age group	to 60 years		61-65 years		66-70 years		above 70 years	
AIS level	Number	%	Number	%	Number	%	Number	%
Low	6	54,5	10	71,4	8	57,1	18	85,7
Average	4	36,4	3	21,4	6	42,9	3	14,3
High	1	9,1	1	7,1	0	0,0	0	0,0
Total	**11**	**100,0**	**14**	**100,0**	**14**	**100,0**	**21**	**100,0**

Table 5: Satisfaction with life – sten.

Sten	number	%
1	4	6,7
2	7	11,7
3	7	11,7
4	11	18,3
5	17	28,3
6	8	13,3
7	5	8,3
8	1	1,7
9	0	0,0
10	0	0,0

Due to the level of significance (p>0,05), no statistically relevant differences between women and men were noted pertaining to satisfaction with life and its position (Table 6). Higher average point result of satisfaction with life was noted in the group of women – 18.11 points. In the group of men – 16.71 points. Women obtained higher results in all the SWLS positions (Table 7).

Age groups of the studied people were not in statistically relevant correlation with the results of satisfaction with life and its position (p>0,05) (Table 8).

The highest life satisfaction was noted in the age group 66-70 years. High results – 2 people (14.3%), with the lowest coefficient of low results – 5 people (35.7%). Next, in the age group above 70 years, high results – 3 people (14.3%), low results – 11 people (52.4%). The lowest satisfaction with

Table 9: SWLS results in age groups.

Age	Up to 60 years		61-65 years		66-70 years		above70 years	
Position	**Number**	**%**	**Number**	**%**	**Number**	**%**	**Number**	**%**
Low satisfaction level	6	54,5	7	50,0	5	35,7	11	52,4
Average satisfaction level	4	36,4	7	50,0	7	50,0	7	33,3
High satisfaction level	1	9,1	0	0,0	2	14,3	3	14,3
Total	**11**	**100,0**	**14**	**100,0**	**14**	**100,0**	**21**	**100,0**

Table 7: Average SWLS point results in sex groups.

sex		woman		man	
No.	**Position**	**Average**	**SD**	**Average**	**SD**
1	In many ways, my life is close to ideal	2,26	1,05	2,22	0,88
2	my life conditions are perfect	3,00	1,41	2,78	1,17
3	I am satisfied with my life	4,26	1,15	3,90	1,30
4	In my life, I have achieved the most significant things I wanted	4,47	1,47	4,29	1,58
5	If I could live my life again, I would not like to change anything	4,11	1,73	3,51	1,61
SWLS		18,11	5,17	16,71	4,83

Table 8: Correlations of satisfaction with life and age groups.

Position	N	R	t(N-2)	p level
In many ways, my life is close to ideal	60	-0,205	-1,593	0,117
my life conditions are perfect	60	-0,182	-1,408	0,165
I am satisfied with my life	60	-0,012	-0,093	0,926
In my life, I have achieved the most significant things I wanted	60	0,216	1,688	0,097
If I could live my life again, I would not like to change anything	60	0,157	1,209	0,232
SWLS	60	0,049	0,373	0,710

life was noted in the age group 61-65 years. Low results – 7 people (50.0%). Lack of high results (Table 9).

On the basis of the obtained results, we can state that the results of illness acceptance (AIS) remained in a statistically relevant, low correlation with the results of satisfaction with life ($p<0,05$) (Table 10).

Table 10: Correlation of AIS results and satisfaction with life (SWLS).

N	R	t(N-2)	p level
60	0,281	2,229	0,030

The greatest acceptance of a disease was noted among the respondents with high level of satisfaction with life. Low results – 3 people (50.0%). Lack of high results. The lowest acceptance of a disease was recorded in a studied group of people with low level of satisfaction with life. Low results – 24 people (82.8%). Lack of high results.

Table 11: AIS results in groups of SWLS results.

SWLS	low satisfaction level		average satisfaction level		high satisfaction level	
AIS	**Number**	**%**	**Number**	**%**	**Number**	**%**
Low	24	82,8	15	60,0	3	50,0
Average	5	17,2	8	32,0	3	50,0
High	0	0,0	2	8,0	0	0,0
Total	**29**	**100,0**	**25**	**100,0**	**6**	**100,0**

Discussion

The obtained results prove that the acceptance of a disease entity such as heart failure undoubtedly have a great impact on the satisfaction with life level in a disease and influence its course and prognosis. The significance level of examined dependencies amounted to $p=0.03$, which means that it remains in a statistically relevant low correlation. Also Kowalczyk B. et al [7] in their work 'The quality of life in patients with heart failure' emphasize that in a respondents' group with a good level of a disease entity acceptance, the level of existential quality was higher as compared to the group of patients showing the lack of acceptance towards their disease (where $p<0,001$).

The conducted survey implies that the lowest disease acceptance was noted among the hospitalized with the lowest satisfaction with life and it is estimated on the level of 82,8%. Similar conclusions can be found in studies carried out by Uchmanowicz et al [8] among the people suffering from heart disease. The authors report that higher level of disease acceptance is connected with a significantly higher quality of life by taking into account the physical and mental dimension as well as the quality of life's index.

The analysis of conducted research also shows that there are statistically relevant low correlations between respon-

dents' age and disease acceptance, which were determined in Table 10. The gathered data can also be confirmed by the research carried out by Kowalczyk B. et al [7], where the dependence between age and acceptance of a disease entity was described. According to the authors, many factors influence the level of a disease entity acceptance, i.e.: sex, age, place of residence, marital status, left ventricular ejection fraction, functional class according to the NYHA scale, necessity to call medical rescue team, or going to the A&E (Accident&Emergency Ward) as well as some coexisting diseases and all the domains of life quality.

When including the respondents' sex, no statistically relevant correlations were noted between women and men in relation to accepting the disease entity. However, a slightly higher average point result of disease acceptance can be observed in a group of women and it stays at the level of 18.37 points. Contrary to the expectations, from the data gathered by Uchmanowicz et al [8], it can be concluded that females achieve a lower level of disease acceptance than males. The reason for such a state of affairs are the ailments felt by women with heart failure. Similar results were obtained by Kowalczyk B. et al [7] in their surveys. According to the authors, the group of examined women also obtained the fewest points.

By diversifying the level of satisfaction with life in particular age groups, it can be stated that the results were not significantly different. In spite of the fact that slightly lower values can be observed in younger age groups (<65 years of age). Comparable correlations were revealed in the studies carried out by Fedyk-Łukasik M. et al [9], where younger patients (<65 years of age), when assessing the quality of life in the Quality of life (QOL) scale, obtained fewer points. The adopted questionnaire slightly differs when compared to the SWLS scale. An additional common element was a similar age group and a disease entity. Also observations by Debry K. Moser et al. [10] implied similar results. Their report indicates that older patients with heart failure obtained better results on the basis of Health Related Quality of Life scale – HRQOL. The authors prove that better quality of life of people in older age is connected with the conceptualization or change of expectations pertaining to the quality of life in the context of heart failure. No statistically relevant differences between women and men were detected relating to the satisfaction with life. However, a higher average point result was noted in the group of women, i.e. 18.11 points.

Heart failure is a disease, which demands constant pharmacotherapy as well as specialist care, but most of all engagement by the patient and his or her family. An important aspect, which greatly influences their comfort of life, is a proper education, due to which the patients are conscious of their disease and possess knowledge in the field of acting with a disease entity. A comprehensive medical care as well as patient's engagement allow to maintain his or her independence and extend life. The justification to this thesis can be found in the article by Krzemińska S. [5], where patients suffering from heart failure were provided with education, where the modifiable factors were also included. Due to the introduced activities, patients' quality of life greatly improved and they underwent fewer repeated hospitalizations.

Conclusions

1. There is a statistically relevant low correlation between the level of disease acceptance and satisfaction with life among the patients hospitalized due to heart failure. Consequently, it means that the lack of disease entity acceptance reduces patients' satisfaction with life.
2. The level of disease acceptance declines with age.
3. Patients treated for heart failure declare low satisfaction with life.
4. A slightly higher level of existential satisfaction is noted in the older group. This correlation is less strongly expressed with younger people.
5. Women obtained better results than men.

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Received: 2018
Accepted: 2018