Knowledge and selected variables as determinants of the quality of life and general health of patients with rheumatoid arthritis

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Abstract

Background. Rheumatoid arthritis (RA) is an incurable disease resulting in progressive disability, which is associated with the loss of productivity and the inability to earn money, which might lead to a financial burden on the patient's family. Undoubtedly, the clinical picture of the disease and its consequences lead to the reduction of the quality of life.

Objectives. The aim of this study is to evaluate the influence of selected factors on the subjective assessment of the quality of life and general health of patients with RA.

Material and methods. The study was conducted among 270 patients with RA treated at the Department of Rheumatology and Internal Medicine. The quality of life and general health were assessed with the use of the SF-36 and the GHQ-30 questionnaires.

Results. In the study group, a statistically significant correlation between the results of the SF-36 and the GHQ-30 questionnaires was observed. It has been shown that the level of role limitations due to physical health problems (RP) is mostly affected by interpersonal relationships based on GHQ-30 questionnaire ($p = 0.002$), general health (GHQ-30) ($p = 0.001$) and subjective health condition (SF-36) ($p < 0.001$). In contrast, general health (GHQ-30) is positively affected by education ($p = 0.003$) and professional activity ($p = 0.001$), and negatively affected by a positive family history of RA ($p = 0.002$), frequent hospitalization ($p = 0.008$) and poor subjective health condition ($p < 0.001$).

Conclusions. People with poor subjective health condition are characterized by more limited activity due to physical health and lower general health condition. General health (GHQ-30) in patients with rheumatoid arthritis is influenced by education, place of residence, professional work, family history of RA and subjective health status.

Key words: quality of life, rheumatoid arthritis (RA), SF-36 questionnaire, General Health Questionnaire (GHQ)

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Introduction

The quality of life is a multidimensional concept, varying over time, and takes into account an objective and subjective assessment of life in physical, psychological and social terms. One of the chronic diseases which results in the reduction of the quality of life is rheumatoid arthritis (RA), one of the most aggressive and most common rheumatic diseases. This is a condition causing chronic inflammation of the bone-joint system, and the result of this process is a permanent deformation of bones and joints along with their damage.

Rheumatoid arthritis is an incurable disease resulting in progressive disability so a social aspect of the disease is increasingly significant, especially when every 3rd person suffering from this condition is not capable of performing any paid work within 2 years from the time of diagnosis.^{1–3} Progressive disability is associated with the loss of productivity, financial burden on the patient's family and the impossibility of earning money. Patients are often not prepared to change their way of life, which is the reason why it is important to make them aware of the significance of active cooperation in therapy. This applies especially to regular exercise at home, adapted to current capabilities, which helps to reduce the motor dysfunction, and the use of dietary therapy.⁴

One of the main problems of people with RA is pain, which undoubtedly is reflected in the mental condition of the patient and their social functioning. Due to the multidimensional character of the disease, it is important for the successful treatment of this patient group to improve mutual communication, engage the patient in the therapy, broaden their knowledge about the disease, which significantly influences the effects of the treatment.^{5–7} The need to undertake educational activities aimed at patients with rheumatoid arthritis comes from the currently biggest challenge of contemporary medicine referring to all chronic diseases – failure in following the therapy guidelines.^{8,9} Knowledge about the disease is the key to achieve the maximum effects of treatment and one of the ways to prevent the consequences of improperly treated disease.^{10,11}

It is also essential to enable the patient, through counseling and retraining, to get a suitable employment opportunity, which is the basis for developing an active attitude to life and regaining independence in the later stages of the disease. It is also relevant in the process of accepting the disability and feeling satisfaction from life.¹²

The solution may be the improvement of the therapeutic relationship between the therapeutic team and the patient in order to increase the efficiency of the treatment through better knowledge about the disease, and to reduce the impact of the disease on the mental condition of the patient.¹³

Material and methods

The study included 270 patients diagnosed with rheumatoid arthritis, treated at the Department of Rheumatology and Internal Medicine (Table 1).

The author's questionnaire, International Questionnaire SF-36 questionnaire, and the General Health Questionnaire GHQ-30 were used to collect the study data.

The author's questionnaire allowed us to gather basic information about the study group and to assess the level of knowledge about RA.¹⁴

Questionnaire SF-36 estimated the areas included in a wide approach to health definition, covering 8 competent scales defining physical and mental aspects of the quality of life.¹⁵ These are:

- physical functioning – PF;
- mental health – MH;
- social functioning – SF;
- role physical – RP;
- role emotional – RE;
- vitality – VT;
- general health – GH;
- bodily pain – BP,

Table 1. Characteristics of the study group (data was presented as mean $\pm$ SD).

Variable		Characteristics of the study group			
		entire group	women	men	p-value
Number of patients		270 (100%)	195 (77.22%)	75 (27.78%)	–
Age mean $\pm$ SD		56.9 $\pm$ 15.2	57.6 $\pm$ 15.5	55.11 $\pm$ 14.45	0.23
Education	basic	28 (10.37%)	20 (10.26%)	8 (10.67%)	0.001
	vocational	77 (28.52%)	43 (22.05%)	34 (45.33%)	
	secondary	107 (39.63%)	84 (43.08%)	23 (30.67%)	
	higher	58 (21.48%)	48 (24.62%)	10 (13.33%)	
Professional activity	work	66 (24.44%)	41 (21.03%)	25 (33.33%)	0.06
	retirement pension	72 (26.67%)	48 (24.62%)	24 (32%)	
	disability pension	115 (42.59%)	93 (47.69%)	22 (29.33%)	
	benefit	3 (1.11%)	2 (1.03%)	1 (1.33%)	
	unemployed	14 (5.19%)	11 (5.64%)	3 (4%)	
Duration of the disease	1–3 years	71 (26.3%)	48 (24.62%)	23 (30.67%)	0.006
	3–5 years	43 (15.93%)	23 (11.79%)	20 (26.67%)	
	5–10 years	62 (22.96%)	49 (25.13%)	13 (17.33%)	
	>10 years	94 (34.81%)	75 (38.46%)	19 (25.33%)	
Duration of the disease >10 years mean $\pm$ SD		19.2 $\pm$ 7	18.65 $\pm$ 6.5	21.26 $\pm$ 8.51	0.48
Disease in the family		121 (44.81%)	96 (49.23%)	25 (33.33%)	0.02

Physical Component Summary (PCS) consists of PF, RP, VT, BP. Mental Component Summary (MCS) consists of MH, SF, RE, GH.

Factors of the quality of life were estimated on the basis of the system SF-36, which allowed us to estimate 8 domains of life and to calculate on their grounds the level of physical and mental activities depicting the general condition of a patient. The level of physical and mental activities was calculated using the norms assumed for the USA because there are no norms created for Poland and accepted by the QualityMetric, Inc.

Five scales (PF, RP, BP, SF, RE) describe the state of a person's functioning as a lack of limitations or disability. Three of the above mentioned scales (PF, RP, BP) reflect most accurately the physical condition of a patient, but it should be noted that each of them refers to a different aspect thereof. PF measures the constraints of daily physical activity, RP includes limitations in life, while BP focuses on the pain and the resultant limitations in everyday life.

The most useful in the presentation of the mental functioning of a patient are SF and RE. Their maximum results (100 points) indicate the lack of physical and emotional problems.

Other scales such as MH, VT and GH are bipolar, i.e., they measure both the positive and the negative picture of a patient. For the MH scale, the scoring in the middle of the range (50 points) means the lack of restrictions caused by personal or emotional problems. In the case of achieving the maximum score, it indicates frequently recurring feelings of happiness and peace.

The changes in the physical and mental well-being are detected by VT and GH scales. The middle score on the VT scale means no symptoms of fatigue or exhaustion, while the maximum (100 points) indicates additionally constantly occurring feeling of energy. The middle and higher scores on the GH scale confirm general health.¹⁴

General Health Questionnaire (GHQ) by David Goldberg is a screening tool used to assess non-specific psychiatric morbidity. The authors of the Polish version of GHQ-30 are Krzysztof Małyszczak and Stanisław Sidorowicz.¹⁶ The test assesses the current psychiatric condition and is used to identify the cases which are at a significant likelihood of developing disorders. The overall score of the questionnaire is influenced by individual sensibility, a way of going through and feeling during the course of disease. Therefore it is believed that using GHQ can also help to measure the condition of mental disorder and a subjective evaluation of its consequences, which is called a non-specific psychiatric morbidity. This study used a version of the questionnaire with 30 questions (GHQ-30). The maximum score a patient can get is 30 points. The threshold of 5 points provides a basis for the identification of persons with mental disorders. The study used a scoring method by Goldberg: 0–0–1–1. The questionnaire can be treated, on one hand, as a 1-dimensional tool; on the other hand, it would

be reasonable to isolate specific factors, which are called: anxiety and depression, interpersonal relations and general functioning.

The statistical analysis was performed using the program STATISTICA v. 10 PL with the application of Student's t-test and χ^2 test. The level of significance was set at $p = 0.05$.

The analysis of the impact of independent variables (covariates) on the level of quality of life in patients with rheumatoid arthritis was conducted through a multiple regression analysis. The model takes into account the following factors:

- X1: age;
- X2: gender (1 – woman; 0 – man);
- X3: place of residence (0 – village; 1 – city);
- X4: vocational education (0 – no; 1 – yes);
- X5: secondary education (0 – no; 1 – yes);
- X6: higher education (0 – no; 1 – yes);
- X7: professional activity (0 – no; 1 – yes);
- X8: professional activity – disability pension (0 – no; 1 – yes);
- X9: professional activity – pension (0 – no; 1 – yes);
- X10: professional activity – unemployed (0 – no; 1 – yes);
- X11: duration of disease 1–3 years (0 – no; 1 – yes);
- X12: duration of disease 5–10 years (0 – no; 1 – yes);
- X13: duration of disease >10 years (0 – no; 1 – yes);
- X14: disease in the family (0 – no; 1 – yes);
- X15: preventing procedures – regular medication (0 – no; 1 – yes);
- X16: preventing procedures – gymnastics (0 – no; 1 – yes);
- X17: lack of preventing procedures – smoking cigarettes (0 – no; 1 – yes);
- X18: preventing procedures – healthy diet (0 – no; 1 – yes);
- X19: medical consultation once a year (0 – no; 1 – yes);
- X20: medical consultation twice a year (0 – no; 1 – yes);
- X21: medical consultation more than twice a year (0 – no; 1 – yes);
- X22: hospitalization once a year (0 – no; 1 – yes);
- X23: hospitalization twice a year (0 – no; 1 – yes);
- X24: sources of knowledge – doctor (0 – no; 1 – yes);
- X25: sources of knowledge – physiotherapist (0 – no; 1 – yes);
- X26: sources of knowledge – nurse (0 – no; 1 – yes);
- X27: sources of knowledge – books (0 – no; 1 – yes);
- X28: sources of knowledge – medical journals (0 – no; 1 – yes);
- X29: sources of knowledge – journals (0 – no; 1 – yes);
- X30: sources of knowledge – television (0 – no; 1 – yes);
- X31: sources of knowledge – internet (0 – no; 1 – yes);

- X32: sources of knowledge – colleagues (0 – no; 1 – yes);
- X33: subjective estimation of the level of knowledge (0–10);
- X34: difficulties in education – lack of time (0 – no; 1 – yes);
- X35: difficulties in education – lack of interest (0 – no; 1 – yes);
- X36: difficulties in education – lack of financial possibilities (0 – no; 1 – yes);
- X37: difficulties in education – lack of place (0 – no; 1 – yes);
- X38: difficulties in education – poor preparation (0 – no; 1 – yes);
- X39: subjective health condition – good (0 – no; 1 – yes);
- X40: subjective health condition – not bad (0 – no; 1 – yes);
- X41: subjective estimation of health – bad (0 – no; 1 – yes);
- X42: state of knowledge – symptoms of disease (point);
- X43: state of knowledge – rehabilitation and pharmacological treatment (point);
- X44: state of knowledge – prevention and leisure (point);
- X45: state of knowledge – general state of knowledge (point);
- X46: a feeling that life is not worth living (1 – not at all; 2 – not more than usual; 3 – a bit more than usual; 4 – a lot more than usual);
- X47: symptoms of anxiety and depression GHQ-30 (points);
- X48: interpersonal relations GHQ-30 (points);
- X49: overall functioning GHQ-30 (points);
- X50: overall result of the health GHQ-30 (points).

Results

The analysis of the study material showed that there were no statistically significant differences in particular domains of the SF-36 questionnaire in terms of gender (Table 2).

A multiple regression analysis of the impact of independent variables on the quality of life in patients with RA has yielded the following results:

- the level of physical functioning (PF) is positively affected by active professional work ($p = 0.002$), higher education ($p = 0.004$) and the acquisition of knowledge about the disease from friends ($p = 0.01$), and is negatively affected by age ($p = 0.001$), lack of education ($p = 0.004$), low subjective state of knowledge about the disease ($p = 0.004$) and poor subjective health (SF-36) ($p < 0.001$) (Table 3);
- limited activity due to physical health (RP) is mostly influenced by the interpersonal relationships (GHQ-30) ($p = 0.002$), the general level of health (GHQ-30) ($p = 0.001$) and subjective health condition (SF-36) ($p < 0.001$);
- the level of pain (BP) depends on interpersonal relationships (GHQ-30) ($p = 0.019$), the general health (GHQ-30) ($p < 0.001$) and subjective health status (SF-36) ($p = 0.004$);
- the general perception of health (GH) is positively influenced by the acquisition of knowledge from nurses ($p = 0.02$), and is negatively affected by age ($p = 0.005$) and the presence of RA history in the family ($p = 0.001$) (Table 4);
- the level of vitality (VT) is positively influenced by the acquisition of knowledge from a physiothera-

Table 2. The analysis of factors related to quality of life – SF-36

Factors related to quality of life – SF-36	Study group			
	entire group	women	men	p-value
Number of patients	270 (100%)	195 (77.22%)	75 (27.78%)	
Subjective health condition				0.29
perfect	0	0	0	
very good	2 (0.74%)	2 (1.03%)	0	
good	34 (12.59%)	25 (12.82%)	9 (12%)	
not bad	114 (42.22%)	76 (38.97%)	38 (50.67%)	
bad	120 (44.44%)	92 (47.18%)	28 (37.33%)	
Subjective health state [points (0–100)] mean $\pm$ SD	18.86 $\pm$ 20.75	18.43 $\pm$ 21.35	19.99 $\pm$ 19.2	0.58
Physical functioning (PF) [points] mean $\pm$ SD	33.69 $\pm$ 25	31.85 $\pm$ 24.73	38.47 $\pm$ 25.24	0.051
Limited activity due to role physical (RP) [points] mean $\pm$ SD	9.44 $\pm$ 25.84	9.23 $\pm$ 25.35	10 $\pm$ 27.26	0.83
Bodily pain (BP) [points] mean $\pm$ SD	26.18 $\pm$ 18.9	26.84 $\pm$ 19.84	25.01 $\pm$ 16.25	0.53
General health (GH) [points] mean $\pm$ SD	19.23 $\pm$ 13.33	19.05 $\pm$ 13.86	19.71 $\pm$ 11.91	0.72
Vitality (VT) [points] mean $\pm$ SD	35.31 $\pm$ 11.34	34.95 $\pm$ 10.48	36.27 $\pm$ 13.36	0.39
Social functioning (SF) [points] mean $\pm$ SD	44.77 $\pm$ 25.09	44.62 $\pm$ 25.76	45.17 $\pm$ 23.42	0.87
Limited activity due to role emotional (RE) [points] mean $\pm$ SD	53.95 $\pm$ 48.59	51.45 $\pm$ 48.72	60.44 $\pm$ 47.99	0.17
Mental health (MH) [points] mean $\pm$ SD	51.29 $\pm$ 16.9	51.2 $\pm$ 17.11	51.52 $\pm$ 16.43	0.89
Physical component summary (PCS) [points] mean $\pm$ SD	24.18 $\pm$ 7.52	24.01 $\pm$ 7.71	24.63 $\pm$ 7.03	0.54
Mental component summary (MCS) [points] mean $\pm$ SD	42.66 $\pm$ 10.35	42.42 $\pm$ 10.5	43.28 $\pm$ 9.99	0.55

- pist ($p < 0.001$), a medical journal ($p = 0.004$) or the Internet ($p = 0.005$), whereas it is negatively affected by a low level of health (GHQ-30) ($p < 0.001$);
- the level of social functioning (SF) is positively influenced by good subjective health condition (SF-36) ($p = 0.002$), whereas it is negatively affected by a feeling that life is not worth living (GHQ-30) ($p = 0.027$) and a low level of health (GHQ-30) ($p = 0.00$) (Table 5);
 - role emotional (RE) depends on the frequency of medical consultations (more than twice a year) ($p = 0.003$);
 - the level of mental health (MH) is positively influenced by a low level of symptoms of anxiety and depression (GHQ-30) ($p = 0.014$), whereas it is negatively affected by a positive family history ($p = 0.007$) and poor subjective health (SF-36) ($p = 0.005$);
 - the level of PCS is positively influenced by declared very good health condition (SF-36) ($p = 0.037$), whereas it is negatively affected by the age factor ($p < 0.001$);
 - the level of MCS is positively influenced by frequent medical consultations ($p = 0.004$), whereas it is negatively affected by a positive family history of RA ($p = 0.009$), poor subjective health ($p = 0.015$) and a low level of health according to GHQ-30 ($p < 0.001$).

The analysis of the study material obtained from the GHQ-30 questionnaire showed that particular domains did not show any statistically significant differences in terms of gender (Table 6).

A multiple regression analysis of the impact of independent variables on the health levels in RA patients has yielded the following results:

- symptoms of anxiety and depression are negatively affected by the occurrence of disease (RA) in the family, rare medical consultations and a feeling that life is not worth living;

Table 3. Summing up of changeable dependable regression concerning physical functioning ($R^2 = 0.594$)

Factors	β	b	p-value
Age	-0.28	-0.47	<0.001
Vocational education	0.19	10.77	0.004
Secondary education	0.17	8.49	0.021
Higher education	0.19	11.62	0.004
Professional activity – work	0.14	8.01	0.002
Source of knowledge – friends	0.11	7.51	0.01
Subjective evaluation of the knowledge level	-0.12	-1.72	0.004
General functioning (GHQ-30)	-0.12	-1.10	0.014
Subjective health condition – not bad	-0.29	-14.79	<0.001
Subjective health condition – bad	-0.59	-29.70	<0.001

The designated method of least squares model of physical functioning takes the following form: $PF = 80.88 - 0.47 \times X_1 + 10.77 \times X_4 + 8.49 \times X_5 + 11.62 \times X_6 + 8.01 \times X_7 + 7.51 \times X_{32} - 1.72 \times X_{33} - 14.79 \times X_{40} - 29.7 \times X_{41} - 1.1 \times X_{49} \pm 16.23$; $R^2 = 0.594$; β – variable importance factor; b – variable coefficient ($y = bx + c$); p – level of significance; R^2 – relevance factor; c – standard error of estimate ($y = bx \pm c$).

- interpersonal relationships are positively influenced by higher education ($p = 0.036$), place of residence – a city ($p = 0.009$) and a shorter duration of disease – 1–3 years ($p = 0.001$), and are negatively affected by a positive family history of RA ($p = 0.026$) and a feeling that life is not worth living ($p < 0.001$);
- general functioning is positively influenced by a higher education ($p = 0.002$) and reading books about the disease ($p = 0.0011$), whereas it is negatively affected by age ($p = 0.004$), the presence of the disease in the family ($p = 0.012$) and a feeling that life is not worth living ($p < 0.001$);
- general health (GHQ-30) is positively affected by education ($p = 0.003$), place of residence – a city ($p = 0.013$), active professional work ($p = 0.001$), whereas it is negatively affected by a positive family history of RA ($p = 0.002$), frequent stays in the hospital ($p = 0.008$) and poor subjective health status ($p < 0.001$) (Table 7).

Table 4. Summing up of changeable dependable regression concerning general health perception ($R^2 = 0.443$)

Factors	β	b	p-value
Age	-0.14	-0.13	0.005
Disease in the family	-0.15	-4.12	0.001
Source of knowledge – nurse	0.11	4.96	0.02
Difficulties in obtaining education – lack of time	-0.14	-4.10	0.006
Difficulties in education – lack of interest	0.10	2.92	0.042
Subjective health condition – not bad	-0.52	-14.10	<0.001
Subjective health condition – bad	-0.70	-18.82	<0.001

The designated method of least squares model of general health perception takes the following form: $GH = 46.44 - 0.13 \times X_1 - 4.12 \times X_{14} + 4.96 \times X_{26} - 4.1 \times X_{34} + 2.92 \times X_{35} - 14.1 \times X_{40} - 18.82 \times X_{41} - 0.17 \times X_{50} \pm 10.1$; $R^2 = 0.443$; β – variable importance factor; b – variable coefficient ($y = bx + c$); p – level of significance; R^2 – relevance factor; c – standard error of estimate ($y = bx \pm c$).

Table 5. Summing up of changeable dependable regression concerning social functioning ($R^2 = 0.49$)

Factors	β	b	p-value
Sources of knowledge – books	-0.11	-5.97	0.017
Sources of knowledge – medical papers	0.09	7.69	0.045
Feeling that life is not worth living	-0.12	-3.73	0.027
Interpersonal relationships (GHQ-30)	0.32	4.41	0.004
General health (GHQ-30)	-0.80	-2.00	0.000
Subjective health condition – not bad	-0.15	-7.77	0.028
Subjective health condition – bad	-0.24	-11.96	0.002
Subjective health condition – not bad	0.10	1.72	0.035

The designated method of least squares model of social functioning takes the following form: $SF = 72.41 - 5.97 \times X_{27} + 7.69 \times X_{28} - 7.77 \times X_{40} - 11.96 \times X_{41} + 1.72 \times X_{43} - 3.73 \times X_{46} + 4.41 \times X_{48} - 2 \times X_{50} \pm 18.05$; $R^2 = 0.49$; β – variable importance factor; b – variable coefficient ($y = bx + c$); p – level of significance; R^2 – relevance factor; c – standard error of estimate ($y = bx \pm c$).

Discussion

A crucial element in the treatment and rehabilitation of patients with rheumatoid arthritis should be the analysis of quality of life. Due to the fact that it is a chronic, progressive and still incurable disease, care should be taken to improve the viability of patients by means of a thorough examination of the factors that impair their quality of life. In addition, continuously developing knowledge on the quality of life of patients with RA should help to eliminate the factors that have the most negative impact on the various spheres of life of such patients.

Our study confirmed that patients suffering from RA are characterized by low quality of life both in the domain of PCS and in the domain of MCS.^{17–24} The lower number of points in the PCS domain in comparison to the MCS domain may indicate that RA affects more the physical than the mental sphere as indicated by other authors.^{21,23,24}

It was also shown that the quality of life of patients with RA depends on many factors of physical, mental and social functioning sphere.^{17,19–21,23–31}

Studies conducted by many authors have shown that poorer functioning of the respondents in the physical sphere is conditioned by the duration of the disease.^{18,24,26,28,30} Studies by Baloglu et al. and Wiśłowska et al. did not confirm this dependence.^{20,31} In our study, the worse results in the PF domain and the PCS scale were related to age of the respondents, which has also been indicated by other authors.^{20,23,31} It was also shown that people who subjectively assessed their health as poor had a lower perception of the quality of their lives in the domains of physical activity (PF, RP and BP) as well.

The literature highlights the fact that quality of life is modified by patients' convictions about their health, which is reflected in the results of our own study, where people with poor subjective health condition were characterized by greater limitations of activity due to physical health and lower general health (GHQ-30).³⁰

The studies by van Vilsteren et al. concluded that patients suffering from RA with low quality of life are characterized by decreased productivity.²⁶ Our study showed that

economic activity has a positive effect on the general health level according to GHQ-30.

Factors such as higher education and living in a city also had a positive effect on general health (GHQ-30).

The results obtained from the SF-36 questionnaire and GHQ-30 revealed the occurrence of symptoms such as anxiety and depression and a decreased quality of life in the MCS domain. Rheumatoid arthritis is undoubtedly a disease which leaves permanent consequences of a psychological nature, especially in the emotional area, and affects quality of life.^{17,20,29} There are many premises suggesting that personal predispositions of a patient, their competence and approach to the disease may have a considerable influence on the further course of the disease and its prognoses. According to Abu Al-Fadl et al. and Maiden et al., during the treatment of patients with RA, more attention should be paid to the identification of symptoms of depression because the emotional condition affects the quality of life of patients and treatment outcomes.^{17,32}

Frequent contact with the members of the therapeutic team and obtaining accurate information positively affected the selected domains (GH, VT, RE, MCS) in RA patients, which was presented for the first time in our study and proves the need for providing informational and emotional support by the members of the therapeutic team.

It was also shown that interpersonal relationships affected activity limitations due to physical health (RP), the level of pain (BP) and the level of social functioning (SF). This means that people with satisfying relationships with others less frequently experienced limitations in the sphere of physical activity and experienced less pain, and better functioned in the society.

Mäkeläinen et al. attempted to find an answer to the question if there is a dependence between the level of knowledge in 252 patients with rheumatoid arthritis and their physical functioning.³³ The studies did not reveal a correlation between the level of knowledge of patients and their physical functioning in everyday life. The authors' own study showed, however, that the level of knowledge about the disease affected the SF domain in the SF-36 questionnaire.

The evaluation of quality of life has an enormous significance in economic analyses. Financing health care, costs of treatment, its effectiveness are the leading subjects. We need to find an answer to the question if the treatment means applied for this purpose correlate with the effects, patient satisfaction and the level of quality of life.³⁴

The quality of life of patients suffering from rheu-

Table 6. The analysis of data obtained from the General Health Questionnaire – GHQ-30

Variable	Study group			
	all group	women	men	p-value
Number of patients	270 (100%)	195 (77.22%)	75 (27.78%)	
Anxiety and depression symptoms [points] mean $\pm$ SD	5.16 $\pm$ 4.36	5.41 $\pm$ 4.31	4.51 $\pm$ 4.46	0.13
Interpersonal relationships [points] mean $\pm$ SD	1.51 $\pm$ 1.79	1.59 $\pm$ 1.80	1.33 $\pm$ 1.77	0.29
General functioning [points] mean $\pm$ SD	3.58 $\pm$ 2.66	3.68 $\pm$ 2.68	3.32 $\pm$ 2.62	0.32
General health [points] mean $\pm$ SD	12.57 $\pm$ 9.95	13.07 $\pm$ 9.89	11.27 $\pm$ 10.04	0.18
Feeling that life is not worth living				
not at all	127 (47.04%)	92 (47.18%)	35 (46.67%)	0.58
not more than usual	103 (38.15%)	71 (36.41%)	32 (42.67%)	
a bit more than usual	27 (10%)	21 (10.77%)	6 (8%)	
a lot more than usual	13 (4.81%)	11 (5.64%)	2 (2.67%)	

Table 7. Summary of changeable dependable regression concerning general health (GHQ-30) ($R^2 = 0.41$)

Factors	β	b	p-value
Place of residence	-0.13	-3.05	0.013
Secondary education	-0.17	-3.38	0.002
Higher education	-0.17	-4.08	0.003
Professional activity – work	-0.19	-4.27	0.001
Professional activity – disability pension	-0.17	-3.76	0.002
History of RA in the family	0.15	3.01	0.002
Hospitalization twice a year	0.13	3.65	0.008
Source of knowledge – books	-0.11	-2.34	0.031
Subjective health condition – good	-0.34	-10.29	<0.001
Subjective health condition – not bad	-0.41	-8.10	<0.001

The designated method of least squares model of general health (GHQ-30) takes the following form: $GH = 22.79 - 3.05 \times X3 - 3.38 \times X5 - 4.08 \times X6 - 4.27 \times X7 - 3.76 \times X8 + 3.01 \times X14 + 3.65 \times X23 - 2.34 \times X27 - 10.29 \times X39 - 8.1 \times X40 \pm 7.76$; $R^2 = 0.41$; β – variable importance factor; b – variable coefficient ($y = bx + c$); p – level of significance; R^2 – relevance factor; c – standard error of estimate ($y = bx \pm c$).

matoid arthritis is determined by psycho-physical activities and many other factors. It is promising that there are more and more studies on the quality of life in rheumatoid diseases. The conducted research and the results of our own study showed that the International Questionnaire – SF-36 and the General Health Questionnaire GHQ-30 are good tools to assess the quality of life in patients with rheumatoid arthritis and help to identify therapeutic strategies aimed at minimizing the deficits in the area of emotional support and education in patients with RA.^{23,31,35}

Conclusions

Physical activity of patients with rheumatoid arthritis depends on their age and subjective health condition. General health (GHQ-30) in patients with rheumatoid arthritis is influenced by education, place of residence, professional work, family history of RA and subjective health status. Frequent contact and accurate information obtained from the members of the therapeutic team has a positive effect on the selected domains of quality of life in patients with RA. The SF-36 scale and the GHQ-30 questionnaire may be used at the time of hospitalizations at the rheumatoid ward as methods of detecting patients with possible risk of emotional disorders and disorders in social functioning.

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