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What is the factor that most influences QOL among rheumatoid arthritis patients?

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Abstract We attempted to elucidate the factors which affect the quality of life (QOL) among patients with rheumatoid arthritis (RA). Ninety-five patients who satisfied the American Rheumatism Association criteria for RA were asked to fill in a modified arthritis impact measurement scale, version 2 (AIMS2) and complete a Lorish's face scale (FS) test. The same questionnaire and FS test were completed by 75 healthy persons as controls. We used Lorish's FS for our assessment of QOL. The investigation was undertaken to analyze the relationship between FS and each item on the questionnaire. For average FS score, there was no significant difference between the RA group and the controls. However, RA group scores covered a wider range than those of the controls. From the correlation analysis, physical stress, pain factors, and some of the activities of daily living (ADL) factors showed a strong correlation with FS. ADL factors which strongly correlated with FS were those related to activities of the lower limbs. Other ADL factors were moderately correlated with FS. Socioeconomic factors were not significantly correlated with FS. There was no significant difference between the QOL of RA patients and that of healthy controls. The QOL was correlated with pain and stress factors rather than with ADL factors among patients with RA.

Key words Activity of daily living (ADL) · Face scale · Influential factors · Quality of life (QOL) · Rheumatoid arthritis (RA)

Introduction

Rheumatoid arthritis (RA) is a chronic disease that may affect the patient's quality of life (QOL) in many ways.[1–7] The possible factors affecting the QOL of RA patients would include disease severity, socioeconomic status, and the patient's expectations and needs.[8] However, little work has been done on the factors influencing the QOL of RA patients. In this paper, we report on a study of the correlation between the QOL of RA patients and a variety of possible factors that may affect that QOL.

Materials and methods

Patients

Ninety-five RA patients answered the questionnaire in this study, and they all met the criteria for RA proposed by the American Rheumatism Association (ARA)[9] (class I, 12; class II, 81; class III, 2; there were no bedridden patients; stage I, 6; stage II, 16; stage III, 31; stage IV, 42). Nineteen patients were men and 76 were women. The mean age at examination was 58.2 ± 13.0 (SD) years (range 16–81 years), and the duration of the disease averaged 7.3 ± 3.5 years (range 0.7–16.8 years). The mean duration of therapy was 6.9 ± 2.7 years (range 0.5–15.7 years). When patients showed the involvement (tenderness and swelling) of more than three joints and more than 1 mg/dl of C-reactive protein (CRP), their disease was considered to be active. As controls 75 healthy people (10 men and 60 women, average age 56.5 ± 14.0 years, range 18–76 years) were also given the same questionnaire.

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Table 1. Questionnaire

1. How do you feel about your physical stress this month?
2. How frequently did you go out this month?
3. Did you sleep well this month?
4. Were you able to eat meals by yourself this month?
5. Were you able to go to the toilet by yourself this month?
6. Were you able to change your clothes by yourself this month?
7. Were you able to wash your face by yourself this month?
8. Were you able to take a bath by yourself this month?
9. Were you able to get into bed and to get up by yourself this month?
10. Have you taken any exercise this month?
11. Were you able to go up a ladder by yourself this month?
12. Were you able to walk by yourself this month?
13. Were you able to carry buggage this month?
14. Were you able to turn on a tap this month?
15. Were you able to squat down to get something on the floor this month?
16. Were you able to write by yourself this month?
17. Were you able to get on a bus or train by yourself this month?
18. If you have relatives who live with you, who are they? (grandfather, grandmother, father, mother, spouse, children, grandchildren, others)
19. What is your economic status?
20. How are relationships with your friends?
21. Are you satisfied with your friends?
22. Do you make use of a public service for your disease?
23. Are you satisfied with that public service?
24. How much work (including domestic work) can you do?
25. Do your colleagues and superiors understand your disease?
26. Do you think any mental problems affect your disease?
27. Do you think your disease affects your mental condition?
28. How much do you think your disease affects your daily activities?
29. How do you think your disease affects your work?
30. How do you think your disease affects your daily activities?
31. How well do you understand your disease?
    a. I understand my disease very well.
    b. I understand how to cope with my disease.
    c. I want to have more information about my disease and related matters.
32. What is your impression of your disease?
33. What degree of pain do you feel?
34. How long do you feel morning stiffness?
35. What is the most inconvenient thing you have to do?
36. What other inconvenient things are caused by your disease?
37. What do you want to improve?
38. What do you think of the medical services you receive?
39. How has your disease been this year?
40. Did you have any accidents that affected your mental status this year?
    Yes. No.
41. Have you had any physical accidents this year?
42. How will you be after one more year?
43. What medical services will you want in the future?

Methods

All patients were asked to complete all 43 items on the questionnaire (Table 1). The answers to the questionnaire were given on a 10-cm visual analog scale. Most of the items were similar to those in a standard health assessment questionnaire (AIMS2),[10] because these are widely used and provide a useful measure of a major component of health status.[8,10] We also added several other items relating to socioeconomic status, and patients' expectations and needs. To assess the patients' QOL, we used Lorish's face scale (FS).[11] It is widely accepted that FS is a good nonverbal validity tool for the assessment of mood, which represents QOL among RA patients.[12,13]

Table 2. Face scale among RA patients

		Number of patients	FS score (mean ± SD)
Sex	Female	76	8.9 ± 4.4
	Male	19	8.0 ± 2.1
Age (years)	<40	9	7.8 ± 4.9
	40+	26	8.2 ± 3.5
	50+	22	9.1 ± 4.3
	60+	28	9.1 ± 4.9
	<70	10	9.8 ± 1.3
Duration of therapy (months)	<6	9	13.3 ± 4.2
	6–12	22	10.2 ± 1.3
	>12	64	7.9 ± 4.9

Data analysis and statistics

Linear regression analysis was used to determine the relationship between QOL and each item in the questionnaire, with the FS as the dependent variable, and each item as the independent variable. Student's *t*-test was used to compare female and male patients. One-way analysis of variance was used to evaluate the relationship between QOL and duration of illness. The limit value for significance was set at 0.05 for all tests performed.

Results

The mean FS value for RA patients was almost same as that for control subjects (Fig. 1). However, the FS score of the RA group showed a broader distribution than that of the control group (SD: RA, 4.4; control, 3.5).

The average ± SD of the FS score among female patients (8.9 ± 4.4) was not significantly different from that among male patients (8.0 ± 2.1) (Table 2). There was a tendency for the scores of younger patients to be better than those of olders patients (Table 2). Patients who had had therapy for a long time showed better scores than the group who had had less therapy ($P < 0.01$). Even among patients who were active, the mean FS score of patients who had had therapy for a long time (9.2 ± 5.2) was better than that of patients who had had less therapy (13.1 ± 4.3).

Physical stress, degree of pain, and some activities of daily living (ADL) items showed an equally strong correlation with FS. High-scoring items were basic ADL such as "get out of bed," "change clothes," "go up and down stairs," "kneel down," and "go to toilet," most of which related to activities of the lower limbs (Table 3).

Economic status, mental stress, and family structure were not significantly correlated with FS (Table 3).

There was a significant correlation between patients' prospects of their own disease and FS ($\gamma = 0.496$, $P = 0.05$) (Fig. 2).

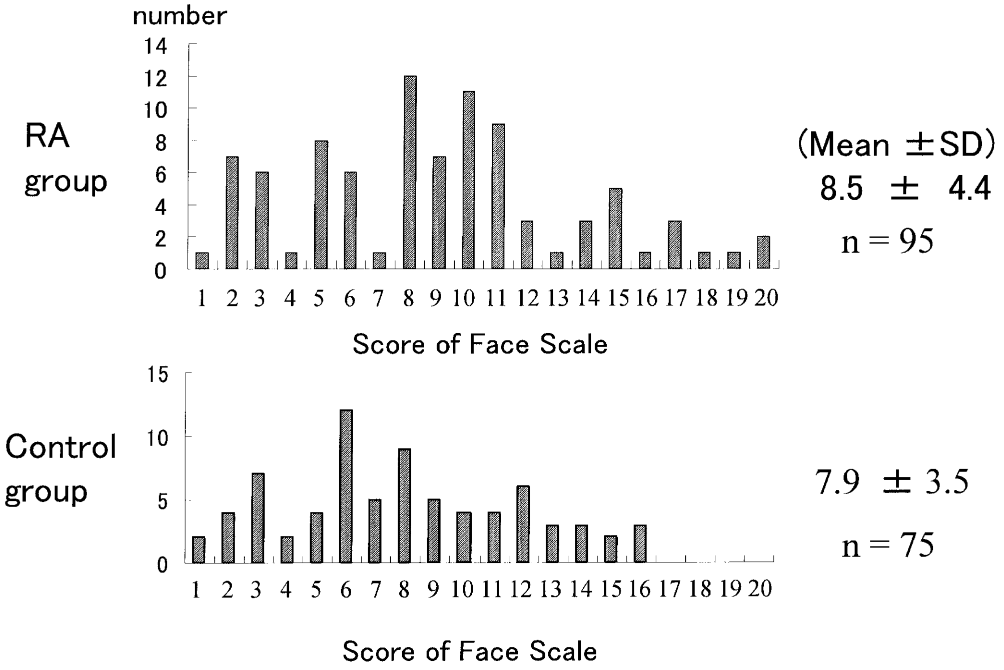

Fig. 1. Distribution of the face scale. A smaller number indicates a better result

Table 3. Correlation between FS and other items

	Physical stress	0.54
	Degree of pain	0.47
ADL factors	Get out of bed	0.48
	Change clothes	0.44
	Walk up stairs	0.44
	Kneel down	0.43
	Go to the toilet	0.41
	Wash face	0.35
	Carry things	0.34
	Take a bath	0.34
	Turn on a tap	0.30
	Walk on a falt surface	0.29
	Go out	0.28
	Have a meal	0.26
	Write	0.22
	Economic status	0.15
	Mental stress	0.09
	Family structure	0.06

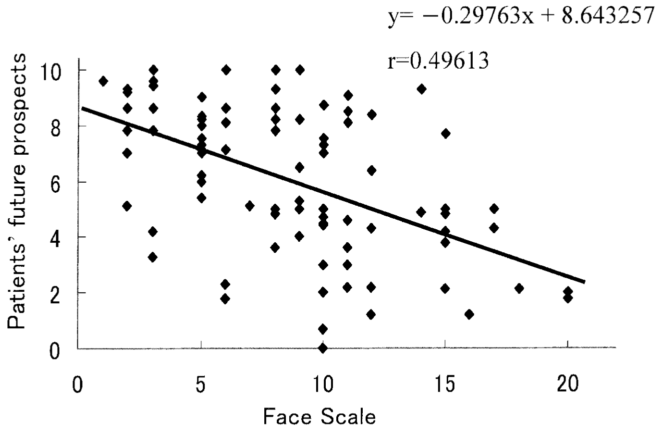

Fig. 2. Correlation of future prospect and FS

Discussion

Quality of life is important not only for RA patients, but also for healthy people. Usually, we tend to think that people who have a handicap and/or pain, such as RA patients, would demonstrate lower levels of mood, which is closely related to QOL, than healthy people. Surprisingly, the mean QOL score among RA patients in our study was almost the same as that among healthy controls (Fig. 1). QOL could be an individual feeling that is influenced by various factors in daily life.[14–17] The fact that there is no significant difference between QOL scores among RA patients and control subjects suggests that QOL could be strongly affected by individual expectations and needs. In other words, the balance of needs/expectations and reality might determine the individual's feelings. In general, RA patients might accept their disease and the inconveniences of daily life, and their expectations and needs could be lower than those of healthy people. In studies of the QOL of RA patients and osteoarthritis (OA) patients, conflicting results have been reported. One paper reported that there was no clear difference in QOL between RA and OA patients,[18] while another paper reported that QOL was worse in RA patients.[19]

There is a tendency for younger patients to score better than older groups. Since, aging patients are more likely to face other burdens, such as complications of disease, a mentally depressive condition, or a physical disability related to aging, which could affect their FS score. There was a strong correlation between FS and the duration of the illness. This could be mainly because patients who have had a shorter period of therapy were probably very active during their early-stage RA. This group also tended to be anxious about their disease. On the other hand, even among patients who had been given a longer period of therapy and who were still active, the mean FS score was better than that among patients who had been given a shorter period of therapy. This might suggest that patients in the long-therapy group already accepted and understood their disease; they might be tolerant of their disease, and their expectations and needs could be lower than those of early-stage patients.

Since the FS scores of RA patients had a broader distribution than those of the control group (Fig. 1), it is important to study the factors which influence this QOL difference in RA patients. To study the factors influencing QOL among RA patients, we investigated ADL, socioeconomic status, and expectations and needs in a 43-item questionnaire (Table 1) and the FS. Among the items, physical stress, degree of pain, and some of the ADL factors showed a strong correlation with FS. Some other factors, such as economic status, mental stress, and family structure, were not significantly correlated with FS. In previous papers, from the US and European countries, socioeconomic features were reported to be important factors which affect QOL among RA patients.[20–24] The results of this study are very different. This may be partly because life style and economic status differ depending on the country. The Japanese might have a more homogenized socioeconomic status than people in some Western countries.

There was a strong correlation between the expectation of the future course of the disease as assessed by the patient and FS. Future research should assess the influence of the patients' expectations on the actual course of RA.

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