Social support and quality of life in patients with rheumatoid arthritis in Greece

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Abstract

Objective

Previous research suggests that social support has beneficial effects for rheumatoid arthritis (RA) patients. Yet, recent studies suggest that sociocultural differences have implications for whether or not the individuals use social support to cope with stressful events. Given the stressful nature of a chronic disabling disease, the purpose of the present study was to investigate the association of structural and functional facets of social support with quality of life (QoL) in Greek RA patients.

Methods

In a cross-sectional study, 127 Greek RA patients completed the Rheumatoid Arthritis Quality of Life questionnaire (RAQoL), the Patient Activity Scale-II (PAS-II), the Quality of Social Support Scale (QSSS), the Social Network Index (measuring social network size and number of social roles) and a visual analogue scale measuring reciprocity.

Results

Patients' age, social network size and reciprocity had no significant correlation with QoL. Family income, education level and male gender were positively correlated with QoL. Number of social roles was positively correlated with QoL, but not significantly when disease activity and demographic factors were controlled. Quality of social support was positively correlated with QoL, and the correlation remained statistically significant after controlling for disease activity, demographic variables and number of social roles.

Conclusion

In Greek RA patients, quality of social support predicts quality of life above and beyond disease activity, demographic factors and social integration. Structural aspects of social support were not significant predictors of QoL, in line with previous research on cultural differences in how people utilise their social networks.

Key words

rheumatoid arthritis, social support, quality of life, Greece

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Introduction

Several studies have revealed that psychopathological symptoms, personality characteristics and environmental factors may affect the progress of systemic autoimmune diseases. Disease activity and organ involvement were found to be correlated with patients' psychological characteristics and their coping strategies (1).

Social support is considered to have positive effects on individuals coping with chronic illness (3-7), improving the quality of their life. Previous research on patients with RA has suggested that social support is beneficial for helping patients to adjust to RA, reducing the effects of physical limitations resulting from RA (4, 8-12). It has been argued that RA patients with higher levels of social support experience less functional limitations and less psychological distress (13-15).

Social support is a multifaceted construct. Structural aspects (and measures) concern the mere existence of social relationships and other properties of a social network, such as social network size and number of social roles (social integration). Functional aspects (and measures) concern the extent to which persons are satisfied with interpersonal relationships and their functions, such as emotional, esteem, informative or instrumental support, and social companionship (quality of social support) (6, 12, 16). Moreover, although rarely assessed in studies of social support and health, the sense of reciprocity within social relationships may also be a significant contributor to functioning (11). In 1985, Cohen and Wills suggested that, in the absence of stressful events or circumstances, health can be promoted by the individual's social integration (direct effect). On the other hand, when adverse life-events or stressful life changes occur, qualitative social support is needed to facilitate coping with the particular demands posed by the environment (stress-buffering effect) (5). Given the stressful nature of a chronic disabling disease (2, 11), it could be expected that adjustment and functioning of RA patients would show a stronger relation to perceived qualitative support than to social integration (11).

In addition, research has shown that the sociocultural context affects the individuals' decision to solicit and receive social support in order to cope with stress (17). Cultural differences in how people view the self and their relationships (18) have implications for whether or not they use social support to cope with stressful events (17). People from collectivistic cultures are more cautious about potentially disturbing their social network and, therefore, they are less likely to seek social support than are people from individualistic cultures (19).

Most of the research on the effects of social support on health has focused on highly individualistic cultural contexts. Greece is generally considered to be a more collectivistic social context than North-American and North-European cultures, which typically have been the remit of this research (20). The purpose of the present cross-sectional study was to investigate the relation of quality of life (QoL) to three facets of social support: a) social integration (*i.e.* social network size and number of social roles), b) quality of social support, and c) reciprocity in the important interpersonal relationships in patients with RA in Greece, taking into account disease activity and demographic factors.

Research questions addressed in the present study in RA patients were:

1. is social integration (social network size and number of social roles) positively associated with QoL?

2. is quality of social support positively associated with QoL?

3. is reciprocity in the important interpersonal relationships positively associated with QoL? and,

4. are correlations significant above and beyond disease activity and demographic factors?

Materials and methods

Participants and procedure

Participants were adult rheumatoid arthritis patients who visited the External Medical Offices of the Department of Rheumatology of three Greek hospitals in Athens (n=68) and Larisa (n=59). The study was conducted for a period of two consecutive weeks. The data were collected through interviews and ques-

tionnaires, during the waiting time at the waiting room of the External Medical Offices. The patients were informed about the purpose of the study and that the participation would be anonymous and voluntary. Patients who reported comorbid conditions were excluded. From a total of 165 rheumatoid arthritis patients who were asked to participate, 127 patients agreed (77%). The study was conducted as part of an MSc in Health Care Management dissertation and the Scientific Committee of the Hellenic Open University provided ethical approval. The study was conducted in accordance with the Declaration of Helsinki.

In an initial interview, the patients were asked about their disease, the existence of comorbid conditions and demographic factors (age, education level, monthly family income, and place of residence). Education level (Education) was measured with categories that can be classified as primary, secondary, and tertiary education level, representing an average of 6, 12 and ≥16 years of education, respectively. Monthly family income (Income) was measured with three categories: <1000 €1000–2500 € and >2500 €.

Measures

QoL was assessed with the Rheumatoid Arthritis Quality of Life questionnaire (RAQoL), translated from English into Greek for use in this study (21). RAQoL is a disease-specific QoL instrument (22, 23) that assesses the impact of RA on the fulfillment of a wide range of patients' needs. It is an instrument that has been validated for measuring QoL in different populations of patients with RA (23). RAQoL has high internal consistency and test-retest reliability, and good sensitivity to discriminate between groups with various disease activity and severity (22). It comprises 30 items. Each item is in the form of a simple statement and it has a yes/no response format. Items are scored 1 for "yes" and 0 for "no". The overall score is the sum of the individual item scores, with a lower score indicating better QoL (range 0–30). Cronbach's alpha of the translated into Greek RAQoL was 0.91 (21).

Disease activity (DA) was measured with the Patient Activity Scale-II (PAS-II), translated from English into Greek for use in this study (21). PAS-II combines single measures into an overall continuous measure of rheumatoid arthritis disease activity and it has acceptable reliability and validity (24). PAS-II includes a patient assessment of pain on a 10-cm visual analog scale (VAS), patient global assessment of disease activity (PtGA) on a 10-cm VAS and the Health Assessment Questionnaire-II (HAQ-II) (25, 26). The total score is calculated by multiplying the HAQ-II by 3.33 and then dividing the sum of the VAS pain, PtGA, and HAQ-II by 3. Categories of self-reported disease activity are classified as clinical remission (score: 0.00–0.25), low (score: 0.26–3.70), moderate (score: 3.71–7.99) and high (score: 8.00–10.00) disease activity. Cronbach's alpha for the PAS-II was 0.86 (21).

Quality of social support (QSS) was measured with the Quality of Social Support Scale (QSSS), translated from English into Greek for use in this study (21). Designed for use with rheumatoid arthritis patients (27), it consists of 17 Likert-type statements (items) asking patients about their perceptions of the support they receive from important others: information and feedback, task assistance, opportunity for confiding, physical affection, affirmation or ego support, and negative support (relationship strain). Each statement can be answered as "never true" (scored 1), "sometimes true" (scored 2), "mostly or usually true" (scored 3), or "always true" (scored 4). QSSS had high internal reliability. Regarding concurrent and discriminant validity, preliminary evidence indicates that QSSS is valid in that it captures the concept of social support (11, 27). After reversing relationship strain and other negatively worded items, the items are summed for a total QSSS score that can range from 17 (no social support) to 68 (complete support in all areas). Cronbach's alpha for the QSSS was 0.85 (21).

Social network size (SNS) and number of social roles (NSR) were measured with the Cohen's Social Network Index (SNI) (28-30), translated from English into Greek (21). SNI assesses participation in 12 types of social relationships: relationships with a spouse, parents, parents-in-law, children, other close family members, close neighbors, friends, workmates, schoolmates, fellow volunteers (*e.g.* charity or community work), members of groups without religious affiliations (*e.g.* social, recreational, or professional), and members of religious groups (31). NSR is assessed by enumerating the types of relationships (one point is assigned for each type of relationship) in which a patient talks to someone in that relationship at least once every two weeks (the total possible score is 12). SNS is assessed by the total number of persons with whom a patient speaks at least once every two weeks (31). In terms of concurrent and discriminant validity, scores on SNI are positively correlated with instruments measuring similar constructs but are negatively correlated with instruments measuring dissimilar constructs (29).

Reciprocity in the important relationships (Reciprocity) was assessed with a visual analogue scale (VAS). Patients were asked to assess the reciprocity within their important relationships by a VAS, after considering everything that they put into or get out of their important relationships. The scale had numerical labels ranging from -3 to +3. The left endpoint (-3) corresponded to "I give without taking" and the right endpoint (+3) corresponded to "I take without giving". The middle point of the scale (0) corresponded to "I give and take equally" (reciprocity). The answer "I give and take equally" was scored with 1, while any other answer was scored with 0 (21).

Analysis plan

Statistical analyses were performed using IBM SPSS Statistics, version 20. To investigate the relation of demographic factors, disease activity and social support measures to RAQoL, correlation coefficients (Spearman's rho) were calculated. In order to examine the relation of social support measures to RAQoL, controlling for demographic factors and disease ac-

tivity, hierarchical regression analysis was conducted. RAQoL was treated as an outcome variable and predictor variables were the statistically significantly correlated with RAQoL variables, which were treated as predictors. At the first step, demographic factors were entered jointly. At the second step, disease activity was entered. Social support measures were entered at the third and fourth step.

Results

Sample
Of the 127 participants in the study, 83.5% were females and 16.5% were males. Mean age was 60.7 years (range 33–79 years) and the mean disease duration was 14.3 years (SD=9.02). According to the self-reported disease activity (PAS-II), 0.8% were in clinical remission, 29.9% had low, 57.5% had moderate and 11.8% had high disease activity (Table I). As far as education level is concerned, 3.1% had not completed primary education, 45.7% had primary, 37.8% had secondary and 13.4% had tertiary education level. Furthermore, 66.9% had monthly family income less than €1000, 29.2% had €1000–2500 and 3.9% had more than €2500.

Table I. Characteristics of the sample.

Total patients	127
Age, mean±SD (range) years	60.7±10.6 (33–79)
Disease duration, mean±SD (range) years	14.3±9 (1–36)
Gender	
females (%)	83.5
Disease activity	
remission (%)	0.8
low (%)	29.9
moderate (%)	57.5
high (%)	11.8
Education level	
not completed primary (%)	3.1
primary (%)	45.7
secondary (%)	37.8
trietary (%)	*13.4*
Monthly family income	
< € 1000 (%)	66.9
€ 1000–2500 (%)	29.2
> € 2500 (%)	3.9
Residence	
region of Attica (%)	53.5
region of Thessaly (%)	46.5

Table II. Spearman Rho correlations of RAQoL with demographic factors, disease activity and social support measures[§].

	r_s	(95%CI)
Gender[#]	0.215*	(0.043, 0.375)
Age	0.064	(-0.111, 0.235)
Monthly family income	-0.334***	(-0.480, -0.170)
Education level	-0.248**	(-0.404, -0.078)
Disease activity (DA)	0.679***	(0.573, 0.762)
Social network size (SNS)	-0.162	(-0.326, 0.012)
Number of social roles (NSR)	-0.225*	(-0.384, -0.053)
Quality of social support (QSS)	-0.331***	(-0.477, -0.167)
Reciprocity	-0.045	(-0.217, 0.130)

[§]A negative correlation indicates that the predictor is related to lower RAQoL scores (better QoL).
[#]Gender was coded: 0=male; 1=female. *$p<0.05$, **$p<0.01$, ***$p<001$.

Table III. Hierarchical regression analysis predicting RAQoL[≠].

	Betas[§]			
	Step 1	Step 2	Step 3	Step 4
Income	-0.260**	-0.167*	-0.162*	-0.161*
Gender[#]	0.184*	0.141*	0.141*	0.115
Education	-0.131	-0.064	-0.042	-0.033
Disease activity		0.612***	0.606***	0.570***
NSR			-0.066	-0.049
QSS				-0.148*
R	0.408	0.720	0.723	0.736
R²	0.166	0.519	0.522	0.541
F	8.18***	32.86***	26.45***	23.59***
R² change	0.166***	0.352***	0.004	0.019*

[≠]Selection criterion for predictor variables was a significant correlation with RAQoL (see Table II).
[#]Gender was coded: 0=male; 1=female.
[§]A negative Beta coefficient indicates that the predictor is related to lower RAQoL scores (better QoL).
*$p<0.05$, **$p<0.01$, ***$p<0.001$.

Correlations of demographic factors, disease activity and social support measures with RAQoL
Table II shows the correlations of SNS, NSR, QSS, Reciprocity, DA, Gender, Age, Education and Income with RAQoL. As QoL increases when RAQoL score decreases, the negative correlation coefficient means that there is a positive correlation with QoL. DA and female gender were significantly positively correlated with RAQoL (*i.e.* an increase in DA and the female gender are related to worse QoL). NSR, QSS, Education and Income were significantly negatively correlated with RAQoL (*i.e.* an increase in each of these variables is related to better QoL). In contrast, there were no significant correlations of RAQoL with Age, SNS and Reciprocity.
RAQoL had a strong positive correlation with DA (r_s=0.679, 95%CI (0.573,

0.762), $p<0.001$], a weak-to-moderate negative correlation with QSS (r_s=-0.331, 95%CI [-0.477, -0.167], $p<0.001$) and Income (r_s=-0.334, 95%CI [-0.480, -0.170], $p<0.001$), a weak negative correlation with NSR (r_s=-0.225, 95%CI [-0.384, -0.053], $p=.011$) and Education (r_s=-0.248, 95%CI [-0.404, -0.078], $p=0.005$) and a weak positive correlation with Gender (being female r_s=0.215, 95%CI [0.043, 0.375], $p=0.015$).

Hierarchical regression analysis
The demographic factors that were statistically significantly correlated with RAQoL were entered at step 1 (Table III), accounting for 16.6% of the variance in RAQoL, and they made a significant contribution to prediction (F=8.18, $p<0.001$). Standardised Beta coefficients indicated that Income (β=-0.260, 95%CI [-0.449,

-0.070], t=-2.713, p=0.008) and Gender (β=0.184, 95%CI [0.020, 0.349], t=2.223, p=0.028) made a significant independent contribution, but Education had no significant independent predictive value (β=-0.131, t=-1.377, p=n.s.). Disease activity, entered at step 2, contributed a further 35.2% to the variance explained (F=32.86, p<0.001). NSR was entered at step 3, without significantly adding variance to RAQoL. NSR did not contribute significantly to the prediction of RAQoL, above and beyond demographic factors and DA (β=-0.066, t=-0.959, p=n.s.). Finally, QSS was entered at step 4, accounting for a further 1.9% of the variance in RAQoL (F=23.59, p<0.001). QSS contributed significantly to the prediction of RAQoL, above and beyond demographic factors, DA and NSR (β=-0.148, 95%CI [-0.280, -0.016], t=-2.227, p=0.028). The four steps together accounted for a total of 54.1% of the variance in RAQoL. Standardised Beta coefficients indicate that the variables which made a significant contribution to the final equation were DA (β=0.570, 95%CI [0.439, 0.701], t=8.629, p<0.001), Income (β=-0.161, 95%CI [-0.305, -0.017], t=-2.211, p=0.029) and QSS (β=-0.148, 95%CI [-0.280, -0.016], t=- 2.227, p=0.028).

Discussion

An extensive and coherent body of research has identified social support as an important predictor of quality of life (5, 31). The present study examined the relation of structural and functional facets of social support to quality of life of RA patients in Greece. Much of the research on the link between social support and well-being in RA patients fails to examine the cultural context, and the present study contributes by providing information from a more collectivistic culture.

In the current study, social integration indicators were not significant predictors of QoL in RA patients. Social network size was not significantly associated with QoL. The number of social roles (NSR) was positively correlated with QoL, but the correlation was no longer significant after controlling for disease activity and demographic fac-

tors. On the other hand, quality of social support (QSS) was positively associated with QoL, and importantly, the correlation remained statistically significant after controlling for disease activity, number of social roles and demographic variables. Reciprocity in the important relationships had no significant correlation with QoL. Patients' age had no significant correlation with QoL, while family income, education level and gender (being male) were positively correlated with QoL.

The correlation between quality in social support and QoL is consistent with the review of the studies conducted in RA, which found that the qualitative dimensions of supportive relationships influence the extent of disability (2, 11, 32). For example, in women with RA, Reisine *et al*. demonstrated that low quality of social support increases the risk of work disability by 2.5 times (27). In addition, the current study found that quality of social support remained significantly correlated with QoL when disease activity, number of social roles and demographic variables were taken into account, while number of social roles was no longer significant. These findings are in agreement with those of Goodenow *et al*., who reported that, in women with RA, quality of social support was more important for patient functioning than social integration (11). Given the stressful nature of a chronic disabling disease such as RA, our results are also in accordance with Cohen and Wills' suggestion that qualitative support is more significant than social integration for persons under stress (stress buffering effect) (5, 11).

Regarding the number of social roles, a study by Plach *et al*. in women with RA reported that women's positive experience in social roles was facilitated by setting aside multiple social role responsibilities to focus on the one role that gave them the most pleasure (33). In a healthy population, Cohen *et al*. suggested that number of social roles is more important for health than social network size per se, increasing the resistance to upper respiratory illness (31). The results of the current study are in agreement with those of Cohen *et al*. in that the number of social roles,

but not social network size, was correlated with QoL. However, the association found between number of social roles and QoL in the present study may be due to the negative effect of RA on both number of social roles and QoL (33). Notably, there was no statistically significant association between number of social roles and QoL when disease activity and demographic variables were taken into account.

Furthermore, social network size was not significantly associated with QoL in the current study. A possible explanation is that extensive social networks may not be necessarily supportive (14). Positive effects of social involvement can interfere with negative interactions. For example, social network members can be a source of conflict and stress (34). In addition, overprotectiveness and intrusiveness discourages autonomy and personal responsibility for self-care (35). Although adequate support may be provided by a few high quality relationships, adequate support may not be derived from multiple superficial relationships (5). Also, there may be a threshold effect, such that the critical distinction is between being isolated or not (36, 37).

Taken together, the results of this study indicated that social integration was not significantly related with QoL in RA patients in Greece. Although in line with findings by Nicassio *et al*. in RA patients (38) and Fyrand *et al*. in women with RA (39), these results differ from other studies which suggest that greater social network size is related to less functional disability (13, 15) and psychological distress (14, 40, 41) in RA patients. A possible explanation of the non-significant association found between social integration and QoL can be sought in the cultural context of Greece, which is less individualistic than the average in the studies that have been undertaken internationally (42, 43). Research on culture and social support presents evidence that people from collectivistic cultures are more reluctant to explicitly ask for support from close others than people from individualistic cultures, because they are more concerned about the potentially negative relational consequences

of such behaviours (44). Studies of social relationships in the Greek society have shown a much weaker correlation of a person's social network with his welfare and mental health than in more individualistic countries (20, 45). For example, there is evidence that people in Greece perceive less social support from others and report lower positive affect in their day to day social interactions than people in UK (a more individualistic culture) (46).

Finally, the non significant association between reciprocity and quality of life requires brief discussion. Goodenow *et al.* found that the reciprocity in the important interpersonal relationships was not associated with "instrumental" household tasks (more physically demanding tasks, *i.e.* cooking, cleaning, shopping, taking care of laundry, paying bills), but it was positively associated with "nurturant" aspects of home and family functioning (*i.e.* child care, comforting others, maintaining family ties, teaching others, taking care of sick people) and psychological well-being in women with RA (11). The inclusion of physically demanding activities in the assessment of QoL may explain the non-significant correlation found in the current study. Kaste *et al.* demonstrated that couple mutuality was linked with better health outcomes for patients with RA (47, 48), but these studies are not comparable with the present study because the latter examined reciprocity in the important interpersonal relationships without focusing on couple mutuality.

Limitations

There were a number of limitations in the current study that should be noted. First, the investigation used a convenience sample. Second, the reliability and the validity of the translated questionnaires were not investigated in the Greek language, except internal consistency. Third, the study was correlational, *i.e.* it examined whether there was correlation between the variables, but correlation may not imply causation. To investigate the cause-effect linkage, a longitudinal design is required (10). Furthermore, future research might examine the role of patients' personality (*e.g.* extravert or in-

trovert personality) in the relationship between social support and QoL (2) in RA patients in Greece.

Nevertheless, the study, one of the first of its kind in less individualistic contexts, included valid measures of different facets of social support and, moreover, disease activity and demographic factors were controlled.

Conclusion

In conclusion, the current study found that, in Greek RA patients, quality of social support was a significant predictor of QoL, even when disease activity, demographic factors and social integration were taken into account. Structural aspects of social support were not significant predictors of QoL, in line with previous research on cultural differences in how people utilise their social networks.

Although the results of the present study must be interpreted with caution, they suggest that interventions designed to foster the quality of personal and social relationships (11) of Greek RA patients may beneficially influence the quality of their life, possibly mitigating the impact of the disease on them. If these results can be replicated with a longitudinal study, interventions focusing in the qualitative aspects of social relationships may be incorporated in the treatment of RA (11).

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