Anxiety, depression and quality of life in a group of rheumatic patients after joining a web-based self-help community
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Citation

Abstract
Introduction: Rheumatic diseases are common chronic conditions that can have a profound influence on both physical and mental health of the patients. Internet-based self-help groups are very popular among chronic patients, as a substitute of classic face-to-face self-help groups. Objective: To investigate the possibility that joining an internet-based patient group can positively affect the general and mental health of rheumatic patients. Results: We administered four different questionnaires to 34 rheumatic patients before and after joining an italian web-based self-help community. Joining the community led to a significant improvement in general health measures and in levels of anxiety and depression. Conclusions: Participating in a web-based patient community can positively affect quality of life and mental health of rheumatic patients.

INTRODUCTION
Rheumatic diseases are chronic conditions that can have a profound influence on the psychological status of the patient. Depression is at least two times more common in rheumatic patients than in general population, and it’s estimated that major depressive disorder affects between 13% and 17% of patients with rheumatoid arthritis. In common with other painful conditions, depression associated with rheumatoid arthritis is often considered to result from the experience of chronic pain, and pain have a predictive value in the risk of developing depression. On the opposite, depression can affect pain perception and the general clinical course of the disease. Other factors leading to depression are degree of physical disability, disease activity, and duration of disease. Also anxiety have been studied in rheumatic patients. Levels of anxiety are elevated in rheumatic patients and often coexist with depression, and those with rheumatoid arthritis have a 4-fold probability to suffer from anxiety disorders than control.

QUESTIONNAIRES
Four different questionnaires exploring physical and mental health were administered to all patients at time 0 (before joining the website) and after 3 months of active and continuous participation to the community activities: SF-36, HAQ, Zung self-rated anxiety scale and Zung self-rated depression scale. All the questionnaires were submitted by email and self-reported by the patients.

SF-36 questionnaire was used to evaluate the Quality of Life (QoL) of the patients. This survey contains 36 questions that evaluate eight health domains in both physical health and mental health. These eight domains are physical functioning, role limitations caused by physical problems, role limitation caused by emotional problems, mental health, energy and vitality, pain, and general perception of health. For each item score are collected and transformed to a scale from 0 (worst possible health state) to 100 (best possible health state). The
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Italian form of SF-36 questionnaire was used.

HAQ questionnaire was used to assess physical function of the patients. This questionnaire was developed as a comprehensive measure of outcome in patients with a wide variety of rheumatic diseases including RA, osteoarthritis, SLE, ankylosing spondylitis, fibromyalgia and psoriatic arthritis. The HAQ contains 20 items distributed across 8 components. The scores for each item range from 0 (without any difficulty) to 3 (unable to do). The highest score on any item within one component represent the dimension score. The patient also indicates wether he or she uses aids or devices or help from other individuals. The scores for each dimension are corrected for the use of aids or devices, summated, and transformed to give an overall disability index (DI) score between 0 (no disability) and 3 (very severe disability). The Italian form of HAQ questionnaire was used.

The Zung self-rating anxiety scale was used to assess level of anxiety of the patients. It is a 20-item scale, with some of the items keyed positively and some negatively. The items are answered on a four-point scale ranging from 1 (none or a little of the time) to 4 (most or all of the time). The final score range from 20 to 80. A score between 20 and 44 is considered in the normality range, while a higher score indicate at least mild-moderate symptoms of anxiety. Italian translation of the original scale was used.

The Zung self-rating depression scale was used to assess level of depressive symptoms of the patients. It is a self-reported 20-item scale, where items responses are ranked from 1 (none or little of the time) to 4 (most or all of the time). Some of the items are worded positively and other are worded negatively. The final score range from 25 to 100. A score between 25 and 49 is considered in the normality range, while a higher score indicate the presence of at least mild-moderate depressive symptoms.

**STATISTICAL ANALYSIS**

Data in table are presented as mean ± standard deviation. Paired t-test was used to compare the scores before and 3 months after joining the web-community. A P-value of <0.05 was considered significant.

**RESULTS**

General characteristic of the patients are summarized in Table 1. We recruited 34 patients of which 8 were male and 26 female. Mean participation time to the community was 6 days a week, 2 hours a day.

In figure 1 and table 2 are showed scores for SF-36 questionnaire, before and 3 months after joining the ReumAmici community. Mean score in vitality and mental health domains were significantly higher after 3 months, while there were no significant differences in other domains of the scale.

In figure 2 and table 3 are showed scores for HAQ questionnaire, before and 3 months after the intervention. HAQ global health scale was significantly improved after 3 months, while there were no significant differences in HAQ Disability Index and in visual Pain scale.

In figure 3 and table 4 are showed scores for Zung self-rated anxiety scale, before and 3 months after joining the website. Levels of anxiety detected 3 months after the intervention were significantly lower than before. In figure 4 and table 5 are showed scores for Zung self-rated depression scale. Also depressive symptoms were significantly improved 3 months after joining the website.

**Figure 1**

Table 1: General characteristic of the patients. Data are presented as mean ± standard deviation.

<table>
<thead>
<tr>
<th>Number of patients</th>
<th>Before</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF</td>
<td>8/26</td>
</tr>
<tr>
<td>Age (years)</td>
<td>40 ± 10.7</td>
</tr>
<tr>
<td>Principal Diagnosis</td>
<td></td>
</tr>
<tr>
<td>Rheumatoid Arthritis</td>
<td>13/34</td>
</tr>
<tr>
<td>Spondyloarthritis</td>
<td>10/34</td>
</tr>
<tr>
<td>SLE</td>
<td>3/34</td>
</tr>
<tr>
<td>Other connectiveitis</td>
<td>7/34</td>
</tr>
<tr>
<td>Vasculitis</td>
<td>1/34</td>
</tr>
<tr>
<td>Weekly access to the community website (days)</td>
<td>6 ± 1</td>
</tr>
<tr>
<td>Weekly hours on the community website (hours)</td>
<td>12.6 ± 8.6</td>
</tr>
</tbody>
</table>

**Figure 2**

Figure 1: Results of SF-36 questionnaire before and after joining the community.
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Figure 3
Table 2: Results of SF-36 questionnaire before and after joining the community. Data are presented as mean ± standard deviation.

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After 3 months</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Functioning</td>
<td>63.8 ± 2.7</td>
<td>60 ± 3.9</td>
<td>0.42</td>
</tr>
<tr>
<td>Role-Physical</td>
<td>44.2 ± 4.1</td>
<td>31.4 ± 6.8</td>
<td>0.49</td>
</tr>
<tr>
<td>Bodily Pain</td>
<td>49.1 ± 5.9</td>
<td>45.5 ± 3.6</td>
<td>0.03</td>
</tr>
<tr>
<td>General Health</td>
<td>29.3 ± 5.8</td>
<td>28.2 ± 2.7</td>
<td>0.84</td>
</tr>
<tr>
<td>Vitality</td>
<td>29.7 ± 3.2</td>
<td>43.4 ± 2.9</td>
<td>0.01</td>
</tr>
<tr>
<td>Social Functioning</td>
<td>50.9 ± 4.4</td>
<td>55.2 ± 3.6</td>
<td>0.58</td>
</tr>
<tr>
<td>Role-Emotional</td>
<td>45.2 ± 6.6</td>
<td>52.2 ± 6.7</td>
<td>0.68</td>
</tr>
<tr>
<td>Mental Health</td>
<td>48.2 ± 4.4</td>
<td>63.0 ± 2.9</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Figure 4
Figura 2: Results of HAQ questionnaire before and after joining the community

Figure 6
Figura 3: Results of Zung self-rated anxiety scale before and after joining the community

Figure 7
Table 4: Results of Zung self-rated anxiety scale before and after joining the community. Data are presented as mean ± standard deviation.

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After 3 months</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zung Anxiety</td>
<td>52.37 ± 3.09</td>
<td>40.66 ± 1.74</td>
<td>0.0008</td>
</tr>
</tbody>
</table>

Figure 8
Figura 4: Results of Zung self-rated depressionscale before and after joining the community
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DISCUSSION

Here we have shown that participating in a web-based self-help community can greatly help rheumatic patients improve quality of life and symptoms of anxiety and depression. Anxiety and depression are common problems among rheumatic patients and by themselves negatively affect the quality of life. Self-help communities are powerful tools for improving quality of life and disease control in many chronic diseases, such as type II diabetes or cancer. However physical limitations in rheumatic patients can negatively affect their ability to join face-to-face standard self-help group, and, in this case, internet can greatly improve the communication ability of the high-disability rheumatic patients.

CONCLUSION

Participating in a web-based self-help community can positively affect the general health of the rheumatic patients and reduce levels of anxiety and depression. Further studies, with larger number of patients and appropriate control group, should be performed to validate this finding and to compare the effectiveness of web-based groups with that of standard face-to-face self-help groups.

References

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