Coping strategy- determinant of Dermatology Life Quality Index in psoriasis patients

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Abstract

Background: Psoriasis is the psycho-dermatological disease of chronic and inflammatory nature. Psychological factors are causing and / or aggravate during a psoriasis. Disease exacerbates the presence of nervous stress and worsens the quality of life of patients. Patients suffering from psoriasis try to deal with the problem using different coping strategies. It is important to define patient's coping strategy towards Dermatology Life Quality Index.

Aim: Ability to use of patients coping strategies for determining of Dermatology life Quality Index in psoriasis patients.

Methods: Ten patients with psoriasis were enrolled in the study. Dermatology Life Quality Index score of psoriasis was assessed by the DLQI Questionnaire and through the formula we have adopted.

Results: The results of the study indicated minor difference between the indicators, which confirms the high susceptibility of formulas.

Conclusions: Psoriasis is a distressing disorder that significantly impairs quality of life. There is a close link between quality of life and coping strategies. We have shown that the values we have obtained from the Dermatology life Quality Index questionnaire and using the new formula with multiple variables, do not nearly differ from each other and the formulas are suitable for use in daily clinical practice. (TCM-GMJ November 2019; 4(2):P24-P27).

Keywords: Psoriasis; Coping strategies; Dermatology Life Quality Index; Formulas;

Introduction

Psoriasis is a common, chronic, inflammatory disease. The reported prevalence of psoriasis in countries ranges between 0.09% and 11.43%, making psoriasis a serious global problem with at least 100 million individuals affected worldwide (1,2).

The skin is always on show, particularly on the visible areas. Psychosocial and physical impact of highly visible, inflammatory skin diseases such as psoriasis may be profound. Psoriasis disrupt school, work and social life (3). Low self-esteem may affect relationships with the opposite sex as well as prospects of employment. Patients, their families and friends may find it difficult to cope. Patients with chronic scaly skin conditions such as psoriasis, may also have a deep-seated, and probably quite irrational fear of being contagious (4,5).

Psoriasis has detrimental effect on quality of life, which may be comparable to that of ischemic heart disease, diabetes, depression and cancer (6).

Depending on the severity and location of outbreaks, individuals may experience significant physical discomfort and some disability. Itching and pain can interfere with basic functions, such as self-care and sleep (7). Individuals with psoriasis may feel self-conscious about their appearance and have a poor self-image that stems from fear of public rejection and psychosexual concerns (8).

Depression associated with psoriasis is characterized by loss of individual interest towards the environment, attention deficit and desperate mood (9,10,11). People with psoriasis try to cope with the problem by using different mechanisms, some of which are active or adequate to overcome, and some-passive or inadequate cessation. Coping of the problem causes the psychological stress to be provoked and created "Vicious circle", which in turn affects the treatment process and, therefore, the outcome of the disease (12,13).

Considering that psoriasis is a common disease in Georgia, it is clear that emphasis should be placed on quality of life of people with psoriasis and the problem solving and development of psycho-dermatological direction in medicine.

The study was conducted between September and December 2018. This was a questionnaire-based study of patients by attendance at Dermatology department (National Centre of Dermatology and Venereology). The study received ethical approval from local ethic committee.

Inclusion criteria:
Aged 18 years old or over
A clinical diagnosis of psoriasis vulgaris
PASI score > 10.

Exclusion criteria:
Ages less than 18 years
Another forms of psoriasis
PASI score < 10.

Study comprises 10 patients with the diagnosis of severe psoriasis (PASI score > 10).

The following data were also captured at interview:
current age, education, marital status, total duration of disease (years), treatment.

Further methods of patient analysis included:
Dermatology Life Quality Index (DLQI) – a validated Georgian version was used for assessment Quality of Life. The DLQI is validated, 10-question, self-reported questionnaire to evaluate the patient’s perception of the impact of psoriasis on Quality of Life. DLQI questionnaire was divided into 6 commonly identified categories: symptoms and feelings, daily activities, leisure, work and school, personal relationship, treatment. The DLQI was rated on a 4-point scale (0 = not at all to 3 = very much).

Coping Strategies Questionnaires (COPE) – which was developed to assess a broad range of coping responses. Like DLQI questionnaire, the COPE was rated on a 4-point scale (0 = not at all to 3 = very much). Results from coping strategies questionnaire identified 15 different categories according to complete version of COPE by Carver, et al (14).

The formulas that are derived from our research, using a number of indicators: Coping score, education level, marital status, mental health, positivity and growth, emotional and social support (15).

Study analysis was conducted in statistical programming language R and its integrated development environment R-Studio.

Results and discussion

The main goal of statistical analysis is to show how strong the connection between the quality of life of patients with psoriasis and the level of the disease is overcome. For further confidence regarding the reliability of the obtained results, internal consistency of questionnaires (DLQI and COPE) was computed by Cronbach’s Alpha measure. Their overall profile characteristics as well as individual strategies for coping with disease.

The hypothesis testing that the average level of problem solving strategy and quality of life index is not very different from each other, was the first phase to link these two questions. The hypothesis that the difference between the quality of life and the overcrowding levels does not exceed 10%, is confirmed by the use of the Wilcoxon test (Figure 1).

Repeated process of binary recursive partitioning was used to identify the most relevant variables (characteristics of the patients) to be used in prediction of DLQI scores. As a result, classification (regression) trees were built as predictive models (decision trees) that result into DLQI score based on different characteristics of a patient.

It is suggested to use first three most explanatory variables to build regression models for prediction of DLQI scores. Random forest algorithm uses “Coping Score”, “Education” and “Marital Status” from the first type of data set, and “Mental Health”, “Positivity and Growth”, and “Emotional and Social Support” from the second type of data set (Figure 2).

Based on statistical analysis, we developed a formula that allows us to easily use only a few variables (Coping score, level of education, mental health, positivity and growth) to detection of patients who have an undesirable rate of life and are not using the inadequate strategies to solve the problem. Such patients need urgent psychological assistance.

\[
DLQI = -0.08 \times \text{Coping} + 33.7 \times \text{Higher} + 31.7 \times \text{Elementary} - 4.31 \times \text{Married} - 5.89 \times \text{Single} - 2.93 \times \text{Widowed}.
\]

\[
DLQI = 1.35 \times \text{Mental Health} + 0.47 \times \text{Positivity and Growth} - 0.7 \times \text{Emotional and Social Support}
\]

For illustration of the methodology, tables 1 and 2 shows the comparison of the life-quality index of 10 patients with a random selection of randomized DATA1 (Table 1) and DATA2 (Table 2).

Table 1 and 2 shows that 10 new patients in the DLQI questionnaire score and the method measured by the regression method indicate that the average deviation is 0.90 and 0.28, which indicates a high level of susceptibility.

Conclusion

Patients with poor quality of life and use inadequate methods of coping solving need a coordinated approach to dermatologist and psychologist in the treatment period. Patients’ detection, which requires psychological support, can be used by using a formula that allows to easily determine the Dermatology Life Quality index of patients with multiple variables.

Figure 1: Wilcoxon test results

<table>
<thead>
<tr>
<th>Wilcoxon signed rank test with continuity correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>data: HTScoping and HTSLQI</td>
</tr>
<tr>
<td>V = 359.5, p-value = 0.003694</td>
</tr>
<tr>
<td>alternative hypothesis: true location shift is less than 0.4</td>
</tr>
</tbody>
</table>
Figure 2: Random forest result for hierarchy of most explanatory variables in prediction of DLQI scores

Table 1. Comparing the quality of life quality using the DATA1 data on the result of the regression.

<table>
<thead>
<tr>
<th>Patients</th>
<th>Sex</th>
<th>Age</th>
<th>PASI</th>
<th>Age of Disease</th>
<th>Education</th>
<th>Marital Status</th>
<th>Coping</th>
<th>DLQI</th>
<th>Regression Result</th>
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<tr>
<td>1</td>
<td>W</td>
<td>47</td>
<td>17.4</td>
<td>40</td>
<td>High</td>
<td>Married</td>
<td>126</td>
<td>18</td>
<td>19.57</td>
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<tr>
<td>2</td>
<td>W</td>
<td>34</td>
<td>12.6</td>
<td>45</td>
<td>High</td>
<td>Married</td>
<td>141</td>
<td>20</td>
<td>18.40</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>52</td>
<td>16.4</td>
<td>2</td>
<td>High</td>
<td>Married</td>
<td>139</td>
<td>17</td>
<td>18.56</td>
</tr>
<tr>
<td>4</td>
<td>W</td>
<td>36</td>
<td>17</td>
<td>15</td>
<td>High</td>
<td>Widowed</td>
<td>142</td>
<td>18</td>
<td>19.71</td>
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<td>W</td>
<td>62</td>
<td>16.4</td>
<td>8</td>
<td>High</td>
<td>Married</td>
<td>143</td>
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</tr>
<tr>
<td>6</td>
<td>W</td>
<td>52</td>
<td>15.7</td>
<td>0.5</td>
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<td>Married</td>
<td>140</td>
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<tr>
<td>7</td>
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<td>Married</td>
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<tr>
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Sum 176 184.97 0.8969

Table 2. Comparing the quality of life quality using the DATA2 data on the result of the regression

<table>
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<tr>
<th>Patients</th>
<th>Emotional and Social Support</th>
<th>Positivity and Growth</th>
<th>Mental Health</th>
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Sum 176 173.21 0.2791
References


