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The Beneficial Effect of the Thermal Treatment on the Rheumatic Patients in Felix Spa Romania

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ABSTRACT

The aim of this study was to identify the beneficial effects of thermal treatment in Felix Spa, Romania on patients with rheumatic diseases.

237 patients with rheumatic diseases underwent inpatient thermal treatment for 18 days including hydrotherapy and hydrokinetotherapy in Felix Spa, Romania. They were assessed with SF Questionnaires (health survey questionnaires) at baseline and discharge. The effects of treatment were analyzed according to sensitivity statistics (effect size, ES).

The relatively complex scoring system for the SF-36 generated subscale scores for physical functioning, role limitations due to physical problems, bodily pain, general health perceptions, vitality, social functioning, role-limitations due to emotional problems**,** and mental health. All scores improved upon the time of discharge.

Thermal treatment in Felix Spa has a beneficial role in the treatment of patients with rheumatic diseases**.**

1. INTRODUCTION

Felix Spa is an old, well-known thermal resort near the commune of Sânmartin in Bihor County, Transylvania, Romania. It is the largest resort of its kind in Romania. Felix Spa is also close to Oradea, a major city in western Romania. Two thermal spa resorts, Băile Felix and 1 Mai, are located in the hilly, wooded area near a beach 8 km south of the municipality of Oradea (the seat of Bihor County) and 22 km south-east of Borş (the border checkpoint to Hungary). In this area, summers are not excessively hot, winters are mild, and precipitation is moderate (650 mm annually). The thermal waters of the Petea river and lake have a constant temperature of 30-31°C and are inhabited by unique wildlife such as the snail *Melanopsis parreyssi* (tertiary relict), the fish *Scardinus racovitzae*, and the rare species of subtropical water lily *Nymphaea lotus thermalis* (tertiary relict), which is a natural monument. The earliest document that mentions Felix Spa, called "Termae Varadiensis," dates back to 1221. The great humanist Nicolaus Olahus praised the healing powers of these thermal waters in his work in 1536. Later, between 1700 and 1721, Felix Heldres discovered the Felix Springs and put it to use therapeutically. The Spa would gradually grow and be named "Felix Spa" after him. The first analysis of the Felix thermal mineral water composition was performed in 1731 and still proves accurate. The existence and the development of the Felix Resort have been reliant upon the thermal springs in the area, partially due to the beneficial effects of the geothermal waters on people's health, which have been well known for many centuries.

2. AIM OF THE STUDY

The aim of this study was to identify the beneficial effects of thermal treatment in Felix Spa, Romania on patients with rheumatic diseases.

3. MATERIALS AND METHODS

Felix Spa is a large resort that has been used since ancient times to cure a variety of diseases, including:

- degenerative, inflammatory, and abarticular rheumatic diseases
- some neurologic diseases
- post-traumatic afflictions
- metabolic illnesses like obesity
- endocrine illnesses like hypotiroidia
- prophilaxy

The main natural therapeutic factors originate from the geothermal mineral water.

Its mineral content is as follows:

- The concentration of total dissolved solids (TDS) is up to 1,300 ppm, mostly of the calcium-sulphate-bicarbonate type. The main elements present are Ca, Mg, Na, K, Li, Mn, and Fe.
- There are also small quantities of dissolved non-condensable gasses (up to 200 ppm), mainly CH_4 and CO_2. (Cohut and Tomescu, 1993). A very small content of 222Rn (about 23 – 70 pCi/l) renders the geothermal water undrinkable in general, but also contributes strongly to its therapeutic effect in health bathing.
- The geothermal water in the Felix Spa reservoirs is neutral (pH 6 at 20°C).

237 patients with rheumatic diseases participated in the study. All of them underwent inpatient thermal treatment for 18 days including hydrotherapy and hydrokinetotherapy in Felix Spa, Romania. The patients fulfilled the ACR criteria for rheumatic diseases.

Patients were recruited by a Romanian company called SC Turism Felix SA. They underwent inpatient rehabilitation treatment for 18 days including hydrotherapy, hydrokinetotherapy, kinetotherapy, electrotherapy, thermotherapy, and massage.

They were assessed with health surveys called SF Questionnaires at baseline and discharge. Effects were analyzed according to sensitivity statistics (effect size, ES).

The inclusion criteria were:

1. age over 18 years
2. fulfillment of the ACR criteria for rheumatic diseases
3. possibility of evaluation and reevaluation at baseline and discharge
4. compliance with the principles of medical ethics.

The exclusion criteria:

1. age under 18 years
2. other severe diseases
3. non-compliance with medical ethical principles

The characteristics of the group were**:**

1. Ages between 30 – 85 years
2. Ratio of women/men of 128/109
3. The mean interval between diagnosis and the beginning of treatment was 9.4 months
4. A follow-up period of 18 days.

SF-36 is the main health survey questionnaire used by this particular organization. "SF" stands for "short form", and "36" refers to the fact that it has 36 questions. It was originally developed in the USA, where a much longer questionnaire was tested by the federal health authorities. When it was subsequently reduced to 36 questions and was still found to give reliable results, it became known as the "short" form. SF-36 is the best known questionnaire among experts measuring health status. This is partly because it was so carefully developed in the first place to make the results it produces statistically reliable and valid. It is also because the issues it explores apply to people having many different types of ailments and in all different states of health. In particular, health researchers have found it invaluable in measuring the sometimes subtle changes in health that follow medical interventions, such as surgery and in the comparison of different techniques. SF-36 has been used in over 2,000 published research studies to date, providing assurance that it will give relevant and reliable results. The questions are designed to be easily understood and relevant to most people's lives and only takes 5-10 minutes to complete. The 36 questions have been carefully chosen to measure all the aspects of health and wellbeing that are called "quality of life" when viewed as a whole. Some questions concern a person's physical functioning (walking, climbing stairs and so on), and others refer to the amount of pain experienced or to energy levels and mood. There are also questions that are used to interpret how a person's health is affecting his or her ability to enjoy their social life or manage everyday tasks. The questionnaire has been thoroughly tested to see how much difference to expect, as a matter of chance, when a person answers the same questions a second time, in order to make an allowance for this. The SF-36 employs a well-documented, self-administered QoL scoring system that includes eight independent scales and two main dimensions, and has been widely used and validated. Of the 36 questions, 35 are compressed into eight multi-item scales: (*1*) physical functioning is a ten-question scale that gauges ability to deal with the physical requirements of life, such as attending to personal needs, walking, and flexibility; (*2*) role-physical is a four-item scale that evaluates the extent to which physical capabilities limit activity; (*3*) bodily pain is a two-item scale that evaluates the perceived amount of pain experienced during the previous 4 weeks and the extent to which that pain interfered with normal work activities; (*4*) general health is a five-item scale that evaluates general health in terms of personal perception; (*5*) vitality is a four-item scale that evaluates levels of energy and fatigue; (*6*) social functioning (SF) is a two-item scale that evaluates the extent and amount of time that physical health or emotional problems interfered with family, friends, and other social interactions during the previous 4 weeks; (*7*) role-emotional (RE) is a three-item scale that evaluates the extent to which emotional factors interfere with work or other activities; and (*8*) mental health is a five-item scale that evaluates feelings of anxiety and depression.

Hence, in the SF-36 scoring system, the scales are assessed quantitatively, each on the basis of answers to 2-10 multiple choice questions. A score of 0-100 is then calculated on the basis of these well-defined guidelines, with a higher score indicating a better state of health. The questionnaire items selected also represent multiple operational indicators of health, including: behavioral function and dysfunction, distress and well-being, objective reports and subjective ratings, and both favorable and unfavorable self-evaluations of general health status (Ware et al., 1993).

The scales of SF-36 are summarized in two dimensions. The first five scales make up the "physical health" dimension, and the last five form the "mental health" dimension. The scales of vitality and general health are parts of both dimensions. Hence, each dimension includes three specific and two overlapping scales. The SF-36 also includes a question about self-evaluation of change in health during the past year (reported health) that does not belong to any score or dimension or the total SF-36 score. The scores of the two dimensions and the total SF-36 score are based on a mathematical average of the scale components.

A variety of responsiveness statistics are also available. Usually, the responsiveness to health status instruments has been compared using the effect size (ES). ES equals the mean change in score divided by the standard deviation of the baseline scores. It relates the change to the initial variation in scores. A higher ES indicates a higher responsiveness. An ES of 0.2 is considered to be a small beneficial effect, 0.5 is a moderate effect, and 0.8 is a large effect to treatment.

4. RESULTS:

The effects of treatment were measured using the SF-36 Questionnaire (in both physical and mental dimensions) at the day of entry (baseline examination), and at the time of discharge (after three weeks). The scoring system for the SF-36 is relatively complex and generates subscale scores for physical functioning, role limitations due to physical problems, bodily pain, general health perceptions, vitality, social functioning, role-limitations due to emotional problems**,** and mental health. All of the subscales had improved upon the time of discharge.

A total of 237 patients with rheumatic diseases were referred to rehabilitation inpatient programs between 2006 and 2008 of SC Turism Felix SA in Romania. All of them fulfilled the ACR inclusion criteria for rheumatic diseases. The mean age of the patients was 62.4 years; 128 subjects were female (54.01%), and 109 were male (45.99%).

- Physical Component Summary (PCS) ES=0.79 at discharge;

- Mental Component Summary (MCS) ES=0.58 at discharge;

DISCUSSIONS

- This study was an observational follow-up study for patients with rheumatic diseases undergoing 18 days of rehabilitation treatment in Felix Spa, Romania.
- Results from clinical studies comparing scores for patients before and after treatment have largely supported hypotheses about the validity of SF-36 scales.
- The SF-36 is suitable for self-administration, computerized administration, or administration by a trained interviewer in person or by telephone, to persons of ages 14 and older.
- The SF-36 has been administered successfully in general population surveys in the U.S. and other countries (Ware, Keller, Gandek, Brazier, & Sullivan, 1995), as well as to young and old adult patients with specific diseases (Ware et al., 1993; McHorney et al., 1994).
- It can be administered in 5-10 minutes with a high degree of acceptability and data quality (Ware et al., 1993).
- Indicators of data quality that have yielded satisfactory results in studies to date include very high item completion rates and favorable results for a response consistency index , which is scored at the individual level (Ware et al., 1993)
- There are several randomized clinical trials that have shown the beneficial effects of inpatient rehabilitation on patients with rheumatic diseases.
- Only a few studies have investigated whether the effects are sustained over time.
- In our study we found a larger improvement in Physical Component Summary (PCS) than in Mental Component Summary (MCS) .
- The improvement of the mental component was moderate.
- The ES at the end of the rehabilitation program were comparable to those reported in clinical trials with exercise therapy.
- Inpatient rehabilitation programs are more expensive than outpatient exercise programs.
- There are some patients who need more safety comprehensive inpatient rehabilitation – those with comorbidities like coronary heart disease, pulmonary diseases, and obesity.
- Elderly patients with severe osteoarthritis, especially those living in rural areas, are also unable to participate in outpatient treatment.
- The decision for treatment with inpatient rehabilitation should be made individually, according to each patient's evaluation.

CONCLUSIONS

This study showed the beneficial effects of the rehabilitation treatment in Felix Spa in Romania for patients with rheumatic diseases.

It seems that the physical component summary (PCS) improved more than mental component summary (MCS).

However, even a slower deterioration in physical function represents an improvement when dealing with debilitating diseases. The mental component is also very important in improving, or at least maintaining, quality of life.

Thermal treatment in Felix Spa has a beneficial role in improving health status.

SF-36 scales appear to be increasingly accepted as valid health measures for purposes of documenting diseases.

As predicted when it was first published (Ware & Sherbourne, 1992), the SF-36 has been widely adopted because of its brevity and its comprehensiveness.

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