HautTief Multidisciplinary Educational Program for Patients with Psoriasis or Atopic Dermatitis: A Randomized Controlled Study

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Abstract

Background: Improving health-related quality of life (HRQoL), disease severity, and treatment adherence through patient education is an increasingly important, yet relatively new area in dermatology. This randomized controlled trial aims to contribute to this growing area of research by exploring the effects of a 9-week educational program for patients with chronic skin diseases. Objective: The aim of the study was to evaluate the effect of a multidisciplinary educational program on HRQoL and disease severity in patients with psoriasis or atopic dermatitis (AD). Methods: Sixty-four patients with diagnosed psoriasis or AD were recruited from University Hospital Zurich and randomized (1:1) to the intervention or control group. To assess HRQoL, the following self-reported questionnaires were used: Dermatology Life Quality Index (DLQI), Skindex-29, EuroQol-5D (EQ-5D), RAND 36-Item Short Form Survey (SF-36), and Beck Depression Inventory (BDI) to measure depression symptoms. Psoriasis Area and Severity Index (PASI) and the Eczema Area and Severity Index (EASI) were used to capture disease extent. These scores were assessed at four study visits, which were performed at baseline and 3, 6, and 9 months after the start of the program. Results: At month 6, an improvement of at least 25% in BDI was recorded in 15 (68.2%) of 22 patients in the intervention group and 6 (27.3%) of 22 patients in the control group (difference 40.9%, \( p = 0.016 \)). 53.3% (16 of 30) of patients achieved an improvement in one subdomain of the SF-36 score (role limitations due to emotional problems) at 6-month follow-up, compared with 23.1% (6 of 26) of those not attending the educational program (difference 30.2%; \( p = 0.042 \)). No significant differences in DLQI, Skindex-29, EQ-5D, PASI, and EASI between both groups at the three time points were found. Conclusion: An educational program may improve HRQoL and depression status of patients with psoriasis or AD.

Introduction

Psoriasis and atopic dermatitis (AD) are chronic relapsing inflammatory dermatoses of genetic predisposition. Psoriasis prevalence in Europe ranges from 2% to 3%,
HautTief Program for Patients with Psoriasis or AD

whereas AD affects 10–20% of children and 1–3% of adults [1, 2]. These chronic skin diseases require a long-term treatment strategy, but adherence to treatment plans is often limited, resulting in poor clinical outcomes [3, 4]. The fear of side effects and the time-consuming skin care can result in reduced adherence and ineffective treatment [5, 6]. Positive effects on adherence can be achieved by involving the patient in the therapy design; however, lack of knowledge of skin disease is an important obstacle [7]. Nonadherence may arise from misconceptions and may therefore be reduced through patient education in order to improve treatment outcomes and patient satisfaction [8].

Psoriasis and AD negatively impact the patient’s health-related quality of life (HRQoL) and are attributed to a strong association with suicide, depression, and anxiety disorders, whereby this correlation is particularly pronounced in psoriasis [9–12]. The negative consequences of the skin disease are multidimensional and affect the patient on a somatic, psychological, and social level [13]. These findings suggest a multidisciplinary therapy approach with different treatment components, which can lead to an improvement in HRQoL in patients with psoriasis and AD [14].

The psychological influence on the course of the disease of chronic skin diseases is essential and requires a variety of forms of treatment that focus not only on medical care but also on the psychological aspect [15]. Previous studies have reported that educational interventions for patients with psoriasis or AD can reduce symptom severity, improve HRQoL, and adhere to treatment [16, 17]. We performed a group-based multidisciplinary educational program for patients with psoriasis or AD [18], the HautTief study. The aim of the HautTief randomized controlled trial (RCT) was to evaluate the effects of a patient education program in an outpatient setting on HRQoL and disease severity in adult patients with psoriasis and AD. Our HautTief program covered a wide range of topics from information on skin disease conditions, lifestyle factors, psychodermatology, stress management to the possibility to exchange feedback.

### Materials and Methods

#### Study Design and Population

The HautTief study was a prospective, controlled, parallel-group study with balanced randomization (1:1). Patients in the intervention group participated in the HautTief educational program while receiving standard therapy, whereas patients randomized into the control group received standard therapy only. Sixty-five subjects were recruited from the University Hospital of Zurich and from web-based advertisements. All subjects gave oral and written informed consent. The HautTief study was carried out at the University Hospital of Zurich, Switzerland, and consisted of three runs, which took place from September 2012 to October 2017: 16 patients enrolled in summer 2012, 25 in winter 2014, and 24 in winter 2017.

### Table 1. Overview of the lessons of the HautTief program and their duration

| Overview of activities | Teacher | Sessions, n | Duration one session | Total duration |
|------------------------|---------|-------------|----------------------|----------------|
| Education on skin disease conditions | | | | |
| Education session about skin diseases | Dermatologist | 1 | 120 min | 2 h |
| Education session about skincare “hands-on” | Pharmacist and nurse specialized in skin care | 3 | 60 min | 3 h |
| Stress management | | | | |
| Physical training | Sports teacher | 8 | 60 min | 8 h |
| Yoga | Yoga teacher | 4 | 60 min | 4 h |
| Mindfulness meditation | Mindfulness teacher | 3 | 120 min | 6 h |
| Progressive muscle relaxation | Physical therapist | 4 | 60 min | 4 h |
| Education sessions on lifestyle factors | | | | |
| Nutrition | Dietician | 2 | 60 min | 2 h |
| Sleep hygiene, psychodermatology, coping strategies | Psychologist | 2 | 60 min | 2 h |
| Smoking cessation (individual) | Physician | Optional | (60 min) | (1 h) |
| Substance abuse | Psychologist | 1 | 60 min | 1 h |
| Practical philosophy | Philosopher | 1 | 120 min | 2 h |
| Feedback | | | | |
| Individual (by appointment) | Dermatologist | 1 | 15 min | 15 min |
| In group | Dermatologist | 1 | 120 min | 2 h |
| Total | | | | 36 h 15 min |
Eligible participants were adults aged 18 years or above with psoriasis or AD diagnosed by a dermatologist. Ultraviolet (UV) B narrow-band treatment and topical therapy such as corticosteroids with or without calcipotriol, calcineurin inhibitors, tar ointment, and emollients were allowed and maintained. Exclusion criteria were severe illnesses, psychiatric disorders, cognitive disorders, or systemic therapy such as methotrexate, ciclosporin, acitretin, or oral corticosteroids. Patients who had previously participated in any educational program on psoriasis or AD were excluded from the trial. The disease severity was clinically assessed by a physician. Each participant completed questionnaires at four study visits: before the start of the educational program at baseline and 3, 6, and 9 months after inclusion into the study.

Randomization was carried out by an electronic data capture system, which used a static unstratified multi-block randomization algorithm with multiplier 3. This computer-generated random number list was prepared by the independent Clinical Trials Center (CTC) in Zurich. All data were collected and stored in standardized electronic case report forms provided by CTC using a GCP-conform EDC-system (secuTrial®, version 5.3.0.15, 2018).

### Intervention: Patient-Education Program

The design of the educational program, based on the method described by Bostoen et al. [19], consisted of 2-h sessions twice a week for 9 weeks. The sessions were conducted by an interdisciplinary team of trainers including a dermatologist, dermatologic nurse, pharmacist, psychiatrist, psychologist, dietician, philosopher, training expert, and sports and yoga teacher. An overview of the sessions of the educational program is given in Table 1. Detailed content of the program are provided in online supplementary Appendix (see www.karger.com/doi/10.1159/000524225 for all online suppl. material).

### Table 2. Baseline characteristics of patients receiving educational intervention and no education (control)

| Variable                        | Intervention group | Control group |
|---------------------------------|--------------------|---------------|
| Adult patients                  | n = 32             | n = 33        |
| Psoriasis, n (%)                | 16 (42.1)          | 22 (57.9)     |
| Atopic dermatitis, n (%)        | 16 (59.3)          | 11 (40.7)     |
| Age, years                      | 40.6 (12.5)        | 39.9 (13.1)   |
| Male, n (%)                     | 17 (53.1)          | 15 (46.9)     |
| Female, n (%)                   | 15 (45.5)          | 18 (54.5)     |
| Education: low/medium/high, %   | 0/43.3/56.7        | 6.5/42.9/51.6 |
| BMI                             | 23.7 (3.9)         | 24.7 (5.5)    |
| DLQI                            | 6.8 (5.5)          | 6.2 (5.1)     |
| Skindex-29                      | 34.9 (17.1)        | 40.0 (19.8)   |
| EQ-5D index score               | 79.4 (11.2)        | 76.8 (17.1)   |
| EQ-5D VAS                       | 67.7 (17.6)        | 66.1 (24.2)   |
| BDI                             | 12.4 (8.1)         | 10.1 (8.0)    |
| SF-36                           |                    |               |
| Physical functioning            | 88.7 (13.2)        | 83.8 (22.7)   |
| Role limitations due to physical health | 79.2 (32.9)   | 76.7 (37.1)   |
| Role limitations due to emotional problems | 60.0 (41.4)       | 67.8 (40.6)   |
| Fatigue                         | 47.3 (16.9)        | 47.8 (19.2)   |
| Emotional well-being            | 62.7 (17.1)        | 60.7 (19.9)   |
| Social functioning              | 73.8 (25.5)        | 74.2 (25.8)   |
| Pain                            | 76.0 (23.5)        | 75.5 (29.2)   |
| General health                  | 58.8 (16.3)        | 54.8 (20.7)   |
| PASI                            | 6.4 (7.1)          | 5.1 (4.0)     |
| EASI                            | 5.4 (5.9)          | 3.4 (2.3)     |

Values are mean (SD) unless stated otherwise. BMI, body mass index; DLQI, dermatology life quality index; EQ-5D VAS, EuroQol-5D visual analogue scale; BDI, beck depression inventory; SF-36, RAND 36-item short form survey; PASI, psoriasis area and severity index; EASI, eczema area and severity index.

Primary Endpoint

The primary endpoint was the proportion of patients in the intervention and control group who achieved an improvement of at least 25% in the Dermatology Life Quality Index (DLQI) from baseline to 9-month follow-up.

Secondary Endpoints

Secondary endpoints were the proportion of patients in the intervention and control groups who (I) showed an improvement of ≥25% in DLQI, Skindex-29, RAND 36-Item Short Form Survey (SF-36), EuroQol-5D (EQ-5D), Beck Depression Inventory (BDI), Psoriasis Area and Severity Index (PASI), and Eczema Area and Severity Index (EASI); (II) reached an improvement of ≥50% in PASI or EASI; and (III) showed a deterioration of disease severity of <25% in PASI or EASI (hence lower rate of relapse) from baseline to 3-, 6-, and 9-month follow-up. Details of the questionnaires included in this study are shown in online supplementary Appendix.
Sample Size Considerations

The sample size was derived from a previously reported study by Bostoen et al. [19]. In that RCT, 50 subjects were randomized into two treatment arms, with 12 subjects lost to follow-up.

Statistical Analysis

Descriptive analysis included mean and standard deviation for continuous variables, as numbers and percentages of total for categorical variables. Results were stratified by treatment group. Data analyses were performed on univariate complete cases. Between-group comparisons were conducted using the χ² test. Where the cell sample size was small, Fisher’s exact test was applied. R version 1.1.453 was used for all analyses [20].

Results

Study Population

This study included 65 patients, 38 with psoriasis and 27 with AD. Thirty-two men and 33 women participated in our trial. The mean age was 40.2 ± 12.7 years, ranging from 20 to 72 years. At baseline, mean DLQI was 5.7 ± 5.3 and mean Skindex-29 was 32.8 ± 18.1, indicating a moderate to severe effect on HRQoL. The mean EQ-5D Index score was 78.1 ± 14.5 and EQ-5D VAS was 66.9 ± 21.0. We detected a minimal depressive state at baseline with a BDI score of 11.2 ± 8.1. The disease severity was mild for psoriasis and AD at baseline; mean PASI was 5.6 ± 5.6 and mean EASI was 4.6 ± 4.7. 3.4% had no high school educa-
At 3 months, data from 30 patients in the intervention group and 29 patients in the control group were analyzed. At 6 months, data from 30 patients in the intervention group and 28 patients in the control group were available in the analysis. At 9 months, we analyzed data from 28 patients in the intervention group and 27 patients in the control group. In the intervention group, failure to follow-up, lack of time, and noncompliance were the reasons for dropping out. Reasons for patients dropping out of the control group included alcohol-induced hepatitis and loss to follow-up. A flow diagram of the progress through the phases of the study is shown in Figure 1.

Primary Outcomes

Nineteen (67.9%) of 28 patients from the intervention group and 11 (40.7%) of 27 patients from the control group had documented DLQI improvement of at least 25% at month 9 ($p = 0.080$). The box plot in online supplementary Appendix shows the distribution of DLQI scores in the intervention and control groups.

Secondary Outcomes

The results are summarized in Tables 3 and 4. Dermatology Life Quality Index At month 3, 13 (44.8%) of 29 patients participating in the educational program achieved an improvement of at least 25% in the DLQI, compared with 9 (32.1%) of 28 patients from the control group ($p = 0.477$). Similar findings were seen at month 6 (23% vs. 23.1%; $p = 0.287$). The box plot in Figure 2 shows the distribution of DLQI scores in the intervention and control groups.

| Skindex-29 | 12 (42.9%) | 8 (28.6%) | 0.403 |
| DLQI | 13 (44.8%) | 9 (32.1%) | 0.477 |
| Skindex-29 | 12 (42.9%) | 8 (28.6%) | 0.403 |
| EQ-SD Vas | 9 (30.3%) | 5 (17.9%) | 0.397 |
| EQ-SD indexa | 5 (17.2%) | 3 (10.7%) | 0.706 |
| BDI | 11 (37.9%) | 7 (23.1%) | 0.314 |
| SF-36 | 5/29 (17.2) | 1/27 (3.7) | 0.195 |
| Physical functioning | 5/29 (17.2) | 1/27 (3.7) | 0.195 |
| Role limitations due to physical health | 7/29 (24.1) | 6/27 (22.2) | 1.000 |
| Role limitations due to emotional problems | 13/29 (44.8) | 8/27 (29.6) | 0.369 |
| Fatigue | 10/29 (34.5) | 8/27 (29.6) | 0.919 |
| Emotional well-being | 5/29 (17.2) | 6/27 (22.2) | 0.895 |
| Social functioning | 7/29 (24.1) | 6/27 (22.2) | 1.000 |
| Pain | 6/29 (20.7) | 4/27 (14.8) | 0.731 |
| General health | 5/29 (17.2) | 7/27 (25.9) | 0.523 |

Table 3. Proportion of patients achieving an improvement of at least 25% at month 3, 6, and 9

The definition of improvement in the scales DLQI, Skindex-29, EQ-SDVAS, EQ-SD index score, BDI and SF-36 was as follows: at least 25% improvement from baseline to follow-up. DLQI, dermatology life quality index; EQ-SD VAS, EuroQol-SD visual analogue scale; BDI, beck depression inventory; SF-36, RAND 36-item short form survey. a Because of a small-sized sample, Fisher's exact test was used for these scores.
in the intervention group than in the control group at month 6 (15/29 [51.7%] vs. 11/27 [40.7%]; p = 0.579) and month 9 (14/27 [51.9%] vs. 8/27 [29.6%]; p = 0.166).

**EQ-5D VAS**

Nine (31%) of 29 patients in the educational group achieved a 25% improvement in EQ-5D VAS at 3 months compared with 5 (17.9%) of 28 patients in the control group (p = 0.397). The proportion of patients with an increased EQ-5D VAS score of at least 25% in the intervention group was higher than that in the control group after 6 months (10/30 [33.3%] vs. 4/27 [14.8%]; p = 0.189) and 9 months (9/27 [33.3%] vs. 6/27 [22.2%]; p = 0.543).

**EQ-5D Index**

The secondary endpoint, the proportion of patients who achieved an improvement of at least 25% in EQ-5D Index score at 3 months, was achieved by 5 (17.2%) of 29 patients in the intervention group compared with 3 (10.7%) of 28 control patients (p = 0.706). Two (6.7%) of 30 patients participating in the educational program and 1 (3.7%) of 27 patients not participating in the program achieved a clinically relevant change in EQ-5D at month 6 (p > 0.99). At 9 months, the EQ-5D index improvement of at least 25% was achieved by 3 (11.1%) of 27 patients in the intervention and control group (p > 0.99).

**Beck Depression Inventory**

Eleven (50%) of 22 patients in the intervention group achieved an improvement of at least 25% in BDI at 3 months, compared with 7 (30.4%) of 23 patients in the control group (p = 0.301). At month 6, the proportion of patients who achieved a clinically relevant change in BDI was significantly higher in the intervention group than in the control group (15/22 [68.2%] vs. 6/22 [27.3%]; p = 0.016). This response was lost at month 9 (10/20 [50%] vs. 4/22 [18.2%]; p = 0.063). The distribution of BDI scores in the groups studied is shown in the boxplot in Figure 3.

**RAND 36-Item Short Form Survey**

Results for all SF-36 dimensions are summarized in Table 3. The proportion of patients achieving an improvement of at least 25% in the subdomain "Role limitations due to emotional problems" at 3 months was different in the intervention (13/29 [44.8%]) and control group (8/27 [29.6%]; p = 0.369). At month 6, 16 (53.3%) of 30 patients in the intervention group achieved a response of at least 25% in the subdomain "Role limitations due to emotional problems," compared with 6 (23.1%) of 26 patients from the control group (p = 0.042). At month 9, 11

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**Table 4. Proportion of patients showing improvement or deterioration in PASI or EASI at month 3, 6, and 9.**

| Outcome variables | Three months | Six months | Nine months |
|-------------------|--------------|------------|-------------|
| PASI≤25% improvement | 7/16 (43.8) | 13/16 (81.3) | 11/14 (78.6) |
| PASI≥50% improvement | 3/16 (18.8) | 12/16 (75.0) | 11/14 (78.6) |
| PASI≤25% deterioration | 12/14 (85.7) | 8/11 (72.7) | 11/16 (68.8) |
| EASI≤25% improvement | 4/11 (36.4) | 5/11 (45.5) | 4/9 (44.4) |
| EASI≥50% improvement | 2/11 (18.2) | 2/11 (18.2) | 2/10 (20.0) |
| EASI≤25% deterioration | 10/11 (90.9) | 8/10 (80.0) | 9/11 (81.8) |

PASI, psoriasis area and severity index; EASI, eczema area and severity index. a Because of a small-sized sample, Fisher's exact test was used for these scores.
(39.3%) of 28 patients in the intervention group achieved a “Role limitations due to emotional problems” improvement of at least 25%, compared with 8 (30.8%) of 26 patients from the control group ($p = 0.712$).

Psoriasis Area and Severity Index

Numerically, more patients in the intervention group than in the control group achieved PASI25 at 3 months, with proportions of 7 (43.8%) of 16 patients and 4 (22.2%) of 18 patients, respectively ($p = 0.274$). Numerically fewer patients from the intervention group than from the control group achieved a PASI25 response at month 6 (6/16 [37.5%] vs. 7/17 [41.2%]; $p = 1.000$). Five (35.7%) of 14 patients in the intervention group reached PASI25 at month 9, compared with 5 (31.3%) of 16 patients in the control group ($p = 1.000$). The proportions of patients achieving PASI50 and deterioration of less than or equal to 25% are summarized in Table 4.

Eczema Area and Severity Index

Higher proportions of patients participating in the educational program achieved an EASI25 response at month 3 (7/14 [50%]) than did patients from the control group (4/11 [36.4%]; $p = 0.689$). At month 6, the educational group showed a smaller proportion of patients who achieved EASI25 (5/14 [35.7%] vs. 6/11 [54.5%]; $p = 0.435$). At 9 months, a higher proportion of patients from the intervention group achieved EASI25 compared with patients from the control group (7/14 [50%] vs. 3/11 [27.3%]; $p = 0.414$). Table 4 shows the proportions of patients achieving EASI50 and deterioration of less than or equal to 25%.

Safety

During the educational program, 1 (3.1%) of 32 intervention patients experienced one mild adverse event. The subject fell during sports class, resulting in bruised ribs with
musculoskeletal chest pain. The patient recovered within 10 days without the need for therapy or consequential damage and continued to attend the educational program.

In the intervention group, 1 (3.1%) of 32 patients experienced a serious adverse effect during follow-up. After completion of the educational program, between months 3 and 6, the patient had an exacerbation of his pre-existing psoriasis with an eczematous component, which was not judged life-threatening. The patient complained of severe itching, severe xerosis, erythrodermia, and increased scaling, which required a 3-week hospitalization, during which therapy with topical steroids, bath therapy, and UVB was performed. Therapy was successful and resulted in a decrease in disease severity: PASI decreased from 11.3 to 5.4 within 3 weeks. We see no direct connection of this serious adverse event to the educational program. The subject could continue participating in the study. No adverse events or serious adverse events were reported in the control group.

Discussion

Our study showed that an educational program may have a positive impact on depression status and HRQoL in patients with psoriasis or AD. A higher proportion of patients who participated in the program achieved an improvement in BDI and one subdomain SF-36 score (role limitations due to emotional problems) of at least 25% at 6-month follow-up, but lost it at 9-month follow-up. Although we observed a tendency to decline in disease severity during the study, no differences in PASI or EASI were observed by those attending the educational program versus the control group. Likewise, no evidence for a reduction in DLQI, Skindex-29, or EQ-5D was found between the intervention and control groups.

Our findings support the results of previous studies evaluating the impact of patient education on depression and HRQoL in patients with psoriasis or AD. In a randomized, controlled trial, Bostoen et al. [19] evaluated a 3-month multidisciplinary educational program as an adjunct to standard medical care in patients with psoriasis or AD. The educational intervention resulted in improvement in BDI and quality of life. Another controlled trial examined a 6-week multidisciplinary management program in 93 subjects with psoriasis [21]. Between the treatment groups, a statistically significant difference was found in anxiety, depression, psoriasis-related stress, and disability at 6-week and 6-month follow-up. In a large, multicenter RCT that enrolled 992 families of children with moderate-to-severe AD, Staab et al. [22] evaluated an education program delivered by a multiprofessional team. The study found statistically significant improvements in parental quality of life in five questionnaire domains (psychosomatic well-being, effects on social life, confidence in medical treatment, emotional coping, and acceptance of disease) in the intervention groups compared to the control at a 1-year follow-up. Our findings are also in line with the study by Ricci et al. [23] that reported improvements in family and child AD-specific quality of life, as well as parental self-report of anxiety and depression symptoms.

Potential limitations of this study include a relatively small sample size when calculating disease severity by using EASI and PASI. Since the patients were divided into the two subgroups, psoriasis and AD, to calculate these scores, the number of patients decreased. The BDI was also affected by a small sample size because it was reported by only 2/3 of the patients in the study, although a statistically significant difference was found between the treatment groups. The sample size calculation was based on an earlier study, with a different but related primary outcome and highly similar intervention [19]. Another limitation was the unblinded assessment of skin disease severity by the investigator and the patients who used self-administered HRQoL questionnaires. This lack of blinding could result in bias. Because patients with psoriasis or AD may experience seasonal changes in their symptoms, seasonal variation as a possible bias was reduced by performing the three runs of this study across seasons as previously described.

Only few studies of educational interventions that address the psychosocial issues of people with psoriasis or AD exist. Generally, educational programs are aimed at patients with mild to moderate disease with significant negative impact on quality of life. However, our results suggest that patients with mental health comorbidities such as depression could also benefit from multidisciplinary training. Despite limitations, available research provides evidence that multidisciplinary models improve HRQoL and exert a beneficial influence on mental health comorbidities, including depression [24, 25]. This finding is significant because psoriasis or AD in adult patients in addition to reduced HRQoL associated with high levels of clinical depression, antidepressant use, and suicidality [26, 27]. However, identifying appropriate patients who will benefit most from multidisciplinary care is challenging, especially given the time, resources, and costs involved in implementing such multidisciplinary training. Moreover, it remains unclear what content of multidisci-
plinary training contributes to improving quality of life and psychosocial comorbidities [18].

Further studies are needed to determine the efficacy of educational interventions, to identify appropriate candidates for different multidisciplinary approaches, and to evaluate the cost-effectiveness of such programs. Costs per patient for the 9-week educational program were estimated at USD 770 per person. However, the cost-effectiveness of such educational interventions compared with topical therapies for psoriasis and AD remains to be elucidated; therefore, future studies focusing on the analysis of cost-effectiveness are recommended.

In addition, further work needs to be done to establish which components of the educational program are most effective and whether certain population groups benefit most from training. Since coping mechanisms can differ within different diseases, it is important to determine the personality characteristics of the disease-specific groups so that an adequately designed training program can be established [28]. Our study has shown that an educational program, conducted by a multiprofessional team, can improve the HRQoL and the state of depression in patients with chronic skin conditions. By providing education, patients can acquire knowledge and stress management techniques that can positively influence the course of their chronic skin disease.

**Key Message**

A common patient education program for AD and psoriasis may improve HRQoL and depression.

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U.S. had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. The funding source had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

**Statement of Ethics**

The trial was reviewed and approved by the Local Ethics Committee Zurich (approval KEK-ZH-Nr. 2011-0458) and was registered at ClinicalTrials.gov, number NCT02205593. This study followed the Consolidated Standards of Reporting Trials (CONSORT) statement [29].

**Conflict of Interest Statement**

The authors declare that they have no conflict of interest.

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**Author Contributions**

G.F.L.H. and K.K. designed the study. K.K., G.T., and U.S. conducted the three runs of the study and were responsible for data collection. A.N. and L.I. supported patient recruitment. U.S., K.A.R., and U.H. conducted the statistical analysis and interpreted the results. U.S. wrote the first draft of the manuscript. All the authors contributed to and approved the final version of the manuscript.

**Data Availability Statement**

All data generated or analyzed during this study are included in its online supplementary files. Further inquiries can be directed to the corresponding author.

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