
Dermatological Psychosomatics

**Proceedings from the Signe and Ane
Gyllenbergs' Foundation's Symposium on
Psychosomatic Dermatology**

Guest Editor
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Contents

Dermatological psychosomatics	5
<i>B. B. Arnetz</i>	
The Signe and Ane Gyllenberg Foundation	6
<i>B.-A. Lamberg</i>	
Development of Research on Stress and Psychosomatic Relationships	8
<i>L. Levi</i>	
Endocrine and Dermatological Concomitants of Mental Stress	9
<i>B. B. Arnetz, B. Fjellner, P. Eneroth and A. Kallner</i>	
Evaluation of a Questionnaire used in Dermatological Epidemiology	
Discrepancy between Self-reported Symptoms and Objective Signs	13
<i>M. Berg</i>	
Skin Problems in Users of Video Display Terminals. Discrepancy between	
Subjective Symptoms and Objective Signs	18
<i>S. Lidén and M. Berg</i>	
Localization of Self-inflicted Dermatological Lesions:	
What do They Tell the Dermatologist?	23
<i>M. Van Moffaert</i>	
Children with Dermatological Disease and their Mothers	28
<i>K. Blomquist and M.-L. Sakki</i>	
Psychological Stress and Psoriasis:	
Experimental and Prospective Correlational Studies	37
<i>L. Gaston, J.-C. Crombez, M. Lassonde, J. Bernier-Buzzanga and S. Hodgins</i>	
Scratch Radar for the Measurement of Pruritus	44
<i>K. K. Mustakallio</i>	
Pruritus and its Assessment as Itch and Scrath	45
<i>S. Shuster</i>	
Assessment of Psychiatric and Psychosocial Factors Disposing	
to Chronic Outcome of Dermatoses	46
<i>A. Laihinén</i>	
A Psychiatric and psychodynamic investigation of LCO	
(Prurico Nodularis Hyde) Patients	49
<i>J. Valtola</i>	
Depression of Self-image by Skin Disease	53
<i>S. Shuster</i>	
Dermatologic – Psychiatric Consultations	54
<i>J. Rekola and K. Blomqvist</i>	
Psychosomatics in the Light of Atopic Dermatitis	55
<i>E. Rechart</i>	
Psychic Factors and Immunological Reactions in Atopic Dermatitis	56
<i>M. Rechart and J. Saarinen</i>	
Psyche and Skin	57
<i>G. Schulman</i>	

Dermatological psychosomatics

In recent years, there has been a renewed interest in elucidating the role of psycho-social factors in the etiology and clinical course of such skin disorders as psoriasis and atopic dermatitis. A majority of studies have reported a weak to moderate association between psycho-social stressors and aggravation of psoriasis and atopic dermatitis. However, our understanding of possible mechanisms by which psychosocial stimuli might influence the skin are still limited and the causal relationship between psycho-social stressors and specific skin disorders, if any, is not well understood. Moreover, a number of physical and cognitive factors appear to moderate the psycho-dermatological response.

The aim of this symposium on Dermatological Psychosomatics, sponsored by Signe and Ane Gyllenberg Foundation, was to bring together international researchers and clinicians from the fields of dermatology, psychiatry, psychosocial medicine, and epidemiology to discuss and create new concepts and hypotheses in the field of dermatological psychosomatics. Occupational health concerns regarding possible effects on the integrity of the skin from

work with video display units (VDU) have resulted in a number of studies. In the present symposium, a large epidemiological study regarding skin disorders and work with VDUs is reported. Studies concerning the role of cognitive techniques in addition to traditional medical treatment of psoriasis are also reported.

We hope the symposium and these proceedings will encourage further work having to do with the interactions between psycho-social stressors and the skin as well as to further our understanding of how such knowledge can be used in conjunction with traditional medical treatment of skin disorders. In conclusion, I would like to thank the Board of the Signe and Ane Gyllenberg Foundation, the organizing committee, and all contributors for making it possible to organize this very first international symposium concerning dermatological psychosomatics.

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Guest Editor*

The Signe and Ane Gyllenberg foundation

The Signe and Ane Gyllenberg Foundation was established in 1948 by the stockbroker Ane Gyllenberg and his wife, Signe. Initially, the Foundation comprised only a fund for medical research, but, after the death of the founders, another part was added according to their will – the art collection.

The medical fund comprises two sections: one for, what we may call, “conventional psychosomatic medicine” and one for medicine practiced according to the philosophy of Rudolf Steiner, i.e., anthroposophy. At the time when the Foundation was established, the impact of psyche on soma was not very much appreciated. Over the years, however, these connections have been more interesting and evident although the mechanisms are still enigmatic. We only know that between psyche and soma neural, endocrine, immunological, and possibly other pathways are important. Research concerning hormonal and immunological mechanisms and influences have been particularly implicated during the last few years. The donors were also much interested in the philosophy of Rudolf Steiner. The purpose of the medical fund is, therefore, to support research within the scope of psychosomatic medicine and also to support studies in the area of Steiner’s anthroposophical medicine, which is not a so-called alternative medicine, but correctly used in line with Steiner’s own views, only supplementary.

In this way, the role of the Signe and Ane Gyllenberg Foundation is important. It has found its proper place among other foundations supporting medical research because its aims are directed to an area partly not very well-defined in comparison to the modern biomedical research and which, therefore, is usually very much neglected. Methods are different and the problems are difficult to handle.

Therefore, the Board of the Foundation thinks that it fulfills the obligations defined by the donors by providing grants and scholarships. Grants are provided every second year for research in psychosomatic medicine. Grants are given not only to established researchers, but also to young workers in the field and we think that this is particularly important. In addition, travel grants are provided for those

wanting to learn more about the Steiner medicine abroad. Next year, the total sum used for these purposes will be close to 4 million Finnish marks.

The organization of symposia on special topics within the field of responsibility is, to our mind, equally important. Since 1976, there have been symposia on psychosomatic medicine, stress, neuroendocrinology, psychic impact of infant care on Steiner medicine and eurythmia. Symposia and workshops are the most efficient types of scientific communication today. In this way, it is possible for professionals in specialized fields to get together in small groups for intimate discussions of mutual problems. This applies as well to special sections of larger congresses and the Foundation has also supported plenary lectures.

The Foundation also has the obligation to take care of the art collection. The collection comprises mainly older Finnish paintings, but includes also a few works by old masters. The donors started collecting art primarily for private purposes. But, as the collection grew larger, it became more evident to the donors that it should be made available to the public. According to their will, the collection should stay in the home of Signe and Ane Gyllenberg as a permanent exposition after their death. For this reason, their home, Villa Gyllenberg on Gran-Kuusisaari, was enlarged in 1977 with a very attractive exposition hall. Many of the art pieces are still in the same place they used to be in the old part of the house during the lifetime of the donors.

This symposium on Dermatological Psychosomatics is the Eighth Signe and Ane Gyllenberg Symposium. The skin is a remarkable organ and mirrors many diseases and reactions in the body. It reacts on many humoral, hormonal, immunological and psychic stimuli (the interconnection between which are not very well definable). These events were the focus of interest in this symposium. The symposium was most successful because, among other things, it was confined to an area of psychosomatic medicine which is of great interdisciplinary importance. On behalf of the Signe and Ane Gyllenberg Foundation, I want to thank the organizers, the speakers, and

other participants for their contributions and I hope that the Signe and Ane Gyllenberg Foundation has been able in this way to initiate a thought process for forthcoming activities.

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Development of Research on Stress and Psychosomatic Relationships

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Psychosocial stressors originate in social structures and processes. They affect the human organism through psychological processes, including experience and appraisal of person-environment interactions in terms of environmental demands and opportunities on the one hand, and man's abilities, needs, expectations, customs and culture on the other. They influence health and well-being through four types of closely interrelated mechanisms – emotional, cognitive, behavioral, and physiologic. The outcome is modified by situational factors (e.g., social support) and individual ones (e.g., personality characteristics and coping repertoire). The system is a dynamic one with many feedback loops.

Accordingly, approaches in future stress research should aim at being: systems-oriented; interdisciplinary; problem-solving oriented; health- (and not only disease-) oriented; and participative.

The objectives of such approaches include establishing: which psychosocial stressors are of etiological significance, under what circumstances (high-risk situations), and for whom (high-risk groups);

which emotional, cognitive, behavioral and/or physiologic mechanisms ensuing from psychosocial stimuli (high-risk reactions) are implicated in the pathogenesis of various diseases; and which modifications of the social environment and/or human behavior will promote health and wellbeing, and which should be avoided, and by whom (evaluation of health action).

With such knowledge as a basis, environmental and/or individual measures can be proposed that may be presumed to prevent disease and promote health, which in a third step are evaluated interdisciplinarily, on a model scale.

Whenever possible, the approaches should combine testing of key hypotheses (basic research) with evaluation of health action (applied research), with particular emphasis being placed on studies of fundamental areas of social life and institutions undergoing rapid changes. Tactics include several complementary steps with both traditional epidemiological studies; interdisciplinary, longitudinal, intensive studies; and controlled interventions, in the laboratory as well as in real-life. A basis for this is further elaboration on definitions and standardization of nomenclature, and preparation of cross-culturally applicable methodology "kits" for research and environmental and health monitoring.

Endocrine and Dermatological Concomitants of Mental Stress

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The role of psychosocial stress in the etiology and clinical course of psoriasis and atopic dermatitis still remains to be elucidated. In this study, we assessed neuroendocrine, dermatological, and cognitive responses in healthy subjects and in subjects suffering from psoriasis and atopic dermatitis, respectively. Perceived stress increased the most in psoriatics during the stressor exposure but tended to return faster to baseline in this group than was found for atopics and healthy controls. Growth hormone secretion was attenuated during stress in patients with skin disorders. Overall, neuroendocrine reactivity was similar in the three groups. Dermal flare reactivity was enhanced in healthy controls but perceived itch enhanced in atopics in response to stress. Stress per se was not an important discriminator between groups. Coping style and other cognitive factors turned out to be of significant importance to predict skin reactivity rather than a specific skin disease. The study suggests that psychosocial stress affects the skin reactivity and that cognitive factors modulate such effects. However, a specific skin condition explains only a fraction of the overall variance in skin reactivity to specific stressors.

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The skin is an important organ for expressing emotions. Blushing commonly accompanies embarrassment or shame and itching and scratching may indicate feelings of impatience or nervousness (1, 2). Consequently, psychosocial stressors, which originate in social structures and processes, have been linked to the initiation and clinical course of neurodermatitis, atopic dermatitis, and psoriasis (3–6). In addition, there is evidence both clinically and experimentally that pruritus is influenced by psychosocial stressors (7–9).

Nevertheless, only a fraction of the overall variance in patients' psoriatic conditions has been attributed to psychosocial stressors (10). We therefore need to use more complex psychosocial models

when possible associations between various stressors and specific skin disorders are assessed. It is not sufficient to merely measure a person's perception of defined psychosocial stressors, we also need to know that person's coping style, availability and use of social support, cognitive functions, and physiological modulators of skin reactivity.

Our group has carried out a number of psychodermatological studies. At first, we merely compared psycho-neuroendocrine reactivity of patients suffering from psoriasis and atopic dermatitis with that of healthy controls. However, it became apparent that within each group of patients, there is an impressive variation in psychodermatological reactivity to standardized mental stressors. Moreover, some of the psoriatic patients clearly recognized psychosocial stressors to be an important factor in the induction or aggravation of their skin condition, while other patients with psoriasis did not recognize any clear associations to psychosocial stressors.

The *purpose* of this study was to evaluate whether there was an altered neuroendocrine and dermatological reactivity in patients suffering from psoriasis and atopic dermatitis compared to healthy controls. We also studied the modulating effects of cognitive factors on the dermal response to standardized laboratory stress.

MATERIALS AND METHODS

The *study* group consisted of: healthy controls with no history of skin disease ($n=30$). In addition 11 patients with clinically diagnosed atopic dermatitis and 32 patients with psoriasis were included. The psoriatic patients were further divided into groups stating their skin condition was unaffected by psychosocial stressors (non-sensitive, $n=11$) and those that purported an association ($n=11$) with stress.

The participants went through a detailed clinical evaluation and biochemical work-up. In addition, they filled out the Eysenck's short questionnaire for the measurement of two dimension of personality (11), the General Health Questionnaire from the World Health Organization, a hopelessness scale regarding the subjects' perception of the future (12), and a health locus of control scale (13). A number of standardized questions regarding the participa-

SERUM GHG

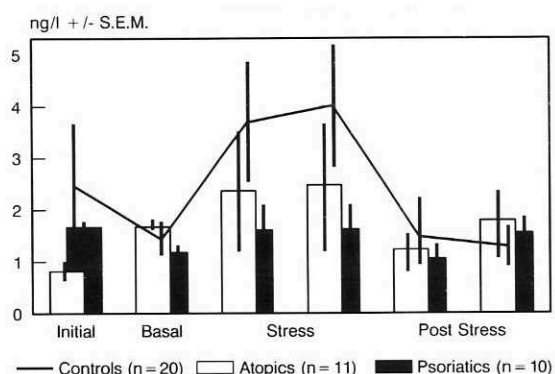


Fig. 1. Serum Growth Hormone responses in healthy controls, atopic patients, and psoriatic patients before, during, and following standardized stressor exposure.

nts work environment and their home situations were also included. Questions addressing smoking and alcohol consumption patterns were included as well.

Following the initial set-up, the subjects listened to a tape of the Swedish version of the Jacobsen's relaxation procedure.

The two standardized stressors consisted of i: the color-word conflict test (CWT), based on the "Stroop test", originally developed at Centre de Psychologie Appliquee, Paris (14). From the CWT film, color words were presented that were printed in incongruent color. The subjects were requested to respond to the color of the print, regardless of the conflicting meaning of the color word and of an additional color word being named on a recorded tape (for details see Ref 2).

The second stressor consisted of ii: forced mental arithmetic. From a four digit number subjects were instructed to subtract consecutive serial of 17's (for details see Ref 2 and 15). The stressor period was followed by a winding-down period during which time to return to baseline values were assessed in the various study groups. Throughout the study, subjects perceptions of perceived stress was monitored by means of a continuous visual analogue scale, ranging from not at all stressed to maximum stressed.

Blood samples were collected at set intervals throughout the study and analyzed for numerous blood lipid fractions, glucose, hemoglobin A_{1c}, hepatic enzymes, cortisol, prolactin, growth hormone, and progesterone. In addition, urine was collected for determination of cortisol, adrenaline, noradrenaline, dopamine, and creatinine. For detailed information regarding methods used and laboratory quality performance, see Ref 2.

Skin reactivity was measured by intradermal administration of histamine and histamine releaser compound 48/80. Objective flare size was recorded as was perception of the duration of itch.

Statistical analysis was performed using analysis of variance, with Tukey's post-hoc tests to compare contrasting means. General linear models were fitted using the technique of least squares. Significance was set to $p < 0.05$.

CHANGE IN FLARE AREA

Based On Flare Area Before Stress

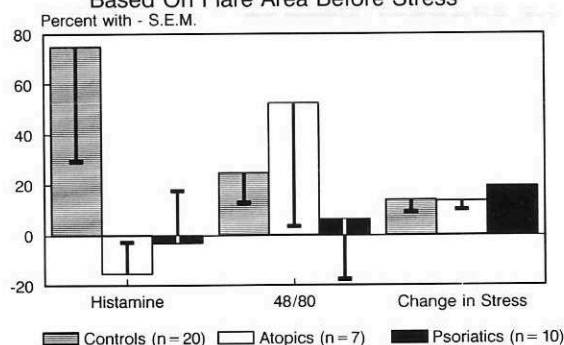


Fig. 2. Relative change in flare areas, adjusted for pre-stressor skin reactivity, following stressor exposure in healthy controls, and atopic patients and psoriatic patients, respectively, in response to intradermal application of histamine or compound 48/80. In addition, changes in perceived stress during the stressor-exposure is depicted.

RESULTS

All subjects showed a significant increase in perceived stress during the stressor exposure. During the stress session, psoriatic patients reported significantly higher degree of perceived stress than did controls and atopic patients. However, atopic patients return to baseline values were significantly slower than that of psoriatic patients. Atopic patients' behavior in this regard mirrored that of healthy controls.

The stressors caused significant increases in systolic and diastolic blood pressure, and urinary excre-

SELECTED STRESS PARAMETERS

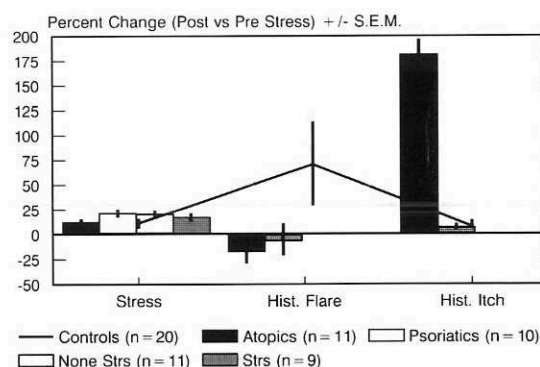


Fig. 3. Relative change in histamine-induced itch and flare, and perceived stress during the stressor-exposure. A subgroup of psoriatic patients were divided into a group stating stress in general worsened their condition (strs) and those that were unaffected by stress (none strs).

Table I. *Psychoendocrine predictors of changes in flare area*

Dependent variable: Relative change in flare area
Independent Variables ($p < 0.05$):
Relative change in serum cholesterol (-)
Relative change in serum growth hormone
Skin condition (healthy controls more reactive)
(-) Inverse association

tion of adrenaline. There were, however, no significant differences in the response pattern between the different study groups.

Controls had the highest levels of circulating growth hormone during the stressor exposure (Fig. 1). They also exhibited the highest intra-individual variation of any group studied. Healthy controls exhibited the largest percentage increase in histamine induced flare following stress, compared to skin reactivity prior to the stressor exposure (Fig. 2). However, atopic patients reported the highest percentage increase in perceived itch following the stressor exposure (Fig. 3).

General linear models showed significant positive associations between histamine-induced flare and growth hormone reactions in response to the stressors and further supported the finding of an attenuated growth hormone response in subjects with skin disease, controlling for possible confounders (Table I). Itch was inversely associated to catecholamine excretion, with no differences among groups (Table II).

Perceived stress per se did not prove to be a significant predictor of skin reactivity in any of the experimental conditions. Rather, itch perception was best predicted by scorings on the mood scale, and flare by total scores on the General Health Questionnaire, perception of the test procedure per se, and feeling of being in control during the stressor exposure.

The models developed to explain overall variance in skin reactivity (flare and perceived itch duration) explained a majority of the variance.

Compound 48/80 and histamine appeared to induce different response patterns within the three study groups. For example, histamine induced the largest relative increase in flare in the healthy controls following stress, while compound 48/80 tended to be most effective in atopic patients.

There was no significant differences in neuroen-

docrine response pattern between stress-sensitive and non-stress-sensitive psoriatic patients.

DISCUSSION

The study found differences in neuroendocrine, dermatological and cognitive reactions between healthy controls and subjects with specific skin disorders in response to standardized stressor exposures. However, many of these differences were accounted for by differences in coping style, mood, and cognitive factors. In linear models, controlling for such factors, only the growth hormone response was significantly different between healthy controls and the subjects suffering from psoriasis and atopic dermatitis.

This finding is supported by epidemiologic research suggesting that psychosocial stress might be of importance in the clinical course of psoriasis and atopic dermatitis. However, psychosocial factors make up only a fraction of the attributable risk in those studies and the large majority of the variance in skin condition cannot be explained based on our present knowledge (2, 10, 16).

We suggest that patients suffering from psoriasis and atopic dermatitis cannot be differentiated from healthy controls solely based on the dermal and neuroendocrine reactivity to psychosocial stressors. Possibly, selected parts of the hypothalamic-pituitary axis might be altered in these skin conditions as reflected in attenuated growth hormone response to standardized stressors.

Rather, we hypothesize a person's skin reactivity is to a large extent dependent on coping style and other cognitive factors and availability of social support to mitigate the effects of psychosocial stressors. In addition, the person's susceptibility to react to

Table II. *Psychoendocrine predictors of changes in perceived itch*

Dependent Variable: Relative change in duration of perceived itch
Independent Variables ($p < 0.05$):
Relative changes in systolic blood pressure (+)
Relative change in serum cholesterol (-)
Relative change in serum cortisol (-)
Relative change in catecholamine secretion (-)
Relative change in perceived stress during the test session was not significantly related to dermal reactivity.
(-) Inverse association

specific stressors will be dependent on the condition and reactivity of the skin itself.

When dermal conditions are viewed from such an integrated view, we are more likely to better understand the role of psychosocial factors in inducing and aggravating common skin conditions. This will also improve our treatment of these conditions. Clearly, however, a large body of literature are strongly suggestive of stress as an etiologic factor in various skin conditions. Further more refined studies are therefore encouraged in the area of dermatologic psychosomatics.

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Evaluation of a Questionnaire used in Dermatological Epidemiology. Discrepancy between Self-reported Symptoms and Objective Signs

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A questionnaire about facial skin problems was answered by 3745 office employees with the aim of discovering whether VDU work causes skin disease. From this group, 809 randomly selected persons were examined and interviewed by a dermatologist. There was a relatively good correspondence (87%) between the results from the interviews and the questionnaires, but the questionnaire results corresponded to current status in only 46% of the cases. No important difference was seen between those who were informed and those who were not informed about the purpose of the investigation. There was a relatively wide variation in the correlation between two responses to the same questions. In conclusion, the self-administered questionnaire seems to give reasonably adequate answers regarding the occurrence of more clear-cut symptoms over a period of time, rather than answers regarding the presence of signs at a particular point in time. However, less marked changes might not be picked up particularly well and the use of questionnaires alone cannot be recommended when studying mild skin problems due to a particular exposure in a population.

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The effects of exposition to a factor such as VDUs can be studied in different ways: 1) by case reports which most often is the first step, 2) by provocations, 3) by general or specific tests, or 4) by epidemiological studies which is a way to study if some illness or factors are more common in a specific population than in controls. This paper deals with problems in performing an epidemiological study of work at visual display units (VDUs) connected with skin problems, paying special attention to the use of questionnaires and how much you can rely on them when asking about skin symptoms.

The special problem when studying VDU-associated skin complaints is that the patients do not have any known characteristic signs or symptoms, that

there is no specific test available and finally that there is a major possibility that their skin problems are psychosomatic or influenced by bias from the great amount of information about skin symptoms and work at VDUs that they get from the popular press and the trade unions. This information mostly states that the VDUs provoke skin disease, although there is no scientific evidence for it so far.

In dermatological research, the use of questionnaires is not so common, and, as far as we know, no dermatological questionnaire has been evaluated previously. For effects on other organs than the skin, the usefulness of questionnaires has been accepted and various forms have been scientifically evaluated. This has been done for example, for workers exposed to solvents (1) and for angina pectoris (2). The epidemiological technique with questionnaires has, however, been used earlier in studies of work at VDUs and skin problems (3–6). These studies were, however, not ideally performed to give an correct answer on the question whether VDU work causes skin disease or not.

In a questionnaire study from the National Institute of Health and Human Services (NIOSH) in the United States (3), the incidence of self-reported skin problems was 44% among the VDU operators as opposed to 30% in the non-exposed group. In another study from the same country (4), no difference as regards self-reported skin problems was found between exposed and non-exposed persons. The response rate in these two studies, however, was low (less than 50%), significantly more exposed subjects participated in the studies, the subjects were not personally examined, and not further analyses of the materials were conducted.

The first Swedish epidemiological study in this respect was carried out before the popular press had become interested in the issue. The Swedish National Board of Occupational Safety and Health performed an epidemiological study of office employees who got a questionnaire including questions about

Table I. The questions in the self-administered questionnaire

1.	a)	Have you had any skin symptoms or signs within the last two years?	
	b)	Do you have any skin symptoms or signs now?	
2.		Where?	hands face arms legs body elsewhere
3.		Type of signs?	papules redness "eczema" dry skin pimples others
4.		Type of subjective symptoms?	none itching pain burning others

skin symptoms. Those who answered that they had present skin symptoms were called to an interview and clinical examination at their places of work by a dermatologist (5). There was a tendency (not significant) to a higher frequency of some facial diagnoses (seborrhoeic dermatitis, acne, rosacea and perioral dermatitis) in the exposed group. Only individuals with self-reported skin complaint, however, were called to the dermatological examination, not those without, and the examined cohort was rather small and did not permit any clear-cut conclusions to be drawn. The same authors investigated an outpatient population of 179 patients with rosacea or perioral dermatitis with respect to the occurrence of VDU work (6). Of these patients, 42 had worked with VDUs and eight of those 42 suspected aggravation due to exposure to VDUs. None of them, however, had suspected this before the study, probably because this study was carried out before the Swedish popular press had written any noticed articles about the issue. The number of patients was also too small to permit any statistical calculations or any firm conclusions in this study.

The present study was undertaken in order to evaluate the validity and sensitivity of a questionnaire used in an epidemiological study of skin complaints related to work at VDUs (7).

METHODS AND PROCEDURES

We succeeded in reaching a large population through questionnaires and to perform a personal interview and skin examination of part of them, both exposed and controls, both persons with and without self-reported skin symptoms. The latter was done partly to evaluate the questionnaire (8), i.e., to study if there were any differences between subjective symptoms as reported in the questionnaires and objective signs as seen on clinical examination. The participation rates were high and there were no significant participation differences between exposed and controls.

The questions in the questionnaire were evaluated through a preliminary study of 50 persons. After answering the questionnaire, all of them were interviewed and examined by me. As it was important with a high participation rate and the questionnaire had to be easy to fill in, it was constructed one-paged with squares to fill in with "yes" or "no". Table I shows the questions in the questionnaire.

One practical problem was our decision not to inform the subjects of the main purpose of the study. This was because we thought that informed exposed individuals then would be more prone to report symptoms and on the contrary that informed non-exposed individuals should be less prone to report symptoms. This gave the trade union representatives an ethical dilemma and, because of this, it was also somewhat difficult to recruit companies to the study. The representatives, therefore, had to "guess" whether the employees were exposed to VDUs or not. The questionnaire started with a short introduction of skin diseases and different possible factors in the office environment that might influence the skin without drawing any specific attention to work at VDUs. However, mostly by misunderstanding, one third of the subjects were informed on the purpose of the study, despite our intentions. This gave us an opportunity to evaluate if information of the purpose had any influence to the result. The differences between the answers from those individuals who were informed about the purpose of the study and those who were not were tested by means of a chi-square statistic.

To validate the reproducibility of the self-administered questionnaire, it was presented once again just prior to the interview of 194 consecutively examined individuals. The time lapse between the first and second answers to the questionnaire was about 6–8 weeks. The Pearson correlation coefficient between the answers from the first and second response to the questionnaire was used to assess reproducibility. For the same 194 persons, the physician filled in another copy of the form after the interviews in the way he thought that the individuals should have answered. This was done to evaluate the reproducibility of the questionnaire and the relationship between the opinion of the examined subjects and the examining physician.

In the analysis of the data, we applied three measures of skin disease with increasing objectivity (questionnaire answers, clinical diagnoses, and status diagnoses). To exclude bias from the observer, skin status was noted before talking to the subjects and without knowing more about them than their names.

Table II. Correlation coefficients for the two responses to the self-administered questionnaire answered 6–8 weeks apart by 194 examined individuals. Ranges refer to groups of questions.

Type of question	Correlation coefficients (r)
Skin symptoms/signs within the last 2 years	0.84
Symptoms/signs now	0.37
Site of skin symptoms/changes	0.65–0.81
Type of signs	0.56–0.74
Type of symptoms	0.45–0.70

RESULTS AND DISCUSSION

Somewhat surprising was the finding that there were no significant differences between informed and non-informed in their way of answering the questionnaire. There is a lack of knowledge about how information about the purposes of a study influences responses given in questionnaires. The results regarding information in this study can be taken to suggest that information about the aims of a study may be less important than is usually thought. However, more likely in this specific case, we think that most of the subjects suspected the purpose of the study because of the great attention drawn to the problem in the Swedish mass media.

One hundred and ninety-four of the 800 examined individuals answered the same questionnaire once again 6 weeks later. Here, one would expect that there should have been a very high correspondence between the two answers because the same individuals answered the same questions. However, the correlation between the two answers was rather poor (Table II), especially for type of skin symptoms, but also for type of skin lesions. We suggest that the subjects misunderstood some of the questions and terms, that they easily forgot mild skin symptoms and that they, in many cases, were careless when answering the questions.

There was a relatively good correspondence between the questionnaire answers and the interviews, which were conducted with a time lapse of about 6 weeks. The interviews could confirm as much as 87% (Table III) of questionnaire answers concerning the main questions – that is the occurrence of facial

skin rashes or symptoms within the last two years. The correlation was as high for exposed as for the non-exposed.

However, there was a poor correspondence between the self-reported symptoms and skin signs. The status confirmed the questionnaire answers in only 46%. This low confirmation rate can not be explained by the period of 6 weeks that elapsed between the questionnaire and the examination because a real change, as judged by the patient history, had occurred in only 2.5% of the cases (as many improved as deteriorated). Only a few skin diseases showed a rather good correspondence and that was atopic and seborrhoeic dermatitis (Table IV) with confirmation rates of about 80–90%. These diseases obviously give marked signs and symptoms and, in these cases, it seems as if it is possible to rely on the self-reported answers. However, for most skin complaints, skin status, which usually is our major measure for skin disease, showed a poor correspondence to self-reporting. This was, for example, the fact for rosacea, which is the affliction that has aroused most interest when discussing work at VDUs and skin problems with a confirmation rate of only 45%.

What is our conclusion then of using questionnaires in dermatological research or in clinical practice? From what I have mentioned, it is evident that questionnaire answers are a poor measure for mild skin disease and the use of questionnaires alone cannot be recommended when studying mild skin problems due to a particular exposure in a population. For registration of diseases that give marked signs and symptoms as was the case for atopic and seborrhoeic dermatitis in this study, it seems that you can rely on self-reported answers. However, patients with skin complaints related to VDUs usually have rather mild rashes, but pronounced symp-

Table III. The proportion of self-reported facial skin complaints or rashes during the last two years in relation to the status diagnosis (signs only) and to the clinical diagnosis (signs and symptoms), respectively; 809 individuals examined.

Answer in the self-administered form	Status diagnosis		Clinical diagnosis	
	+	–	+	–
Yes (n=612)	0.36		0.93	
No (n=197)		0.76		0.84
Total confirmation rate	0.46		0.87	

Table IV. Relationship between self-reported facial skin complaints or rashes within the last two years and the clinical diagnosis and status diagnosis, respectively. The confirmation rate is taken as the proportion of individuals with clinical or status diagnosis, respectively, who also reported facial skin complaints or rashes on the questionnaire. 809 examined individuals.

Diagnosis	Clinical diagnosis		Status diagnosis	
	N	Agreement with the questionnaire	N	Agreement with the questionnaire
Rosacea*	81	0.69	31	0.45
Atopic dermatitis	49	0.92	18	0.89
Acne vulgaris	44	0.61	38	0.61
Seborrhoeic dermatitis	37	0.86	17	0.82
Dry skin only	71	0.75	6	0.17
Skin carcinoma	3	0.33	3	0.33

* Clinical diagnosis: Papulopustular (PP) rosacea (n=15): confirmation rate = 0.73.

Erythematotelangiectatic (ET) rosacea (n=66): confirmation rate = 0.68. Rosacea was not subdivided into the PP and ET types as regards the status diagnosis.

toms (9) and, therefore, the use of questionnaires in this situation does not seem to be adequate.

The results of the epidemiologic study (7) vary depending upon the different diagnostic criteria used. VDU-exposed subjects had significantly more skin symptoms, but no more objective skin signs (7). This discrepancy can not be explained by the way the subjects were selected or informed, by low participation or by differences in participation rate. The main reason for the discrepancy is probably that some persons experienced skin symptoms without having any skin signs, while others had marked skin rashes without noticing it. Persons with VDU work were then probably more alert to skin symptoms. We think that the relationship between the VDUs and the symptoms of these patients is doubtful (7). Of course, there might be a possibility that the VDU irritates the skin without giving permanent rashes even if there is no theoretical support for this point of view (10–12). Furthermore, nothing else in our epidemiological study (7) or in other studies (13, 14) speaks in favour of an effect on the skin of physical forces from the VDUs. The reason why individuals exposed to VDUs in the study have significantly more skin complaints than non-exposed, but not more rashes, is probably that they are biased by all the information in the mass media. The work with VDUs can perhaps be more stressful, which may be one explanation for subjective skin symptoms, that is, the symptoms could be of a psychosomatic nature. However, the only way to get an answer why some VDU operators have skin irritations is by performing double-blind controlled provocation stud-

ies, such as those having been carried out previously (13, 14).

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Skin Problems in Users of Video Display Terminals. Discrepancy between Subjective Symptoms and Objective Signs

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The skin has become a target organ for concerns related to work with video display units (VDU). The aim of this investigation was to describe the clinical picture, to investigate whether skin problems are more common in VDU-exposed persons than in non-exposed controls, whether there are differences in objective and/or subjective symptoms and signs, and whether there is a "specific" dermatosis associated with VDU work.

A self-reported questionnaire was mailed to 3,877 individuals. One out of five questions concerned the presence of skin problems. Of this group, 809 underwent a clinical dermatological evaluation in addition to filling out a structured questionnaire. Self-reported skin symptoms increased with increasing exposure to the VDU.

The clinical diagnosis, based on objective signs and anamnestic data showed a somewhat attenuated association with exposure. The status diagnosis, based solely on objective signs, failed to show any association to VDU exposure. Unilateral skin rashes occurred at the same frequency in the exposed and the non-exposed groups.

It is concluded that there is nothing in this investigation, or in any other investigation, that would speak against the notion that VDU-related skin problems and the allergy to electricity is just another facet of the "20th century syndrome". It is possible that individuals suffering from this condition, are conditioned to respond to certain stimuli by neurogenic release of mediators.

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Visual display terminals or units (VDTs or VDUs) constitute an important part of the ongoing technical revolution. It is one of the cornerstones of modern information technology and its usage is increasing rapidly within most fields of society such as industry, service, and administration (both official and private). It has changed the work of many people pro-

foundly. The introduction of this technology has been very rapid in many cases. Many VDU users appreciate its immense power and the possibility which this technique gives to broaden their profession. But, these machines are also quite relentless. They do not tolerate any compromises and they can be used for extremely monotonous types of work. This might create a quite high degree of stress in certain individuals, even in those who appreciate the new technology, because it gives a higher status to their work and perhaps also a higher pay for it.

In Sweden, 1.9 million people were working with VDUs already in 1984, i.e., half of the total population then actively working. The number increased to 2.2 million in 1989. VDU work is by no means something easily defined. There are highly qualified employees working with computer science, but also many people doing routine work, feeding the machines with figures, and without any possibilities at all to command their own situation at work.

This new technology has been followed from an occupational health perspective. The ergonomic conditions have been investigated and there are now rules for adequate design of tables, chairs and keyboards. At least this is the situation in Sweden.

It is also easy to understand that the eyes can be affected by long working hours in front of a VDU. Regulations have been issued concerning illumination, VDU quality (contrast, colors, etc.), colors in the working room and, above all, eye glasses paid for by the employer.

The question of a possible teratogenic effect of VDUs has been raised. A committee appointed by the Swedish Medical Association has scrutinized all available data and in 1987, they concluded that there is no evidence whatsoever of a teratogenic risk in humans. Nevertheless, they advise pregnant women not to work with VDUs; at least, not for long hours. (These recommendations are founded upon both human and animal studies.)

The skin has become a target organ for concerns

Table 1: *Diagnosis of 201 consecutive patients referred for dermatological consultation because of suspected VDU-related facial skin trouble*

	No/%
Rosacea	93/46
Seborrhoeic eczema	28/14
Atopic dermatitis	21/10
Acne vulgaris	13/6
Lentigo solaris	6/3
Xerosis	4/2
Others	54/27

related to VDU work. The first reports came from Norway in 1981 (1). In the late 1970's, 35 cases were reported to the Norwegian Labor Inspectorate (2). Twelve out of these 35 people were selected for further studies. In six out of these 12 persons, a rash was noticed mainly in the zygomatic region. It was not consistent with rosacea or perioral dermatitis, allergic contact dermatitis was also excluded. The rashes were reported to disappear in these six persons possibly as an effect of various preventive measures. The reporting in Norway has decreased, possibly a consequence of less intense coverage by the news media. Attempts were made to relate these symptoms and signs to certain air pollutants, but they were not successful. In the United Kingdom (3), and from the United States (4), isolated case reports have been published (1984-85).

In Sweden, isolated cases were noted during the early 1980s. In the fall of 1985, the situation changed dramatically. Three persons working with VDUs and with symptoms from their facial skin, were classified as having an occupational disease and the condition was acknowledged as such in one of the persons by the local insurance office.

The three patients all had skin lesions starting on one side of their face – the side which was continuously exposed to a screen. Many times, jobs required the intermittent use of a VDU. The unit was on all day long even when the operator is doing other things, e.g., paper work. There was also a distinct temporal relationship between skin symptoms and work at the VDU. Skin biopsies from the affected areas showed certain changes which were compatible with some external influence such as radiation. No control material was available in this early clinical phase. At about the same time, a very well-known Swedish author and artist died from malignant melanoma. The reasons for his death and the

possible connection with solar radiation was discussed in many newspapers.

These events, and the media coverage of them, caused considerable concern among many people working with VDUs. Various labor unions were activated. The referrals to dermatologists because of problems of this type, increased in number. This situation and the occurrence of unilateral rashes after exposure, prompted us to make an investigation of this problem. The aim of this investigation was to describe the clinical picture, to investigate whether skin problems are more common in VDU exposed people than in a non-exposed control group, whether there are differences in objective and/or subjective symptoms and signs, if there is a dose-response effect, a "specific" dermatosis, and, also, if there are indications of increased risks for skin cancer. This work has been presented in detail (5).

PATIENTS AND PROCEDURES

The study was divided into two parts, one clinical and one epidemiological.

The clinical study comprised 201 patients referred to the Department of Dermatology at the Karolinska Hospital in Stockholm, Sweden, by various physicians, whom they had consulted because of a strong suspicion of relationship between skin problems and VDU work (6). In the epidemiological part of the study (5), the participants were recruited by representatives of their trade union (the Salaried Employees Association, "TCO"). This population consisted of both VDU-exposed people and a non-exposed control group. A self-reported questionnaire comprising one page only was sent to 3,877 individuals. After three reminders, a participation rate of 96.6% = 3,745 persons was obtained. All of them were working in offices in three cities in Sweden. One out of five questions in the questionnaire concerned the presence of skin problems.

Out of the 3,745 persons, 879 were called for a personal examination by one of the authors (M.B.). The participation rate was 92% = 809 persons. These individuals were submitted to a structured interview comprising about 100 questions. Before the interview, when the investigator did not know anything about the person in question, the status of their facial skin was recorded.

The examined population was divided into four categories with regard to exposition: 0 = non-exposed controls, 1 = exposure for 0-2 hours per week, 2 = intermediate between groups 1 and 3, 3 = exposure more than 20 hours per week for at least five years. The dermatological diagnoses were made on three levels of objectivity. The status diagnoses comprised of the objective signs only. The clinical diagnosis was founded upon anamnestic data and objective signs. The questionnaire diagnosis rested solely upon the information given in the questionnaires.

The data were analyzed after stratification for sex and age into four age groups for all comparisons. The relative risk (RR) was calculated according to a modified Mantel-

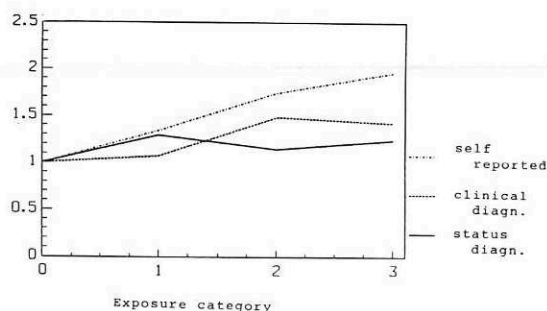


Fig. 1. Three different measures of skin disease of increasing objectivity: 1) self-reported answers, 2) clinical diagnoses, 3) status diagnoses (objectively visible skin signs only). Exposure Category 0 means no VDU exposure at all (control group), 1 means VDU exposure less than 2 hours a day, 2 intermediate between 1 and 3, 3 more than 20 hours a week for at least five years, 2 intermediate between 1 and 3. RR indicates relative risk; the controls have RR = 1.0 by definition.

Haenszel procedure (7). A 95% confidence interval (CI) for the RR (8) was calculated and statistical significance was considered to be present when the lower limit of the 95% CI exceeded 1.0.

RESULTS

The diagnoses of the referred patients are seen in Table I. The group "others" contain five patients with a pattern deviating from the rest and they will be commented upon later. No specific or characteristic dermatological picture was seen among these patients.

The results from the epidemiological study are summarized in Fig. 1. The self-reported symptoms increase in frequency with increasing exposure. The clinical diagnoses show a similar tendency, but there is no clearcut dose-relationship. The status diagnoses do not show any differences between the control group and the exposed groups. The most common clinical diagnoses are shown in Table II.

Unilateral skin rashes occurred in the same frequency in the exposed as in the non-exposed groups. Stratification on various variables brought no major changes to the trend of the results. This was true for different types of VDUs, smoking, wall-to-wall carpets, year for renovation, cosmetics, for example. No differences were found between different categories of VDU users such as programmers and systems engineers, secretaries and data registrars or between different VDU types. Surprisingly enough, there was a tendency to less symptoms in persons working at VDUs with stronger static and magnetic

fields. No differences were seen between different cities with different climate, nor between a number of other correlations tested.

Five out of the 201 persons in the first part of the study had a clinical picture deviating from that of the rest of the population. They believed that they had become allergic or hypersensitive to electricity. Thus, they were troubled by various electric appliances in general use such as electric ovens, fluorescent light bulbs, headphones, but also to sunlight and even white paper. They were all incapacitated and on sick leave either permanently or for periods.

DISCUSSION

There is no UV-radiation detectable from the VDUs, or any significant quantity of any type of x-rays. Neither the electrostatic nor the magnetic fields influenced the skin in a previous study (9). There is, however, another type of electric field – the alternating current field, which occurs in virtually all electric equipment. Neurophysiologists regard these forces as absolutely unimportant in relation to the very substantial forces created within the human body during natural conditions (10). Nevertheless, these forces are thought to be the cause of incapacitating illnesses by individuals claiming a hypersensitivity to electricity in general.

The role of the news media and of the labor unions is interesting. At the beginning of the "epidemic", as we may call it, there were continuously articles in the weekly labor union papers. In only one of them, more than 100 articles have appeared during the last few years. The articles have described

Table II: The clinical diagnoses. The most common clinical diagnoses, their prevalence within the last two years in the total examined population of 809 persons, and a comparison between the highly exposed and the non-exposed categories.

Diagnosis	Prevalence (%)	RR and 95% CI* Comparing category 3 with category 1
Rosacea	10.0	1.20 (0.69–2.10)
Dry skin alone	8.8	1.83 (0.92–3.62)
Non-specific skin symptoms	6.4	2.98 (1.25–7.07)
Atopic eczema	6.1	0.86 (0.37–1.98)
Acne vulgaris	5.4	0.72 (0.30–1.67)
Seborrhoeic dermatitis	4.6	2.19 (0.96–4.98)

* Confidence interval

Table III: *Symptoms in:*

20th century disease (11)	
Cardiovascular	Nervous system
palpitations	headaches
Respiratory	tinglings
coughing	faintness
hoarseness	unsteady gait
Locomotor	tiredness
muscle twitchings	disorientation
aching bones and back	depression
inability to move at times	
Hypersensitivity to electricity (12)	
Skin	Nervous system
flushing	dizziness
stinging	fainting
tenderness	stinging
swelling	anaesthesia
itching	tiredness
dryness	headache
Cardiovascular	depression
palpitations	sweating
Respiratory	chills
impaired respiration	

individual cases with supposed skin damage and they make violent attacks on the Labor Inspectorate and the individual scientists not corroborating the suspicion of VDU damage. One trade union is touring the country "educating" its members how to recognize early symptoms and possible signs of VDU damage. The official administration of the state has decided to buy only so-called low radiating VDUs. The parliament has passed a law declaring that from 1991 on, only such VDUs are to be sold. This has been done without any scientific proof whatsoever. It is the result of effective lobbying and the political risk inherent in the situation. A representative of the trade unions once said that they could not wait for slow research to produce results. They had to take care of their members. "We just tell the producers what we want and they will do it".

It is almost inevitable to draw some parallels to the "20th century disease" or "total allergy syndrome". This phenomenon has been described during the 1980s mostly from English-speaking countries. It is a disease state or a syndrome thought to be provoked by various environmental factors. The general hypothesis is that there is an overload of artificial materials in the environment causing disease in susceptible individuals.

A number of papers have been written on the subject. All scientifically based reports refute this phenomenon. A good description is given by Stew-

art, et al. (11) where further references can be found. In this particular work, eighteen patients were examined by a psychiatrist.

Patients with such symptoms are taken care of by "clinical ecologists" with treatments which are said to be both unorthodox and very expensive. Recommendations of moving from the city to the country to "an ecologically safe oasis", "organic" vegetables, triply distilled water, "rotary" diet, are common. One patient had her own oxygen line to her bedroom and she kept away from synthetic material altogether: from smoking, sprays, shampoos and perfumes. Ecological clinics have sprung up in the U.S. above all. In Ontario, the Ministry of Health has appointed an ad hoc committee for hypersensitivity to the environment.

The symptoms of these patients are shown in Table III together with the symptoms of 32 persons in Sweden claiming that they are hypersensitive to electricity (12).

CONCLUSION

To conclude, there is nothing in the investigations performed by us or by other investigators which speaks against the view that both the VDU-related skin problems and the allergy to electricity are another facet of the 20th century syndrome. I.e., a movement which is recruiting susceptible individuals by means of a publicity which tells case stories and which makes uncontrolled interpretations of certain causes to the symptoms and, in this way, creating apprehension. What could be the cause of the symptoms, which no doubt are very real to the patients? One possibility is that these individuals are conditioned so that they respond to specific situations by neurogenic release of mediators, which give rise to the sensations. This possibility is presently being looked into at our department. We hope that a physiological explanation to the symptoms will decrease the fear of these people.

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Localization of Self-inflicted Dermatological Lesions: What do They Tell the Dermatologist?

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The dissimulating attitude of factitious patients creates the need for objective clinical features which cannot be faked and which have a genuine value for the psychiatric diagnosis and prognosis. The psychiatric significance of the localization of self-inflicted dermatological lesions is investigated in four psychiatric areas: the type of life events preceding specific localizations, underlying psychiatric profiles that are characteristic for a given localization, differential response to treatment and psychiatric sequels.

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Patients with self-inflicted dermatological lesions or other factitious disorders, deviate from the general rule that when a patient consults the physician, he gives a fair and truthful anamnesis and has the expectation to get cured or better, or at least helped by the medical treatment. Factitious patients deceive their doctors, to some degree purposeful, and thwart their therapeutic aims. This creates a paradoxical situation where the patient's motives and expectations are antagonistic to those of the physician (1).

In factitious dermatological disorders, the patient dissimulates the self-provoked nature of the cutaneous lesions and he gives misleading anamnestic information in order to blur the self-inflicted origin of the dermatosis. In most cases, he will persist with the self-harming behavior and perpetuate the cutaneous artifacts, thus hindering the healing process.

Although factitious patients antagonize the doctor's actions, they still repetitively consult them (2). Patients with the D.S.M. III diagnosis (3) "Chronic factitious disorder with physical symptoms" oppose the psychiatric referral they undoubtedly need. The non-psychiatrist physician (the dermatologist, the general practitioner, the surgeon or the plastic surgeon) has to deal with the diagnosis and the management of these peculiar patients (4). The difficulty of

dealing with these patients is caused by the fact that dermatitis artefacta belongs not only to the range of self-destructive behavior, but also to the spectrum of dissimulating disorders, both of which are notorious for their constituent of resistance to psychiatric treatment (5).

As these patients prove deceitful in their anamnesis, any clinical feature which cannot be faked and which may help of the detection and the diagnosis of factitious disorders deserves further investigation (6). The localization or the body distribution of self-provoked cutaneous lesions is one clinical item which is objective and readily accessible.

Most research into the psychological significance of self-mutilation on different body parts such as skin, head, eyes, genitals or limbs has been situated in the fields of psychoanalysis (7, 8), medical anthropology (9) or cross-cultural psychiatry (10,11). Although these fields have made an outstanding theoretical contribution by assigning particular symbolic meaning to different body part localizations, they have not answered the need for a more practical and clinical psychiatric approach (12).

The following data on the relevance of body localization as a diagnostic clue and as an indicator or prognosis in factitious skin disorder are part of a broader and long term psychiatric prospective study on the etiology, the underlying psychiatric illnesses and the outcome patterns of different types of self-mutilative disorders.

METHODS AND PROCEDURES

Out of 220 patients with self-mutilation (Table I), who were diagnosed and treated by different medical departments in conjunction with the psychiatric department at the University Hospital of Ghent between 1972 and 1985, 159 patients with dermatitis artefacta were screened. All patients were diagnosed in the Dermatological Department. They received psychiatric treatment from us in the Psychodermatology Psychiatry Liaison Unit together with dermatological care. From those 159 dermatitis artefacta patients, those with a consistent and constant pattern in the body distribution of their self-inflicted dermatological lesions

Table I: *Self-mutilization subtypes (n=220)*

Dermatitis artefacta	159
Delicate Self-cutting	17
Inserting Objects	10
Deep cutting	6
Self-induced fracture	6
Pinning	4
Interfering with surgical wounds	3
Interfering with plastic surgery	3
Genital self-mutilation	3
Self-burning	3
Self-amputation	2
Ingestion of caustics	2
Eye-mutilation (enucleation)	2

were selected. From this group, 97 could be evaluated in 1985 for a prospective protocol. Two years later, 89 patients returned for a follow-up assessment.

The choice for the four different body regions was based on the principal localizations as referred to in leading research on self-mutilation (10, 11): head and throat region, limbs, genital and breast area and lesions scattered over the whole body.

The evaluation, both in 1985 and in 1987, involved three major components – a psychiatric, a medical, and a psychosocial one. The assessment was performed by a multidisciplinary medical team consisting of a psychiatrist, a dermatologist, and a general practitioner. The exceptionally strong compliance and low drop-out figures for follow-up in this extensive psychiatric and medical procedure is due to the dermatitis artefacta patients' willingness to be investigated medically and their high consumption of medical attention, as well as to the intensive collaboration between the dermatologist and the psychiatrist.

The outcome pattern of the cohort with consistent body localization of skin artifacts, included the evolution of the self-inflicted dermatological lesions themselves, the detection of psychiatric disorders other than the psychiatric diagnosis which initially was retained as the underlying cause for the self-mutilation and an assessment of the invalidism related to the artificial dermatitis.

RESULTS

This report is limited to the general sociodemographic profile of the 89 dermatitis artefacta patients and to prominent trends in the link between a particular body distribution of lesions and the preceding life events, psychiatric diagnosis, response to treatment, and psychiatric long term risk. For each localization, we have registered general data and indicated only those psychiatric factors which were significant for a given localization. The sociodemographic data are summarized in Table II.

Four categories of psychiatric data were correlated with the body distribution:

1. Particular life events preceding specific localizations: In the two years preceding the onset of factitious dermatosis, 3 events were screened: bereavement, separation, and malpractice. Furthermore, long term hospitalization in the youth and violence or sexual abuse in the family were inquired into.
2. The underlying psychiatric profile that is characteristic for a given localization: D.S.M. III axis I diagnosis and axis IV personality disorders were investigated.
3. The specific treatment response of the different localizations: both the impact of the factitious patient's confrontation with the self-provoked nature of his lesions and the efficacy of psychotherapy and psychotropic drug treatment were evaluated.
4. The risk for specific long-term psychiatric complications: particular attention was given to the tardive risk of psychiatric disorders within the spectrum of self-destructive pathology, i.e., drug abuse, suicide, alcoholism, or factitious illness in

Table II: *Sociodemographic data*

	Head & Throat n = 36	Limbs n = 20	Genitals n = 47	Total Body n = 16
Female	75%	80%	47%	88%
Mean age at detection (years)	28	40	40	31
Education level	normal	normal	normal	88% only primary education
% in medically related field	44%	50%	77%	37%
% married (or permanent relationship)	23%	35%	41%	37%

Table III: Significant psychiatric markers in different body localizations

Psychiatric Characteristics	Localization			
	Head	Limbs	Genital	Total body
Anamnestic marker	Childhood marker	Frequent medical hospitalization	Family violence & sexual abuse	Separation & grief
	Recent life events	Grief & separation (subgroup A)	Industrial injuries & (real or fictive) malpractice	Separation
Psychiatric profile	2 subgroups a. transient after life crisis b. personality disorder	Borderline personality	Masked depression	Low intelligence Social marginality Personality disorder
Response to treatment	Confrontation positive, receptive for psychological guidance (subgroup a), confrontation negative (subgroup b)	Confrontation negative	Anti-depressants & cognitive psychotherapy	No consistent treatment advice No positive outcome pattern
Psychiatric risks	Suicide & psychosis (subgroup b)	Alcoholism, drug abuse, pathomimicry (other than dermatological)	Hypochondriasis, medical shopping	Invalidism, eating disorder, dependence on sedatives.

non-dermatological organs e.g., factitious anaemia. The distinctively significant characteristics are summarized in Table III.

DISCUSSION

Regarding the general sociodemographic characteristics, it may be stated that although there are gradual differences between the four localizations, these data are in general agreement with the overall characteristics of factitious patients as reported in research on factitious disorders: they are mostly female, unmarried, in the 25–45 age group and they often have a professional connotation with the paramedical field (13, 14, 15).

Head and throat artifacts

Dermatitis artifacts with cutaneous lesions limited to the head and neck area are generally preceded by long term hospitalization during childhood. In the underlying psychiatric problems, two subgroups are found. In the most frequent psychiatric pattern (subgroup a: 19 out of 36), the lesions are the result of avoidance behavior or a cathartic reaction following a stress-situation. These patients do not have severe

personality problems, but the tension they experience is the result of crises and of "rites de passages" in their life-history. They can be singled out by screening, during the two years before the onset of their self-inflicted pathology, for particular life events such as grief, after the loss by death of a family member, or separation when they feel deserted by a significant relationship. This subgroup is willing to accept its responsibility in provoking the cutaneous problem. Consequently, it is advisable to confront these patients and refer them for psychological treatment which they welcome. A combined treatment with psychotropic drugs and psychotherapy leads to the resolution of the psychological and medical problems.

In subgroup B (13 patients, 4 patients cannot be allocated to either of the subgroups), the profile is different. Patients have severe personality disorders. There is a high incidence of suicide attempts preceding the artifacts and, in the follow-up, two types of psychiatric complications emerge: suicide attempt and psychotic phases (15). Their underlying motives are more of self-punishing nature. Their cutaneous artifacts may actually serve to prevent psychotic dis-

integration, so attempts to deal with the underlying psychopathology should be extremely cautious. This group of patients reacts negatively when confronted with the diagnosis which therefore should be avoided. The results of either intensive psychotherapy or combined psychotherapy/psychotropic drugs are poor.

Self-inflicted dermatological lesions on the limbs

A traumatic history of incest and battering during infancy and childhood is often found in patients with cutaneous artifacts localized on the limbs. Their more recent history shows professional difficulties with the occurrence of industrial injuries followed by legal tribulations or malpractice claims (e.g., a claim of medical maljudgement of the sequelae of the industrial accident). All these events can easily be checked in a general anamnestic investigation, without raising the suspicion of the patient. So these items may function as markers.

Severe personality disturbances are frequently present. The diagnosis of self-inflicted dermatological lesions in this group is often delayed. When confronted with the diagnosis, patients tend to react negatively. The self-mutilative cutaneous behavior is often followed by some other psychiatric morbidity such as alcohol and drug abuse and pathomimicry shifting to other organs than the skin, e.g., factitious anemia.

Self-inflicted dermatological lesions in the genital and the breast area

In a majority of these cases, the self-mutilative behavior is preceded by a traumatic life event (death or separation) and escalates during a depressive and hypochondriacal reaction. Treatment with antidepressants and cognitive psychotherapy yields the best remission rate (16). Obviously, this type of treatment can very well be administered by a non-psychiatrist physician. The long-term sequelae are less pronounced psychiatrically, but rather tend to belong to the field of health and illness behavior. Hypochondriacal fixation with excessive medical shopping is the most consistent pattern in cases which have not responded favorably to treatment.

Self-inflicted dermatological lesions over the whole body

The social characteristics of patients with factitious cutaneous lesions scattered over different body areas are singular. The patients in this group combine a

socially marginal situation with severe personality disorder, e.g., borderline disorder with poor impulse control. They generally have severe psychiatric antecedents with self-mutilation or eating disturbances having occurred transiently during childhood. Remission is seldom arrived at and severe psychiatric complications tend to occur, e.g., eating disturbances, high invalidism and dependence on sedatives, all of which may result in psychiatric hospitalization (17, 18). Even with proper psychiatric management, the results are often disappointing, since it is too late for many to be helped. Early detection and an active management, with supportive treatment is recommended, but very hard to realize.

GENERAL CONCLUSIONS

The incidence of factitious disorder is higher in dermatology than in other medical disciplines, naturally because of the easy accessibility of the skin and the fact that the skin is also an organ of expression (19, 20). Self-inflicted dermatological lesions range from benign subtypes to serious cutaneous lesions based on serious psychiatric disorders (21). Mild subtypes are lesions caused by scratching in itching dermatoses, hair pulling, tic causing trichotillomania, and acn excori, by aggravating preexisting acne lesion (22). In all of these self-inflicted dermatological lesions, the patient's aim is not primarily to mislead the doctor or to mask his own role in the lesion, but to relieve unbearable itching or to alleviate some nervous tension.

Dermatitis artefacta properly speaking, is a much more complicated problem. The psychiatric pathology is a complex of three different pathologies: **somatization** (23) – the expression of an underlying psychiatric problem through physical symptoms, **self-destructive tendencies** (24) – the cutaneous lesion is provoked through a self-mutilative act – and **pathomimicry** (25, 26) – the mimicry of factitious self-provoked cutaneous lesions as a genuine dermatosis.

It is obvious that such a complicated psychiatric pathology requires skilled care, but, as every physician knows, it is very difficult to motivate these patients to consult a psychiatrist. Somatizers in general resist psychiatric referrals, but patients with self-inflicted somatization, as is the case in dermatitis artefacta, resist and resent psychiatric referral even more (27). Not only is the incidence of anxiety and depression quite high, as Derogatis & Wise have emphasized for medical patients in general (28), but

in cutaneous factitious disorder, psychiatric disorders which are more difficult to manage are frequent. From a pragmatic point of view, the non-psychiatrist physician will have to manage these patients himself. The investigation of particular body localizations, a clinical item which is readily available and objective, yields some guidelines for the management.

Patients with self-inflicted dermatological lesions in the face and in the genital area are more inclined to accept psychiatric or psychological referrals. These localizations in general show a good response to a treatment program which combines psychotropic drugs and psychotherapy.

The other localizations, on the limbs and on the total body, strongly resist referrals to psychological treatment. Confrontation of the patient with the self-inflicted etiology of his dermatological problem is best avoided. As the psychiatric co-morbidity in these groups is very severe, it is essential for the physician non-psychiatrist to learn how to handle the necessary psychotropic drug treatment and to provide elementary supportive psychotherapy. Given the reluctance of patients for psychiatric referral, innovative models of psychiatric back-up, by the consultation-liaison psychiatrist, are required.

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Children with Dermatological Disease and their Mothers

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Our study hypotheses are based on extensive, clinical experience of patients with psoriasis and atopic eczema and on observations of emotions these patients tend to provoke in nursing personnel. We wanted to see whether there were statistically significant differences between these patient categories. We also wanted to compare dermatological patients with patients seeking help for psychological problems (alexithymia-hypothesis). Since psoriasis starts and atopic eczema often gets worse in puberty or young adulthood, we chose to study teenagers.

On this occasion, we will discuss the Rorschach test results of our female subjects (n: 99) and their mothers (n: 68) scored by Holt's "Method for Assessing Primary Process Manifestations and Their Control in Rorschach Responses" and the girls' scores on Edwards Personal Preference Schedule – questionnaire. The results seem to confirm the alexithymia-hypothesis and our control group of young psychiatric outpatients (mainly neurotics) produce more varied Rorschach protocols consisting of more primary process material and more creative solutions. In contrast, protocols of psoriatics are strict and formally good with occasional outbursts of slightly shocking primary process material. Girls suffering from atopic eczema produce long and varied, but rather defensive, Polly Anna-like protocols. The statistical differences between mothers and daughters within each diagnostic group suggest that the psychiatric patients differ most from their mothers in the following areas: they give more libidinal answers which often are of more primitive kind than the answers of their mothers, and, they seem to have better means of coping with their impulses than the mothers. The atopic eczema girls appear to have different focus for their fantasies than their mothers: the girls show more masochistic orientation and the mothers show more overt sexuality. The psoriatics differ from their mothers only in giving more creative and formally better answers

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For years, there has been eager discussion among

personnel of the Dermatological Clinic of Helsinki University Central Hospital regarding personality differences between the two most common patient groups: patients with psoriasis and patients with atopic eczema. Though giving them medical care has been seen rewarding, there has been specific difficulties in long term care with both patient groups. Patients with psoriasis are prone to be seen as frustrating, though they superficially cooperate. However, getting more meaningful emotional contact with them, is found to be difficult. They seem to be rather self-sufficient people, burdened with everyday problems. In other words, they are people who, in present psychosomatic jargon, would easily be called alexithymic. On the other hand, nursing personnel often seem to get in trouble with behavior and emotional outbursts of in-patients with atopic eczema – there is a sense of drama. In their case, the concept of alexithymia would not explain very much.

The conceptualization of alexithymia has all over widened since time Sifneos first introduced it (1). Some seek its connections with cognitive processes (2). Some concentrate on the heterogeneity of the concept (3, 4). Some ponder if it is a deep-rooted personality trait, or rather a state that is provoked by external agents – maybe by the illness itself (5).

Our approach was to study the differences of the two ostensibly different groups of dermatological patients in the framework of psychoanalytic development theory. We wanted to see whether or not these patients had different kinds of developmental fixations. The hypothesis was that the differences would be found in the earliest phases of psychosexual development. Those who consider alexithymia as a trait, traced it back to early mother-child relationship (6). On the other hand, we wanted to see whether these patients formed a uniform alexithymic group compared with neurotic patients or, would it be as we expected, that the atopics would more resemble the neurotics than the psoriatics.

It was in our primary interest to understand the possible psychopathology in psoriatics of which fewer studies have been made than of atopic eczema. Former studies on the personality of psoriatics

Table I. Number of subjects in different groups: Psoriasis, Neurosis and Atopic Eczema

	Experimental group Psoriasis		First control group Neurosis		Second control group Atopic eczema	
	Children	Mothers	Children	Mothers	Children	Mothers
Girls	32	23	30	24	37	27
Boys	16	15	18	11	26	18
Total	48	38	48	35	63	45

have tended to give meager results (7, 8) because of deficient methodology. For example, Shuster has suggested that more indirect methods than questionnaires should be used (9). Questionnaires can only tell about things the subjects are well aware of and willing to report. Projective tests are harder to "fake" because they try to catch the preconscious imagination of the subject. Also, in handling interview material, the interviewer's evaluations and counter transference feelings might give more useful information than the subject's answers taken at face value (10).

MATERIALS AND METHODS

Because psoriasis often starts and atopic eczema often gets worse in puberty or young adulthood, we chose to study teenagers (age 12–19) seeking help at Helsinki University Central Hospital. This also gave us a possibility of getting in touch with the mothers with whom almost all of these young people still resided. The material was gathered in 1980–1983.

The experimental group of *psoriatic patients* consisted of

32 girls (and 23 of their mothers) and 16 boys (and 15 mothers). There were both inTM and out-patients, respectively, because of the relatively small number of young psoriatics seeking treatment. The *first control group* consisted of psychiatric out-patients with mainly neurotic complaints. There were 30 girls (and 24 mothers) and 18 boys (and 11 mothers) in this group. The *second control group* consisted of only hospitalized patients with atopic eczema. The huge amount of very mild cases of atopics in out-patient care could not have been easily compared with psoriatics in out-patient care. In our group of hospitalized atopics, there were 37 girls (and 27 mothers) and 26 boys (and 18 mothers).

Each young person was interviewed (slightly structured questions about general development) and tested psychologically (the Rorschach Test and the Edwards Personal Preference Schedule [EPPS]). With her or his permission, I then interviewed and tested the mother by the Rorschach Test. Finally, the dermatological patients and their mothers were interviewed about the disease observing their interaction and the interviewer's own counter-transference feelings (Diagram 1). Some young persons did not want their mothers to be contacted and some mothers refused for various reasons. Some mothers could not be contacted because they lived so far away.

Diagram 1

The Procedure of the Study

1. CHILD: Individual interview
(developmental history)
THE RORSCHACH TEST
EPPS-QUESTIONNAIRE
2. MOTHER: Individual interview
child's development)
THE RORSCHACH TEST
3. CHILD: (with dermatological disease) and
MOTHER:
COMMON INTERVIEW –
(medical history, present situation,
counter-transference feelings)

In this paper, we will discuss only the results of the psychological investigation made of our female subjects and their mothers in the different diagnostic groups and offer impressions of the mother-child interview. The mean of ages in the group of psoriatic girls was 16.4 years (s.d. 1.5), in the group of neurotic girls 16.4 years (s.d. 1.9) and in the group of atopic girls 15.3 years (s.d. 2.0).

The Rorschach test

As our main psychological test, we chose to have the Rorschach Inkblot Test. It is a projective test that can easily be used in psychodynamic frame of reference. It is supposed that watching those ambiguous pictures, one projects to them his or her central wishes and fantasies, which are of early developmental origin. The test material was scored by Holt's system called "A Method for Measuring Primary Process Thinking and its Control in Rorschach Responses".

Table II. Differences between girls in different patient groups: Analysis of variance between the girls' unmodified Rorschach and EPPS scores (n: 89)

Variable	Psoriasis (Ps)	Neurosis (N)	Atopic eczema	Level of significance total	Ps/N	Ps/AE	N/AE
T1 Number of Ro-responses	16.8	20.0	9.8	(0.07)	0.04	0.04	
T2 Primary process (PPR)	9.2	11.3	9.3		(0.07)		
T14 Libidinal level 2	29.8	40.6	24.0	0.02	(0.08)		(0.06)
T20 Animal responses	3.3	5.4	4.2	0.03	0.007		(0.08)
T24 Popular resp. (Fo)	6.6	8.2	7.6	(0.09)	0.03		
T27 Creativity	20.6	21.2	18.1	0.002		(0.07)	0.001
T28 Most creative response	6.0	6.6	4.7	(0.08)		0.03	
T29 Defence demand (DD/PPR)	21.1	21.0	14.3	0.000		0.000	0.000
T30 Defence Eff. (DE/PPR)	17.9	5.9	8.9	0.003		0.001	0.006
T32 Adapt. regr. DDxDE/PPR	12.9	7.9	9.3	(0.06)	0.03	(0.08)	
- Need Achievement	10.2	11.9	13.3	0.04			
- Need Intracception	14.2	15.4	13.1	(0.09)			0.04

It gives measures for wishful or *primary process thinking* (PPR) which is either

- 1) of libidinal nature and derives from different levels of psychosexual development or
- 2) of aggressive nature (aggressor, victim or result) or
- 3) obscures the formal aspects of perception (mechanisms known from Freud's interpretation of dreams: condensation, displacement, symbolism, contradiction (11)).

Each of these three groups of primary process thinking is still divided into two levels depending on: how crude and open (level 1) or how socialized (level 2) the answer consisting of primary process is.

Each primary process answer then receives several CONTROL-scores measuring the ways the subject is defending himself or herself against the primary process idea:

- 1) How far from oneself is the drive placed? (Remoteness)
- 2) Which classical defenses are seen in the verbalization of the answer? (Projection, Negation, etc.)
- 3) Does the drive show itself somehow overtly in the answer? (Overtness)
- 4) Can the subject shift between primary process and neutralized thinking? (Sequence)
- 5) Is the drive seen in some kind of a context that makes it socially more acceptable? (Humorous, Cultural, Intellectual)

The former (1-5) are easily scored by adding up the number of answers in question.

- 6) The *form level* of each response is scored in a little bit harder way by a scale Holt has adopted from Mayman.

The scorer then estimates 7) the *creativity* of each primary process answer, and also the degree of 8) social acceptability (*Defence Demand*) and effectiveness of the 9) defenses (*Defense Effectiveness*) of each primary process answer. Finally, a general score 10) *Adaptive Regression* can be computed (12, 13).

It was hoped that all the Rorschach scores would give an overall picture of the personality differences between the three patient groups. The libido and aggression scales were also intended to shed light on the background of the inter-

action between mothers and daughters: would their personal fixations be different, congruent, or perhaps complementary? The control scales of the test were especially meant to measure things related to alexithymia.

The Edwards Personal Preference Schedule (EPPS)

EPPS questionnaire is a widely used and well constructed personality test that gives measures on 15 personality traits, or "basic needs" as they are called. These needs suit conceptually to the psychodynamic framework of this study and they complete the Rorschach test by giving information on the conscious aspects of the personality (14)

Statistical analysis

In some of the Holt's categories, there were so few answers that the Context, Overtness, Classical Defenses categories were omitted and some others were combined. The diversity of libido-categories was made into two categories, Pre-oedipal and oedipal. Also, all the formal categories were combined.

The distribution of each Rorschach variable was studied. If the distribution was somewhat skewed, it was forced towards normality. If there were many zero-responses, and others were distributed widely, the variable was dichotomized. The EPPS-variables were normally distributed.

The main statistical method in testing the differences between the three patient groups was one-way analysis of variance.

- 1) The mean of each Rorschach and EPPS variable was computed in each patient group and the differences between groups were tested (analysis of variance).
- 2) The means of the mothers' Rorschach variables were tested respectively (analysis of variance).
- 3) The differences of each mother's and daughter's corresponding Rorschach scores were computed and new "Difference" variables were formed. Then, the means of the "Difference" variables were computed within each patient group and the differences of the means from zero were tested by *t*-test.
- 4) Finally, the differences of these mother-daughter differ-

Table III. Differences between girls in different parent groups: Analysis of variance between the girls' modified Rorschach scores (n: 88)

Variable	Psoriasis (Ps)	Neurosis (N)	Atopic eczema (AE)	Level of significance		
				Total	Ps/N	N/AE
T3 Pre oid. level 1	0.00;	0.32	0.00	0.000	0.000	0.000
T4 Pre oil. level 2	1.70	2.25	1.47	(0.07)		0.02
T5 Oedipal, level 1	0.03	0.14	0.00	(0.08)		0.03
T6 Oedipal, level 2	1.60	1.86	0.83	0.01	0.03	0.007
T13 Libidinal, level 1	0.00	0.39	0.42	0.00	0.00	0.00
T18 Formal, level 2	0.33	0.68	0.42	0.02	0.01	0.02

ences were tested between the patient group (analysis of variance).

RESULTS

A number of Rorschach variables significantly differentiated the patient groups. The "Difference" variables shed some light on the interaction between girls and mothers within each group. The differences of the "Difference" variables were perhaps harder to understand. EPPS questionnaire gave meager results, which coincides with previous studies with questionnaires.

The group of *psoriatic patients* was characterized by relatively small number of answers. There was less primary process, especially less civilized libido answers than in the group of neurotics. Popular and animal responses were fewer than in the other groups. Level of creativity was between the other two groups. Defence Demand was much higher than for AE-group, Defence Effectiveness was highest of all and Adaptive regression score, which is the product of Defence Demand and Defence effectiveness, was highest of all. Need achievement was lowest of all.

The group of *neurotic patients* gave plenty of primary process answers. The number of pre oedipal answers, level 2, was high. There were also plenty of popular responses and animal responses. Creativity was highest of all the patient groups. Defence Effectiveness and Adaptive Regression were lowest. Self-reported need for introspection was highest.

The group of *atopic patients* gave more answers than psoriatics though the number of primary process answers was equal in both groups. Creativity and Defence Demand were lowest in this patient group. Self-reported need for achievement was highest (Table II). The modified Rorschach scales show how the group of neurotic patients really differs from the others. They show more pre-oedipal material from both levels, crude and sophisticated and more crude oedipal answers than the others. Also, the number of all open libidinal answers and primary process producing formal deviations is highest. On all the mentioned respects, the psoriatics and the atopics are very much alike. They differ from each other only in that the atopics give less answers of sophisticated oedipal nature than the two other groups.

On the whole, *the girls with psoriasis* seemed to be rather strict and controlled, giving way to libidinal

Table IV. Differences between mothers belonging to different patient groups: Analysis of variance of the Rorschach scores (n:68)

Variable	Psoriasis (Ps)	Neurosis (N)	Atopic eczema (AE)	Level of significance		
				Total	Ps/N	N/AE
A8 Aggressor, level 2	2.3	3.2	3.4			(0.06)
A20 Animal responses	2.8	4.1	4.3	(0.08)		0.04
A29 Defence demand	22.2	18.1	19.5	0.03	0.05	0.03
mod. scales:						
A5 Oedipal, level 1	0.05	0.29	0.24	0.03	0.01	
A11 Aggr. result, level 1	0.17	0.00	0.09		0.05	

Table V. The differences of the psoriatic girls' and their mothers' Rorschach Scores – Difference from zero tested by *t*-test (n:68)

Variable	Daughter	Mother	Difference	Level of significance
E25 Popular responses	9.21	8.66	0.95	0.0004
E26 Form level	52.82	49.26	4.00	0.05

themes, only when they are sophisticated and not of very early origin. The high score on Adaptive Regression is hard to combine with this picture, and may challenge the validity of the scale. That has been criticized before (15). If this is true, the psoriatic patients would fit in the picture of alexithymia.

The *neurotic patients* showed more libido than the others as was expected and they also seemed to have better means to cope with their impulses because of greater creativity, courage and willingness toward introspection. Anyway, their defenses did not seem to hold very well – or is this so only in the present stressful circumstances while they are seeking psychiatric help.

The overall picture of *the girls suffering from atopic eczema* seems to be a picture of a rather conventional, "good" girl, who has difficulty in reaching psychological puberty. She is certain to seek regressive kind of contact. Her main problem doesn't seem to be alexithymia. It is rather Polly Anna-like denial (Table III).

The differences between the mothers are not many. One main difference between them seems to be in handling aggression. In this respect, the mothers of psoriatic patients differ from the others; they show less active, socialized aggression (difference from the mothers of the atopics is almost significant) but significantly more crude and open themes of death and decay. Perhaps just these answers make

their Defence Demand scored higher than the others. On the other hand, when the other two groups of mothers give somewhat deviant answers, they are of overt sexual nature. Also, a number of animal responses differentiate the mothers of the psoriatics from the other mothers: the scarcity of them might mean that the mothers of the psoriatics are less inclined to childlike intimacy than the others (Table IV).

The dynamics of the mother-daughter interaction

For technical reasons, the computed differences between mothers' and daughters' scores do not always correspond the differences one would get counting them by hand: the group means have been computed on another occasion and with possibly slightly different numbers than when finally computing new "Difference" scales and their means.

The *girls with psoriasis* do not differ very much from their mothers, though they give formally better answers among which there are also more popular answers (Table V).

The *neurotic girls* differ in amount from their mothers on several Rorschach scales. The girls show more libidinal material, which is mainly of pre-oedipal nature than the mothers. The girls' answers are formally better and more creative than the mothers'. More often, the girls put their impulses towards remote fantasy objects that might be age-relevant.

Table VI. The differences of the neurotic girls' and their mothers' Rorschach scores – Difference from zero tested by *t*-test (n:68)

Variable	Daughter	Mother	Difference	Level of significance
E2 Primary process	11.28	8.50	2.87	(0.08)
E3 Pre oedipal, level 1	4.34	1.30	3.04	(0.06)
E4 Pre oedipal, level 2	2.87	1.06	1.22	0.003
E14 Libido, level 2	40.43	23.91	16.52	0.03
E22 Remoteness, fantasy, etc.	2.30	1.13	0.65	0.01
E26 Form level	52.44	47.25	4.61	0.02
E28 Creative response	6.56	4.85	1.95	(0.09)
E29 Defence demand	21.00	18.10	2.82	(0.07)

Table VII. The differences of the atopic girls' and their mothers' Rorschach scores – Difference from zero tested by *t*-test (*n*:68)

Variable	Daughter	Mother	Difference	Level of significance
E5 Oedipal, level 2	0.00	6.25	-6.25	0.02
E10 Victim of aggr. 1,2	10.21	5.21	5.00	0.04
E13 Libido, level 1	0.00	7.50	-7.50	0.02
E29 Defence demand	15.25	18.55	-3.09	0.02

They also have somewhat more shocking answers than the mothers. On the whole, the girls seem to have more capacity for psychic work than the mothers (Table VI).

The mother-daughter differences compared between the three patient groups

The means of the "Difference" variables in each patient group were finally compared by analysis of variance. The study of mother-daughter differences does not provide much additional information (Table VIII).

The psoriatic patients differ from the neurotic patients only on the question of pre-oedipal answers. The neurotic girls give more pre-oedipal answers than their mothers, while the difference between psoriatic patients and their mothers is almost zero.

The psoriatic patients differ from the atopic patients in the question of oedipal matters. On the sophisticated level, the psoriatics give more answers of that kind than their mothers and the difference is greater than in the group of atopics. On the open level, that kind of answer is nonexistent in the group of psoriatics and their mothers, while the mothers of the atop-

ics give much more of those kind of answers than their daughters.

The group of atopic patients differs most from the neurotic patients. The mother-daughter differences are of different direction in these groups except the open oedipal answers, which, in both patient groups, seem to belong to the mothers. The mothers of the atopic girls give more libidinal and specially pre-oedipal answers than the daughters while, in the case of neurotics, the same is true the other way around.

Interview

Mother and daughter came jointly to the interview. The conversation was partly free, but the aim was also to inquire into the beginning, progress, recurrences, and stages of recovery of the illness. At the same time, what kinds of life situations the outbreak or recurrence of the illness was related to was discussed. The opinions of both – concerning the prognosis and possibilities of treatment of the disease – were sought, as well as the future expectations of the young person.

The youngest girls let the mother speak, often only nodding or keeping silent. The older girls spoke

Table VIII. The mother-daughter differences in the three patient groups Compared by analysis of variance (*n*:68)

Variable	Psoriasis (Ps)	Neurosis (N)	Atopic eczema (AE)	Level of significance			
				Total	Ps/N	Ps/AE	N/AE
E2 Primary process	0.78	3.56	-1.46	(0.07)			0.02
E3 Pre oedipal, level 1	-0.56	3.33	-1.36	0.02	0.03		(0.07)
E4 Pre oedipal, level 2	0.11	1.28	-0.41	0.009	0.04		0.002
E5 Oedipal, level 1	0.00	-4.17	-6.81			0.03	
E6 Oedipal, level 2	0.50	0.44	0.23			(0.09)	
E13 Libido, level 1	-0.56	-0.83	-8.18	0.01		(0.07)	
E14 Libido, level 2	6.67	21.11	-11.82	0.01		0.003	
E19 Remoteness minimal	0.44	-0.00	-0.18		0.04		
E22 Remoteness, fantasy, etc.	0.06	0.78	-0.09	(0.09)		0.04	
E26 Form level	3.56	5.56	0.95			(0.08)	
E29 Defence demand	-0.72	1.89	-3.09	0.05		0.01	

for themselves, at times, even trying to prevent the mother from speaking and expressing dissenting opinions.

Atopics

Most of the girls had suffered from atopy since they were children. For some of them, the disease had recurred or broken out in adolescence. In these cases, the breakout of the disease had been related, for example, to the death of a grandmother who had been living with the family, the mother going out to work, the father moving away from home, the family moving, the changing of school, etc.

Regardless of their age, the girls were somewhat tame, appearing resigned. Although even difficult questions were discussed, they seldom expressed personal emotions. Sometimes, however, they scratched themselves. Their facial expression was often suffering and their look appealing.

The emotional expressions related to the illness were characteristic. Hopelessness and tiredness with the endless rubbing of the skin with cream were most prominent feelings of both parties. Both also usually gave expression to feelings of guilt. The mother for being unable to help, and the daughter for her scratching, or they both blamed each other. The daughters had often identified themselves with their bad complexion through their low self-esteem and lack of capacity to defend themselves. The aggression expressed itself in the rash itself, which at times suddenly and violently got worse. The cause was looked for in externals. The aggressions were concentrated on the skin, on scratching, or the young person tried to show how angry she was. The underestimating of the disease sounded like underestimating the girl. Sometimes, the mother spoke of other, more successful members of the family or their own illnesses, as if to counterbalance the hopelessness caused by the daughter.

During the interview, the importance of the mother found expression in carefully listening to her. The attitude toward the mother was compliant and submissive, as if seeking and hoping for closeness. The disease was externalized – its causes were somewhere else.

Atopy seemed to be some kind of an umbilical cord between mother and daughter. The girls seemed to be dependent on it, the fate of the disease determining their own fate. The cause of the disease was often some externalized allergen which failed to touch upon the personal level. Future expectations

were often pessimistic, but also easily encouraged. The ideal profession was often connected with care or nursing, as if to compensate for the personal lack of same. Often, it seemed that both were in real need of encouragement, either together or separately, as well as expert follow-up treatment. Psychotherapy was also motivated at times.

Psoriatic patients

For most psoriatics, the disease had broken out in adolescence. For three of them, the disease had persisted for more than 10 years. The disease of three girls broke out at the time of the divorce of their parents and the girls blamed the mother for having driven the father away from home. The mother of one patient had lost her own mother through death, whom she called "her only human relationship". When falling ill with psoriasis at the same time, the daughter felt she had been left all alone, just like her mother. When she was falling ill, one of the girls escaped from home now and then to her friends or her father who had separated earlier from the family. An 18-year-old girl was pregnant and took her common-law husband with her since there was no mother. The family had left her in a children's home at age 5. Later, her father had her join in his new marriage. After the early death of the father, the girl was left with the stepmother and when the latter got a divorce from her subsequent marriage, she was left with her stepfather. She developed psoriasis after the beginning of her common-law marriage and pregnancy.

The relationship between the psoriatic patient and her mother was often distant. The disease separated them rather than uniting them. The tone of the conversation was often challenging on both sides. Three girls had a psoriatic father who has assumed the responsibility for the treatment of their daughter. One of the mothers found the father's treatment sadistic, producing burnt skin and causing suffering as well as a new rash. Two of the girls called themselves "lone wolves". They had hardly no close companions. Their future expectations were pessimistic. The disease often felt like a prison. Although the difficulty of the disease was given expression, the girls hardly ever gave expression to their emotional life. Encouragement was well received, however, and an understanding doctor/patient relationship might contribute to making the work more personal.

Atopy seemed to be a disease of the warm flexures, needing a warm encouraging contact to help

the sensitivity and yearning for closeness of the person concerned. Psoriasis, being a disease of the cold extensors, seemed to provide an armor against losses and coldness.

DISCUSSION

The psychological test results provide a picture of the groups of mothers and daughters and their mutual interaction. They can be compared with the experiences gained at the wards and the impressions of the interview. On the ward, both groups of patients were sometimes experienced as being difficult. The difficulty of the atopic patients was caused by their goodness, their adjustment and resignation to the disease in a somewhat childlike way, preventing growth into adulthood. It was easy to get contact with them, which made alexithymia questionable, but, in fact, it was hard to work with their own personal questions.

On the ward, the psoriatic patients were often difficult to contact. At times they were defiant or cooperation seemed difficult in other ways as well. The psychological test results of the mothers and daughters seem to indicate that their relationship was often distant. This is also supported by the interview, during which the discussion seemed cooler; closeness was rejected in fear of disappointment. Aggressions were turned against external adversities, not toward work on personal losses.

The impression given by the interview was that both groups of patients experienced their rash as the nuisance of their lives, which produced problems in their human relationships. An atopic patient said: "The skin is like a tent in which I live. The tent is dirty and tattered; it is taken care of, but nobody cares about me." The skin seems external and the rash a disaster.

Thus, both groups supported the alexithymia theory. The psoriatic patients gave noticeably less instinctively based answers than the neurotic patients; the atopic patients gave more defensive answers.

As far as the atopic patients were concerned, the pre-oedipal themes were more open than those of the psoriatics, which also supports the more frequent dependency problems of the atopics.

There were aggressions within both groups. The difference was that the atopic patients expressed more aggressions than the psoriatic patients, whereas the psoriatic patients were more often the

targets of aggression than the atopics. This was also suggested by the results of the interview.

The difference between the groups may be related to the fact that atopy had usually developed quite early, whereas psoriasis had not developed until adolescence. Consequently, the atopic patients may be characterized rather by features related to early childhood and the psoriatic patients by features related to adolescents in their relationship with the mother and the disease.

As a final impression we see two groups of anxious mothers and daughters needing expert follow-up and support in the treatment of the rash. At the same time, therapeutic discussion is needed for making it possible to use the resources now seeming to be in the service of the rash, for psychic work. The aim of the treatment would be to melt the frost of the rash and to reach the one who lives in the skin tent at the personal level.

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Psychological Stress and Psoriasis: Experimental and Prospective Correlational Studies

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Using a dismantled time-series design, 18 subjects with psoriasis symptoms on the scalp were randomly assigned to four groups and six dropped out: meditation (N = 5); meditation and imagery (N = 4); waiting list (N = 5); and no treatment control group (N = 4). Treatment lasted 12 weeks, with 4 weeks pre- and post-baseline periods. An assessment control group was also used during baseline periods (N = 4). The severity of psoriasis symptoms was reliably rated by dermatologists. A time-series multivariate regression analysis controlling for extraneous factors influencing psoriasis symptoms, revealed a significant difference between the mean psoriasis ratings of treatment and control groups after treatment (partial $r = 0.30$, $p < 0.01$). No additional impact was associated with the use of the imagery technique (partial $r = 0.06$, $p < 0.05$). Four subjects in the treatment groups, two in each condition, succeeded in clinically improving their psoriasis symptoms and none deteriorated. The practice of meditation may be clinically effective for some patients in reducing their psoriasis symptoms.

For one of the control groups, the relation between psychological stress and psoriasis was examined prospectively over a period of 20 weeks using standardized measures. A time-series multivariate statistical method indicated an average positive correlation between the severity of psoriasis symptoms and psychological distress (partial $r = 0.31$, $p < 0.01$) and the impact of adverse life events (partial $r = 0.23$, $p < 0.05$); there were, however, important individual differences. Stress reduction techniques can thus be regarded as part of the treatment offered to some patients suffering from psoriasis.

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Psychological techniques have been claimed to be effective for reducing or eliminating psoriasis symptoms. Thermal biofeedback (1–3), relaxation and stress management (4), hypnotherapy and imagery (5–7), and meditation combined with individualized

imagery (8) have been reported to help patients suffering from psoriasis. In particular, imagery techniques have been proposed as an effective method for reducing psoriasis symptoms (9–10). Most of these results, however, have been obtained from either uncontrolled case studies (6) or while using unreliable measures of psoriasis symptoms (2). In addition, these findings associated with imagery techniques could be due to the relaxation technique embedded within them rather than the technique per se.

In parallel, psychological stress has been clinically recognized by dermatologists to be related to psoriasis symptoms (11). Some studies have identified psychological distress as a correlate of the severity of psoriasis symptoms in 32% to 70% of interviewed patients (12–14). Stressful events were also found to be related to the onset and the severity of psoriasis (15–17). The meaningfulness of these results are, however, questionable because the relation between stress and psoriasis was investigated retrospectively and/or no standardized criteria was used to measure stress.

The purpose of the present investigation was two-fold. First, the efficacy of a psychological technique and its components (meditation and imagery techniques) was evaluated for treating psoriasis. Second, the relation between psychological stress and psoriasis symptoms was examined prospectively. Unique to the present design is the use of control groups, a reliable measure of the severity of psoriasis symptoms, and standardized measures of psychological stress. To accurately assess treatment efficacy, we controlled the factors known to influence the severity of psoriasis symptoms: the application of a dermatological treatment (18); adverse life events and psychological distress (13–14); and social support which has been found to moderate the impact of adverse life events (19–21). For exploratory purposes, we also examined the relationship between treatment characteristics and psoriasis symptoms:

that is, the number and duration of practice sessions and the intensity of the meditative state.

METHODS AND PROCEDURES

A multiple time-series design was employed. This allowed a well-controlled study with few subjects per group (22). Such restricted evaluative effort was required due to the novelty of the question addressed (23). Moreover, the design was dismantled in order to study the additional efficacy of the imagery technique over meditation (23).

The study was conducted during a 20-week period. Pre- and post-treatment baseline periods were of 4 weeks and treatment lasted 12 weeks. Eighteen subjects were randomly assigned to three groups: (a) meditation ($N = 6$); (b) meditation then meditation and imagery ($N = 6$); and (c) a waiting list control group ($N = 6$). In addition, a second control group was formed of subjects who consented to participate in a study about the relationship between psoriasis and stress which we termed the assessment control group ($N = 6$). For the first three groups, measures were taken once a week for 20 weeks. For the assessment control group, measures were recorded only during the two baseline periods separated by a 12-week period. All subjects were asked to continue using any medical treatment at a steady rate which they employed before the beginning of the study.

Subjects

Twenty-four outpatients with psoriasis on the scalp, as diagnosed by a dermatologist, took part in the study. Subjects were recruited from an article in a week-end newspaper and signed an informed consent form. All selected subjects chose to participate in the study. The selection criteria included: (a) psoriasis symptoms located mainly on the scalp; (b) a rating of the severity of psoriasis symptoms of at least 10 out of 20 on the scale used in this study; (c) symptoms for at least 1 year prior to the study; (d) age between 20 and 50 years; and (e) not suffering from another major physical or psychological illness. These criteria were employed to form a homogeneous sample with respect to psoriasis severity and chronicity.

The mean age of the subjects was 34.3 ($SD = 11.3$). Thirteen women and five men took part in the study. Nine were single, five were married, and four were either divorced or separated. Thirteen had full time jobs, four studied at a university, and one was unemployed. In average, their education corresponded to 14.3 years in school ($SD = 2.8$). The mean age at which their psoriasis symptoms had appeared was 19.9 ($SD = 12.2$) and they had been present for a mean of 13.7 years ($SD = 9.5$) while no remission period had occurred for any subject.

Measures

The severity of scalp psoriasis was measured by a dermatologist using a 4-item scale. Three items were borrowed from Lowe *et al.* (24) and described the psoriatic lesions: thickness, erythema, and silvery plaques. Each of these three items was rated along a continuum: 0 referred to no existence or practically clear; 1 referred to very mildly severe, 2 referred to mildly severe, 3 referred to moderately severe,

4 referred to quite severe, and 5 referred to very severe. The fourth item estimated the amount of the scalp covered by the psoriatic lesions: 0 represented 0%-2%, 1 represented 3%-20%, 2 represented 21%-40%, 3 represented 41%-60%, 4 represented 61%-80%, and 5 represented 81%-100%. This 20-point scale was designed for use by dermatologists.

Two dermatologists blind to group membership participated in the study. Each rated the severity of psoriasis symptoms of an equal number of subjects across the groups. Prior to the study, the reliability between the ratings of the dermatologists was determined based on ratings of the psoriasis symptoms of eight patients ($r(6) = 0.91$, $p < 0.05$). Their reliability was also assessed with 11 ratings on one subject over a period of 24 weeks ($r(9) = 0.88$, $p < 0.01$), supporting the use of only one dermatologist per subject.

Psychological distress was evaluated by the subscale Psychological Distress of the Psychological Adjustment of Illness Scale Self-Report (25). The impact of life events was measured by the Experience Life Schedule (26), a 57-item questionnaire differentiating between positive and negative impact of life events. The Inventory of Socially Supportive Behavior (27) was employed to measure the amount of social support received by the subjects.

All subjects recorded the frequency of application of a dermatological treatment for their psoriasis symptoms daily. Additionally, they reported weekly to the dermatologist who was rating their psoriasis symptoms the number of days since they last washed their scalp, a factor influencing the quantity of silvery plaques on the psoriasis lesions (18).

In the treatment conditions, subjects recorded the number and duration of practice sessions daily. These were separately summed to obtain weekly scores. At the end of each treatment session, subjects rated the intensity of the meditative state on a 5-item questionnaire, each rated with a 5-point scale. The items represented dimensions of consciousness purportedly altered by a meditative technique: awareness, perception, body image, time and sensation (28). In addition, therapists evaluated the intensity of the subjects' meditative state on a single 5-point scale.

Treatment

Two therapists conducted the treatment sessions. One saw two subjects per treatment group and the other therapist treated the other eight subjects. Both had at least one year of experience in teaching the technique. The subjects were assigned to a therapist depending on availability.

For both treatment conditions, the initial 6 weeks of treatment focused on learning and practicing an "opening-up" meditation technique (29). This technique is aimed at opening up the scope of attention towards the bodily sensations. Briefly stated, the instructions were as follows: "First pay attention to any sensation, perception or thought that comes to your mind; just let them come and go. Then try to attend to your bodily sensations; notice what happens and try to notice any new perception"

During the following 6 weeks of treatment, the subjects in the second treatment group were taught to use spontaneous imagery. This individualized imagery technique was based on the production of an image of the psoriasis symp-

toms and of its transformation. The summarized instructions of the imagery technique were as follows: "Attend to your psoriatic lesions and simply take note of any image that comes to your mind. The image may refer to any of your senses. Then try to produce a second image which actively transforms the former. When such an image appears, attend to it and note if you experience any immediate change or relief. If not, elaborate another image and repeat the procedure". The complete description of the instructions can be obtained from the authors.

Each weekly treatment session lasted 60 min. According to the treatment protocol, at the beginning of each treatment hour, the topics initiated by the subject were discussed for approximately 10 min. The technique instructions were then given by the therapist. For the last 5 min, the subject talked about his/her experiences during the exercise. All experimental subjects were asked to schedule a daily practice session of approximately 30 min. They were also asked to discontinue the practice of any of these techniques during the post-treatment baseline period.

Data analysis

A Generalized Least Squares (GLS) method was employed in order to use the most adequate and powerful statistical method available for a multiple time-series design (22,30). This method represents an extension of the multivariate regression model (31) in that it takes into account the auto-correlation within the data of each subject over time. As the usual regression model, this multivariate analysis partials out the variance shared between the criterion and the predictor variables, allowing a more accurate assessment of treatment effects with contrast codings (32). In the present study, the GLS analyses were carried out using the software SHAZAM (33).

This statistical method is frequently used in econometry and is newly employed by psychologists to analyze time-series design data. This method has two main characteristics. First, it allows to determine the partial correlation between all longitudinal variables entered in the analysis. For our purpose, it was thus possible to examine the relation over time between psoriasis and stress (the impact of adverse life events and psychological distress) after extracting the influence of the control variables mentioned previously. Secondly, unlike conventional multivariate statistical methods which require a great number of subjects, this one capitalizes on the number of longitudinal observations by taking into account the serial correlation among the observations within each subject. Consequently, the use of a small number of subjects does not restrict the possibility of studying the relationship between stress and psoriasis; five subjects with 20 longitudinal data each can be regarded as 100 independent observations.

RESULTS

Reliability

The reliability of the psoriasis ratings by the two dermatologists was examined twice during the study. Three months after the beginning of the study, the dermatologists were found to rate similarly the psoriasis

symptoms of six subjects (Spearman $r = 0.95$, $p < 0.01$). At six months, they also agreed on the psoriasis symptoms severity of six subjects (Spearman $r = 0.84$, $p < 0.05$).

Drop-out

At the beginning of the study, all four groups were composed of six subjects for a total of 24 subjects. However, in each of the first three groups, one subject dropped out and in the assessment control group, two subjects ceased to participate. One subject dropped out because she fell asleep each time she meditated and the other four subjects dropped out due to personal reasons, such as work overload or travels. In addition, the data of one subject had to be eliminated from the meditation group because he had received more than 12 treatment weeks. Thus, 18 subjects completed the study for which the analyses could be conducted: meditation ($N = 5$), meditation and imagery ($N = 4$), waiting list control group ($N = 5$), and assessment control group ($N = 4$).

Efficacy of treatment

A first GLS analysis was conducted to assess the comparative efficacy of the treatment and control conditions. In the multiple regression equation, the psoriasis ratings were the criterion variable. To determine the group and time effects, seven contrast codings were elaborated and entered as predictors: three codings compared the groups (treatment vs. control groups, meditation vs. meditation and imagery, and waiting list vs. assessment group), another coding contrasted the baseline periods (pre- vs. post-treatment) and their three interactions were computed. The factors influencing the severity of psoriasis symptoms were also entered as predictors: impact of adverse life events, psychological distress, social support, number of days between washing of the scalp and the rating of psoriasis symptoms, and frequency of application of a dermatological treatment.

Fifty-one percent of the variance of psoriasis ratings was explained by the variables mentioned above ($F(12, 115) = 12.2$, $p < 0.01$). A significant interaction (treatment vs. control groups, and pre- vs. post-treatment baseline periods) revealed a difference between the mean rating of the experimental and control groups at the post-treatment baseline, but not at the pre-treatment baseline (partial $r = 0.30$, $p < 0.01$). This result indicated an overall treatment effect. However, no difference was found between

Table I: Group means and standard deviations of psoriasis ratings

Condition	Pre-treatment baseline	Time Period First 6 weeks of treatment	Last 6 weeks of treatment	Post-treatment baseline
Treatment groups	12.5 (2.0)*	10.9 (2.0)	8.7 (1.9)	9.1 (2.1)
Meditation	13.0 (1.4)	11.3 (1.8)	9.1 (1.6)	8.9 (1.9)
Meditation and imagery	11.9 (2.7)	10.4 (2.5)	8.3 (1.7)	9.3 (2.2)
Control groups	11.3 (2.5)	–	–	11.5 (2.7)
Waiting list	11.4 (3.3)	10.6 (3.2)	10.7 (2.0)	10.8 (2.8)
Assessment	11.0 (1.8)	–	–	12.1 (2.6)

* Standard deviations are presented in parentheses

the means of the two treatment conditions before or after treatment (partial $r = -0.06$, $p < 0.05$), suggesting no further efficacy of the imagery technique in reducing the severity of psoriasis symptoms.

As illustrated in Table I, the mean psoriasis ratings of the treatment groups was 1.2 points higher before treatment than the mean psoriasis ratings of the control groups. After treatment, the mean psoriasis ratings of the treatment groups was 2.4 points lower than the mean psoriasis ratings of the control groups (effect size of 1.0). From pre- to post-treatment baseline periods, the mean psoriasis rating of the treatment groups diminished 3.4 points (effect size of 1.62) while it remained stable for the control conditions (effect size of -0.08). These results clearly demonstrate a treatment effect in comparison to control conditions.

Individual differences were found among the nine subjects in the treatment conditions. Between the pre-treatment baseline period and the second treatment period, their mean psoriasis rating decreased according to the following percentages: 48%, 45%, 43%, 37%, 26%, 22%, 20%, 19%, and 0%. The associated effect sizes varied from -2.0 to 7.0, revealing important treatment effects for some subjects. For the control subjects, individual decreases of 18%, 16%, 9%, and 2% were observed, as well as increases of 2%, 9%, 9%, 16%, and 46% were also observed. The associated effect size varied from -2.9 to 3.4 with an equal proportion of improvement and deterioration.

To further evaluate the clinical significance of these individual changes, the dermatologists still blind to group membership assessed the clinical improvement of all subjects at the end of the study. They rated the symptoms of four subjects in the treatment conditions, two in each group, as quite

improved or largely improved, suggesting a clinically significant impact. They rated the symptoms of the other 16 subjects as little improved or not improved at all.

Other factors influencing psoriasis

A second GLS analysis was conducted on the data associated with the treatment groups for 20 weeks. The psoriasis ratings served again as the criterion variable. In addition to the predictors employed in the first GLS analysis, the intensity of the meditative state as rated by both subjects and therapists, the number and duration of practice sessions, and a dummy variable representing the two therapists were entered as predictor variables.

Fifty-five percent of the variance of the psoriasis ratings was explained ($F(13, 82) = 9.77$, $p < 0.01$). The frequency of application of a dermatological treatment was found to be positively correlated with psoriasis ratings (partial $r = 0.25$, $p < 0.05$). Thus, the less severe the psoriasis symptoms, the less frequently the subjects employed a dermatological treatment. The intensity of the meditative state, as rated by the therapists, was negatively related to psoriasis ratings (partial $r = -0.55$, $p < 0.01$); the more intense was the meditative state, the less severe were the psoriasis symptoms.

The ratings of psoriasis symptoms were not found to be related to either the number or duration of weekly practice sessions, or the intensity of the meditative state as rated by the subjects

Stress and psoriasis

A third GLS regression analysis was performed to assess the association between psychological stress and psoriasis. In the equation, the ratings of psoriasis symptoms were entered as the dependent var-

iable and the following six variables as the independent ones: scores of psychological distress, scores of the impact of adverse life events, scores of social support, frequency of application of a medical treatment, number of days between the rating of psoriasis and last shampoo, and passage of time.

With 100 observations (5 subjects $\times$ 20 observations), the adjusted R-square equaled 0.598 indicating that approximately 60% of the variance of the psoriasis ratings was explained by the six independent variables entered in the analysis. Even if this shared variance was significantly different from zero ($F(8, 91) = 19.44, p < 0.01$), none of the six variables was found to be significantly correlated with the psoriasis ratings. However, the variances of the residuals were found to be heterogeneous. According to Cochran's statistics ($C = 0.43, p < 0.01$), the variance associated with the data of the fifth subject ($SD = 10.55$) was significantly different from that of the other subjects ($SD = 5.26, 2.84, 3.22$, and 2.75). Such heterogeneity of variance violated a basic assumption of all multivariate statistical methods and rendered the results unreliable. Therefore, the data of the fifth subject were extracted from the analysis.

With 80 observations (4 subjects $\times$ 20 observations), the adjusted R-square was 0.49 ($F(8, 71) = 10.49, p < 0.01$). Only the psoriasis ratings were found to be significantly correlated with the scores of the impact of adverse life events ($r = 0.23, p < 0.05$) and psychological distress ($r = 0.31, p < 0.01$).

When this analysis was conducted separately for each subject, the association between psychological distress and psoriasis varied as follows: 0.50 ($p = 0.03$), 0.43 ($p = 0.06$), 0.07 ($p = 0.75$), -0.16 ($p = 0.51$), and -0.22 ($p = 0.28$). With scores of impact of negative life events, the association equaled 0.32 ($p = 0.18$), 0.16 ($p = 0.53$), 0.06 ($p = 0.81$), -0.12 ($p = 0.63$), and -0.18 ($p = 0.45$).

DISCUSSION

For the treatment conditions only, dermatologist's ratings of psoriasis symptoms were found to be significantly reduced after treatment, with important and clinically relevant individual decreases in psoriasis symptoms. No additional impact was associated with the imagery technique. This suggests that the reduction in psoriasis ratings in the combined treatment condition could be attributed to the meditation technique alone. Consistent with those findings, psoriasis ratings were found to decrease as the intensity

of the meditative state induced by the subjects increased.

It should be noted that the meditation effect cannot be attributed to a more adequate application of a tropical treatment because the frequency of application was positively rather than negatively related to the psoriasis ratings. However, factors such as the interaction of the subjects' belief to be helped and the receiving of a treatment (34) and the influence of the implicit instruction to reduce one's psoriasis symptoms (35), represent plausible alternative explanations for the observed changes.

The number and duration of practice were found not to be negatively related to psoriasis ratings as would intuitively be expected. A relatively small variance associated with the amount of practice the subjects reported could explain this finding, in that, most subjects in the treatment conditions simply complied with the instructions of practicing once daily for 30 minutes. An alternative explanation could be that the quality of the meditative state, as reflected by its intensity, was more important than the amount of practice.

These findings are consistent with earlier reports which support the efficacy of meditation, or other relaxation techniques, in treating somatic disorders (36–38). The present findings indicate that it could be fruitful to pursue the evaluation of the efficacy of meditation techniques in treating psoriasis with the use of a large-sample group design. In such an investigation, the relation between the severity of psoriasis symptoms and patient pre-treatment characteristics (39–40) could be examined, advancing our patient knowledge of the type of patients who could benefit most from this type of technique. Most importantly, the present results emphasize the necessity of assessing the differential efficacy of psychological techniques in both single-case and group designs.

With respect to the association between psychological stress and psoriasis, the present findings indicate a moderate positive correlation. They were obtained using standardized scales and collected prospectively and the subjects were randomly selected from a pool of volunteers as well as randomly assigned to a control group. An association between stress and psoriasis cannot, however, be generalized to any person suffering from psoriasis, no significant association was obtained when the data of the fifth subject was included and important individual differences were observed across subjects. As conceptual-

ized in contemporary psychosomatic medicine, the contribution of psychosocial factors varies from one disease to another, from one person to another, and from one episode of illness to another in the same person (41).

Taken together, these findings suggest that some patients suffering from psoriasis could benefit from a psychological intervention aimed at reducing stress. Patients need to be evaluated on an individual basis before learning a psychological technique to control the severity of their psoriasis symptoms.

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Scratch Radar for the Measurement of Pruritus

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Itching is one of the vaguer bodily sensations. It is not easily defined. It can be described, but it is difficult to measure.

As early as 1740, Haffnenreffer stated that itching is a sensation arising in the skin that causes the urge to scratch. Scratching can be objectively measured in various ways and pinpointed in a particular location on the skin. Itching can be indirectly examined by measuring the scratch marks or the scratching action.

Vigorous scratching results in bleeding cutaneous scratches or excoriations and/or thickening of the skin or lichenification. These manifestations of pruritus are found on the (usually completely healthy) skin of liver and kidney patients, and also on skins suffering from dryness, commonly during the winter or on old people. Furthermore, atopic patients often suffer from an itch affecting especially the flexor surface of joints and from eczema; these are characterized by lichenification and excoriations. They can be measured per surface area by means of photographs. We have developed a method for the detection of newly scratched areas, by using an uncolored but fluorescent substance added to an ointment.

Scratching movements are measured when the subject is asleep and, therefore, unable consciously

to influence his or her behavior. The simplest way to measure these nocturnal movements is to place sensors at the foot of the bed to detect vibrations, or to use a special testing mattress. These do not disturb the sleeper, but there is a problem in differentiating between scratching and other movements. A detector resembling a self-winding watch attached to the patient's wrist may disturb the subject's sleep as well as the wires attached to the electromyograph. For the same reason, the use of sensitive electromagnetic movement detectors is problematic. It is my view that these difficulties can be largely overcome by the development of "scradar", i.e., scratch radar. The scratch radar would not require physical connection to the patient or the bed and the small unit could simply be positioned at a suitable distance from the sleeper's hands. Bedclothes would not interfere with scradar's operation.

A movement-sensitive radar system was developed in accordance with my requirements by Taisto Räsänen. The unit is intended to filter out larger movements of the limbs and body while registering the rapid movements typical of scratching. The use of radar in the registration of simulated scratching was demonstrated at the symposium.

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Pruritus and its Assessment as Itch and Scratch

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This abstract is concerned with the measurement of itch and its response to treatment and only tangentially with mechanism. Itch is a sensation and therefore cannot be measured directly, but you can measure it as a related, concomitant or consequent phenomenon. A number of such phenomena were examined and the simplest was found to be the most obvious (and the least interesting), namely, the measurement of scratch. The purpose of itch is to provoke scratch which, in turn, removes the pruritogen, a response likely to have originated when most pruritogens were parasites. The beauty of the response is demonstrated by the superficial organization of itch as part of the pain pathway, so that when scratching removes the superficial layers of the skin in which parasites live, the itching is replaced by pain and scratching stops.

To measure scratch, we first developed an itch-bed from which movement was recorded by a transducer on a bed-leg. Although this method provided detailed qualitative and quantitative data on amplitude and duration of bouts of scratching throughout the night, the equipment required limited the number of studies. We, therefore, used limb meters initially developed by modifying self-winding watches. By using these while the patients slept on the itch-bed, we were able to validate the use of limb meters and to establish that leg movement is mostly restlessness and hand movement, scratch. There are some differences in scratching due to hand dominance and itch

also provokes restlessness; but overall, there is an excellent correlation between subjective itch and itch measured as nocturnal scratch in a large range of skin diseases as well as in itch due to systemic disease. However, the slope of the itch/scratch curve varies in different disorders (psychological itch is unique in this respect), a phenomenon of importance to an understanding of the sensory component of itch as well as in distinguishing its mechanisms.

The method of measuring itch as scratch has now been used by us and others to study the effect of drugs on pruritus due to skin and other diseases. We have shown that antihistamines are not primarily antipruritic. They act in one of two ways: 1) by antagonism of peripherally released histamine where this is the cause of itch, as in the urticaria, or 2) centrally by an effect related to sedation in those disorders in which peripheral release of histamine is not causally related to the itch, e.g., in diseases such as eczema. Thus, the non-sedative antihistamines (e.g., terfenadine, astemizole and the more recent look-alikes) have no place in the treatment of pruritus other than in the urticaria. Both sedative and anxiolytic drugs are effective antipruritics, but our early studies suggest that butobarbitones may enhance itch provoked scratch, although amnesia reduces its recall.

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Assessment of Psychiatric and Psychosocial Factors Disposing to Chronic Outcome of Dermatoses

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In many skin diseases, itching and scratching is a vicious circle, which prolongs the disease. The aim of this study was to investigate the mechanisms which make itching skin diseases more chronic. The patients consisted of seven diagnostic groups – 79 inpatients all together. The dermatoses were: dermatitis herpetiformis, lichen ruber planus, chronic eczema, atopic eczema, neurodermatitis circumscriptus, prurico psychogenous and lichen obtusus corneus. Both psychiatric and dermatological examinations were performed.

Psychiatric disturbance was clearly greater than in the average population. The chronifying mechanisms were the following: personality disorder as a treatment problem; emotional infantility, which makes the illness itself an important security factor; itching and scratching as pleasure and content of life; the accumulation of various other diseases, both somatic and psychiatric; and untreated depression.

Information was obtained on the possibilities of psychiatric treatment and psychosocial rehabilitation.

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Psychosomatic aspects are important in many chronic dermatoses. In these, pruritus is a very common sensation. All forms of itching, whatever the cause, may be intensified by emotional stress.

The itching-scratching circle makes many skin diseases persist for years (1,2,3). My intention was to clarify the factors connected with the chronic-producing vicious circle. An attempt was made to provide a picture of the factors leading to the prolonging of itching skin diseases (4).

METHODS AND PROCEDURES

The patients consisted of seven diagnostic groups – 79 inpatients all together (Table I). There were 44 women and 35 men, with ages ranged from 20 to 60 years. The diagnoses were the following: dermatitis herpetiformis, lichen

ruber planus, chronic eczema, atopic eczema, neurodermatitis circumscripta, prurico psychogenous (no primary lesion), and lichen corneus obtusus. I examined the inner divisions in the group. Table I shows age at the onset of the skin disease and its duration in years.

Both psychiatric and dermatological examinations were performed; special attention was being paid to scratching and the objective signs related to it. The statistical method was factor analysis.

The skin disease was already chronic in two-thirds of the patients despite the fact that a good half of the patients visited the department for the first time.

RESULTS

The main findings concerned the many different mechanisms that make itching skin diseases more chronic (Table II).

These were the following:

Table I: Description of skin conditions, age at onset and duration of condition

	N	
Dermatitis herpetiformis	10	
Lichen ruber planus	8	
Chronic eczema	15	
Atopic eczema	20	
Neurodermatitis circumscripta	8	
Prurico psychogenous	10	
Lichen corneus obtusus	8	
Age at onset of illness	N	
14–20 years	23	29
21–30 years	20	25
31–40 years	10	13
41–50 years	20	25
51–60 years	6	8
Skin disease duration length in years	N	
0–2	25	31
3–5	10	13
6–10	19	24
11–20	15	19
21–30	10	13

Table II: *Chronic-producing mechanism*

- simultaneous character disturbance as a treatment problem
- emotional infantility which gives the falling-ill itself an important security role
- accumulation of several illnesses
- untreated depression
- reinforcing a negative body image
- itching and scratching as central to life or conversion
- the misdirected use of motor activity
- itching and scratching as calming agents or transfer into pleasure
- experiencing a very positive body-image
- the superego in self-punishment being severely confining and instinct-pressure strong
- aggressive behavior acceptable in one's own sub-culture
- scratching as a sexual substitute

The condensed information in the rotated factor analysis produced the above pattern of the chronic-producing mechanisms in itching skin illnesses.

- personality disorder as a treatment problem
- emotional infantility, which makes the illness itself an important security factor
- itching and scratching as pleasure and content of life
- the accumulation of various other diseases, both somatic and psychiatric
- untreated depression

Many patients demonstrated capacity of expression, while those who lacked such ability exhibited a tendency towards self-punishment and depression. Adaptation disorder, independence problems, passivity, drug addiction and the need of psychiatric treatment were present in many patients with pruritus.

Psychiatric disturbance was clearly greater than in the average population. Difficult character disorders were manifest.

With aging, one experiences his/her dermatosis more and more isolating. The aged report that pruritus sensation always precedes scratching. The aged person concentrates on scratching. The need for sexual substitution connects with lack of social contacts. Scratching means this substitution. Many scratching techniques and numerous hospitalizations manifest among the men. The men with good social status seem to better control their scratching. These men are chronic patients.

When stress precedes the skin disease, one scratches also during the day hours. Clinical scratch-

ing techniques and scratching areas were to some extent connected with the psychiatric profile. The social-psychiatric approach revealed clinical scratching types: among others, the so-called "pickers".

The groups with diverse scratching injuries were compared with each other. There were no great psychiatric differences. Severe scratching was manifest among both the psychologically healthy and the most disturbed.

DISCUSSION

The information about mechanisms which make the itching-scratching complex more chronic helps to plan the psychosocial rehabilitation. When one prevents the disease from becoming chronic, the resources of the patient can be used in the proper way. They were, in my study, expressiveness and physical capacity among others.

The most important objective is to create a positive attitude to therapy and rehabilitation. The logotherapeutic group is one method for this*. Such a group can give new content to life, as well. Depression may need to be medically treated.

The initial physician treating a patient with pruritus is not a psychiatrist. The patient needs a careful somatic investigation because the underlying disease can be even a malignant one. The public health care often provides the first medical treatment to the patient. Subsequently, the dermatological team may have the treatment responsibility of these patients. The psychiatrist in a general hospital plays the role of a consultant or a supervisor. The dermatological team needs the psychiatric consultation for complicated cases. For example, for work restriction evaluation and rehabilitation.

The causes of hospitalizations can be psychosocial. Aging seems to be of psychosocial importance in scratching patients. When one is without contacts because of his/her dermatosis, the scratching may become a sexual substitution. These psychosocial connections in itching-scratching complex help to prevent skin diseases becoming chronic.

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*I mean the psychotherapy of V. Frankl (5).

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A Psychiatric and psychodynamic investigation of LCO (Prurico Nodularis Hyde) Patients

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Prurico Nodularis Hyde (LCO) is a rare dermatitis yielding with difficulty to treatment and often tends to be chronic. Its clinical manifestations are hard itching, verrucose nodes in areas of the skin only reached by the hands. The aetiology is unknown. It has been surmised that psychic factors are involved in the onset and the clinical course of the disease.

Five psychotherapies were carried out during a five-year interview period with a group of 32 women and 9 men. Everyone interviewed described childhood environments and early developmental years as harsh and emotionally restricted. Nearly all had recollections of painful experiences of loneliness and longing for warm contact with another human being. Life-cycles bore the mark of practical activities and the majority had chosen a manual trade.

The most significant common feature this study brought to light is the extraordinary propensity of these patients to suffer from psychic trauma. A distinct correlation exists between the outbreak of the disease and the preceding loss of a human relationship, detrimental to self-esteem. The concept "body image" was used in resolving the psychosomatic problems of LCO-patients.

It appeared that the emotionally deprived and barren past and the choice of manual labor have tended to deprive the patients of all psychic means. This is evidenced by the inability to endure psychic stress. Psychic to them means physical and they attempt to solve problems with the aid of archaic bodily meaning schemata. Their regression has activated in them an inadequately worked-out separation from mother.

Of the two psychotherapy cases described, one with currently disturbed self-esteem and two years duration of symptoms was ameliorated by 25 sessions of short-term therapy. The other case of two years concentrated psychotherapy succeeded to free the patient of a vicious itching-scratching circle that had lasted 12 years owing to the loss of a close relative.

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Prurico Nodularis Hyde (LCO) is a rare disease, but its symptomatology can be clinically and histopathologically defined. In 1909, Hyde described this rare

idiopathic dermatitis that responded with difficulty to treatment. It is characterized by numerous, more or less permanent, itching nodes on the extensor side of the limbs. Hyde gave it the name Prurico Nodularis. Already in 1880, Hardaway had reported similar cases. In 1934, Pautrier, using the Masson-stain method in the histopathological examination of the itching nodes, described the hyperplasia of the nerve endings. In accordance with these histopathological findings, the symptomatology is known as Pautrier's neuroma.

Clinical observation shows hard, flat nodes on the skin of about 5–12 mm in diameter. The surface of these nodes often bears the marks of scratching or are verrucose. They are most often found in the extensor side of the lower limbs, but have also been found in the upper limbs and the trunk. However, they are not found in those parts of the body the hands cannot reach. At first, the nodes are reddish and only gradually take on the pigmentation which makes them stand out from the surrounding normal skin.

Although it has been stated that the aetiology of the disease is unknown, the observation has been made that middle-aged women have an special predisposition to be infected with LCO, and that emotional stress plays a part in the outbreak of the disease, but this has been difficult to prove. According to an investigation published in 1985, it would seem that LCO is not a rare dermatitis at all, but a sign of a more extensive systemic illness (1, 2).

From the somatic point of view, the phenomenology of the disease has been described extensively and in detail. Treatment has aimed at eliminating the evident skin lesion and soothing the distressing itch by means of an appropriate antihistamine medication. The means of treatment are limited. For local treatment, corticosteroids have been used followed by chemo-therapy as well as zinc plasters to avoid manipulation of the skin. The results gained by these methods have not been altogether satisfactory. The risk of relapse of the disease is considerable and chronicity has become a problem (3).

METHODS AND PROCEDURES

The aim of this investigation has been to concentrate on the problem of the resistance to treatment and tendency to chronicity of LCO. Although the starting point to begin with was to find a better and more practical technique of treatment, it has become evident that a more beneficial approach could be offered by inspecting the problem from the psychodynamic point of view (4). The concept in the psychodynamic view is that it is the human lot to constantly and endlessly solve conflicts and adjust the self in order to maintain balance as well as to make choices that give rise to new conflicts. According to this concept, man is not fully aware of the motives behind his deeds nor what causes his feelings. The picture thus formed of the human being contradicts the scientific picture outlined by somatic investigation.

The research material consists of NP patients currently needing active dermatological treatment interviewed by me for a period of five years. They have been referred to me by their own dermatologists. The interview was voluntary and some declined to participate. There were 32 women and 9 men in the group. The average age of the women was 54.6 years and 50.5 years for the men. The longest time the itching-scratching cycle had lasted was more than twenty years and the shortest time was eight months. The idea was to meet each patient twice. Often once was enough, while some came three times. Psychotherapeutic relationships were formed with five patients (four women and one man) of which one went on for two years at the frequency of twice a week. Another case was an intensive short-therapy of 25 sessions while the rest attended therapy less frequently, the longest duration being one year.

RESULTS AND DISCUSSION

The interviews and the psychotherapeutic relationships enabled me to recognize a typical NP patient. Of the patients referred to me, six had no final dermatological diagnosis and it later became obvious that they did not have the NP disease. In comparison with NP patients, the experience with these six patients was quite different.

The majority of the patients participated actively in the investigation recounting episodes about their lives and themselves, but there were some who were unwilling to say much – they had nothing to tell. There were also those who refused to participate in the investigation. The interview was, of course, voluntary. The situation revealed the sensitivity of the psychic balance of NP patients and its tendency to be disturbed. Their lack of psychic means is disclosed by their habitual denial of any meaning or emotional content in any thing or any event in their lives. The attempt to control such meanings and emotions was so perplexing that the only means against the emerg-

ing anxiety was weeping and laughing simultaneously with motoric agitation. In one case, I, at first, was inclined to agree with the diagnosis of a possible actual psychotic disturbance. But, as the interview continued, it became evident that the cause of the patient's great anxiety was the relationship of constant conflict and tension with the spouse. Discussing the matter during the session, set the patient's mind at ease and the initial chaotic content of the conversation was dissolved.

The impression I had gotten of the patient in the interview set the tune for my attitude. It was often necessary only to help with suggestive questions, but with some patients, active conversation was unavoidable so as to date an inordinately traumatic experience. Quite often, the personnel reported that the patients had felt that the interview had caused extreme anxiety. Unlike the others, six of the patients whose diagnosis later was changed, used the most developed defensive methods in their psychic work and their work was, on the whole, more integrated.

The life histories of those interviewed had much in common. They all had memories of both material and psychological scarcity in their early years when fending for mere subsistence had been the most important object in life (5, 6).

The lifelines as they were described by the patients were also very similar. Many of them had worked with their parents already at pre-school age. There was not time for play or games, nor were they even permitted to according to the recollection of many. So early an introduction to daily tasks and practical work has been conducive for most in the choice of labor. Very few have chosen a profession requiring studies and only one had an academic degree.

The connection between a traumatic experience and the onset of the dermatitis became evident in conversation with each patient of the group. As often as not, the traumatic experience had to do with similar kinds of early conflicts which had not been psychically solved. The decisive event had always been a serious one, such as the loss of a close relative, a substantial change in the social status or the sudden breakdown of health (7). In one case, the sting of a wasp was the cause that led to the itching-scratching cycle and subsequent lengthy period of treatment.

Most of those patients interviewed experience the disease in much the same way. In addition to the

irritating and unseemly lesions of the skin, the constant itch is an unbearable experience. The itch, the lesions and the manipulation and care of the skin combine to form a separate entity, as it were, with which they are at war. The itch is a persecutor to be pacified by the severe self-inflicted pain of the skin by one's own hands (8, 9, 10). Quite a few gave an identical description of the onset of the lesion: at first, there is a very small blister which must be squeezed. This is not often enough, for, as a result of the manipulation, the itch and the need to ease it grow in reciprocal degree and ease is achieved only when the intensity of pain is sufficient. The skin must be pinched, fingered, and squeezed and then it often begins to bleed. Not infrequently, the cause of the disease in its chronic stage can no longer be determined. Sometimes it seems to have started after some external irritant like the hem of a skirt rubbing against the leg or leaning the calf on the leg of a chair. One woman, already quite long in therapy, was able to make a distinction between several kinds of itches on her skin, but the one demanding especially strong handling in order to be eased, stood quite apart from the rest. In my opinion, the itching to these patients has taken the place of psychic experiencing. The itch is something excruciating, paralyzing and dominating, and yet, manually controllable at the price of violating the skin.

The object of psychosomatic investigation has been the enigmatic transfer of the psychic into the area of the somatic. In conceptualizing this problem, aid was found in the concept of body-image. The body-image we have is of very primary origin and is activated in the temperate, tactile, motorial and postural sensory areas. Our body can represent to us the known object and subject of experienced feelings. Thus, it is the subject of our experiences, the sensorimotoric instrument, and the experiential object. With the aid of our body, we exist concretely in the surrounding world. Our body is part of our selfhood (11).

Body-image takes form in close interaction with the caring persons. It is thus influenced by the personalities of both parents and the emotional climate of the caring environment. When care is given with minimal emotional involvement and when it is the only source of sensory stimulus, no other kind of communication can develop and the only way information can pass between mother and child is by means of body language (9, 11-14,).

It became evident that something traumatic had

been experienced by every patient which was dynamically connected with the outbreak of the illness. Psychological changes as well as physiological ones take place in sudden traumatic situations, but the psychic is incapable of protecting the physical.

The investigation of NP patients indicated that there is a certain similarity in their life histories; a life of scarcity and meager means not offering emotionally enough for the needs of growth and development. They have been left too distant from the caring parents and even neglected and treated with indifference. Their psychic development and the structuring of their inner world have been restrained in the most vital areas. As vitality diminishes along with the aging process, there no longer exist any external means to work out the internal pressures and this has retarded life's progress. As individual psychic work has not been sufficient, the anxiety has been transferred to the intolerable itching which can be controlled not by mental, but by manual means.

Case 1

The patient, a woman of fifty-five years of age, had received retirement because of unemployment when therapy started. She had been working in a factory for more than 30 years. She recalled that the dermatitis had started immediately after x-ray examinations with contrast media for low back pain. For her, the dermatitis has been a restricting and socially isolating experience. Her only son had died of Hodgkin's disease five years prior to the development of dermatitis. She had never married. She had guilt feelings for not contacting her daughter-in-law and grandson often enough. During the two-year psychotherapy, she began increasingly to work through the loss of her beloved son. At the same time, other important separations came up. During the last eight months, there was no sign of the itching-scratching cycle and she was capable of feeling on the psychic level the grief of her son's death in a different way than at the time of his death. At the time of the therapy, a close woman friend of hers died of cancer and this reactivated the loss of her only child more intensely. That the psychotherapy was successful is due to a number of coincidences. The approaching Christmas season and the simultaneous occurrence of changing everyday routine to the life of a pensionary made her more sensitive. Her emotional relation with me, a therapist much younger than herself, reminded her of the relationship between herself and her son. The onset of her dermatitis in connec-

tion with the radiological examination was also reminiscent of her son. It was the same kind of examination that had revealed his lethal disease. However, it was near the end of the therapy that she disclosed that only a few months before the dermatitis began, the man who for years had been a dear friend died unexpectedly of a myocardial infarction while on a business trip. This was a loss the patient could not deal with. She did gain from the psychotherapy, though. She was able to abandon the itching and feel genuine sorrow, psychic pain as something that brought relief and mental ease.

Case 2

The patient was a widow, 51 years old, and her dermatitis had lasted for two years. The psychotherapy consisted of twenty-five sessions, twice weekly. She had been widowed some years earlier and her children had already left home. She had an affair with a man of the same age, but had been humiliated by seeing him with another woman on the street and he even proceeded to inform her of the fact. During the fourth therapy session, she demanded an answer to the question: what kind of a woman is good enough for a man? During the eleventh session, she reported that the itching had stopped and no new nodes had appeared. A year later, as we met, she told me that there had been no further sign of the dermatitis at all.

Despite the overly optimistic picture the above vignettes give of the benefit of psychotherapy to NP patients, the importance of psychic work in mitigating symptoms or even eliminating them cannot be underestimated. The patients often told of quite satisfactory experiences with the caring team whom they have met many times weekly during treatment. On the other hand, the response of the team has been somewhat opposite. The patients were considered to be demanding and irritating. This contradiction can be explained by the strong effect of countertransference feelings. Satisfactory somatic treatment

is a gratifying experience to patients and it often has an appeasing psychic effect. But, it also has an encouraging effect on early body language and a restraining effect on psychic work. Therefore, treatment may increase the tendency to relapse. As far as I can see, psychotherapy on the verbal level can rarely be the answer unless psychic symptoms are evident and the conversation takes place on the psychic level. It would possibly be more practical to arrange work guidance for the caring team in the form of consultations so that the troublesome feelings of countertransference could be solved and cooperation with patients enhanced.

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Depression of Self-image by Skin Disease

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The skin is a major neuro-endocrine organ of communication. In many species, the communicatory function is achieved by odor, but in man and some primates, the main cues are visual. I, therefore, considered it to follow that abnormalities of skin appearance would produce an adverse response in the bystander and because of self-awareness of this consequence of impaired appearance, there would be a corresponding depression of self-image. I, therefore, set about examining methods of measuring self-image in patients with skin disease.

The method used, a preliminary account of which has been published (1, 2) is to present patients and normal subjects with a series of stylized images which they have to rank in answer to specific questions. In this way, by correlating the responses, it is possible to rank the patients' association of the images with their own self-image. Using this method, the patients gave an objective ranking of aspects of self-image such as good-looking, likableness, intelligence, youthfulness, and various other features perceived to be desirable and undesirable.

The method was then applied in patients with dermatological and non-dermatological disease and correlations were demonstrated between extent and severity of rash and depression of self-image. Thus, in patients with acne, there was a depression of self-image, the severity of which was directly related to disease severity as measured by pimple count. It was also shown in a double-blind placebo-controlled study that self-image responded to topical treatment of the acne with benzoyl peroxide gel, but not to

treatment with the inactive placebo base. This shows that the depression in self-image was caused by the disease and not conversely. The method was applied to other dermatoses, particularly psoriasis, with similar results. It was also used to study expectation and it was shown that not only is self-image depressed by skin disease, but that expectation of what was an appropriate self-image was also reduced. The depression of self-image was not found in patients with systemic disease of comparable or even greater severity and it is therefore concluded that this effect of dermatoses on self-image is not a non-specific effect of disease, but is related to a disturbance of the biological function of skin as an organ of communication.

These studies show that the appearance of the skin has an important effect on normal self-image. This is the main reason why patients with dermatoses are so often psychologically disturbed. Indeed, the relationship between skin disease and psychological disturbance is such that the general rule is that skin disease causes the psychological disturbance and not, as has been so often taught in the past, the converse.

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Dermatologic – Psychiatric Consultations

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A material of one hundred dermatological patients subsequently consulted by a psychiatrist was presented. The psychiatrist visited the dermatological unit weekly in order to see the patients referred for psychiatric consultation. In addition to the written report by the psychiatrist, the cases were discussed with the dermatologist and the respective ward nursing team. In each case, a psychiatric evaluation was made including a treatment recommendation.

The cause for consultation in 33 cases was the patient's own initiative – at times taken only by the patient – at times based on the discussion with the doctor. In 28 cases, the initiative came from the nursing team. Fifteen patients were referred for consultation in order to clarify the etiology of the disease. Additional motifs were the exceptional course of the illness, an evaluation for retirement, a severe invalidity, etc.

The age distribution, compared with the basic material of the dermatological clinic, shows an overrepresentation of young adults in the material. The number of aged persons was also smaller.

The Male: Female ratio was 41:59, slightly in favor of the females as compared with the basic material.

Concerning the *social class distribution*, there was a slight overweight among the upper social classes.

The diagnostic categories corresponded roughly with those of the basic material, with the exception of a slight emphasis on atopic dermatitis and psoriasis groups in the consultation material.

The evaluation of the *severity of the psychic condition* in the material shows that the patients were clearly more disturbed than the average population. In the latter, the greatest group only had slight neurotic traits; in the former, again, the greatest group of patients were suffering from serious character neuroses or disorders.

With regard to the *psychiatric aspect of the treatment needed*, 44 patients were in need of a clear-cut psychiatric treatment, social or rehabilitation procedures. A group of 56 patients were assessed as needing "conjoint treatment". The basic idea with that group was that the patients could not benefit from a "psychic" treatment separately from the treatment of their somatic lesion. At the time of the consultations, the authors tried to solve the problems individually.

Later on, the authors have become acquainted with a working mode of a practicing doctor – a specialist or a GP – which is supported by the Balint-method of guidance. In that kind of treatment, the doctor-patient relationship is given a special concern. The doctor's aim is to make his understanding and feeling meet the patient's emotional needs and life situation. Some characteristics of that treatment principle, as applied to dermatologic patients, were discussed.

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Psychosomatics in the Light of Atopic Dermatitis

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The intention of the author is to use his research on Atopic Dermatitis (AD) as a paradigm when looking at psychosomatic phenomena. The author's investigations consisted of a 10-year psychiatric-psychological follow-up of 30 patients with AD, and a retrospective study of 157 patients based on hospital records and questionnaires. Acute psychosocial crises and unfavorable social background factors, like broken home in childhood, influenced the outbreak and severity of the dermatitis. There was a negative correlation between unfavorable psychosocial factors and atopic heredity pointing to their independent influence on the course of the AD.

During the first examination, the majority of the patients were in their teens or in adolescence. The

10-year follow-up shows that, in general, the more favorable course of maturing towards adulthood is connected with lesser symptoms of AD and other atopic manifestations as well.

The principle of psychotherapy with AD patients as in psychosomatic states in general is to psychically work over suppressed, painful feelings in order to allow a more flexible self experience. It is not the task of the body, but mainly of the psyche to digest the pain of living. The psychic work left undone is a more important source of stress than the psychic work itself.

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Psychic Factors and Immunological Reactions in Atopic Dermatitis

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Negative prick skin tests and normal serum IgE do not exclude the possibility of clinically manifested atopic dermatitis (AD). In this pilot study, our aim was to determine the potential psychosocial factors associated with the immunological reactions and clinical findings in patients with AD.

The study consisted of physical examinations and a psychosocial interviews with thirty patients diagnosed with AD at the Kuopio University clinic of dermatology, Finland. A surprising finding was that 20% (6 out of 30) of the patients had lost one of their

parents during childhood and that four of these patients had negative prick skin tests and low serum IgE. Another of the 6 patients had also negative skin prick tests, but slightly elevated serum IgE. A further finding was that a relapse of AD was often associated with exceptional life-situations in many of the patients.

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Psyche and Skin

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In this short communication, I intend to present a specific psycho-dynamic theory which explains some of the psychodynamics associated with eczemas and perhaps to some other skin lesions. It provides a framework for understanding and treating such lesions with pure psychodynamic methods, i.e., by psychoanalysis or analytic psychotherapy. These ideas were first presented in 1968 by Ester Bick, a Polish psychoanalyst living in London. Her theory of the role of the primal object for the baby, as the provider of necessary psychological containment, a kind of psychological skin, has proven to be of great value for psychoanalysts and psychotherapists treating adults and children with skin problems. When this "skin function" of the caretaking object fails, real skin lesions may follow. When the person finds in treatment an object who has this containing function, his/her skin heals.

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In this short communication, I intend to present a specific psycho dynamic theory which explains some of the psychodynamics associated with eczemas and perhaps to some other skin lesions. It provides a framework for understanding and treating these lesions with pure psychodynamic methods, i.e., by psychoanalysis or analytic psychotherapy. These ideas were first presented in 1968 by Ester Bick, a Polish psychoanalyst living in London (1). Her theory of the role of the primal object for the baby, as the provider of necessary psychological containment, a kind of psychological skin, has proven to be of great value for psychoanalysts and psychotherapists treating adults and children with skin problems. When this "skin function" of the caretaking object fails, real skin lesions may follow. When the person finds in treatment an object who has this containing function, his/her skin heals.

Bick's (1) thesis is:

"that in its most primitive form, the parts of the

personality (of a baby) are felt to have no binding force amongst themselves and must, therefore, be held together in a way that is experienced by them passively by the skin functioning as a boundary."

Her idea is very close to the theory that every human being begins his development in a primitive state where psyche and soma are undifferentiated and forms a common psychosomatic matrix. At this primitive stage, parts of the personality are not as yet differentiated from the parts of the body. There are no associative links to hold the early presymbolic experiences together. Bick thinks that at this stage, the skin is felt to function as a passively holding boundary.

Bick (1):

"This internal function of containing the presymbolic parts of the self is initially entirely dependent on the introjection of an external object, experienced as capable of fulfilling this function. Later, identification with this function of the object supersedes the unintegrated state and gives rise to the differentiation (in the baby's mind) of internal and external spaces. Until the containing functions have been introjected, the concept of a space within the self cannot arise."

Bick writes,

"there is a difference between unintegration as a passive experience of total helplessness and disintegration through splitting processes as an active defensive operation in the service of development."

She continues,

"We are dealing with situations conducive to catastrophic anxieties in the more unintegrated state as compared with the more limited and specific persecutory and depressive ones" ..of later development.

Due to the threatening catastrophic anxiety:

"there is a frantic search for an object – a light, a voice, a smell, or other sensual object – which can hold the attention and thereby be experienced.. as holding the parts of the personality together. *This containing object is experienced concretely as a skin.* Faulty development of this primal skin function can be seen to result either from the inadequacy of the holding skin function of the mother or from fantasy attacks on it, which impair introjection. Disturbance in the primal skin-holding can lead to a development of a defensive "second-skin" formation through which dependence on the object is replaced by a pseudo-independence, by the inappropriate use of certain mental functions for the purpose of creating a substitute for this skin container function."

It may also lead to concomitant actual skin disease, for example, eczema, but not necessarily so. The defensive "second skin" methods are cover-ups by help of which the individual splits off and suppresses the primitive states of unintegration which thus remain in more or less undigested unassimilated form in the personality until adult age. The anxieties defended against are experienced as catastrophic as at this state the baby feels it disintegrates or fragments into innumerable bits and it experiences this as a total annihilation which often feels to be a horror worse than death and, therefore, suicidal behavior is not uncommon. Self-destructive or self-mutilating behavior in the form of compulsive or impulsive scratching, picking, or cutting is one form of "second-skin" by help of which the patient can feel relief from the underlying nameless (alexithymic) catastrophic dreads of impending annihilation or fragmentation – dissolving into nothingness or total meaninglessness, etc. as the pain of the wounds seeing blood makes them feel real alive and it provides a welcome lesser evil by help of which the patient covers up the pre-symbolic and concrete "baby-experience" felt to be of a catastrophic nature.

Bick (2)

"Defects in this early containment of the personality (and the second-skin formations) may be devastating and obvious or subtle and covert depending on economic considerations (of the mind)."

Bion (3–4), in his explorations into the importance of the mother's containing capacity in 1962, had

already thought that an infant must evacuate his mental contents into a mother who must be able to absorb them, metabolize them, and give them back to the infant in a way that is acceptable, mentally digestible to the infant so that its experience gains meaning and significance for the infant or the infant feels left in increasingly worsening nameless dreads. He did not, however, mention specifically the role of the skin in this context.

Ogden (5) elaborates Bick's idea further when he writes about his studies into this early stage of presymbolic personality development or the "autistic-contiguous position" as he names it. He thinks that before the object can function as a container, it has to provide the baby with a secure basis, a floor, of presymbolic experiences. This "contributes the barely perceptible background of sensory boundedness of all subsequent subjective states"... "It is experiences of sensation, particularly at the skin surface, that are the principal media for the creation of psychological meaning and the rudiments of the self. Sensory-contiguity of skin surface and rhythmicity are basic to the most fundamental set of infantile object relations."..."Experience at the skin surface is critically important in that it constitutes an arena where there is a convergence of the infant's idiosyncratic, pre-symbolic world of sensory impressions and the interpersonal world made up of objects having an experience as separate from the infant and outside its omnipotent control...Common manifestations of autistic-contiguous anxiety include terrifying experiences of immediate fragmentation, disintegration of one's sensory surface of one's rhythm of safety, resulting in the experience of leaking, dissolving, disappearing, or falling into nothingness." (1, 6, 7).

Grotstein (8) also mentions that the new literature on alexithymia borrows heavily on the notion of the absence of alpha function, i.e., the capacity to hold through symbolization, on the part of the mother so that the infant does not obtain, in the mirror of her reflection, the knowledge of his/her emotion.

Patients have often a quite clear image of their skin holding their parts together. By clinging compulsively to this image and/or getting proof of the existence of their skin by grooming or caring for it, they hold themselves together. In this way, they sometimes try to recreate also the soothing comfort-

ing experience of mother caring for them. In analyzing these second-skin defenses, one finds that the patient has internalized and assimilated the mother's pathological defensive methods. The mother is the baby's first environment and a failure in her holding capacity leads to these problems.

Clinical material is presented to illustrate these phenomena and how the actual skin ailment is healed when the psychological holding-containing other object is internalized in a therapy relationship.

Clinical examples

Bick (1) gives four very short vignettes demonstrating these phenomena. One from observations of infants where she could follow the somatic disturbances break out at the very moment when the mother's containing function failed. Her other example is of an eczematous girl in psychoanalysis who also scratched herself until bleeding and picked holes in her skin. The symptoms cleared in this case through the formation of a second-skin rather than on identification with a containing object. Her third example is from an analysis of a neurotic adult patient and fourth from an analysis of a 5-year-old child. Bick writes,

"the faulty skin-formation produces a general fragility in later integration (of the mind) and (mental) organizations. (The disturbed first-skin formation) manifests itself in states of unintegration. Analytic investigation of the (defensive) second-skin phenomenon tends to produce (in the treatment situation) transitory states of unintegration. Only an analysis which perseveres to thorough working through of the primal dependence on the material object can strengthen this underlying fragility."

In her longer contribution, Bick (2) gives more detailed clinical material, elaborates her points in fuller detail and gives more examples of how the normal and defensive psychodynamics work at this level.

Pines (9), in her paper "Skin communication: Early skin disorders and their effect on the transference and countertransference", draws on the direct observations from her previous experience as a consultant dermatologist in a women's hospital. She refers to the importance of Bick's idea of the skin container. She sees the

primitive holding environment, where transference and countertransference feelings could be experienced by patient and doctor alike...The patient's non-verbalized affects may find expression through the skin."

She gives a clinical example with detailed analytic material of an adult woman with a rash and a history of infantile eczema. She had not been able to develop a container for her intense rage and anger among other things and had to find in the analyst, a capacity to bear these violent onslaughts so that a "true individuation and separation could be made". The case illustrates vividly, Bick's points of the skin defect, its relation to an uncontainable object and the defensive second-skin phenomenon guarding against primitive catastrophic experiences of self loss, uncontrollable rages, and unbearable mental pain. Only when the patient found in the analyst an object that could hold and contain her previously unbearable affects, could she begin to bear them and her skin cleared simultaneously.

Edgecumbe (10) writes about a girl, Katie, age 5, with severe infantile eczema treated by psychoanalysis.

"Her analyst had embarked on the treatment not expecting to cure the eczema and was, therefore, surprised at the degree of long term improvement which was achieved...Katie's eczema was too painful for the mother to be spoken about...and she could not bear to watch it, but the therapist put words to the physical and mental pain and to the fears...Her eczema was unspeakable, and her feelings about it had to be hidden; but they did exist...She tried hard, and often with success, to be a big girl, brave, uncomplaining, clever, talented, not showing babyish feelings (second-skin) ...Putting words to the pain helped to give it representational statue in the child's inner world, so that she could develop more adaptive ways of dealing with it."

Kogan (11) in her paper "The Second Skin" quotes Bick and gives a detailed account of a psychotic woman suffering from fragmentation of the self and a difficult rash "her face looked like a bleeding sore". She uses Bick's ideas and gains contact with her difficult patient and one is able to follow from her description how the patient internalizes her containing capacity during the successful analysis. Con-

"hospital setting and the ward as representing a

comitantly, the wounds on the patient's face cleared. The patient demonstrated muscular second-skin defenses in her attempt to deal with catastrophic anxieties, in her interest in bodily feelings, muscular fitness, aggressive and suicidal behavior.

"The patient's father, as well as her mother, had been internalized as emotionally impaired containers due to their actual incapacities. Both parents projected their own depressive and aggressive tendencies on the child, thus using her as a self-object to decrease the huge amount of depression and self-destructiveness which might have been fatal to them. The gradual internalization of a holding environment in analysis, and the analyst's representation as an emotionally adequate container, a second skin which holds together different aspects of the personality, led eventually to a more mature, better integrated self." (11).

Os (12) in her paper at the 11th Scandinavian Psychoanalytical Congress in Copenhagen, "The development of psychological defenses during the treatment in a child who lacked them due to defective parental care". (Utviklingen av det psykologiske forsvar hos et barn under behandling p.g.a. omsorgsvikt.) told of a 5-year-old psychotic girl with severe paranoia. Aggressive behavior and an eczematous skin condition in psychoanalytic psychotherapy with a successful outcome. Her account of the case was very convincing. The girl had been crying a lot during the first year of her life. Mother reported feeling murderous towards the little baby and her father was physically violent throwing her about. This behavior shows severe inability by the parents to function as containers in the sense Bick describes. The patient demonstrated a typical muscular second skin as a defensive structure against catastrophic anxieties. It was possible during the treatment to follow in detail how the interpretations of the defensive second skin structure resulted in softening of it and, at the same time, primitive underlying anxieties appearing together with an initial worsening of the skin condition and then a healing of it when these anxieties found a container in the therapist's interpretations. The patient began at the same time, to relate more normally to toys and other people and her capacity to bear separations began to improve. The patient said herself at the final stages of her treatment to the therapist, "You gave me a

cover to live in". Os referred on several occasions to the importance of Bick's ideas of the skin container in both understanding her patient and successfully treating her.

CONCLUSION

In conclusion, it would seem that one fruitful approach to study skin lesions might be to include in the exploration or design, a study which takes into consideration the patient's relationship and interaction with the human being who is closest to her because it is in this relationship that the patient tends or tries to re-live, re-enact, or re-create unconsciously in some form, the early baby-mother relationship.

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