

Factors that Predict Patients' Satisfaction with the Psychological Outcome and the Appearance of their Skin after Treatment

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ABSTRACT

Objective: The present study examined whether dermatological patients' demographic and social characteristics could predict their satisfaction with the medical outcome. Moreover, it focused on two aspects of patients' satisfaction; firstly, psychological factors that could predict satisfaction from the medical outcome and secondly, satisfaction from the appearance of their skin, after treatment.

Methods: 108 patients (18~35 years) participated in the study. Fifty four were diagnosed by their Dermatologists with severe visible facial cystic acne (Group A) and 54 with non-visible psoriasis/eczema (Group B). The study included two assessment phases: prior to and post dermatological treatment phase. At prior to treatment phase, all patients agreed with their Dermatologist to begin medical treatment and were administered the Sociodemographic questionnaire, the BDD Diagnostic Module-for adults, the Multidimensional body-self relations questionnaire, the Interpersonal support evaluation list and the Rosenberg self-esteem scale. At post dermatological treatment phase (six months after patients completed their dermatological treatment), there was a follow-up assessment and all participants were administered the Questionnaire on patients' satisfaction with the medical outcome.

Results: Patients' previous address to a specialist for their skin disorder predicts lower levels of satisfaction with the medical outcome. Patients' lower overall appearance satisfaction at prior to dermatological treatment phase and the group in which patients belong (visible or non-visible skin disorder), predict higher satisfaction with the medical outcome. The higher the possibility that a patient has a visible skin disorder (group of acne) and the less satisfied they are with their overall appearance at prior to dermatological treatment phase, the higher their satisfaction with the appearance of their skin after treatment is predicted to be. Lastly, if a patient fulfills the criteria for the diagnosis of BDD and the higher their perceived social support at prior to dermatological treatment phase, the lower their satisfaction with the appearance of their skin after treatment is predicted to be.

Conclusion: Satisfaction with the medical outcome and satisfaction with the appearance of the skin are two perceptually different areas for dermatological patients. They are both found to be predicted by various psychological factors and as such psychological assessment of patients prior to dermatological treatment is deemed necessary.

Keywords: Satisfaction with medical outcome; Satisfaction with skin appearance; BDD; Body image; Perceived social support; Acne; Psoriasis; Eczema; Psychodermatology

INTRODUCTION

Health professionals have always been interested in the mental and social functioning of people with dermatological conditions, but only recently has research begun to focus on the relationship between body image dissatisfaction, self-esteem, social support and satisfaction with the medical outcome. According to the literature, most dermatological patients show a negatively changing body image before treatment with a dermatologist [1,2].

The question of whether the abovementioned psychological factors or the existence of a specific disorder, such as Body Dysmorphic Disorder (BDD), predict the levels of dissatisfaction related with specific body parts after dermatological treatment, or concerning the satisfaction with the medical outcome remains to date.

More specifically, satisfaction with general medical care is a complex issue that requires special attention to the clinical

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severity of dermatological disease, but also to the psychological state of the person with the disease, since the literature reports a high prevalence of emotional difficulties in dermatological patients [3-5]. Nevertheless, few studies seem to focus on factors that predict dermatological patients' satisfaction with the medical outcome, while studies comparing results from two groups of patients, with different dermatological disorders, are absent from the literature.

Initially Weiss (1988) report that the investigation of patients' demographics can hardly be correlated with their satisfaction levels of medical care [6]. However, many studies in the literature have made this argument, revealing that no specific factor can be considered solely predictive, proving that satisfaction is a multilevel phenomenon [7]. Nonetheless, some of the few studies in dermatological literature report that certain demographic characteristics of dermatological patients are related with their satisfaction with the medical outcome. More specifically, the research of Alzolibani (2011) [8], which had a sample of 741 patients with various dermatological disorders, focused mainly on the investigation of patients' satisfaction with the structures of the Qassim University Clinic in Saudi Arabia and with the performance of dermatologists, immediately after patients' visit to the clinic. Results showed that patients' gender was a key predictor of their satisfaction with medical care with female patients being more satisfied, while patients who received dermatological services for the first time were found to be more satisfied compared to those who had received repeated examinations in the past. Nevertheless, the research of Alzolibani (2011) [8] did not investigate the satisfaction with the medical outcome after a certain period of time, but the immediate satisfaction of patients from the services they received. Similarly, the research of Salins et al. [9], which investigated the factors that affect the satisfaction of outpatients in a Dermatology department, showed that age was significantly correlated with the overall satisfaction, especially in those who were 50 years and older. The aforementioned study did not explore satisfaction with the outcome of medical treatment as well, since it would require longer time to be completed, but only investigated patients' satisfaction immediately after receiving consultation from their dermatologist.

In addition, the study by Renzi et al. [10], which had a sample of 396 outpatient dermatological patients, showed that their general satisfaction increased through dermatologist's ability to explain and empathize, as well as the age of the patients. The fact that the sample in this study was randomly selected from a large number of patients with miscellaneous dermatological disorders and various demographic characteristics, who underwent dermatological treatment at different time points, does not make it appropriate to provide representative data concerning the satisfaction with the medical outcome. Also, in the study of Cranenburgh et al. [11], 1293 patients with psoriasis were asked to complete an online questionnaire which explored the type of treatment they had followed in the past and their satisfaction with the medical outcome. Their results showed that the age of the patients was a predictor of their satisfaction. The fact that their sample was not recruited by patients who completed their dermatological treatment, but they were members from two Dutch associations of patients with psoriasis, who had undergone various treatments at various

past stages, is considered a serious experimental limitation to the investigation of the phenomenon of satisfaction with the medical result.

Furthermore, only a few studies have focused on psychological factors in order to investigate dermatological patients' satisfaction with the medical outcome. More specifically, the results of the study of Renzi et al. [3] showed that high levels of negative emotions such as shame and embarrassment, as well as psychiatric morbidity, were associated with non-compliance with medical treatment and with low satisfaction with the medical result. A major limitation of the research is that patients' satisfaction was assessed by telephone, three days and four weeks after their visit to their Dermatologists. Similar results are reported in a study of Rapp et al. [12], who found that anger was inversely associated with treatment satisfaction and with the adherence to treatment guidelines in patients with acne.

A specific experimental design was implemented in the research of Schäfer et al. [13], who investigated satisfaction with treatment in patients with psoriasis, but also satisfaction from the condition of their skin after treatment. The results showed that more than half of the patients, with a high Psoriasis Area Severity Index (PASI-50), were not satisfied with the condition of their skin after treatment, while a quarter of the patients were not satisfied with the overall result of the treatment either. Although this study was the first to distinguish satisfaction with medical outcome and satisfaction with the condition of the skin after treatment, one of its' serious limitations was that it focused only on a sample of patients with psoriasis, without comparing its results with a second group of dermatological patients. Another limitation of this study is that its sample did not include patients with psoriasis with non-visible anatomical localization, so as to compare the levels of satisfaction among patients with visible and non-visible psoriasis.

Current Study

Based on the findings from the literature, it appears that in most studies concerning dermatological patients' satisfaction with the medical outcome, there is no comparison between two groups of dermatological disorders, with visible and non-visible anatomical localization, especially after a period of time when the dermatological treatment is completed. Also, the existing literature lacks the use of tools that investigate levels of psychopathology, body image, self-esteem and social support of patients and the possibility that these factors can predict their levels of satisfaction with the medical outcome. Finally, the insatiable thirst for medical interventions that occurs in many patients requires a deeper assessment, in determining whether it falls into a research field that is more related to Body Dysmorphic Disorder (BDD) and which can affect patients' satisfaction with the medical outcome, as well as their satisfaction with their skin appearance after the completion of dermatological treatment.

In order to understand the factors that predict patients' satisfaction with the medical outcome, the present study assumes as a first hypothesis that demographic characteristics such as age, gender, financial status, educational background and the anatomical localization of the skin disorder will not be essential

predicting factors. On the contrary, we assume that social factors related to patients' relationship with the Dermatologist such as: Desire for more appointments, number of visits during their treatment, desire to spend more time during their appointment and past referral to other dermatologists, will be strong predicting factors of their satisfaction with the medical outcome.

In terms of the second hypothesis, we assume that psychological factors, such as variables of self-esteem and perceived social support at the start of patients treatment, but also the group in which they belong in (dermatological disorder which is visible or non-visible), will positively predict their satisfaction with the medical outcome. Also, the variables of body image and the existence of BDD will negatively predict patients' satisfaction with the medical outcome.

In contrast, as a third hypothesis, we assume that psychological factors such as the existence of BDD, body image, self-esteem and perceived social support at the time when patients visit their dermatologists are expected to negatively predict patients' satisfaction with the appearance of their skin after treatment. No previous research has examined whether the aforementioned psychological variables predict dermatological patients' satisfaction with the medical outcome and their satisfaction with the appearance of their skin after treatment. The latter is vital for the current study as it is considered innovative.

MATERIALS AND METHODS

Study design

This study included two assessment phases: prior-to and post dermatological treatment phase. Participants included patients diagnosed by their Dermatologist with severe visible facial cystic acne (Group A) and patients with non-visible psoriasis/eczema (Group B). At prior-to dermatological treatment phase, patients agreed to participate in the study, whilst also agreeing with their Dermatologist to start treatment with retinoids and antibiotics (Group A) or with oral medications (corticosteroids and antibiotics) and topical medications (creams, salicylic acid and shampoos) (Group B). Participants were informed that they also needed to participate in the six-month follow-up phase, after they completed their dermatological treatment (post dermatological treatment phase). The methods and procedure followed in the present study have received approval by the Cyprus National Bioethics Committee (EEBK EP 2015.01.103). The exclusion criteria for participation in both patient groups were: 1) any additional medical condition that could affect participants' body image, self-esteem and quality of life of the subjects, 2) any physical disability, 3) pregnancy and 4) inability to read and speak fluently in Greek language. Lastly, in the first group which consisted of patients with severe visible facial cystic acne (Group A), participants with another dermatological condition were excluded. Similarly, in the second group with patients with psoriasis or eczema (Group B), participants who had any visible dermatological condition located on the face were excluded.

Study population

Recruitment and screening: Participants of both groups were exclusively diagnosed by four Dermatologists who informed them of the research. Those who agreed to participate signed a consent form. The researcher then contacted them by phone

and scheduled a meeting in his office. During the meeting, the researcher provided information about the research, answered questions and informed participants that there was a six-month follow-up assessment, at the time when patients completed their dermatological treatment. Participants were also informed about the anonymity and confidentiality of the information they provided, as well as their right to withdraw from the study at any time they wished to do so, without having to justify themselves.

Subsequently, a questionnaire was then administered as a short interview to all participants, which included their demographic characteristics, the body part where their dermatological condition was located, as well as the treatment they agreed to follow with their dermatologist. Thereupon, the BDD Diagnostic Module (for adults) was administered. Afterwards, participants were given a package of questionnaires to complete, related to their body image, self-esteem and perceived social support. Each package had a separate code for each group (A or B) and a separate number for each participant. When participants completed all the questionnaires, they returned the package to the researcher who sealed it and subsequently informed them that the first assessment phase was completed.

Six months later, after each patient had completed their dermatological treatment, the researcher repeated the process of administering the package of questionnaires to all participants. The questionnaire, which investigated patients' satisfaction with the result of the medical intervention and with the appearance of their skin, was administered only at post-dermatological treatment phase, to all participants.

Measures

Sociodemographic Questionnaire and skin disorder

characteristics: The questionnaire was created for the current study and was administered as a short interview to all participants at prior to dermatological treatment phase, mainly to confirm their suitability. Its questions collected patients' demographics (age, gender, financial status and educational background), as well as information about the diagnosis of the dermatological disorder, its anatomical localization (visible or non-visible) and confirmation that at the time when patients participate in the study they also begin to receive the medication prescribed by their dermatologist.

BDD Diagnostic module-for adults: This semi-structured tool was administered by the researcher, as it takes the form of the Structured Clinical Interview of DSM-IV (SCID-IV). It can diagnose Body Dysmorphic Disorder (BDD), assuming that during its grading the DSM-IV diagnostic criteria are met. It was developed by Psychiatrist Katharine A. Phillips [14] and its adult version (18 years and older), was translated with her permission into the Greek language, for the purposes of the present study. This was done by two independent Greek translators using the double reverse translation method. At the stage of the current study the tool was not yet compatible with the DSM-V diagnostic criteria and its reliability was $\alpha=0.74$.

Multidimensional Body-Self Relations Questionnaire (MBSR-

AS): This questionnaire is a 34-item self-report inventory for the assessment of self-attitudinal aspects of the body image, developed by Dr Thomas F. Cash [15,16], who gave his permission for its use for the present study. Participants give ratings using answers ranging from 1 "strongly disagree" to 5

"strongly agree" for all items. These items are divided in to 5 subscales: 1) Appearance evaluation, 2) Appearance orientation, 3) Body areas satisfaction, 4) Overweight preoccupation, 5) Self-classified weight. The higher the score of the participants, the more positive body image they present. In this study, only the "Overall appearance satisfaction" item was used, from the subscale "Body areas satisfaction", whereby participants were asked to rate on a scale from 1 to 5, how dissatisfied or satisfied they were with their overall appearance. The internal consistency reliability of the questionnaire scales ranged from .82 to .89, while it has been used and translated in Greek language [15-17]. In the current study the questionnaire had very good internal consistency ($\alpha = .80$) and was used by all participants prior to dermatological treatment phase.

Interpersonal support evaluation list (ISEL-4): This questionnaire assesses the perceived social support of participants by using a 10-item inventory (1 "probably false" to 4 "definitely true"), which is divided into four subscales: (a) tangible support, (b) appraisal support, (c) self-esteem support; and (d) the belonging support. It also provides an overall support measure, which is used for the current study in order to assess the overall interpersonal support of patients. The questionnaire has been translated and used in the Greek language [18] and its internal consistency reliability scales ranged from .81 to .89. The ISEL-40 was administered at prior to dermatological treatment phase to all participants.

Rosenberg self-esteem scale: This questionnaire is one of the most common tools assessing a person's overall self-esteem. It was created by Morris Rosenberg [19] and it consists of 10 items to which participants are asked to answer if they agree on a scale of 1 "strongly disagree" to 4 "strongly agree". Higher scores indicate higher self-esteem. In the present study, only the "overall self-esteem" was used. It has good validity and reliability, while it has been used before in Cypriot and Greek population. The tool scales' consistency reliability in the present study ranged from .82 to .90 and was administered at prior to dermatological treatment phase to all participants.

Questionnaire on patients' satisfaction with the medical outcome: This questionnaire was created for the current study and as a first step it included questions on two aspects of patients' satisfaction: with the medical outcome and the appearance of their skin after treatment. Participants were asked to answer on a 4-point Likert scale (where 1=very dissatisfied and 5=very satisfied). It also included three close-ended questions: two that explored patients' needs that arise after the completion of their dermatological treatment, such as: desire to spend more time during the meeting with the Dermatologist and desire for more appointments with the Dermatologist. Similarly, a close-ended question was included on whether patients have consulted a specialist for their skin disorder in the past. Lastly, patients had to answer on a scale from 1 to 5 how many times they visited their Dermatologist during their treatment (where 1=once, 2=two to four times, 3=five to seven times, 4=eight to ten times, 5=more than ten times). The questionnaire was administered to all participants of both groups, after they completed their dermatological treatment.

Statistical analysis: Statistical calculations were done by using SPSS 22 statistical package for Windows. In order to test the first hypothesis, whether patients' satisfaction with the medical outcome is predicted by their demographic characteristics

or by social factors related to their relationship with their dermatologists, a hierarchical regression analysis with two levels was performed.

Regarding the second hypothesis, on whether psychological factors such as the existence of BDD diagnosis, overall appearance satisfaction, self-esteem and perceived social support, but also the group in which patients belong (dermatological disorder which is visible or non-visible), will predict their satisfaction with the medical outcome, multiple regression analysis was performed by the enter method.

Similarly, multiple regression analysis was performed by the enter method for the third hypothesis, with the abovementioned psychological factors and visibility of dermatological disorder, as predictors for dermatological patients' satisfaction with the appearance of their skin after treatment.

Also, a t-test analysis was performed in order to examine whether there are statistically significant differences between the two groups of dermatological patients in terms of their satisfaction after treatment and the appearance of their skin after their treatment completion.

RESULTS

Sample characteristics

The study included 108 adult dermatological patients, aged 18>35 years, who were diagnosed by their Dermatologists. Group A consisted of 54 patients with severe visible facial acne and Group B consisted of 54 patients with psoriasis/eczema, with non-visible anatomical localization. The demographic characteristics of the participants are illustrated in Table 1.

Table 1: Percentages for demographic characteristics of the sample prior to dermatological treatment phase (N=108).

	Group A (n=54)	Group B (n=54)
Age	20.21 (3.40)	28.89 (5.36)
Educational level		
Bachelor degree	0.185	0.574
High school	0.815	0.426
Occupational status		
Unemployed	0.074	0.167
Employees	0.241	0.63
Undergraduate students	0.333	0.111
Post-graduate students	0.019	
Soldiers	33.3%	0.093
Economic status		
Poor		0.037
Middle	0.167	0.259
Good	0.556	0.519
Very good	0.278	0.185
Status		
Marriage	0.019	0.389
Single	0.981	0.544
Divorced		0.037

All patients from Group A have completed their six-month dermatological treatment (n=54), as well as all patients from Group B, except from one (n=53). However, this patient was not excluded from the sample of the present study, since

statistical analyses performed to exclude the participant did not show significant changes in our findings. Therefore, the patient participated at the six-month follow-up phase, even though they discontinued their pharmacological therapy with their Dermatologist.

Demographic and social characteristics as predictors of dermatological patients' satisfaction with the medical outcome

In order to examine whether satisfaction with the medical result is predicted by patients' age, gender, financial status, educational background, anatomical localization of the skin disorder, their desire for more appointments with the Dermatologist, the number of visits to the Dermatologist during treatment, their desire to spend more time during Dermatologist's consultation and their previous address to a specialist for their skin disorder, a hierarchical regression analysis was performed with 2 steps. Satisfaction with the medical outcome was defined as the dependent variable (Table 2).

On the first step of the hierarchical regression, the demographic characteristics were defined as predictors: age, gender, financial status, educational background and anatomical localization of the skin disorder. On the second step, the following social factors related to patients' relationship with their Dermatologists were added: the desire for more appointments with the Dermatologist, the number of visits to the Dermatologist during the treatment, the desire to spend more time during Dermatologist's consultation and the previous address to a specialist for their skin disorder.

The analysis showed a significant predictor only for gender ($b=.46$, $p=.02$) of the satisfaction with the medical outcome on the first step, with female patients experiencing higher levels of satisfaction. All the other demographic factors were not significant predictors ($p<.05$) (Table 2).

On the second step, with the addition of social predictors, it appeared that the "previous address to a specialist for their skin disorder" ($b=-.68$, $p=.01$), affects significantly negatively patients' satisfaction with the medical outcome.

More specifically, the predicted variance for dermatological patient's satisfaction with the medical outcome can best be explained by 15% (R^2), with patients' previous address to a specialist for their skin disorder. Also, the addition of social factors related to patient's relationship with their dermatologists has a significant effect on the model, since the possibility that if a patient has addressed to a dermatologist again in the past for their skin disorder, their satisfaction with the medical outcome is predicted to be lower ($\Delta R^2=.09$, $p=.0$).

Psychological factors as predictors of dermatological patients' satisfaction with the medical outcome

Initially, multiple regression analysis was performed in order to examine if dermatological patients' satisfaction with the medical outcome was affected by the group in which they belong to (visible or non-visible skin disorder), the existence of BDD diagnosis, their overall appearance satisfaction, perceived social support and self-esteem. The abovementioned variables were added using the enter method. Satisfaction with the medical outcome was defined as the dependent variable (Table 3).

The analysis showed a significant contribution of the factors "overall appearance satisfaction" ($b=-.54$, $p=.008$) and the "group" in which patients belong (visible or non-visible skin disorder) ($b=.44$, $p=.03$) as predictors for their satisfaction with the medical outcome. Specifically, the total variance (R^2) is equal to .16. That is, 16% of the variance for the satisfaction with the medical outcome can be interpreted by the effect of the overall appearance satisfaction and the group in which patients belong (Table 3).

Table 2: Summary of the hierarchical regression analysis for the various scales which predict satisfaction with the medical outcome.

Predictors	b	SE B	β	F-value	df	p	ΔR^2	R^2
Step 1				1.42	5102	0.22		0.06
Age	0.01	0.02	0.08			0.58		
Gender	0.46	0.19	.24*			.02*		
Financial status	-0.09	0.14	-0.07			0.52		
Educational background	-0.09	0.24	-0.04			0.72		
Anatomical localization of the skin disorder	0	0.08	0			0.98		
Step 2				2.61	4,98	0.04	0.09	0.15
Age	-.01	0.03	-0.07			0.66		
Gender	0.35	0.19	0.18			0.07		
Financial status	-0.1	0.14	-0.07			0.48		
Educational background	0.04	0.24	0.02			0.86		
Anatomical localization of the skin disorder	0	0.09	0			0.98		
Previous address to a specialist	-0.68	0.26	-.26*			.01*		
Number of visits to dermatologist during treatment	-0.18	0.15	-0.13			0.22		
Desire to spend more time during Dermatologists' consultation	-0.24	0.26	-0.1			0.35		
Desire for more appointments with the dermatologist	0.02	0.36	0.01			0.95		

Note: * $p<.05$, ** $p<.01$, *** $p<.001$. Dependent variable: Satisfaction with the medical outcome (enter method with 2 steps).

Table 3: Multiple regression analysis for the variables that predict dermatological patients' satisfaction with the medical outcome.

Predictors	b	SE B	β	F-value	Df	P	R ²
Group	0.44	0.2	.23*	3.93	5102	0.003 .03*	0.16
BDD diagnosis	-0.37	0.26	-0.16			0.16	
Overall appearance satisfaction	-0.54	0.2	-.28**			.008**	
Perceived social support	0	0.01	-0.07			0.51	
Self-esteem	-0.04	0.05	-0.08			0.4	

Note: *p<.05, **p<.01, ***p<.001. Dependent variable: Satisfaction with the medical outcome (enter method). R²=.16, F(5,102)=3.93, p<.01.

In order to examine group differences an independent t-test was performed. A t-test analysis indicated a significant effect of group t (106)=3.49. More specifically, patients in group A were less satisfied with their overall appearance prior to dermatological treatment phase (M=2.55, SD=.86) compared to patients in group B (M=2.69, SD=1.09).

Psychological factors as predictors of dermatological patients' satisfaction with the appearance of their skin after treatment

Multiple regression analysis was performed to examine whether the dermatological patients' satisfaction with their skin appearance after treatment was affected by the group in which they belong (visible or non-visible skin disorder), the existence of BDD diagnosis, their overall appearance satisfaction, perceived social support and self-esteem. The abovementioned variables were added using the enter method. Patients' satisfaction with their skin appearance after treatment was defined as the dependent variable (Table 4).

Table 4: Multiple regression analysis for the variables that predict dermatological patients' satisfaction with the appearance of their skin after treatment.

Predictors	b	SE B	β	F-value	Df	p	R ²
Group	0.83	0.18	.42***	9.45	5102	.000 .000***	0.32 4.56
BDD diagnosis	-0.58	0.24	-.24*			.02*	-2.4
Overall appearance satisfaction	-0.48	0.18	-.24**			.01**	-2.63
Perceived social support	-0.02	0.01	-.24*			.02*	-2.4
Self-esteem	-0.03	0.04	-0.07			0.4	-0.84

Note: *p<.05, **p<.01, ***p<.001. Dependent variable: Satisfaction with the appearance of the skin after treatment (enter method). R²=.32, F(5,102)=9.45, p<.001.

to dermatological treatment phase, the lesser their satisfaction with the appearance of their skin after treatment is predicted to be. Similarly, the lower levels of patients perceived social support at prior to dermatological treatment phase, the higher their satisfaction with the appearance of their skin after treatment is predicted to be (Table 4).

In conclusion, applying the multiple regression analysis, using the satisfaction with the medical outcome as a dependent variable, clearly showed that only the group in which patients belong to (visible or non-visible skin disorder) and their overall appearance satisfaction at prior to dermatological treatment phase can significantly predict patients' satisfaction with the

The analysis showed a significant contribution of the factors the "group" in which patients belong to (visible or non-visible skin disorder) (b=.83, p<.001), "overall appearance satisfaction" (b=-.48, p=.01), the existence of "BDD diagnosis" (b=-.58, p=.02) and "perceived social support" (b=-.02, p=.02), as predictors for their satisfaction with the appearance of their skin after treatment. More specifically, the prediction for dermatological patient's satisfaction with the appearance of their skin after treatment can be better interpreted with variance of 32% (R²), by the effect of the group in which they belong, their overall appearance satisfaction, the existence of BDD diagnosis and their perceived social support. That is, the higher the possibility that the dermatological patient comes from a specific group, which has the diagnosis of acne, and the less satisfied they appear to be with their overall appearance at prior to dermatological treatment phase, the higher their satisfaction with the appearance of their skin after treatment is predicted to be. Also, if a dermatological patient fulfills the criteria for the diagnosis of body dysmorphic disorder at prior

medical outcome. However, for the multiple regression analysis applied, with patients' satisfaction with the appearance of their skin after treatment as a depended variable, it appeared that the group in which patients belong to (visible or non-visible skin disorder), their overall appearance satisfaction at prior to dermatological treatment phase, the fulfillment of the diagnosis of body dysmorphic disorder, as well as their perceived social support, can significantly predict their satisfaction levels with the appearance of their skin after treatment.

DISCUSSION

The findings of the present study showed that in the first step of

the hierarchical analysis, only gender appears to be a predictor for dermatological patients' satisfaction with the medical outcome. With the addition of psychosocial factors in the second step of the analysis, it was shown that only previous address of the patient to a dermatologist for their skin disorder significantly predicts their satisfaction with the medical outcome, a factor that covers the effect of gender. On account of this, the present study shows that as the degree to which a dermatological patient has sought treatment for his dermatological disorder in the past increases, the less their satisfaction with the medical outcome is predicted to be. This indicates the existence of a steadily increased desire in some dermatological patients to receive more and more medical services, which is difficult to satisfy, a behavior that is often observed and can be interpreted by the possible presence of body dysmorphic disorder [20,21]. The past search for medical services can also be considered as a sign of previous effort and also failure for recovery, something that dermatological patients have already tried, but which did not bring results to the extent that it satisfied their needs.

The present study agrees with the findings of Alzolibani (2011) [8], that patients' gender is a predictor of their satisfaction with the medical outcome, while it reinforces it by evaluating in a long-term patient's satisfaction, six months after the completion of their dermatological treatment. In contrast, the results of the present study contradict the finding of Renzi et al. [10] that patients' overall satisfaction with the medical outcome increases by age and this is because the present study included patients who had a lower age limit and who belonged to only two groups of dermatological disorders. Similarly, the results of the present study contradict those reported by Cranenburgh et al. [11], stating that the age of patients with psoriasis was a predictor of their satisfaction with treatment and this is because the present study investigated the satisfaction of patients who were referred by a dermatologist at the exact time of completion of their medical treatment and not of patients who have undergone treatment at various previous stages of their lives. Lastly, results of the current study also disagree with Salins et al. [9], on the predictive role of patient's age in their satisfaction levels, mainly because the sample we used consisted of younger patients but also because we investigated patients' satisfaction after the completion of their dermatological treatment and not immediately after their meeting with the Dermatologist.

Regarding the psychological factors that predict dermatological patients' satisfaction with the medical outcome, the present study appears to be the first in the literature which made it possible to identify their overall appearance satisfaction at prior to dermatological treatment phase, but also the group in which they belong to (visible or non-visible skin disorder), as the only important predictors. More specifically, the less satisfied the dermatological patient appears to be with their overall appearance at prior to dermatological treatment phase and the higher the likelihood that they come from a specific group, which carries the diagnosis of a specific skin condition (specifically acne), the higher their satisfaction with the medical outcome is predicted to be. Based on these findings, we conclude that for specific dermatological disorders, the intervention of the Dermatologist is sought behaviorally by patients in order to heal their skin condition, but psychologically it functions as an attempt to change the way the patient himself perceives their external physical self and the satisfaction with their body

image. The results of the present study are in agreement with previous works [3,12], while they contribute to the literature by adding that for specific dermatological disorders, patients' negative emotions regarding their body image at the prior to dermatological treatment phase, appear to be the strongest predictors that can affect their satisfaction with the medical outcome.

Current results also made it possible to identify the predictive relationship between dermatological patient's satisfaction with the appearance of their skin after treatment, by the group in which they belong to (visible or non-visible skin disorder), as well as by psychological factors such as: their overall appearance satisfaction at prior to dermatological treatment phase, the existence of BDD diagnosis and their perceived social support. More specifically, low satisfaction with the overall appearance, which is observed mainly in the group of acne patients, predicts a higher level of satisfaction with the appearance of the skin after treatment. Therefore, the higher the likelihood that the patient comes from a specific group which has the diagnosis of acne and the lower their satisfaction with their overall appearance prior to dermatological treatment phase, the higher their satisfaction with the appearance of their skin after treatment is predicted to be. That is, Dermatological treatment, which improves skin's appearance, reinforces acne patients' satisfaction with the appearance of their skin after treatment. Also, if a patient fulfills the criteria for the diagnosis of BDD at prior to dermatological treatment phase, the lower their satisfaction with the appearance of their skin after treatment is predicted to be. Thus, the lower a patient's overall perceived social support at prior to dermatological treatment phase, the higher their satisfaction with the appearance of their skin after treatment is predicted to be. This may be justified by the fact that patients with BDD are not satisfied with the continual medical interventions they receive [20,21] while people with low social support may present intense preoccupation with the appearance of their skin, in relation to individuals with high perceived social support, who due to their frequent contact with their important "others", are not concerned much with themselves and consequently with the appearance of their skin. In conclusion, in order to achieve a high level of patients' satisfaction with the appearance their skin, we need to know that each dermatological disorder affects patients differently, while a prior to dermatological treatment assessment is essential in determining how the patient perceives their body, on the existence of BDD diagnosis and their perceived social support. Current findings are considered important for the literature, primarily because there has been no previous research which investigated the aforementioned psychological factors as predictors of patients' satisfaction with the appearance of their skin after treatment. Secondly, the experimental assessment of patients' satisfaction with the appearance of their skin within six-months after the completion of their treatment, between two groups of dermatological patients, has not been re-proposed in previous studies.

The results of the present study are in line with the findings of Schäfer et al. [13]. Although their study suggested the investigation of patients' satisfaction with the medical outcome and with the appearance of their skin, in a period of six months as in the present study, it nevertheless focused only on a sample of patients with psoriasis. The value of the present

study is therefore apparent in the addition of a second group of dermatological patients with acne, with visible anatomical localization, in order to compare the results with patients whose psoriasis/eczema was not visible. Furthermore, additional clinical tools were used in the present study, which investigated the existence of BDD diagnosis, body image, perceived social support and patients' self-esteem at two research phases.

LIMITATIONS

Our study however has some limitations, one of them being the sample size, which influences the possibility to generalize current findings to the whole population of patients with various dermatological disorders. Also, the sample was recruited from two Cypriot cities, Paphos and Limassol. The sample size could have been larger if more patients were referred by dermatologists from various other Cypriot cities. Secondly; self-reported questionnaires were used for the current study and even though they are validated, findings could have been reinforced by the use of a clinical interview. Lastly, the use of the BDD Module tool was not complied with the DSM-V criteria at the point of administration. Similar future studies with the use of a clinical tool which follows the current diagnostic criteria of DSM-V could help in a more refined detection of these patients.

CONCLUSION

The findings of the present study show that satisfaction with the medical outcome and satisfaction with the appearance of the skin are two perceptually different areas for dermatological patients. It is also the first study which proves that these two areas of satisfaction are predicted by different psychological factors. Lastly, current results show that there is a need for further research in the area of psychodermatology, among various groups of dermatological disorders (with visible and non-visible anatomical localization), but also emphasize the need for a clinical tool with targeted questions in specific areas of dermatological care, which can reveal the various aspects of patients' satisfaction. This will invaluablely contribute for both the training of Dermatologists and for identifying patients who are vulnerable and in need of psychotherapeutic interventions or those who fulfill the criteria of BDD diagnosis.

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CONTRIBUTION OF AUTHORS

Study conceptualization-CC, IY; design and protocol development-CC, IY; data collection-CC; data analysis-CC, IY, MP; writing the manuscript-CC; proofreading-CC, IY, MP; overall supervision-IY.

ETHICAL APPROVAL

Approval was received for the current study from the Cyprus National Bioethics Committee (EEBK E[[2015.01.103).

CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

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INFORMED CONSENT

Written informed consent was obtained from all participants of this study.

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