

ORIGINAL ARTICLE

The Relation Between Automatic Thoughts of Depression and Body Dysmorphic Disorder in Patients Seeking Aesthetic Dermatological TreatmentMona Ramadan^a; Wafaa El-Bahaey^b; Manar Sallam^c; Ahmed Eiss^d^aDepartment of Psychiatry, Damietta University, Damietta; ^bDepartments of Psychiatry; ^cDepartment of Dermatology, Mansoura University, Mansoura; ^dDepartment of Neuropsychiatry, Port Said University, Port Said, Egypt.**Correspondence to Ahmed Eissa, Assistant Professor of Neuropsychiatry, Faculty of Medicine, Port Said University, Port Said, Egypt.****E-mail: aissaham1970@gmail.com.**

Background	Healthy skin is essential for mental and physical wellbeing as it fosters the self-esteem and the sense of self-confidence.
Aim	To evaluate the negative automatic thoughts in patients with depression and/or body dysmorphic disorder in dermatological clinics and to assess the impact of depression and its related automatic thoughts on the development of body dysmorphic disorder.
Setting and Design	In Mansoura University hospitals and this study is a cross sectional/case control study.
Methods and Materials	This study is conducted on 67 patients seeking aesthetic dermatological treatment for mild or non-disfiguring facial skin or hair defect and 33 healthy adult as a control group. All subjects and control were subjected to clinical psychiatric assessment with semi-structured interview based on DSM-5, Beck Depression Inventory (BDI), Automatic Thoughts Questionnaire (ATQ) and Yale-Brown Obsessive Compulsive Scale modified for BDD.
Statistical Analysis	Data were analysed with SPSS version 22. The normality of data was first tested with one-sample Kolmogorov-Smirnov test and Shapiro Wilk test.
Results	Both Depression and Body Dysmorphic are common among the patients and the comorbidity of both BDD and depression is very high. A Significant correlation was found between the beck depression inventory and automatic thought questionnaire in the subject group there was a significant statistical difference between the subject and the control groups regarding the Yale brown scale, which reflects more concern regarding physical appearance in the patient group.
Conclusions	The frequency of each of depression and body dysmorphic as well as the comorbidity between them is high among the patients who seek aesthetic techniques in dermatology. The subject group displayed more depression, more negative automatic thoughts and more body image concerns as compared to healthy controls.
Keywords	Aesthetic treatment, Body dysmorphic disorder, Depression.

INTRODUCTION

The entire sense of wellbeing is closely related to both physical and psychological health. Moreover, a healthy skin has a significant role in person's physical and mental wellbeing as it is the largest and, by all mean, the most seen part of our physicality and therefore a disfiguring appearance is associated with concerns about the body

image (Tomas-Aragones and Marron, 2016). Psychiatric problems may play a primary role in the occurrence or relapse of dermatologic disorders. However, it may be that psychiatric morbidity is secondary to the dermatologic disorders as a result of their effect on body image and stigmatic characteristics (Osman *et al.*, 2011).

Mood disorder and body dysmorphic disorder (BDD) are considered the most common psychiatric co-morbidity among dermatological patient and the relationship between the dermatological presentation and the psychological aspect is often very complex (Pimenta *et al.*, 2009).

Depression affects how people perceive themselves including their body image due to its associated negative automatic thoughts. Body image has multi-dimensional aspects including the perception of the appearance, feelings and thoughts about the body (Cerea *et al.*, 2017).

Body dysmorphic disorder (BDD) is the preoccupation with one or more flaws and defects in appearance that appear to be slight or non-observable to others and much of their thoughts are fixated on the perceived defects (Shaffi Ahamed *et al.*, 2016).

These defects have a more global effect on them as they cause them to view themselves as unattractive. There for they often spend considerable time engaging in checking, ruminating about the perceived defect and camouflaging (Lambrou *et al.*, 2012).

BDD is a common disorder in the general population, the prevalence can be as high as 1.7–2.4% and yet is underdiagnosed (Buhlmann *et al.*, 2010). Most of them are seeking aesthetic treatment (Vashi, 2016).

BDD had differently included in psychiatric classification systems; however, lastly it has been submitted into the category of “obsessive-compulsive disorder and related disorder” in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). This is explained by the shared similarities between BDD and obsessive compulsive disorder (OCD) as both of them is presented with obsessions and compulsions. Also, comorbidity and familial overlap have been found between OCD and BDD (First *et al.*, 2016).

Blashill and Wilhelm (2014), concluded from previous studies that depression predisposes to the development of body image disturbance and others suggested that depression itself is co-morbid with body dysmorphic disorder.

Body dysmorphic disorder are comorbid in 53–81% of individuals diagnosed with major depressive disorder and the depression most commonly develops after BDD or secondary to it which makes functional impairment universal among those with BDD which is in part due to their avoidance of work activities as most of them become housebound for at least 1 week as a result of their BDD symptoms (Weingarden *et al.*, 2016).

As the face is vital to body image, young men and women with scarring as a result from acne are at particular risk of depression, body dysmorphic disorder and suicide (Harris and Carr, 2001).

PATIENTS AND METHODS

The aim of current study to evaluate the negative automatic thoughts in patients with depression and/or body dysmorphic disorder in dermatological outpatient clinic and to assess the impact of depression and its related automatic thoughts on the development of body dysmorphic disorder.

The design of this study is a cross sectional/case control study.

The study was conducted at outpatient clinic of dermatological, andrology and sexually transmitted disease department of Mansoura University hospitals (MUH) for 12 months in the period from May 2017 to April 2018. Mansoura, Egypt.

The study was conducted on 67 patients seeking aesthetic dermatological treatment for mild or non-disfiguring facial skin like wrinkles, dark circles around the eyes, skin lines (stria), specific skin pigmentation, discoloration (redness of cheeks in men) or hair defect like hair line with excessive concern about these lesions after examination by the dermatologist in dermatological outpatient clinic. This group of patients was further divided into two groups: a) group of 32 BDD patients according to DSM-5 clinically diagnosed and the Yale brown score is more than or equal to 20, and b) subclinical group of 35 patients which had more concerns than the general population and with subthreshold clinical symptoms for the diagnosis of BDD, clinically sub-threshold and the score of the Yale brown is less than 20.

Inclusion criteria including patients seeking aesthetic dermatological treatment for mild or non-disfiguring facial skin or hair, of both genders, whose age ranged from 18-50 years old, can read and write in Arabic. Exclusion criteria included patients with severely disfiguring facial skin or hair defect, patients with chronic medical disease that affect cognitive function, co-morbid psychiatric disorder rather than depression and/or body dysmorphic disorder and inability to read and write.

The control group consisted of 33 healthy adult individuals who were matched in age, gender and number of individuals with the patient group, can read and write in Arabic and free from any disfiguring skin or hair lesions, psychiatric disorders and chronic medical diseases.

All subjects were subjected to

1. *Clinical assessment:* With the aid of The Structured Clinical Interview for DSM-5 (SCID-5) which is a semi-structured interview based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) guide for making the major DSM-5 Diagnoses. It is administered by a clinician or trained mental health professional who is familiar with DSM-5 classification and diagnostic criteria. The interview subjects may be either psychiatric or general medical patients-or individuals who not identify themselves as a patient (First *et al.*, 2016) for the diagnosis of depression and/or body dysmorphic disorder and exclusion of other psychiatric disorders. Sociodemographic data including age, sex, residence, occupation and marital status were also obtained by the psychiatrist in original (English) form.

2. *Psychometric assessment:* By using Beck Depression Inventory (BDI) (Arabic version), Automatic Thoughts Questionnaire (ATQ) (Arabic version), and Yale-Brown Obsessive Compulsive Scale modified for BDD (YBOCS-BDD); (Phillips *et al.*, 2014), (Arabic version).

Control group was subjected to psychometric assessment with the same tools as the subject group.

The psychometric tools of assessment including:

1. *Beck Depression Inventory (BDI) (Beck et al., 1961), (Arabic version):* is a self-rating scale composed of 21 items, which evaluates the depression level. Each question is rated from zero to three points to rate the severity of each item. Each item reflects symptom, which is part of the depressive syndrome. Scoring is the total sum of points shows depression level (Beck and Haigh, 2014). Originally, the cut off point for depression was 13. The cut off point among different studies are varies so the general guidelines for scores are: less than ten no or minimal depression, ten to 18 indicate mild to moderate depression, 19 to 29 moderate to severe depression, above 30 indicate severe depression (McDowell and Newell, 1996). Therefore, it was reduced by to ten and this is the cutoff point used in this current study. The Arabic version of BDI that was used in our study was adapted by Abdel-Khalek, (1998). In addition, showed that the inventory is viable in Arabic context and therefore can be used. The validity and reliability: the Arabic version of BDI showed adequate internal consistency, with an alpha coefficient of 0.82, when used with a student sample in the United Arab Emirates. Another study also found that it exhibited adequate internal consistency, with an alpha of .83, good test-retest reliability ($r= 0.74$), and that the BDI had been highly successful in differentiating between depressed and non-depressed participants (Beshai *et al.*, 2016).

2. *ATQ (Hollon and Kendall, 1980) (Arabic version):* The ATQ is a 30-item instrument that measures the frequency of automatic negative statements about the self, which play an important role in the development, maintenance and treatment of depression. ATQ taps four aspects of these automatic thoughts: negative self-concepts, personal maladjustment, and the desire for change, negative expectations and low self-esteem.

Scoring explained by the frequency (f) of occurrence of each item is rated from "not at all" to "all the time". The sum of all 30 items is the total score. The higher the score they get the more they believe (b) in their negative automatic thoughts. The respondents are asked to rate the degree of belief of each items. The higher the score they get the more they believe in their negative automatic thoughts. The following items (seven, ten, 14, 20, 26) were used to assess personal maladjustment and desire for change while items (two, three, nine, 21, 23, 24, 28) were used to assess negative expectations. Items 17 and 18 were for assessment of low self-esteem. Finally, for assessment of negative self-concepts and negative expectations the following items were used: (two, three, nine, 21, 23, 24, 28). There is no cut off for ATQ (Hollon and Kendall, 1980). Two professional translators translated it to Arabic according to the World Health Organization's guidelines: one translated the English materials into Arabic and then the other one performed the back translation to English by the university development center, Damietta University. The validity in a previous study show that ATQ had good internal reliability ($\alpha= 0.96$) (Hollon and Kendall, 1980). As regarding the validity Harrell and Ryon, (1983), found strong convergent validity for the ATQ scale, as it has shown significant correlation with clinical rating of depression reported by Beck Depression Inventory (BDI).

YBOCS-BDD (Phillips *et al.*, 2014). (Arabic version) is a 12-item provider or self-administered scale designed to rate severity of BDD during the past week. It is a valid and reliable measure of current BDD severity (Phillips *et al.*, 2014). The maximum score of the scale is 48. The higher the score, the more severe BDD symptoms were found. A score of ≥ 20 is the cutoff point used to determine the presence of BDD in most studies (Phillips, 2006). The YBOCS-BDD scale was also translated according to the World Health Organization's guidelines. Therefore, there were two professional translators involved in the process of translation: one who forward translation the English materials into Arabic and then the other one back translated the Arabic translation into English by the university development center, Damietta University. As regards validity and reliability, the scale has good internal

consistency ($\alpha = 0.80$), high test-retest reliability ($r = 0.88$), and a good convergent validity ($r = 0.55$) as reported by Phillips *et al.*, (2014).

Statistical Analysis

Data were analyzed with SPSS version 22. The normality of data was first tested with one-sample Kolmogorov-Smirnov test and Shapiro Wilk test.

Qualitative data were described using number and percent. The association between categorical variables was tested using the χ^2 test. When more than 25% of the cells have expected count less than 5, Fisher exact test was used.

Continuous variables were presented as mean \pm SD (standard deviation) for parametric data. The two unrelated groups were compared with independent sample *t* test (parametric data). Analysis Of Variance (ANOVA test) used for comparison of means of more than two groups (parametric data). Pearson correlation used for correlation between continuous parametric data.

RESULTS

Demographical characteristics demonstrate that both the case and the control groups are matched in gender, marital status, residency and occupation as in table (1), most of the sample is females in both cases and control groups. Regarding marital status, most of the cases are either single or married with little percentage of divorced and engaged and the control group has nearly similar distributions.

As for the residency, most of the case and the control groups were from urban communities with the reminder from rural communities. The occupation of both groups show the same distributions, which ranged between doctors, employee, housewife, nurses, students, workers and teachers. According to age, both subject and control groups are matched in age with the mean age for the cases and control group is below 30 years table (1).

As regards the result of Automatic Thoughts Questionnaire (ATQ), (Table 2) shows that the cases has statistically significant higher scores in ATQ f, ATQ b scales than the control group.

There was statistically significant higher scores in Yale brown scale than the control group.

In addition, in Beck Depression scale, the cases have statistically significant higher scores than the control group.

As regard to the correlation between the different variables among the case group, there was significant correlation between all correlates as the *P* value is <0.05 for all of them like (ATQ f and ATQ b), (ATQ f and Yale Brown), (ATQ b and Yale Brown), (ATQ f and Beck Depression), (ATQ b and Beck Depression), (Yale Brown and Beck Depression), as in table (3).

On the other hand, the correlation between the different variables as regarding to the control group shows significant correlation between (ATQ f and ATQ b) and (ATQ b and Yale brown scale) with no other significant correlation between the other variables (Table 4).

There was statistically significant correlation were found between subclinical and clinical cases of BDD as regarding to the ATQ f, ATQ b and beck depression scale, which reflect, that clinically diagnosed cases had more depression and more negative automatic thoughts. There is no significant correlation was found between the age and the other variables (Table 5).

DISCUSSION

The initial number of the case group was 90 patients but 23 of the patients were excluded because they possessed another reason for performing such cosmetic techniques such as seeking acceptance from military collages or to satisfy certain job qualification such as working in hospitality, acting and so on.

In our study, the application of beck depression inventory showed a significant statistical difference between the case and the control groups regarding depression. This is consistent with the results of many other studies (Krebs *et al.*, 2017). An international multicenter cross-sectional study that was conducted across 13 European countries has concluded that 10.1% of dermatology patients suffered from depression (Dalgard *et al.*, 2015).

In addition, two Arabic studies in Saudi Arabia among dermatologic patients (Alshahwan, 2015; Mleeh *et al.*, 2019) showed close results as depressive symptoms were found to be prevalent in 14% and 15.8% respectively in the sample of patients. Moreover, depression was found to be most prevalent among patients with psoriasis (39.5), followed by those with acne (30.2%) which confirm the assumption that disfiguring lesions can be provocative to depression. Similar results were shown in the study of Nguyen *et al.*, (2016) who founded that patients with acne, psoriasis and vitiligo had variable levels of depression and anxiety according to how they perceive them-selves and their quality of life.

Table 1: Comparison of the socio-demographic characteristics between the case and the control groups:

	Frequencies				Significance test	P-value
	Case		Control			
	n	%	n	%		
Sex						
Male	12	17.9	10	30.36	$\chi^2= 1.979$	0.201*
Female	55	82.1	23	69.7		
Marital Status						
Single	31	46.3	9	27.3	$\chi^2= 5.360$	0.252
Married	27	40.3	18	54.5		
Divorced	3	4.5	1	3.0		
Engaged	6	9.0	4	12.1		
Widow	-	-	1	3.0		
Residence						
Urban	40	59.7	25	75.8	$\chi^2= 2.505$	0.126*
Rural	27	40.3	8	24.2		
Occupation						
Doctor	10	14.9	11	33.3	$\chi^2= 12.055$	0.099
Employee	8	11.9	3	9.1		
House wife	14	20.9	3	9.1		
Nurse	12	17.9	1	3.0		
Student	14	20.9	7	21.2		
Teacher	3	4.5	4	12.1		
Worker	3	4.5	1	3.0		
Other	3	4.5	3	9.1		
Age						
Less than 30 years	46	68.66	20	58.82	$\chi^2= .639$	0.502*
30 years and more	21	41.34	13	38.23		

χ^2 , χ^2 test; *= Fisher Exact test.

Table 2: Comparison between the case and the control groups regarding their score on ATQ, Yale Brown and Beck depression inventory:

	Cases (N=67)		Control (N=33)		Test of significance	
	Mean	SD	Mean	SD	t	Sig.
Automatic Thoughts Questionnaire (f)	72.34	22.97	51	12.58	4.974	<.001
Automatic Thoughts Questionnaire (b)	71.64	23.44	51.88	11.59	4.568	<.001
Yale Brown	15.9	8.32	3.94	2.95	7.993	<.001
Beck Depression	21.87	11.93	5.52	3.03	7.733	<.001

Automatic Thoughts Questionnaire f refers to the result of the scale as regards the frequency of occurrence of automatic thoughts.

Automatic Thoughts Questionnaire b refers to the result of the scale as regards the degree of belief of each automatic thought.

t: Independent samples test; P significant at a level of 5%.

Table 3: Correlation matrix between studied variables among the case group (n=67):

	Sig	Automatic Thoughts (f)	Automatic Thoughts (b)	Yale Brown	Beck Depression
Automatic Thoughts (f)	R				
	P				
Automatic Thoughts (b)	R	0.887			
	P	<.001			
Yale Brown	R	0.395	0.371		
	P	0.001	0.002		
Beck Depression	R	0.576	0.580	0.345	
	P	<.001	<.001	0.004	

Automatic Thoughts Questionnaire f refers to the result of the scale as regards the frequency of occurrence of automatic thoughts.

Automatic Thoughts Questionnaire b refers to the result of the scale as regards the degree of belief of each automatic thought.

R: Pearson correlation test; P significant at a level of 5%.

Table 4: Correlation matrix between studied variables among the control group ($n=33$):

	Sig	Automatic Thoughts (f)	Automatic Thoughts (b)	Yale Brown	Beck Depression
Automatic Thoughts (f)	<i>R</i>				
	<i>P</i>				
Automatic Thoughts (b)	<i>R</i>	0.623			
	<i>P</i>	<.001			
Yale Brown	<i>R</i>	0.123	0.402		
	<i>P</i>	0.495	0.020		
Beck Depression	<i>R</i>	0.147	0.135	-0.084	
	<i>P</i>	0.413	0.453	0.643	

R: Pearson correlation test; *P* significant at a level of 5%.

Table 5: Mean difference of score of the Yale brown scale in clinical and subclinical cases and studied variables among the case group:

	Subclinical cases		Clinically diagnosed cases		Test of significance	
	Mean	SD	Mean	SD	<i>t</i>	Sig.
ATQ f	65.83	22.35	79.47	21.79	2.525	0.014*
beck depression	17.43	10.87	26.72	11.26	3.434	0.001**
ATQ b	63.49	22.27	80.56	21.65	3.177	0.002**
Age	27.43	6.99	26.53	6.52	0.542	0.590

ATQ: Automatic Thoughts Questionnaire; *: Significant statistical difference; **: Highly significant statistical difference.

The case group displayed more negative automatic thoughts and more body image concerns as compared to healthy controls which agreed with the result of Iancu *et al.*, (2015). Also, significant correlation was found between the scores on beck depression inventory and automatic thought questionnaire by the patients in the current study and this reflects that the more the individuals possess the negative automatic thoughts the more they experience depression and the contrary may also be true. Buschmann *et al.*, (2017) concluded in their research that automatic thoughts reflecting depression contribute to the development of both anxieties and depression.

However, the cause-effect relationship between depression and automatic thoughts is debatable. It is usually considered in terms of associated features rather than cause and effect (Mills *et al.*, 2016).

The automatic thoughts questionnaire that was used in this current study concerns with both the rate of the recurrence and the believability of the negative automatic thoughts. Both parameters were found to be higher among case group than control with significant statistical difference. In addition, both parameters were higher among patients with the diagnosis of BDD as compared to those with subclinical form; a finding reflects that the more the individuals believe in their negative self-perception, the more they are liable to the development of excessive concerns regarding their body image.

On the other hand, no statistically significant difference was found between patients with the diagnosis of BDD and those with subclinical form as regard the different subcategories of the automatic thoughts questionnaire (negative self-concept, negative expectation, low self-esteem and personal mal adjustment). However, negative expectations were higher in the clinical group, but both groups had almost the same percentage regarding their self-esteem and negative self-concept.

These findings suggest that negative automatic thoughts about the self can be considered the main psychopathological trigger that stimulates the patient to try to modulate his appearance as a trial to get better self-image and self-esteem.

In consistency with Akinboro *et al.*, (2019) empathized on the high prevalence of body dysmorphic disorder is dermatology patients and particularly in those with facial disorders.

There was also a significant statistical difference between the case and the control groups regarding the Yale brown scale, which reflects that patients in the dermatological clinics had more concern regarding their physical appearance as compared to the control group, which support the previous results of higher prevalence of negative automatic thoughts among patients, rather than control group. Also, these results were consistent with the

result of Nair and Nair, (2015), which concluded that higher BDD prevalence was found in a cosmetic dermatology group (14%) as compared to general dermatology (6.7) and control group.

Some previous studies have shown that body image disturbance is a contributing factor to develop depression (Buhlmann *et al.*, 2010). However, other research studies suggest that depression itself may predisposes to body image disturbance (Salbach *et al.*, 2007).

Some shortcomings in our study should be noted, which include the nature of the study, as it is a cross sectional study made it very difficult to differentiate between co morbidity and causality between BDD and depression. Also, the limited number of patients made it difficult to compare between subgroups of patients according to specific dermatological conditions.

CONCLUSION

Depression and body dysmorphic are common among the patients who seek aesthetic techniques in dermatology clinics and the comorbidity of both BDD and depression is very high. 46 patients in this current study has comorbid depression with BDD with percentage 68.6%. 12 patients has mild depression, 31 patients has moderate depression and three patients has severe depression. The patients group (both clinical and subclinical) displayed more depression, with mean total score (21.87±11.93) compared with control group (5.52±3.03) with $t=7.733$ with sig <0.001, more negative automatic thoughts and more body image concerns as compared to healthy controls, but the score of the three parameters was higher in patients clinically diagnosed with BDD as compared to the subclinical cases. Negative automatic thoughts about the self-esteem to be the trigger that stimulates the patient to try to modulate his appearance as a trial to get better self-image.

RECOMMENDATION

Early detection and management of the comorbid psychiatric disorders in dermatological patients will decrease the burden associated with the disorder and improve the outcome for both of them.

More attention should be given to co-operation between dermatology and psychiatry and the availability of tools to help in the screening of the presence of co morbid psychiatric disorders may be very useful in aesthetic dermatological clinics.

Effective management of patients with body dysmorphic disorder comorbid with depression requires collaborative efforts between numbers of health care disciplines including primary care, dermatology,

psychiatry, psychology, cosmetic surgery and other health professionals.

REFERENCE

- Abdel-Khalek AM. (1998). Internal consistency of an Arabic adaptation of the Beck Depression Inventory in Four Arab Countries. *Psychol Rep* 82:264–266.
- Akinboro AO., Adelufosi AO., Onayemi O., Asaolu SO. (2019). Body dysmorphic disorder in patients attending a dermatology clinic in Nigeria: sociodemographic and clinical correlates. *An Bras Dermatol* 94:422–428.
- Alshahwan MA. (2015). The prevalence of anxiety and depression in Arab dermatology patients. *J. Cutan Med Surg* 19:297–303.
- Beck AT., Haigh EAP. (2014). Advances in cognitive theory and therapy: the generic cognitive model. *Ann Rev Clin Psychol* 10:1–24.
- Beck AT., Ward C., Mendelson M. (1961). Beck Depression inventory (BDI). *Arch Gen Psychiatry* 4:561–571.
- Beshai S., Dobson KS., Adel A., Hanna N. (2016). A cross-cultural study of the cognitive model of depression: cognitive experiences converge between Egypt and Canada. *PLoS ONE* 11:e0150699.
- Blashill AJ., Wilhelm S. (2014). Body image distortions, weight, and depression in adolescent boys: longitudinal trajectories into adulthood. *Psychol Men Masculinity* 15:445–451.
- Buhlmann U., Glaesmer H., Mwes R., Fama JM., Wilhelm S., Brähler E., *et al.* (2010). Updates on the prevalence of body dysmorphic disorder: a population-based survey. *Psychiatry Res* 178:171–175.
- Buschmann T., Horn RA., Blankenship VR., Garcia YE., Bohan KB. (2017). The relationship between automatic thoughts and irrational beliefs predicting anxiety and depression. *J. Rational Emot Cognit Behav Ther* 36:137–162.
- Cerea S., Bottesi G., Grisham JR., Ghisi M. (2017). Body dysmorphic disorder and its associated psychological and psychopathological features in an Italian community sample. *Int J. Psychiatry Clin Pract* 22:206–214.
- Dalgard FJ., Gielert U., Tomas-Aragones L., Lien L., Poot F., Jemec GBE., *et al.* (2015). The psychological burden of skin diseases: a cross-sectional multicenter study among dermatological out-patients in 13 European countries. *J. Investig Dermatol* 135:984–991.
- First MB., Williams JBW., Karg RS., Spitzer RL. (2016). User's guide for the structured clinical interview for DSM-5 disorders, clinical version (SCID-5-CV). Arlington, VA: American Psychiatric Association; 201.
- Harrell TH., Ryon NB. (1983). Cognitive-behavioral assessment of depression: clinical validation of the automatic thoughts questionnaire. *J. Consult Clin Psychol* 51:721–725.
- Harris DL., Carr AT. (2001). Prevalence of concern about physical appearance in the general population. *Br J. Plastic Surg* 54:223–226.
- Hollon SD., Kendall PC. (1980). Cognitive self-statements in depression: development of an automatic thoughts questionnaire. *Cognit Ther Res* 4:383–395.
- Iancu I., Lupinsky Y., Barenboim D. (2015). Negative and positive automatic thoughts in social anxiety disorder. *Israel J. Psychiatry Relat Sci* 52:129–136.

- Krebs G., Fernández de la Cruz L., Mataix-Cols D. (2017). Recent advances in understanding and managing body dysmorphic disorder. *Evid Based Ment Health* 20:71–75.
- Lambrou C., Veale D., Wilson G. (2012). Appearance concerns comparisons among persons with body dysmorphic disorder and nonclinical controls with and without aesthetic training. *Body Image* 9:86–92.
- McDowell I., Newell C. (1996). *Measuring health: a guide to rating scales and questionnaires*. 2nd ed. New York: Oxford University Press.
- Mills AC., Grant DM., Judah MR., White EJ., Taylor DL., Frosio KE. (2016). Trait attentional control influences the relationship between repetitive negative thinking and psychopathology symptoms. *Psychiatry Res* 238:277–283.
- Mleeh NT., Alshamrani HM., Basyouni RN., Sehlo MG. (2019). Prevalence and predictors of depression among dermatology clinic patients in a teaching hospital, Jeddah, Saudi Arabia. *J. Fam Medic Primary Care* 8:2496–2501.
- Nair PA., Nair AR. (2015). Quality of life perspective towards acne among adolescents at Tertiary Care Center of Gujarat, India. *J. Clin Diagn Res* 9:10.
- Nguyen C., Beroukhim K., Danesh M., Babikian A., Koo J., Leon A. (2016). The psychosocial impact of acne, vitiligo, and psoriasis: a review. *Clin Cosmet Investig Dermatol* 9:383–392.
- Osman OT., Mufaddel A., Almugaddam F., Auguŝterfer EF. (2011). The psychiatric aspects of skin disorders. *Expert Rev Dermatol* 6:195–209.
- Phillips KA. (2006). An open-label study of escitalopram in body dysmorphic disorder. *Int Clin Psychopharmacol* 21:177–179.
- Phillips KA., Hart AS., Menard W. (2014). Psychometric evaluation of the Yale–Brown Obsessive-Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS). *J. Obsess Compul Relat Disord* 3:205–208.
- Pimenta AM., Sánchez-Villegas A., Bes-Raŝtrollo M., López CN., Martínez-González MÁ. (2009). Relationship between body image disturbance and incidence of depression: the SUN prospective cohort. *BMC Public Health* 9:1.
- Salbach H., Klinkowski N., Pfeiffer E., Lehmkuhl U., Korte A. (2007). Dialectical behavior therapy for adolescents with anorexia and bulimia nervosa (DBT-AN/BN) a pilot study. *Prax Kinderpsychol Kinderpsychiatr* 56:91–108.
- Shaffi Ahamed S., Enani J., Alfaraidi L., Sannari L., Algain R., Alsawah Z., et al. Prevalence of body dysmorphic disorder and its association with body features in female medical students. *Iran J. Psychiatry Behav Sci* 2016; 10:222–227.
- Tomas-Aragones L., Marron SE. (2016). Body image and body dysmorphic concerns. *Acta Derm Venereol* 96:47–50.
- Vashi NA. (2016). Obsession with perfection: body dysmorphia. *Clin Dermatol* 34:788–791.
- Weingarden H., Renshaw KD., Wilhelm S., Tangney JP., DiMauro J. (2016). Anxiety and shame as risk factors for depression, suicidality, and functional impairment in body dysmorphic disorder and obsessive compulsive disorder. *J. Nerv Ment Dis* 204:832–839.