

A Study on Psychiatric Disorders, Body Image Disturbances, and Self-Esteem in Patients of Cushing's Disease

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Abstract

Background: Cushing's disease (CD) is a rare endocrine disorder associated with increased serum levels of cortisol secreted due to an underlying tumour in pituitary. Psychiatric disturbances like depression, psychosis, mania along with body image disturbances are seen in patients of CD. Hence, we undertook this research to find the prevalence and type of psychiatric disorders, body image disturbances, and self-esteem in patients of CD. **Materials and Methods:** Thirty-five patients diagnosed as CD as per the standard criteria by the endocrinologist were recruited after informed consent and ethics approval. Proforma with demographic details, Structured Clinical Interview for DSM-IV, Beck Depression Inventory (BDI), Rosenberg Self-Esteem Scale, and Body Image Concern Inventory were used for assessment of the aims. **Results:** 65% patients had psychopathology with 21% patients having major depressive disorder, 62% patients had mild, and 28% had moderate depression on BDI. 50% patients had body image disturbances and 60% had low self-esteem. Depression was found to have a negative correlation with self-esteem and positive correlation with body image disturbances. **Conclusion:** A high prevalence of psychopathology is seen in patients of CD which may often go undetected. Liaison with the endocrinologist would also work towards improving the issues of body image disturbances and self-esteem for better prognosis for the patient.

Keywords: Body image disturbances, Cushing's disease, psychiatric morbidity, self-esteem

INTRODUCTION

Cushing's disease (CD) is a rare endocrine disorder associated with increased serum levels of cortisol secreted due to an underlying tumour in pituitary, with an annual incidence of 2–3 cases per million.^[1] The classic features of CD include central obesity, moon face, hirsutism, insulin resistance, and facial plethora, but the clinical manifestations of CD vary from patient to patient. Along with the physical symptoms, raised serum cortisol levels also affect the brain parenchyma and contributes to many psychiatric disturbances which are reversible and may also completely disappear on treatment of the underlying cause of hyper-secretion of cortisol.^[2]

There has been evidence that excess glucocorticoids lead to brain atrophy and thus lead to mood disturbances, depression, and in some cases even psychosis. The overall prevalence of depression in hypercortisolism is around 27%.^[3–6] The patients of CD also have a significant level of body image distortion mainly attributed to the physical features like hirsutism seen

as facial hair, striae, abnormal fat distribution over face, back, and abdomen, and acanthosis.

Low self-esteem has been found to be related to serious outcomes such as depression, suicidality, eating disorders, and substance abuse.^[7,8] Increased weight gain and skin hyperpigmentation are majorly associated with negative image about self, thus these factors affect the patient's self-esteem negatively.^[9–11] The patients of Cushing's get treated for the endocrinological disturbances, but psychiatric treatment is not initiated until the patient is very distressed.

Hence, we undertook this research to find the prevalence and type of psychiatric disorders, body image disturbances, and self-esteem in patients of CD. We also studied for association of depression with body image disturbances and self-esteem.

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MATERIALS AND METHODS

This study was conducted in a tertiary care hospital in the Departments of Psychiatry and Endocrinology after institutional ethics committee approval and valid informed consent. Patients were recruited over 20 months from January 2015 to August 2016. 41 patients diagnosed as CD by endocrinologist as per standard criterion [12-16] were screened in the study period and 35 patients who fulfilled the inclusion and exclusion criteria were enrolled after explaining about the nature of the study and its implications.

The inclusion and exclusion criteria were as follows:

Inclusion criteria

1. Those diagnosed with CD as per standard criteria
2. Age group more than 18 years
3. No previous history of any psychiatric illness
4. Patients willing to participate and giving their consent for study.

Exclusion criteria

1. Patients already under treatment for any psychiatric illness.

All the enrolled patients were assessed with the help of the following scales:

Tools

1. Structured Clinical Interview for DSM-IV (SCID)

The Structured Clinical Interview for DSM-IV,^[17] is a diagnostic scale to determine major mental disorders. There are seven diagnostic modules focussing on different diagnostic groups such as mood, psychosis, substance abuse, anxiety, and eating and adjustment disorder.

2. Beck Depression Inventory (BDI)

The BDI^[18] was used to rate the severity of depression. It is a 21-item scale with each item having a list of four statements arranged in the increasing order of severity about a particular symptom of depression. This version is in compliance with DSM-IV criteria for depression and the age range covered is from 13 to 80 years. A score of 17 or above indicates presence of depression, score between 17 and 20 indicates borderline depression, 21–30 indicates moderate depression, whereas a score between 31 and 40 indicates severe depression and more than 41 indicates extreme depression.

3. Body Image Concern Inventory (BICI)

The BICI scale is a self-report measure of the body image perception.^[19,20] The BICI items evaluate dissatisfaction with appearance, checking, and camouflaging of perceived appearance defects, reassurance seeking about physical appearance, social concerns, and avoidance related to appearance defects. It is a 19 items 5-point Likert-rated inventory. The scores are assessed by summing up of all items. Scores can range from 19 to 95; with higher scores representing higher levels of body image disturbances and 72 being the clinical cut-off score.

4. Rosenberg's Self-Esteem Scale (RSES)

It is a 10 item 4-point Likert scale, ranging from strongly agree to strongly disagree. Higher the score, higher is the self-esteem.^[21]

Statistics

Frequency distribution was used for studying the demographic variables, the prevalence and type of psychiatric disorders, prevalence of body image disturbances, and assessment of self-esteem. Correlation of depression (as per BDI) with body image disturbances and self-esteem was done using Pearson's correlation coefficient.

RESULTS

Demographic variables

The mean age of patients was 32 ± 10 years with majority being females. 63% of the study patients were married, 23% ($n = 9$) patients had completed high-school education, whereas 11 patients had completed graduation/postgraduation. Nearly 22 patients were unemployed, whereas eight patients did skilled/clerical work and five patients were professionals. Majority (60%, $n = 21$) of the study sample belonged to the lower socioeconomic class and 40% ($n = 14$) were from middle socioeconomic strata [Table 1].

Prevalence and type of psychiatric disorders

23 of the CD patients (65%) were found to have psychopathology with 21 patients (91%) having major depressive disorder, whereas psychosis and hypomania were seen in one patient (4.34%) each [Tables 2a and b]. When the 21 patients having depression were assessed on the BDI for the severity of depressive symptoms, then 13 (61.9%) of them had borderline clinical depression followed by 6 (28.57%) patients who had moderate depression, whereas severe and extreme depression were seen in 1 (4.76%) patient each. The total mean BDI score was 14.17 ± 9.48 [Table 2c].

Body image disturbances as per BICI

The BICI revealed body image disturbances in almost 50% of the patients with the total mean BICI score being 67.65 ± 21.21 [Table 3].

Self-esteem as per RSES

21 (60%) of our patients expressed lower self-esteem with only six (17%) patients having a good self-esteem score of more than 25. The total mean RSES score was 13.65 ± 8.89 [Table 4].

Correlation of depression as per BDI with Self-esteem (RSES) and body image disturbances (BICI)

A highly significant negative correlation of depression with self-esteem ($r = -0.678$, $P < 0.0001$) and a highly significant positive correlation ($r = 0.6395$, $P < 0.0001$) with body image disturbances was seen in our sample of CD [Table 5].

DISCUSSION

Demographic variables

The mean age of the patient group was 32.9 ± 10.5 years with the ages ranging from 18 to 55 years. Majority patients 23 (65.71%) were between 20 and 40 years of age. Various other studies have also found the age of presentation of CD to be around 32 years which is in keeping with our findings.^[22,23]

Table 1: Sociodemographic variables

Variable	Patient group (n=35)
Age	Mean±SD 32.9±10.5
Marital status	
Married	22 (63%)
Unmarried	12 (34%)
Widowed	1 (2.86%)
Education	
Primary school	4 (11.42%)
Secondary school	9 (25.72%)
Higher secondary	5 (14.28%)
Graduate/postgraduate	11 (31.42%)
Occupation	
Employed skilled	4 (11.3%)
Clerical	3 (8.57%)
Professional	5 (14.29%)
Unemployed	22 (62.86%)
Socioeconomic status	
Middle	14 (40%)
Lower	21 (60%)

Table 2a: Prevalence of psychiatric disorders as per SCID

Psychiatric disorders as per SCID	Number of patients (n=35) (%)
Present	23 (65.71%)
Absent	12 (34.28%)
Total	35 (100.0%)

Table 2b: Type of psychiatric disorders as per SCID

Diagnosis as per SCID	Number of patients (n=23) (%)
Major depressive disorder mild type	13 (56.52%)
Major depressive disorder moderate type	6 (26.08%)
Major depressive disorder severe type	2 (8.68%)
Psychosis secondary to general medical condition	1 (4.34%)
Hypomania	1 (4.34%)
Total	23 (100%)

The distribution in socioeconomic strata is most likely due to the fact that the study was conducted in a general municipal hospital which is a tertiary care public hospital catering to patients who come from the lower socioeconomic strata and hence services are provided free of cost.

Prevalence and type of psychiatric disorders

Psychiatric morbidity as per SCID was seen in 65% of our study sample. Cohen *et al.*^[24] in their study of 29 patients of CD found a high prevalence of psychopathology in 86% of them while Kelly *et al.*^[25] documented that when Cushing's was diagnosed in their group of patients, significant psychiatric illness was seen in 35 (81%) of the 43 patients. These findings are much more than our sample but imply that psychopathology is significantly seen in patients of CD.

Table 2c: Severity of depression using BDI

Severity of depression as per BDI	Number of patients (n=21) (%)
Borderline depression	13 (61.9%)
Moderate depression	6 (28.57%)
Severe depression	1 (4.76%)
Extreme depression	1 (4.76%)
Total	21 (100%)

Table 3: Body image disturbances as per BICI

Prevalence of body image disturbances as per BICI	Number of patients (n=35) (%)
Present	17 (48.57%)
Absent	18 (51.43%)
Total BICI score	67.65±21.21

Table 4: Self-esteem as per RSES

Self-esteem as per RSES	Self-esteem score	Number of patients (n=35) (%)
High	>25	6 (17.14%)
Moderate	15-25	10 (28.57%)
Low	<15	21 (60%)
Total RSES score		13.65±8.89

Among the various disorders depression was the most prevalent (91%) which has also been reported by other researchers. The prevalence rates for depression have been documented as 54%,^[26] 67%,^[27] and 74%^[28] in patients of CD. The spectrum of psychopathology observed in patients with CD strongly suggests a causal role for corticosteroid excess in the initiation and consolidation of psychopathology. Patients with CD express depressed mood characterized by hypersensitivity and over sentimentality, suicidal thoughts increased feelings of crying with short spells of sadness. In patients with active hypercortisolism, vegetative functions are disturbed. Fatigue has been described in almost all patients and a decreased libido in about two-thirds.

Dorn *et al.*^[29] studied 33 CD patients and reported atypical depression in 52% of their study sample. The severity of depression tells us about not only response to treatment of CD, but also give the prognosis. Starkman *et al.*^[28] reported a slightly higher prevalence than ours for severe depression of 5% due to suicide attempts. None of our patients had any suicide attempts though some did express suicidal ideations. Researchers have suggested that increased glucocorticoid concentrations result in increased depressive and anxiety-like symptoms as well as enhancement of aversive/avoidance memories linked to limbic function.^[30,31] Wellman^[32] reported that chronic hypercortisolemia affects the functioning of medial temporal and frontal circuitry which is critical for efficient and accurate emotional processing. Hence their disruption would lead to the emotional disturbances seen in depression in patients of CD.

Table 5: Pearson's correlation of depression (BDI) with self-esteem (RSES) and body image disturbances (BICI)

Total BDI score	95% CI	r	P
Total RSES score	-0.6788	-0.678	<0.0001*
Total BICI score	0.3892-0.8018	0.6395	<0.0001*

*Significant

Kelly *et al.*^[25] did not find any patient of CD having psychotic or manic symptoms in their study sample of 43 patients. We also had a very less prevalence of hypomania and psychosis in one patient each. There are a few case reports of mania in CD which remitted on normalization of cortisol levels.^[33,34]

Body image disturbances as per BICI

Body image disturbances were seen in half of our study sample which usually arise due to direct and indirect association with CD. Patients have raised cortisol levels which causes weight gain and disproportionate body fat distribution leading to abnormal fat accumulation at back etc., This gives rise to deformities and along with the increased facial hair growth, plethora, and skin pigmentation, the perception of self-changes resulting in dysmorphophobia. Researchers in various endocrine conditions have found body image disturbances in patients having obesity and underlying depression or anxiety.^[35,36]

Most of our patients were dissatisfied with their appearances and would buy cosmetic items to camouflage those flaws. They also reported that they avoided engaging in social activities and often would miss family gatherings as they felt ashamed of some aspect of their body and expressed others looked more attractive than them. In India, stigma about skin diseases is also quite prevalent and so our patients did not want to be the censure of all eyes. They were happy avoiding family functions which tell us the extent of the dissatisfaction our patients experienced. They also did not want to let others know that they were suffering from a medical illness. In order to reduce these feelings of discontent and to improve the acceptance of the medical problem one would have to increase the awareness of the people and improve coping to prevent the development of any psychopathology.

Self-esteem as per RSES

Self-esteem, as an overall reflection of an individual's self-worth, encompasses beliefs about oneself as well as an emotional response to those beliefs. Self-esteem can be affected by the nature of illness in CD due to hormonal changes accompanied by various physical changes like darkening of skin, facial hair growth, scalp hair loss, increased and abnormal weight gain with disproportionate distribution of body fat. All these factors have a detrimental effect on the overall self-confidence and self-esteem of patients of CD. There is hardly any literature on studying the self-esteem in CD patients though it is available for other endocrine conditions.

Pirgon *et al.*^[37] found lower scores on RSES in obese adolescent patients of acanthosis nigricans, which is in keeping with our

findings. Most of our patients expressed feelings of being a failure, being useless, not being satisfied with self, or feeling that they were no good at all. These feelings would definitely bring about emotional difficulties with negative thinking thus leading to depressive features.

Correlation of depression (BDI) with self-esteem (RSES) and body image disturbances (BICI)

We found a negative correlation of depression with self-esteem. In depression, there is a high prevalence of cognitive distortions and there is also a negative triad where there is a negative view of self, surrounding, and the future. Patients usually have feelings of hopelessness, worthlessness, and uselessness which impact the overall self in a negative manner and can definitely be a reason for the poor self-esteem perceived by our sample of patients. We did not find any literature to study the association of depression with self-esteem and body image. Though there are studies in other endocrine conditions like Choi and Choi^[38] who reported the effects of depressed mood over self-esteem, stating that both the variables have an inverse relationship which was also statistically significant in their sample of patients with diabetes. In patients of CD there is a high prevalence of depression which can be attributed to the hormonal disturbances. As the nature of illness is such that patients have impaired activities of daily living, they tend to depend on other people for their daily chores and/or financial needs. These thoughts then reduce their self-reliance. Most of our patients reported that they considered themselves to be a failure in life which tells us about the impact of negative thoughts on ones' self-esteem.

We found that depression had a positive correlation with the body image disturbances. Each of them could have a cause or effect relationship with the other, thus indicating the positive correlation. Our findings were in keeping with those of Choi and Choi^[38] who documented that body dissatisfaction was associated with negative psychological functioning in depression seen in patients of diabetes. The decreased self-esteem due to body dissatisfaction explained the association between the negative attitudes towards body and psychological well-being.

Alcarar *et al.*^[35] studied the comparison of depression and body image perception among patients of CD and healthy controls and found that even after surgical treatment for removal of cause of increased cortisol, patients with CD were found to have lower body image perception and higher levels of depression compared to healthy controls. In our patients of CD a greater dissatisfaction was seen with the body image as they were distressed due to the changes in their physical appearance and reported increased use of cosmetics or camouflaging their appearances using different clothing styles. They reported discomfort in accepting the darkening of pigmentation of skin, facial hair growth, and also the abnormal distribution of body weight making them uncomfortable with their own physical self. These thoughts could have further worsened their depression or vice versa.

CONCLUSIONS

The results of this study show that there is a high prevalence of psychopathology in patients of CD. It is important for the physician to be aware about the signs and symptoms of mental disturbances like depression and anxiety which are commonly seen in CD. Self esteem, body image and depression can have a cause or effect relationship resulting in worsening of the mental and emotional well being indicating the need for proper assessment.

Clinical Implications

Our study does imply that liaison with the endocrinologist would work towards improving not only the emotional disorders experienced by the patients of CD but also look into the issues of body image disturbances and self-esteem for better prognosis for the patient.

Our study has several limitations. The sample size was small as the disorder is rare and reflected a selection bias of the patient group seen at a tertiary care hospital. A longer follow-up period would have offered a better picture of the longitudinal outcome of psychiatric disturbances after treatment of CD and normalising of cortisol levels.

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Conflicts of interest

There are no conflicts of interest.

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