

Evaluating Cognitive Behaviour Therapy Impact On Stress And Stigma Across Genders In Individuals With Depigmentation Disorder

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Abstract

Background Depigmentation disorders like vitiligo often lead to visible skin changes that trigger psychological distress. Individuals commonly experience stress and stigma due to social rejection and appearance-related concerns. These effects are often more severe in females due to societal beauty norms. This experimental **research aimed** to investigate the effectiveness of cognitive behavioural therapy (CBT) in reducing stress and stigma among individuals with depigmentation disorders, with a focus on gender-based differences.

Objectives of this study to explore whether there were potential gender-based differences in stigma and stress at both pre-test and post-test stages in both groups before and after CBT intervention and the interrelationship between stigma and stress.

Research Method involves a total of 200 participants aged between 18 to 45 years were selected using purposive sampling and equally divided into control (n=100) and experimental (n=100) groups. Each group was further subdivided into 50 males and 50 females. The study was conducted in three phases. In phase I (Pre-test), baseline levels of stress and stigma were measured using the perceived stress questionnaire (PSQ-10) and the discrimination and stigma scale (DISC-12), respectively, without any intervention. Phase II involved administering CBT alongside medication to the experimental group, while the control group received only medication. In phase III (Post-test), both groups were reassessed to evaluate changes.

Results revealed that females initially reported higher levels of stress and stigma compared to males. However, following the intervention, significant reductions in both stress and stigma were observed in the experimental group, with a marked decrease in gender-based disparities. **Conclusion** cognitive behavioral therapy (CBT) was found to be an effective intervention for reducing these negative psychological effects, improving patients' resilience, self-esteem, and overall quality of life.

Keywords: Cognitive Behavioural Therapy, Depigmentation Disorder, Stress, Stigma, Gender Differences, PSQ-10, DISC-12, Psychological Intervention

I INTRODUCTION

Background: Depigmentation disorders, such as vitiligo/leucoderma, are long-term dermatological conditions that involve the gradual loss of skin pigmentation due to the destruction or dysfunction of melanocytes. Although these conditions are not life-threatening, they often result in visible changes that can severely impact a person's psychological and social functioning. In many cultural settings, individuals with visible skin differences may face stigmatizing attitudes, social exclusion, and discrimination, leading to increased levels of stress, anxiety, and emotional distress. This study was designed to evaluate the impact of CBT in conjunction with medication on reducing perceived stress and stigma in individuals diagnosed with depigmentation disorders. The study also investigates whether there are gender-based differences in psychological outcomes and how these disparities shift following the intervention.

Stress is a psychological response to external or internal pressures that challenge an individual's ability to cope. In depigmentation disorders, stress is often triggered by appearance-related concerns and social rejection.

Stigma refers to the negative attitudes, beliefs, or discrimination individuals face due to a visible condition. People with depigmentation often internalize these societal judgments, leading to emotional and social difficulties.

Cognitive Behaviour Therapy (CBT) is a structured, evidence-based psychological intervention aimed at identifying and modifying negative thought patterns and behaviors. It helps individuals develop healthier coping strategies to manage stress and emotional distress.

II LITERATURE REVIEW

Gender differences have been documented in the psychological responses to skin disorders. Studies indicate that females tend to report higher levels of emotional distress, social withdrawal, and body image concerns compared to males (Morgan, Romanski, & LeDoux, 1993). This highlights the need for gender-sensitive approaches when designing psychosocial interventions for individuals with depigmentation.

Gender plays an important role in psychological adaptation to chronic skin conditions. Papadopoulos, Bor, and Legg (1999) found that women are generally more likely to internalize negative societal attitudes, resulting in higher levels of distress and appearance-related anxiety compared to men. This supports the rationale for exploring gender-specific psychological patterns in dermatological research.

Skin disorders such as vitiligo are often misunderstood and visually stigmatized, leading to a significant emotional toll on affected individuals. According to Ongenae, Beelaert, van Geel, and Naeyaert (2006), individuals with pigmentary disorders report higher levels of psychological distress, especially when lesions appear on visible areas such as the face or hands. This visibility factor contributes to increased perceived stigma and social anxiety.

Stigma, both perceived and internalized, is closely linked to self-concept and can exacerbate emotional challenges. Van Brakel (2006) emphasized that stigma associated with visible conditions can lead to avoidance behavior, low self-esteem, and feelings of shame, often reducing individuals' participation in daily social and occupational activities. These effects are particularly significant in societies where appearance holds strong cultural or social value.

Cognitive Behavioural Therapy (CBT) has been widely recognized as a practical and structured approach to addressing various emotional and behavioral issues. It has shown efficacy in reducing symptoms of anxiety, depression, and stress by altering negative thought patterns and enhancing coping mechanisms (Beck, 2011). When used alongside medical treatment, CBT offers a holistic approach that addresses both physical and psychological challenges in dermatological conditions.

Depigmentation disorders, particularly vitiligo, are associated not only with visible skin changes but also with considerable psychological distress. Research highlights that individuals living with such conditions often endure chronic stress, social anxiety, and reduced self-esteem due to the visible nature of their condition (Michalek, 2017). The psychological burden tends to intensify in environments where physical appearance is highly valued, making stigma a persistent and damaging experience for many patients.

III. METHODOLOGY

1. Research Design: The present study employed an experimental design using a pre-test and post-test control group framework. The purpose was to evaluate the impact of Cognitive Behavioural Therapy (CBT) on stress and stigma levels in individuals with depigmentation disorders, with attention to gender-based differences.

2. Sample Technique : A total of 200 participants diagnosed with depigmentation disorders were selected using purposive sampling from dermatology outpatient department of Indira Gandhi Hospital, Dwarka, New Delhi hospital. The age range of participants was 18 to 45 years, and all participants had visible depigmentation patches and were undergoing standard dermatological treatment. The sample was equally

divided into two groups: an experimental group (n = 100) and a control group (n = 100). Each group was further subdivided into 50 males and 50 females.

3. Variables: There is only one Independent Variable and that is Cognitive Behavior Therapy, and possible Dependent Variables include: Stress and Stigma.

4. Objectives :

- To compare the levels of perceived stress (measured by PSQ-10) between male and female participants at the pre-test and post-CBT intervention stages.
- To compare the levels of stigma (measured by DISC-12) between male and female participants at the pre-test and post-CBT intervention stages.
- To examine the correlation between perceived stress and stigma in both groups among individuals with depigmentation disorders.

5. Hypothesis :

- H1: There will be a significant difference in pre-test and post-test levels of perceived stress between male and female participants following the CBT intervention.
- H2: There will be a significant difference in pre-test and post-test levels of perceived stigma between male and female participants following the CBT intervention.
- H3: There will be a significant positive correlation between perceived stress and stigma among individuals with depigmentation disorders.

6. Procedure: The study was conducted in three phases. In first (Pre-Test) phase both experimental and control groups were assessed using standardized tools to measure baseline levels of stress and stigma. In second (Intervention) phase the experimental group underwent four weekly sessions of cognitive behavioural therapy (CBT), alongside their regular medical treatment. The control group received only the standard medical treatment, with no psychological intervention. In third (Post-Test) phase both groups were reassessed using the same instruments (PSQ-10 and DISC-12) to evaluate changes in stress and stigma levels

- Inclusion Criteria:

Diagnosed with a depigmentation disorder (e.g., vitiligo)

Aged between 18 and 45 years

Willing to participate and provide informed consent

No prior exposure to psychological therapy in the past 6 months

- Exclusion Criteria:

Ongoing psychotherapy or psychiatric medication beyond standard dermatological treatment

7. Tools Used:

- Perceived Stress Questionnaire (PSQ-10): Developed by Sheldon Cohen and colleagues in 1983, the PSS assesses the degree to which situations in one's life are appraised as stressful. It is a valuable tool for understanding how different individuals experience and manage stress.
- Discrimination and Stigma Scale (DISC-12): The Discrimination and Stigma Scale (DISC-12), developed by Prof. Graham Thornicroft in 2008, is designed to measure the extent and impact of stigma in individuals with health-related conditions.

8. Data Analysis: Data were analyzed using SPSS software. Descriptive statistics were computed for demographic variables. Paired t-tests and independent t-tests were used to compare pre- and post-test scores within and between groups. Gender-based comparisons were also conducted to examine intergroup differences in response to the intervention.

IV RESULT

Table 1 : Intergroup comparison of Stress (PSQ-10) between Male and Female in reference with Pre-test and Post CBT Intervention.

Groups	GENDER	Min	Max	Mean	Std. Deviation	Std. Error Mean	t value	P value
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PSQ-PRE	MALE	22	30	27.5800	1.01197	.14311	0.21	0.001
	FEMALE	25	30	34.5200	.95276	.13474		
PSQ-POST	MALE	15	30	25.1800	3.76173	.53199	-2.5	0.001
	FEMALE	17	30	29.9200	2.61737	.37015		

Note. PSQ refers to the Perceived Stress Questionnaire. The *p*-values indicate statistical significance at $p < .01$.

PSQ-Pre Scores: An independent samples t-test was conducted to compare pre-intervention PSQ scores between males and females. The results revealed a **significant difference** between the groups, $t(198) = 0.21$, $p = .001$. Males had a mean PSQ-Pre score of 27.58 (SD = 1.01), while females had a significantly higher mean score of 34.52 (SD = 0.95).

PSQ-Post Scores: An independent samples t-test was conducted to compare post-intervention PSQ scores between males and females. The results also revealed a significant difference between the groups, $t(198) = -2.5$, $p = .001$. Males had a mean PSQ-Post score of 25.18 (SD = 3.76), while females had a higher mean score of 29.92 (SD = 2.62).

These findings indicate that **females scored significantly higher** on the PSQ both pre- and post-intervention compared to males, suggesting a difference in perceived stress levels between genders. **The Hypothesis (H1) is accepted**, as the data indicate a significant difference between males and females in their pre-intervention perceived stress scores, with females reporting significantly higher perceived stress than males.

Table 2 : Intergroup comparison of Stigma between Male and Female in reference with Pre-test and post CBT Intervention.

Groups	GENDER	Min	Max	Mean	Std. Deviation	Std. Error Mean	t value	P VALUE
DISC-PRE	MALE	31	41	28.6000	2.34738	.33197	0.305	0.001
	FEMALE	31	41	36.5000	2.09226	.29589		
DISC - POST	MALE	21	41	23.5800	5.64635	.79851	12.74	0.001
	FEMALE	10	41	29.4000	5.55859	.78610		

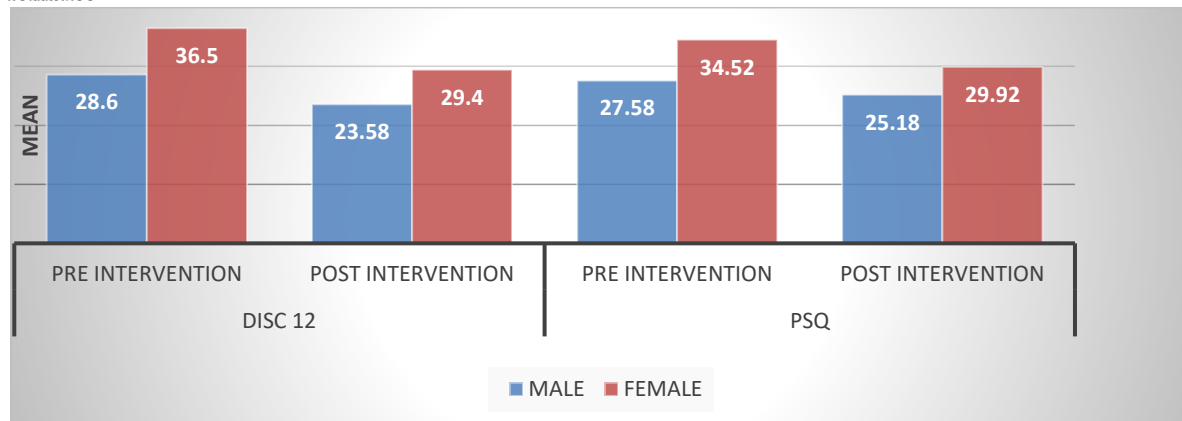
Note. DISC scores represent measurements before and after the CBT intervention. The *p*-values indicate statistical significance at $p < .01$.

DISC-Pre Scores: An independent samples t-test was conducted to compare pre-intervention DISC scores between males and females. The results revealed a significant difference between the groups, $t(198) = 0.305$, $p = .001$. Males had a mean DISC-Pre score of 28.60 (SD = 2.35), while females had a significantly higher mean score of 36.50 (SD = 2.09).

DISC-Post Scores: An independent samples t-test was conducted to compare post-intervention DISC scores between males and females. The results showed a significant difference between the groups, $t(198) = 12.74$, $p = .001$. Males had a mean DISC-Post score of 23.58 (SD = 5.65), while females had a significantly higher mean score of 29.40 (SD = 5.56).

Hypothesis (H2) is accepted that the intervention significantly influenced the DISC scores, with a notable gender difference at both pre- and post-intervention stages. The results indicate that females scored significantly higher than males on the DISC both before and after the intervention. These findings suggest a gender difference in disability impact as measured by the DISC.

Fig No. 1.Intergroup comparison of DISC-12 and PSQ-10 pre and post intervention among males and females



The results indicate gender differences in both disability impact (DISC-12) and perceived stress (PSQ) before and after the intervention. While both males and females improved post-intervention, females consistently reported higher levels of disability and stress compared to males. The intervention appears to have been effective in reducing these scores in both groups

Table 3: Correlation between stigma and stress in reference between control group and experimental group

	Control Group	Experimental Group
Stigma & Stress	$r = 0.72, p < 0.01$	$r = 0.40, p = 0.03$

Stigma & Stress:

- There is a **strong positive correlation** in the control group ($r = 0.72, p < 0.01$), indicating that higher stigma is associated with higher stress levels.
- The correlation in the experimental group is **moderate** ($r = 0.40, p = 0.03$), suggesting that the relationship between stigma and stress is less pronounced in those who have received CBT.

Since the correlations have significantly weakened post-intervention, and the changes in all variables are statistically significant, the **Hypothesis (H3) is accepted**. This suggests that the intervention effectively influenced the relationships between stigma and stress aligning with the expected outcomes.

V. DISCUSSION AND CONCLUSION

The present study aimed to assess the effectiveness of Cognitive Behavioural Therapy (CBT) in reducing stress and stigma among individuals with depigmentation disorders, with a specific focus on gender-based differences. The post-test data indicated a narrowing of gender disparities in both psychological variables, suggesting that CBT not only reduces overall distress but also contributes to greater psychological parity across genders. The control group, which received only medical treatment, did not exhibit similar improvements. Furthermore, the positive correlation observed between stress and stigma confirms the interconnected nature of these variables. As stigma increases, individuals are more likely to experience heightened stress, reinforcing the need for holistic interventions that address both internal and external sources of distress.

Public awareness initiatives should be conducted to reduce societal stigma associated with depigmentation and to promote empathy and acceptance. Future research should include follow-up assessments to examine the long-term effects of CBT and the sustainability of psychological improvements. Dermatologists and healthcare professionals should receive training in basic psychological support skills to recognize and refer cases needing psychological intervention.

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