

Suicidal Ideation, Coping Styles and Cortisol Levels in Patients with Illness Anxiety Disorder: A Cross-sectional Study

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ABSTRACT

Introduction: Illness Anxiety Disorder (IAD) is characterised by a persistent preoccupation with having a serious illness despite adequate medical reassurance. This preoccupation is driven by cognitive distortions and maladaptive coping mechanisms that amplify distress. Emerging evidence links IAD to heightened suicide risk; however, data on suicidal ideation and coping profiles-particularly from Indian clinical settings-remain scarce.

Aim: The present study aimed to determine levels of suicidal ideation, coping mechanisms, and serum cortisol levels among patients with IAD, in comparison with the general population.

Materials and Methods: The present single-centre, hospital-based cross-sectional study was conducted in the psychiatry Outpatient Department of a tertiary hospital in Southern India from July 2024 to June 2025 (N=66; IAD=33; controls=33). Suicidal ideation was assessed using the Beck Scale for Suicide Ideation (BSS), coping strategies were evaluated with the Brief Coping Orientation to Problems Experienced (COPE) subscales, illness-anxiety severity was measured using the Short Health Anxiety Inventory (SHA-I), and morning serum cortisol levels were estimated using Chemiluminescent Microparticle Immunoassay (CMIA). Data analysis was performed in IBM Statistical Package for the Social Sciences (SPSS) Statistics version 27.0 using

t-tests or Mann-Whitney U tests for continuous variables, Chi-square or Fisher's exact tests for categorical variables, and Pearson or Spearman correlations; a two-sided $\alpha=0.05$ was considered statistically significant.

Results: The IAD and control groups were comparable in terms of sociodemographic characteristics (age 39.0 ± 7.2 vs 38.2 ± 10.9 years). Suicidal ideation was higher in the IAD group (BSS 0.4 ± 1.0 vs 0.0 ± 0.0 ; $p=0.034$). Total coping scores were similar (52.4 ± 4.8 vs 53.7 ± 7.9 ; $p=0.412$); however, participants with IAD used less positive reframing ($p<0.001$), humor ($p=0.001$), and acceptance ($p<0.001$), and relied more on denial ($p=0.024$), venting ($p=0.004$), and instrumental support ($p=0.027$). SHA-I scores did not correlate with suicidal ideation but were inversely associated with total coping ($r=-0.354$; $p=0.043$) and avoidant coping ($r=-0.542$; $p=0.001$). Within the IAD group, maladaptive coping was associated with higher BMI (29.8 ± 3.3 vs 25.8 ± 3.4 ; $p=0.023$) and joint-family residence ($p=0.002$).

Conclusion: Patients with IAD exhibited higher suicidal ideation and greater reliance on maladaptive coping strategies compared to the general population. The above findings underscore the importance of integrating psychological interventions focused on adaptive coping in the management of illness anxiety.

Keywords: Adaptation, Cortisol, Hypochondriasis, Psychological, Suicide

INTRODUCTION

The IAD, formerly referred to as hypochondriasis, is characterised by excessive and persistent preoccupation with having or acquiring a serious illness despite minimal or no somatic symptoms and repeated medical reassurance [1]. The disorder falls under the category of somatic symptom and related disorders in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and significantly impairs daily functioning and quality of life [2]. The estimated prevalence of IAD ranges from 1.3% to 10% across various clinical and community settings [3], with substantial underdiagnosis due to overlapping presentations with anxiety and somatic symptom disorders.

A key concern in patients with IAD is the psychological burden resulting from unrelenting health-related anxiety, which often manifests as distress, functional impairment, and excessive health-seeking behaviours [4]. Studies suggest that chronic anxiety may be associated with increased suicidal ideation, particularly when compounded by poor coping skills, comorbid mood disorders, or lack of social support [5,6]. Although somatic symptom disorders are traditionally not regarded as high-risk for suicide, recent evidence highlights the need to evaluate suicidal risk even in the absence of classical depressive symptoms [7].

Coping strategies, defined as cognitive and behavioural efforts to manage stressors perceived as taxing or exceeding one's resources [8], play a central role in determining psychological

outcomes in individuals with chronic anxiety disorders. Adaptive coping mechanisms, such as acceptance, positive reframing, and active problem-solving, are generally associated with lower distress and better emotional regulation. In contrast, maladaptive coping strategies-such as denial, behavioural disengagement, and avoidance-are linked to symptom exacerbation and poorer mental health outcomes [9]. Among patients with IAD, the tendency to misinterpret benign bodily sensations and avoid psychological confrontation may predispose them to rely on avoidant or emotion-focused coping styles, perpetuating the cycle of health anxiety [10,11].

Biological markers such as serum cortisol levels have been investigated in various anxiety and stress-related disorders as indicators of Hypothalamic-Pituitary-Adrenal (HPA) axis function. Cortisol, a glucocorticoid hormone, plays a crucial role in the body's response to stress, and dysregulation of cortisol levels has been observed in both generalised anxiety and somatic symptom disorders [12]. However, studies specifically examining cortisol patterns in IAD remain limited, and findings are often inconsistent due to variations in sampling methods and psychological comorbidities [13-15].

Against this background, the objective of the present study was to determine the levels of suicidal ideation, coping mechanisms, and serum cortisol levels among patients with IAD, in comparison with the general population.

MATERIALS AND METHODS

The present single-centre, hospital-based, observational, analytical cross-sectional study conducted in the Outpatient Department of the Department of Psychiatry at a tertiary care hospital in Southern India over a 12-month period between July 2024 and June 2025. The study received approval from the Institutional Human Ethics Committee (IHEC) (reference number IHEC-I/3024/24 dated 02/07/2024). Each participant, along with their attendant when applicable, was provided with a Participant Information Sheet (PIS) translated into the local language. The information was also explained verbally to ensure clear understanding and voluntary participation. Written informed consent was obtained prior to enrolling participants.

Inclusion and Exclusion criteria: Participants were eligible if they met DSM-5 diagnostic criteria for IAD and were aged between 18 and 59 years [2]. Individuals from the general population were included if they were within the same age range and had no history or current diagnosis of any psychiatric illness. Participants were excluded if they had any lifetime comorbid psychiatric illness or a severe chronic medical condition.

Sample size calculation: Based on data from Affi DY et al., (2022), the mean BSS score was 5.55±7.7 in patients with anxiety disorders and 0.05±0.3 in the general population [16]. The expected difference was 5.5, with a pooled standard deviation of 4.0. Using a 95% confidence level and 80% power, the calculated minimum required sample size per group was 30, yielding a total of 60 participants. Finally 66 patients were enrolled using non-probability purposive/ convenience sampling.

Study Procedure

Data collection: Sociodemographic details-including age, gender, education, occupation, socioeconomic status, marital status, residence, and family type-were obtained through a semi-structured questionnaire. Clinical data, including age at illness onset, duration of illness, psychiatric history, prior episodes, and medication use, were collected from clinical interviews and available records.

Assessment tools: Suicidal ideation was assessed using the BSS, a 21-item instrument in which the core 19 items are scored 0-2 (total range 0-38), with higher scores indicating greater severity of suicidal ideation. The final two items document past suicide attempts and are not included in the total score [17].

Coping mechanisms were evaluated using the Brief COPE Inventory [9]. This 28-item questionnaire assesses responses to stress across 14 subscales, including problem-focused, emotion-focused, and avoidant coping. Each item is rated on a 5-point Likert scale ranging from 1 (I never do that) to 5 (I always do that). Subscale scores were computed by summing relevant items, with higher scores indicating greater reliance on the corresponding coping style. Based on cumulative and subdomain scores, participants were categorised as employing adaptive or maladaptive coping strategies [18].

Illness anxiety was assessed using the SHAI, an 18-item self-report measure with each item scored 0-3, yielding a total score range of 0-54; higher scores indicate greater health anxiety. Consistent with prior literature, SHAI total scores were treated as a continuous variable [19,20].

Serum cortisol estimation: Venous blood samples (5 mL) were collected between 8:00 AM and 9:00 AM from each participant under aseptic precautions to avoid diurnal variation in cortisol levels. Samples were centrifuged to separate serum and analysed on the same day. Serum cortisol levels were measured using the CMLA technique on an automated platform. Results were expressed in micrograms per decilitre (mcg/dL), with normal morning reference ranges typically between 6.2 and 19.4 mcg/dL [21].

STATISTICAL ANALYSIS

All data were compiled, coded, and entered into Microsoft Excel and subsequently analysed using the SPSS version 27.0 (IBM Corp., Armonk, NY) Descriptive statistics were used to summarise sociodemographic and clinical variables. Categorical variables were expressed as frequencies and percentages, while continuous variables were summarised using means and Standard Deviations (SD). The Chi-square test (or Fisher's exact test where appropriate) was used to compare categorical variables between patients with IAD and the general population. Independent samples t-tests were applied to compare continuous variables between the two groups. To explore associations between coping strategies and suicidal ideation within the IAD group, Pearson's correlation coefficient (r) was computed. Participants were also categorised into adaptive and maladaptive coping groups based on Brief COPE subscale scores, and comparisons between these groups were made using t-tests and Chi-square tests as applicable. A p-value of less than 0.05 was considered statistically significant for all analyses.

RESULTS

The present study enrolled 66 participants, evenly split between patients with IAD and community controls (33 each). The groups were sociodemographically comparable: mean age 39.0±7.2 vs 38.2±10.9 years (p=0.732), male proportion 69.7% vs 63.6% (p=0.602), with no significant differences in education, occupation, socioeconomic status, residence, family type, marital status, religion, or caregiver profile [Table/Fig-1]. Anthropometric measures were similar {Body Mass Index (BMI) 26.4±3.7 vs 27.0±4.9;

Parameters		Illness Anxiety Disorder (IAD) N=33	General population N=33	P-value
		n (%)	n (%)	
Age (in years), Mean (SD)		39.0 (7.2)	38.2 (10.9)	0.732
Age (in years)	18 to 30	5 (15.2)	9 (27.3)	0.318
	31 to 40	15 (45.5)	11 (33.3)	
	41 to 50	11 (33.3)	8 (24.2)	
	51 to 60	2 (6.1)	5 (15.2)	
Gender	Male	23 (69.7)	21 (63.6)	0.602
	Female	10 (30.3)	12 (36.4)	
Education	Illiterate	1 (3.0)	4 (12.1)	0.510
	Primary school	3 (9.1)	2 (6.1)	
	Middle school	8 (24.2)	7 (21.2)	
	High school	5 (15.2)	5 (15.2)	
	Intermediate/Diploma	2 (6.1)	0 (0.0)	
	Graduate	11 (33.3)	9 (27.3)	
	Professional degree	3 (9.1)	6 (18.2)	
Occupation	Unemployed	2 (6.1)	2 (6.1)	0.703
	Elementary occupation	5 (15.2)	4 (12.1)	
	Plant, machine operators, assemblers	0 (0.0)	1 (3.0)	
	Craft and related trade workers	6 (18.2)	3 (9.1)	
	Skilled agricultural and fishery workers	2 (6.1)	2 (6.1)	
	Skilled worker, shop and market sales worker	8 (24.2)	13 (39.4)	
	Clerk	1 (3.0)	0 (0.0)	
	Technicians, associate professional	4 (12.1)	6 (18.2)	
	Professional	4 (12.1)	2 (6.1)	
	Legislators, senior officials, managers	1 (3.0)	0 (0.0)	

Residence	Rural	0 (0.0)	0 (0.0)	1.000
	Semiurban	33 (100)	33 (100)	
	Urban	0 (0.0)	0 (0.0)	
Socioeconomic status	Lower	12 (36.4)	10 (30.3)	0.800
	Middle	16 (48.5)	18 (54.5)	
	Upper	5 (15.2)	5 (15.2)	
Type of family	Nuclear	25 (75.8)	24 (72.7)	0.778
	Joint	8 (24.2)	9 (27.3)	
Marital status	Married	26 (78.8)	26 (78.8)	1.000
	Unmarried	7 (21.2)	7 (21.2)	
Religion	Hindu	31 (93.9)	28 (84.8)	0.476
	Muslim	1 (3.0)	2 (6.1)	
	Christian	1 (3.0)	3 (9.1)	
Caregiver	Siblings	1 (3.0)	3 (9.1)	0.581
	Parents	8 (24.2)	8 (24.2)	
	Spouse	24 (72.7)	22 (66.7)	

[Table/Fig-1]: Comparison of sociodemographic characteristics between patients with IAD and general population.

*Statistically significant at $p < 0.05$; SD: Standard deviation

$p=0.566$ }, with overweight status predominating in both groups. Clinical history in the IAD cohort showed low family psychiatric history (3.0%) and a substantial minority with prior similar episodes (30.3%); mean age at onset was 37.2 ± 7.2 years, and illness duration was 22.2 ± 23.9 months. Approximately one-third were on treatment (36.4%) [Table/Fig-2].

Parameters		Illness Anxiety Disorder (IAD) N=33	General population N=33	p-value
		n (%)	n (%)	
Family history of psychiatric illness	Yes	1 (3.0)	0 (0.0)	0.314
	No	32 (97.0)	33 (100)	
Past history of similar episode	Yes	10 (30.3)	-	-
	No	23 (69.7)	-	
Age of illness onset (in years), Mean (SD)		37.2 (7.2)	-	-
Total duration of illness (in months), Mean (SD)		22.2 (23.9)	-	-
History of medication use for illness anxiety	Yes	12 (36.4)	-	-
	No	21 (63.6)	-	
Height (in cm), Mean (SD)		164.9 (6.8)	163.2 (6.8)	0.316
Weight (in kg), Mean (SD)		71.8 (10.9)	71.7 (12.5)	0.988
Body mass index (in kg/m^2), Mean (SD)		26.4 (3.7)	27.0 (4.9)	0.566
Body mass index (in kg/m^2)	Normal	11 (33.3)	11 (33.3)	0.793
	Overweight	16 (48.5)	15 (45.5)	
	Obese Class I	6 (18.2)	6 (18.2)	
	Obese Class III	0 (0.0)	1 (3.0)	

[Table/Fig-2]: Comparison of clinical characteristics between patients with IAD and general population.

*Statistically significant at $p < 0.05$; SD: Standard deviation

Suicidality and coping profiles differentiated the groups. Mean BSS scores were higher in IAD (0.4 ± 1.0) than controls (0.0 ± 0.0 ; $p=0.034$). Although total Brief COPE scores were similar (52.4 ± 4.8 vs 53.7 ± 7.9 ; $p=0.412$), domain analyses revealed that IAD participants used less positive reframing ($p < 0.001$), humor ($p=0.001$), and acceptance ($p < 0.001$), while relying more on venting ($p=0.004$), denial ($p=0.024$), and instrumental support ($p=0.027$); self-distraction was also lower ($p=0.029$). Serum morning cortisol did not differ significantly between groups (10.9 ± 3.9 vs 9.4 ± 5.0 mcg/dL; $p=0.189$) [Table/Fig-3].

Within the IAD group, illness-anxiety severity (SHAI) did not correlate with suicidal ideation (BSS; $r=-0.047$; $p=0.793$). However, SHAI scores correlated negatively with overall coping capacity (Brief COPE

Parameters	Illness Anxiety Disorder (IAD) N=33	General population N=33	p-value
	Mean (SD)	Mean (SD)	
Beck Scale for Suicide (BSS) Ideation			
Beck Scale for Suicide (BSS) Ideation-total	0.4 (1.0)	0.0 (0.0)	0.034*
Brief COPE			
Brief COPE-total	52.4 (4.8)	53.7 (7.9)	0.412
Problem focused coping-subtotal	16.8 (2.3)	17.2 (3.5)	0.564
Active coping	4.8 (1.0)	4.8 (1.3)	0.833
Use of instrumental support	5.7 (1.7)	4.8 (1.5)	0.027*
Positive reframing	2.1 (0.3)	3.4 (1.4)	<0.001*
Planning	4.2 (1.0)	4.3 (1.4)	0.835
Emotion focused coping-subtotal	22.9 (3.7)	23.4 (4.3)	0.624
Use of emotional support	5.7 (1.6)	5.5 (1.5)	0.529
Venting	4.3 (1.1)	3.3 (1.6)	0.004*
Humor	2.0 (0.0)	2.7 (1.1)	0.001*
Acceptance	3.7 (1.1)	4.9 (1.4)	<0.001*
Religion	4.6 (1.7)	4.7 (1.8)	0.831
Self-blame	2.9 (1.3)	2.4 (0.9)	0.074
Avoidant coping-subtotal	12.7 (2.5)	13.1 (3.0)	0.627
Self-distraction	4.9 (1.0)	5.4 (1.1)	0.029*
Denial	2.9 (1.2)	2.2 (1.0)	0.024*
Substance use	2.6 (1.5)	3.0 (2.1)	0.382
Behavioural disengagement	2.3 (0.7)	2.4 (1.0)	0.784
Short Health Anxiety Inventory (SHAI)			
Short health anxiety inventory	42.2 (7.4)	0.3 (1.2)	<0.001*
Serum cortisol			
Serum cortisol (in mcg/dL)	10.9 (3.9)	9.4 (5.0)	0.189
[Table/Fig-3]: Comparison of coping mechanisms, suicidal ideation and serum cortisol levels between patients with Illness Anxiety Disorder (IAD) and general population.			
*Statistically significant at p<0.05; SD: Standard deviation			

[Table/Fig-3]: Comparison of coping mechanisms, suicidal ideation and serum cortisol levels between patients with Illness Anxiety Disorder (IAD) and general population.

*Statistically significant at $p < 0.05$; SD: Standard deviation

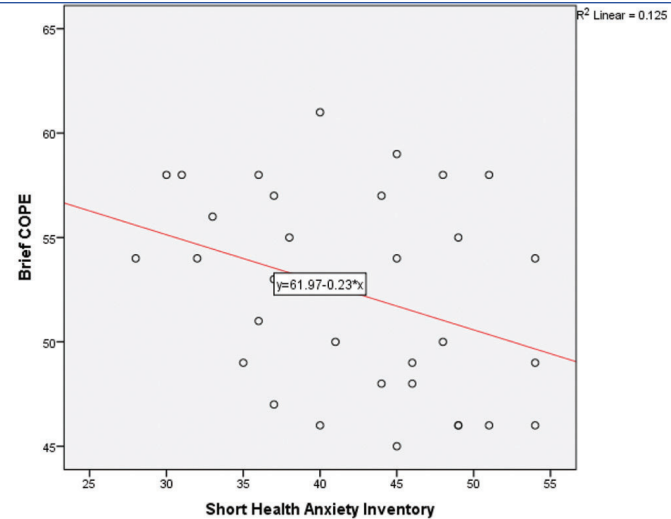
total; $r=-0.354$; $p=0.043$), indicating that greater health anxiety was associated with poorer global coping [Table/Fig-4,5]. This correlation was strongest for avoidant coping ($r=-0.542$; $p=0.001$) [Table/Fig-6], while problem-focused and emotion-focused composite scores showed no significant relationships, suggesting a selective pattern linking health anxiety with maladaptive coping tendencies.

SHAI	Correlation coefficient (r)	p-value
Beck Scale for Suicide (BSS) Ideation	-0.047	0.793
Brief COPE-Total	-0.354	0.043*
Problem focused coping	0.134	0.458
Emotion focused coping	-0.176	0.328
Avoidant coping	-0.542	0.001*

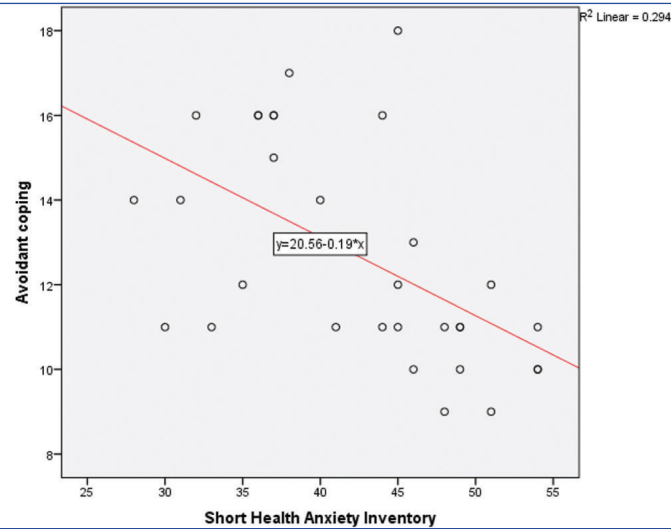
[Table/Fig-4]: Correlation of coping mechanisms and suicidal ideation in patients with IAD.

*Statistically significant at $p < 0.05$

Exploratory comparisons of coping style subgroups in IAD (maladaptive $n=5$; adaptive $n=28$) showed broad sociodemographic equivalence, with similar mean age (37.8 ± 6.1 vs 39.2 ± 7.5 years; $p=0.693$) and parallel distributions across education, occupation, socioeconomic stratum, and marital status. Family structure differed: maladaptive copers were more often from joint families (80.0% vs 14.3%; $p=0.002$) [Table/Fig-7]. Clinical variables (family/past psychiatric history, age at onset 33.6 ± 3.6 vs 37.9 ± 7.5 years; illness duration 51.2 ± 46.4 vs 17.1 ± 13.2 months) and treatment exposure did not significantly differ. Notably, BMI was higher among maladaptive copers (29.8 ± 3.3) versus adaptive copers



[Table/Fig-5]: Correlation between coping mechanisms and IAD.



[Table/Fig-6]: Correlation between avoidant coping and IAD.

Parameters		Coping strategies		p-value
		Maladaptive N=5	Adaptive N=28	
		n (%)	n (%)	
Age (in years), Mean (SD)		37.8 (6.1)	39.2 (7.5)	0.693
Age (in years)	18 to 30	1 (20.0)	4 (14.3)	0.904
	31 to 40	2 (40.0)	13 (46.4)	
	41 to 50	2 (40.0)	9 (32.1)	
	51 to 60	0 (0.0)	2 (7.1)	
Gender	Male	3 (60.0)	20 (71.4)	0.609
	Female	2 (40.0)	8 (28.6)	
Education	Illiterate	0 (0.0)	1 (3.6)	0.559
	Primary and above	5 (100)	27 (96.4)	
Occupation	Unemployed	0 (0.0)	2 (7.1)	0.371
	Employed	5 (100)	26 (92.9)	
Residence	Rural	0 (0.0)	0 (0.0)	-
	Semiurban	5 (100)	28 (100)	
	Urban	0 (0.0)	0 (0.0)	
Socioeconomic status	Lower	2 (40.0)	10 (35.7)	0.978
	Middle	2 (40.0)	14 (50.0)	
	Upper	1 (20.0)	4 (14.3)	
Type of family	Nuclear	1 (20.0)	24 (85.7)	0.002*
	Joint	4 (80.0)	4 (14.3)	
Marital status	Married	5 (100)	21 (75.0)	0.208
	Unmarried	0 (0.0)	7 (25.0)	

Religion	Hindu	5 (100)	26 (92.0)	0.827
	Muslim	0 (0.0)	1 (3.6)	
	Christian	0 (0.0)	1 (3.6)	
Caregiver	Siblings	0 (0.0)	1 (3.6)	0.331
	Parents	0 (0.0)	8 (28.6)	
	Spouse	5 (100)	19 (67.9)	

[Table/Fig-7]: Comparison of sociodemographic characteristics between patients with maladaptive and adaptive coping strategies in patients of IAD.
*Statistically significant at p<0.05; SD, Standard deviation

(25.8±3.4; p=0.023), with obesity more prevalent in the maladaptive subgroup. Morning cortisol trended lower among maladaptive copers (8.9±2.6 vs 11.3±4.1 mcg/dL), but this difference was not significant [Table/Fig-8].

Parameters		Coping strategies		p-value
		Maladaptive N=5	Adaptive N=28	
		n (%)	n (%)	
Family history of psychiatric illness	Yes	1 (20.0)	0 (0.0)	0.152
	No	4 (80.0)	28 (100)	
Past history of similar episode	Yes	2 (40.0)	8 (28.6)	0.609
	No	3 (60.0)	20 (71.4)	
Age of illness onset (in years), Mean (SD)		33.6 (3.6)	37.9 (7.5)	0.229
Total duration of illness (in months), Mean (SD)		51.2 (46.4)	17.1 (13.2)	0.176
History of medication use for illness anxiety	Yes	3 (60.0)	9 (32.1)	0.233
	No	2 (40.0)	19 (67.9)	
Height (in cm), Mean (SD)		162.4 (4.0)	165.3 (7.2)	0.387
Weight (in kg), Mean (SD)		78.4 (8.2)	70.6 (10.9)	0.140
Body mass index (in kg/m²), Mean (SD)		29.8 (3.3)	25.8 (3.4)	0.023*
Body mass index (in kg/m²)	Normal	0 (0.0)	11 (39.3)	0.160
	Overweight	3 (60.0)	13 (46.4)	
	Obese Class I	2 (40.0)	4 (14.3)	
Serum Cortisol (in mcg/dL)		8.9 (2.6)	11.3 (4.1)	0.242

[Table/Fig-8]: Comparison of clinical characteristics between patients with maladaptive and adaptive coping strategies in patients of IAD.
*Statistically significant at p<0.05; SD: Standard deviation

DISCUSSION

The present study assessed and compared sociodemographic, clinical, and anthropometric characteristics between patients diagnosed with IAD and individuals from the general population. The findings indicated no statistically significant differences between the two groups in terms of age, gender, education, occupation, socioeconomic status, or family structure.

Clinical data among IAD patients revealed that 3.0% reported a family history of psychiatric illness, which, while not statistically significant, is relevant in light of studies showing familial aggregation of anxiety and somatic symptom disorders [22,23]. Nearly one-third of patients reported a past history of similar episodes, indicating the chronic and recurrent nature of the disorder, consistent with longitudinal data on hypochondriasis and health anxiety [5].

The mean age of illness onset was 37.2 years, aligning with earlier onset patterns observed in anxiety spectrum disorders, as noted by Lijster JM et al., (2017) [24]. Mean illness duration was 22.2 months, with wide variation (SD=23.9), highlighting the disorder's potential chronicity. While 36.4% of patients reported current or past medication use for illness anxiety, this relatively low percentage may reflect underdiagnosis, poor treatment adherence, or preference for alternative therapies-a common phenomenon in somatic symptom disorders [25].

The present study demonstrated that patients with IAD exhibited significantly higher levels of suicidal ideation compared to the general population. Although the absolute BSS scores were low in both groups, the presence of statistically significant differences underscores the potential psychological burden of IAD. These findings align with Sareen J et al., (2005), indicating that individuals with hypochondriacal or illness-anxious traits are at increased risk for suicidal ideation, particularly when distress becomes chronic and inadequately managed [26]. Such ideation may be mediated by persistent health concerns, perceived helplessness, and poor emotional regulation.

Interestingly, while total Brief COPE scores were not significantly different between patients and controls, specific coping domains exhibited significant disparities. Patients with IAD reported significantly lower scores in adaptive strategies such as positive reframing, humor, and acceptance. Positive reframing and acceptance are typically associated with psychological flexibility and better outcomes in anxiety disorders [27]. Their reduced use in IAD participants may reflect a rigid, threat-focused cognitive style, which has been consistently observed in individuals with health anxiety [28]. Furthermore, the reduced use of humor—a protective coping mechanism—suggests a limited repertoire of adaptive emotion regulation strategies among these individuals [29].

Higher scores for venting and denial, both considered maladaptive or emotion-amplifying strategies, were observed in the IAD group. These forms of coping have previously been linked to poorer psychological outcomes and are known to perpetuate anxiety symptoms by preventing constructive problem-solving and emotional acceptance [30]. Moreover, the increased use of instrumental support among patients may reflect their heightened need for reassurance, a hallmark feature of IAD [31]. While social support is generally beneficial, in IAD, excessive reassurance-seeking may paradoxically reinforce maladaptive health beliefs [32].

The results of correlational analyses are consistent with the theoretical model that links dysfunctional appraisals of bodily symptoms to diminished coping efficacy and greater psychological distress [33]. Most notably, avoidant coping was strongly and negatively correlated with SHA-I scores ($r = -0.542$), indicating that individuals with higher illness anxiety were more likely to use avoidant strategies. Avoidant coping—characterised by disengagement, denial, and distraction—is associated with poorer psychological adjustment in anxiety and somatic symptom disorders [34]. These findings support the cognitive-behavioural understanding of IAD, where maladaptive coping contributes to symptom persistence through negative reinforcement and attentional biases toward health threats [28].

The finding that serum cortisol levels were not significantly different between groups (10.9 ± 3.9 vs 9.4 ± 5.0 mcg/dL) is notable. While cortisol is a recognised biomarker of stress response, prior studies have shown inconsistent results regarding its elevation in anxiety disorders, with some suggesting dysregulation only under acute stress conditions [12]. The non-significant cortisol difference in the current study may reflect the chronic rather than acute nature of anxiety in IAD, or individual variability in HPA axis responsiveness.

Out of 33 patients, five were identified as using maladaptive coping strategies and 28 as using adaptive strategies based on domain-specific scores on the Brief COPE inventory. Socio-demographic factors such as age, gender, education, occupation, socioeconomic status, religion, and marital status did not differ significantly between the adaptive and maladaptive coping groups. These findings are consistent with Carver C et al., (1989) and Compas BE et al., (2001), which suggest that coping styles are not necessarily determined by static sociodemographic variables but are shaped by psychosocial, cognitive, and environmental influences [35,36]. A statistically significant finding was the association between family structure and coping style. Participants who used maladaptive coping strategies were more likely to belong to joint families (80.0%) compared to

those who used adaptive coping strategies (14.3%). This may be explained by the heightened emotional enmeshment and perceived lack of autonomy often reported in collectivist joint family systems, which can impair individual coping efforts and promote dependence or avoidance [37]. In contrast, nuclear family settings may encourage greater self-reliance and problem-solving, thereby supporting more adaptive coping responses. Although not statistically significant, patients in the maladaptive group tended to have an earlier age of illness onset and longer illness duration. This trend is clinically important, as prolonged exposure to unaddressed health anxiety may reinforce maladaptive cognitive and behavioural responses, such as denial, avoidance, and reassurance-seeking [28].

BMI was the only clinical parameter showing a statistically significant difference between the groups, with the maladaptive coping group exhibiting a higher mean BMI (29.8 ± 3.3) compared to the adaptive group (25.8 ± 3.4). Maladaptive coping, particularly avoidant behaviours such as emotional eating or physical inactivity, has been linked to higher BMI and obesity [38]. These findings suggest that dysfunctional coping may not only influence psychological outcomes but also contribute to physical health risks in patients with IAD.

Although serum cortisol levels were lower in the maladaptive group (8.9 ± 2.6 mcg/dL) than in the adaptive group (11.3 ± 4.1 mcg/dL), the difference did not reach statistical significance. Nevertheless, this observation is consistent with prior research indicating that chronic anxiety, particularly when managed with avoidant or suppressive strategies, may lead to a blunted cortisol response due to dysregulation of the HPA axis [39].

Limitation(s)

The present study had several limitations that warrant consideration. First, the use of purposive and convenience sampling from a single tertiary care centre may have introduced selection bias and may not represent the broader population with IAD. Self-reported measures, such as the Brief COPE and BSS, are subject to response biases, including social desirability and recall bias. Additionally, the cross-sectional design of the study precludes causal inferences between coping strategies, suicidal ideation, and health anxiety severity. The measurement of serum cortisol was based on a single morning sample, which does not account for diurnal variations or chronic fluctuations in HPA-axis activity.

CONCLUSION(S)

In conclusion, the present study highlights important psychological and physiological differences between patients with IAD and the general population. Patients exhibited significantly higher levels of suicidal ideation and relied more on maladaptive coping strategies such as denial and venting, with reduced use of adaptive mechanisms like positive reframing and acceptance. A strong association was observed between health anxiety severity and avoidant coping styles, indicating that ineffective coping may contribute to the persistence and distress associated with the disorder. The study also identified a significant relationship between maladaptive coping and higher BMI, as well as an association with joint family structure. These findings underscore the need for targeted psychological interventions focusing on coping-skills enhancement, psychoeducation, and family-based support to improve outcomes in individuals with IAD.

Future research should include larger multicentre longitudinal cohorts with repeated cortisol and diurnal HPA-axis measures, culturally adapted and validated instruments, mediation and moderation analyses linking coping styles to suicidality, and randomised trials testing coping-focused and family-informed psychological interventions in IAD.

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