Assiut Scientific Nursing Journal
http://asnj.journals.ekb.eg http://www.arabimpactfactor.com
DOI: 10.21608/asnj.2025.344233.1967 http://olddrji.lbp.world/indexedJournals.aspx
https://vlibrary.emro.who.int/journals/assiut-scientific-nursing-journal

Climate change anxiety and its relation with coping strategies among patients with mood disorder

Sharbat Mostafa Mohamed[1], Khaled Elbeh[2], Naglaa Abd Elmeged Mohammed[3] & Nadia Abd El-ghany Abd El-hameed[4]

[1.] Assistant Lecturer of Psychiatric & Mental Health Nursing, Faculty of Nursing, Assiut University, Egypt.
[2.] Professor of Neurology & Psychiatry, Faculty of Medicine- Assiut University, Egypt.
[3.] Professor of Psychiatric & Mental Health Nursing, Faculty of Nursing, Assiut University, Egypt.
[4.] Professor of Psychiatric & Mental Health Nursing, Faculty of Nursing, Assiut University, Egypt.

Abstract

Background: Climate change has been shown to pose a significant threat to mental health, by raising the risk of serious psychiatric disorders occurring or getting worse. Climate change will have a significant impact on mood disorders and their associated symptoms, which might result in neurological and psychiatric problems, as well as other types of anxiety and emotional discomfort. **This study aimed to:**assess climate change anxiety and its relation with coping strategies among patients with mood disorder. **Subjects and methods:** A descriptive correlational research design was used in this study. Purposive sample was utilized, consisting of 70 patients who have bipolar and depression disorders and accepted to share in this study. **Tools of the study:** Demographic data, Climate change anxiety Scale and Scale of Coping Strategies. **Results:** There were highly statistically significance difference between climate change anxiety, coping strategies ,depression and bipolar group. In terms of climate change anxiety, there are no appreciable variations between the two groups; nevertheless, the depression group's impairment scores were higher than those of the bipolar group. The study **Concluded that:** Anxiety over climate change and coping strategies for it were shown to be highly statistically significant in both the bipolar and depression groups. **Recommendation:** More research on climate anxiety in people with mood disorders using a bigger sample size, various instruments, and different setting is required.

Keywords: Climate change anxiety, Coping strategies & Mood disorder.

Introduction:

Climate change is a concern of the future. But it's an issue from the past as much as the present. Climate change is an international public health crisis. The World Health Organization (WHO) called it "the greatest challenge of the 21st century, threatening all aspects of our society."

There is growing evidence in the growing body of research on climate change and mental health that extreme weather events, which are more often, intense, and complicated under a changing climate, might cause anxiety, depression, suicidal thoughts, posttraumatic stress disorder (PTSD), complicated grief, survivor guilt, vicarious trauma, recovery fatigue and substance abuse **(Kohl, 2022).**

People with depression may be disproportionately more likely to have increasing symptoms as a result of climate change, and people who already lack resilience may not be able to appropriately prepare for catastrophic occurrences **(Majeed & Lee, 2017). Islam et al., (2021)** demonstrated that climatic conditions have an impact on people's health and their quality of life. There is proof that the climate and environment have an impact on a number of mental and behavioral problems, such as bipolar disorder and significant depression **(Abbasi, 2021).**

Exposure to extreme weather events linked to climate change has been shown to have detrimental effects on social relationships, mental health, and physical health. Lately, focus has shifted to the potential impact of climate change on mental health through emotional reactions such elevated anxiety. A condition of increased discomfort over the consequences of climate change is known as climate anxiety, and it is particularly prevalent among young people. Even if there is proof that involvement in climate change concerns is associated with increased climate anxiety **(Daeninck et al., 2023).**

Humans attempt to manage many forms of psychological stress and dangers by coping. Coping is defined as "behavioral and/or cognitive attempts to manage particular demands, either internal or external " **(Park & Vasishth, 2021)**.

It is possible to think of coping mechanisms as either adaptive or maladaptive. Active coping techniques, for instance, are thought to be adaptive and improve psychosocial functioning, whereas maladaptive coping techniques, including dwelling on unpleasant emotions, are associated with higher levels of

depression**(Morris et al., 2020).** Apart from their impact on the progression of the illness, several coping mechanisms (such as a high degree of denial and a low level of acceptance) have also been linked to poor medication adherence in psychiatric patients **(Ewert et al., 2021).**

Given that many mood disorders have repeated courses, coping mechanisms may be viable targets for psychological treatments as they can affect the illness's progression. It's critical to identify and manage the variables that predict mood episode recurrence and relapse. The onset and progression of mood disorders, such as bipolar disorder (BD) and depressive disorder (DD), can be adversely affected by adverse life experiences. Therefore, controlling mood may depend on how you handle everyday stressors **(Suh et al., 2020)**.

Acknowledging the serious challenges presented by climate change and the highly important global crises is necessary for psychological adaptation **(Burke, 2020).**

Instead of ignoring the encroaching issue of climate change, individuals must learn coping mechanisms to control their emotions and ideas in order to confront and accept these risks and repercussions. Behavioral and psychological involvement is also necessary, whereby individuals modify their lifestyle and behavior to lessen the hazard and safeguard themselves **(Hayes et al., 2018).**

Significance of the study:

Egypt is among the nation's most at risk from the adverse consequences of climate change. The previous thirty years have seen a stronger warming, with average annual temperatures rising by 0.53 degrees per ten years **(Mason, 2023).**

Bipolar disorder (BD) is a chronic, extremely disruptive condition that affects 0.3 to 1.5% of people globally **(Luciano et al., 2021).** Additionally, depression affects about 264 million individuals of all ages. Depression is a substantial contribution to the global burden of disease and has been one of the primary causes of disability globally **(Tao et al., 2020).** There is evidence that hospitalizations for mood and behavioral disorders, such as depression, mania, and neurotic disorders, are more common during periods of extreme heat and humidity **(Montes et al., 2021).** A growing body of research also suggests that a sizable section of the population may be suffering from detrimental anxiety related to their perception of climate change **(Clayton, 2021).** People who already have mental health issues, don't have social support, and have poor coping skills may also be more vulnerable to the negative consequences of climate change on their mental health **(van Nieuwenhuizen et al., 2021).** So the association between climate change anxiety and coping mechanisms in people with mood disorders must thus be examined.

Aim of the study:

The current study aimed to assess climate change anxiety and its relation with coping strategies among patients with mood disorder.

Research Questions:

Is there a relation between climate change anxiety and coping strategies among patients with mood disorders?

Subjects & Method

Research design:

A descriptive correlational research design was used in the study.

Study setting:

The research was carried out at an outpatient clinic that included patients receiving monthly treatment at Assiut University's neuropsychiatric hospital, it serves Assiut city and the majority of the surrounding governorates and is the largest hospital in Upper Egypt. The hospital has ten levels dedicated to psychiatric services; the main floor has the clinics for neurology, neurosurgery, and psychiatry. Male and female emergency rooms for neurology and psychiatry are located on the first level. Inpatient psychiatric units for women are located on the second level, while those for men are located on the third floor, till the department of addiction is located on the fourth level. The follow-up with patients will take place in outpatient clinics.

Study subjects:

Non probability (purposive) sample was used, Consisting of 35 patients with bipolar disorder and35 patient with depression according to sample size was calculated by Open Epi Info version (7) according to the prevalence in the study conducted by **Çökmüş et al., (2020)**, 95% confidence level and a 5% margin of error.

Inclusion criteria

Patients with bipolar and depression aged between 18 to 60 years; diagnosed with bipolar and depression disorders according to DSM- 5 and accepted to participate in the study.

Exclusion criteria

Patients have mental retardation, neurological or physical illness.

Tools of data collection: Each participant was evaluated through the following tools:

Tool (1): Demographic and clinical data sheet: The researcher created this tool in an Arabic language. It contains information on age, sex, marital status, educational attainment, place of residence, working status, live with whom , number of admissions and length of illness.

Tool (2): Climate change anxiety Scale(CAS):
The 13-item CAS was created by **Clayton, (2020)** in an English language**.** The scale for measuring anxiety related to climate change. Two subscales were loaded by the climate change anxiety questions: cognitive-emotional impairment (items 1–8) and functional impairment (items 9–13). Respondents used a 5-point likert scale, with 1 representing never and 5 representing almost always, to rate how frequently the CAS statements were true of them. It is possible to compute the subscales separately and to utilize an overall score, is determined by dividing the sum of All items scores by 13; greater scores correspond to higher levels of anxiety about climate change. The scoring categories are high (48-64points), moderate (31- 47 points) and low(13- 30 points). Test-retest reliability (r =.87) and internal consistency (α =.90; ωt =.91) were both good to outstanding, according to reliability estimates for the CCAS. Validity of the tool, the tools were translated into Arabic and evaluated by a panel consisting of five professionals with backgrounds in psychiatric and mental health nursing and psychiatric medicine who examined the tools to ensure they were understandable, applicable, thorough, relevant, and clear. Adjustments were made based on the necessary changes.

Tool (3): Scale of Coping Strategies:
The scale developed by **Homburg et al., (2007)** in an English language, was employed to gauge the coping mechanisms. Participants were asked to respond to a total of 37 questions using Likert scales that ranged from 1 ("Never") to 5 ("Always"). **Guillard et al., (2021)** amended these items to include 28 elements according to the subject of climate change. The scale show good internal consistency and these measurements are included. [Expression of emotions (α = 0.78; items 21, 33,36), problem-solving (α = 0.90; items 6, 9, 12, 17, 22, 25, 27, 37), wishful thinking (r = 0.42, p < 0.01; items 5, 11), denial of guilt (α = 0.84; items 4, 10, 13, 16, 28, 32), relativization (α = 0.78; items 8, 18, 34), resignation (α = 0.71; items 1, 2, 19, 20), and pleasure (2 items, r = 0.57, p < 0.01; items 7, 15). It is calculated by getting the total score of all items in domain and dividing it by number of item, with higher scores indicating higher levels of coping strategies. Validity of the tool**:** The tools were translated into Arabic and evaluated by a panel consisting of five professionals with backgrounds in psychiatric and mental health nursing and psychiatric medicine who examined the tools to ensure they were understandable, applicable, thorough, relevant, and clear. Adjustments were made based on the necessary changes.

Pilot study:
A pilot study including 10% of the sample's patients was carried out. To identify any specific issues with the tools' applicability, clarity, and feasibility. The pilot study patients were included in the main study since the assessment sheet remained unchanged.

Filed work:
Data was gathered twice a week, from 9 am to 1 pm, during the course of four months, from July to October 2023. Patients who met the requirements were chosen by the interviewer. Each participant was informed of the study's nature and goal, and they gave their consent to participate, after being reassured that their privacy and confidentiality would be protected and that the data would only be used for research. Individual interviews with each participant was conducted in the outpatient clinics' waiting rooms. The tools were filled out and finished in a single session. Each questionnaire took an average of half hour to complete.

Ethical considerations
The study was approved by ethical and scientific committee of the faculty of nursing Assiut University, the ethical code 1120230636 on June 2023. Informed consent was obtained from all participants, assuring them of the confidentiality and anonymity of their data. Participants had the right to refuse participation or withdraw from the study at any time. The study followed common ethical principles in research. There is no risk for study subjects during application of the research

Statistical design
The SPSS 26 Statistical Soft Ware Package was used for data entry and statistical analysis. Qualitative data were described in the form of numbers and percentages; $\chi 2$ test or Fisher's exact test was used to test to compare between categorical variables, as appropriate. Quantitative data were described as mean and standard deviation; Mann Whitney U test was used for comparison between two group and Kruskal-Wallis Test for comparison between more than two group. The P – Value was considered statistically significant if it was < 0.05.

Results:

Table (1): Distribution of demographic and clinical characteristics of the studied patients (N=70):

Demographic and clinical characteristics	Depression group(N=35)	Bipolar group(N=35)	P-value
Age group			
From 18 to Less than 30 years	12(34.29%)	16(45.71%)	0.329
From 30 - 40 years	23(65.71%)	19(54.29%)	
More than 40 years	0(0.0%)	0(0.0%)	
(mean± SD)range	32.11±7.783(18-60)	30±6.787(18-60)	0.164
Sex			
Males	15(42.90%)	18(51.40%)	0.473
Females	20(57.10%)	17 (48.60%)	
Residence			
Rural	20(57.10%)	15(42.90%)	0.232
Urban	15(42.90%)	20(57.10%)	
Live with whom			
Live Alone	4(11.40%)	3(8.60%)	0.690
With Family	31(88.60%)	32(91.40%)	
Levels of education			
Read and write	23(65.71%)	19(54.29%)	0.325
Primary Education	7(20%)	3(8.57%)	
Preparatory education	3(8.57%)	2(5.71%)	
Secondary	9(25.71%)	8(22.86%)	
University	15(42.86%)	17(48.57%)	
Marital status			
Single	11(31.40%)	18(51.40%)	0.089
Married	24(68.60%)	17(48.60%)	
Working status			
Not work	21(60%)	21(60%)	1.00
Work	14(40%)	14(40%)	
Duration of illness			
Less than 1 year	6(17.14%)	3(8.57%)	0.477
From 1-5 year	17(48.57%)	14(40%)	
From 5-10 year	8(22.86%)	12(34.29%)	
More than 10 year	4(11.43%)	6(17.14%)	
Mean± SD	5.494±5.423	6.532±5.221	0.232
Number of Admission			
Not admission	15(42.86%)	10(28.57%)	0.284
1-2 times	14(40%)	18(51.43%)	
3 times	5(14.29%)	3(8.57%)	
More than 3 times	1(2.86%)	4(11.43%)	
Mean± SD	1.34±1.878	1.51±1.442	0.374

Chi square test
Mann Whitney U test

Table (2): Total Mean ±SD of climate change anxiety subscales among studied patients (N=70).

Climate change anxiety subscales	Depression group (N=35)	Bipolar group (N=35)	P-value
Cognitive-emotional impairment	20.34286±8.127451	18.65714±4.620561	0.967
Functional impairment	15.543±4.6926	14.286±3.5857	0.249
Total Climate change Anxiety	35.8857±12.43991	32.9429±7.40804	0.646

Mann Whitney U test

Table (3): Mean ±SD of coping strategies to climate change among studied patients (N=70).

Coping strategies to climate change	Depression group (N=35)	Bipolar group (N=35)	P-value
Expression of emotions	3.2±0.9504	3.3333±0.8893	0.289
Problem-solving	2.5893±0.56602	2.8929±0.69936	0.087
Wishful thinking	3.2571±0.98048	3.1286±0.9575	0.697
Denial of guilt	3.5286±0.9806	2.9381±1.06725	0.026
Relativization	2.9143±0.78108	2.8095±1.0825	0.704
Resignation	2.6429±0.53648	2.5929±0.75995	0.971
Pleasure	2.9714±0.67457	2.9714±1.00691	0.962
Total coping strategies to climate change	3.64±0.74841	3.5429±0.82365	0.851

Mann Whitney U test

Table (4): Correlation between Climate change anxiety subscales and Coping strategies to climate change domains among patient with mood disorder:

Coping strategies to climate change domains		Cognitive-emotional impairment of Anxiety in depression group	Function impairment of Anxiety in depression group	Cognitive-emotional impairment of Anxiety in Bipolar group	Function impairment of Anxiety in Bipolar group
Expression of emotions in Coping strategies	**r**	-0.416	-0.476	-0.216	-0.564
	p value	0.013*	0.004**	0.213	.0001**
Problem-solving in Coping strategies	**r**	-0.088	-0.116	-0.138	-0.491
	p value	0.615	0.507	0.429	0.003**
Wishful thinking in Coping strategies	**r**	-0.385	-0.380	-0.134	-0.390
	p value	0.022*	0.024*	0.444	0.02*
Denial of guilt in Coping strategies	**r**	-0.590	-0.496	-0.214	-0.477
	p value	0.0001**	0.002**	0.218	0.004**
Relativization in Coping strategies	**r**	-0.548	-0.495	-0.399	-0.394
	p value	0.001**	0.003**	0.018*	0.019*
Resignation in Coping strategies	**r**	-0.395	-0.353	-0.493	-0.775
	p value	0.019*	0.037*	0.003**	0.0001**
Pleasure in Coping strategies	**r**	-0.462	-0.357	-0.498	-0.435
	p value	0.005**	0.035*	0.002**	0.009**

**Statistically Significant Correlation at P. value <0.05*
***Statistically Significant Correlation at P. value <0.01*

Table (5): Relationship between climate change anxiety and demographic & clinical characteristics of studied sample:

Demographic and clinical characteristics	Bipolar							depression						
	Low		Moderate		High		P.value	Low		Moderate		High		P.value
	No	%	No	%	No	%		No	%	No	%	No	%	
Age														
From 18 to Less than 30 years	6	46.2	9	42.9	1	100.0	0.533	4	26.7	4	33.3	4	50.0	0.530
From 30 - 40 years	7	53.8	12	57.1	0	0.0		11	73.3	8	66.7	4	50.0	
Sex														
Male	8	61.5	9	42.9	1	100.0	0.351	6	40.0	7	58.3	2	25.0	0.322
Female	5	38.5	12	57.1	0	0.0		9	60.0	5	41.7	6	75.0	
Residence														
Rural	5	38.5	10	47.6	0	0.0	0.592	11	73.3	5	41.7	4	50.0	0.229
Urban	8	61.5	11	52.4	1	100.0		4	26.7	7	58.3	4	50.0	
Live with whom														
Alone	2	15.4	1	4.8	0	0.0	0.535	1	6.7	3	25.0	0	0.0	0.169
With family	11	84.6	20	95.2	1	100.0		14	93.3	9	75.0	8	100.	

Demographic and clinical characteristics	Bipolar							depression						
	Low		Moderate		High		P.value	Low		Moderate		High		P.value
	No	%	No	%	No	%		No	%	No	%	No	%	
Levels of education														
Read and write	0	0.0	3	14.3	0	0.0	0.890	4	26.7	1	8.3	2	25.0	0.652
Primary	1	7.7	1	4.8	0	0.0		2	13.3	1	8.3	0	0.0	
Preparatory	4	30.8	4	19.0	0	0.0		2	13.3	4	33.3	3	37.5	
Secondary	6	46.2	10	47.6	1	100.0		7	46.7	5	41.7	3	37.5	
High school	2	15.4	3	14.3	0	0.0		0	0.0	1	8.3	0	0.0	
Marital Status														
Single	6	46.2	11	52.4	1	100.0	0.578	5	33.3	4	33.3	2	25.0	0.905
Married	7	53.8	10	47.6	0	0.0		10	66.7	8	66.7	6	75.0	
Working status														
Not work	7	53.8	13	61.9	1	100.0	0.637	10	66.7	5	41.7	6	75.0	0.258
Work	6	46.2	8	38.1	0	0.0		5	33.3	7	58.3	2	25.0	
Number of Admission														
Not admission	8	61.5	2	9.5	0	0.0	0.004**	6	40.0	7	58.3	2	25.0	0.689
1-2 times	4	30.8	14	66.7	0	0.0		6	40.0	4	33.3	4	50.0	
3 times	1	7.7	2	9.5	0	0.0		2	13.3	1	8.3	2	25.0	
More than 3 times	0	0.0	3	14.3	1	100.0		1	6.7	0	0.0	0	0.0	
Duration of illness														
Less than 1 year	0	0.0	3	14.3	0	0.0	0.163	1	6.7	3	25.0	2	25.0	0.789
From 1-5 year	4	30.8	9	42.9	1	100.0		7	46.7	6	50.0	4	50.0	
From 5-10 year	8	61.5	4	19.0	0	0.0		5	33.3	2	16.7	1	12.5	
More than 10 year	1	7.7	5	23.8	0	0.0		2	13.3	1	8.3	1	12.5	

Chi square test

Table (6): Relationship between coping strategies to climate change and demographic & clinical characteristics of studied sample:

Demographic and clinical characteristics	Coping strategies to climate change					
	N	Bipolar		N	depression	
		Mean± SD	P. value		Mean± SD	P. value
Age group						
From 18 to Less than 30 years	16	3.33±0.94	0.142	12	3.58±0.78	0.833
From 30 - 40 years	19	3.78±0.82		23	3.63±0.62	
Sex						
Male	18	3.53±0.87	0.785	15	3.69±0.75	0.523
Female	17	3.62±0.94		20	3.55±0.61	
Residence						
Rural	15	3.52±0.74	0.761	20	3.6±0.67	0.932
Urban	20	3.62±1.01		15	3.62±0.69	
Live with whom						
Alone	3	3.67±1.07	0.855	4	3.88±0.53	0.404
With family	32	3.57±0.89		31	3.57±0.68	
Levels of education						
Read and write	3	3.47±0.9	0.940	7	3.94±0.44	0.014*
Primary	2	4±0.85		3	2.97±0.67	
Preparatory	8	3.6±1.06		9	3.16±0.74	
Secondary	17	3.48±0.84		15	3.87±0.51	
High school	5	3.74±1.1		1	3.3±0	
Marital Status						
Single	18	3.47±1	0.471	11	3.86±0.5	0.128
Married	17	3.69±0.77		24	3.49±0.71	
Working status						
Not work	21	3.55±0.92	0.862	21	3.64±0.65	0.716
Work	14	3.61±0.88		14	3.56±0.72	

Demographic and clinical characteristics	Coping strategies to climate change					
	N	Bipolar		N	depression	
		Mean± SD	P. value		Mean± SD	P. value
Number of Admission						
Not admission	10	3.29±0.87	0.368	15	4.36±0.05	0.019
1-2 times	18	3.55±0.96		14	3.39±0.6	
3 times	3	3.83±0.9		5	3.52±0.67	
More than 3 times	4	4.2±0.37		1	4.3±0	
Duration of illness						
Less than 1 year	3	3.97±0.38	0.684	6	3.23±0.9	0.520
From 1-5 year	14	3.37±0.99		17	3.67±0.6	
From 5-10 year	12	3.63±0.86		8	3.74±0.72	
More than 10 year	6	3.75±0.96		4	3.65±0.51	

Kruskal-Wallis Test *Mann Whitney U test*

Table (1): Demonstrates that the study included 70 participants with mood disorders. including 35 patients with depression and 35 patients with bipolar disorder. The current study revealed that, the mean age of the studied patients was (32.11±7.783, 30±6.787 years) in depression and bipolar patient respectively, with depression group have highest mean age (32.11±7.783). More than half (57.10%) of the patients in depression group were live in rural area compared to the bipolar group that show more than half (57.10%)of the patients live in urban area. Most of the patients (88.60% , 91.40%) in both groups live with family. As regard to level of education, more than half (65.71%, 54.29%) of the both group read and write. Additionally marital status show that about two third of depression group (68.60%) are married compare to bipolar group show that (51.40%) of patients are single. Nearly two third (60.00%)of the studied patients in both groups were not work. Regarding to the duration of illness, (48.57% , 40%) of the depression and bipolar groups have duration of illness from 1-5 year . Also (40%, 51.43%) of the depression and bipolar groups have 1-2 times admission to hospital.

Table (2): shows that there are no statistically significant differences between the two groups in climate change anxiety, but the depression group impairment ratings to climate change anxiety are higher than those of the bipolar group.

Table (3): Illustrates that there are no statistically significant differences between the two groups, with the exception of the denial of guilt domain (P value = 0.026), where a depressed patient has a high score.

Table (4): Reveals that there is negative correlation between determine domains in climate change anxiety and coping strategies to climate change in both depression and bipolar group.

Table (5): Represents that there is no any relation is found between climate change anxiety and demographic & clinical characteristics in both depression and bipolar groups, except numbers of admission while it shows highly statistically significant relation with climate change anxiety in bipolar group(P value = 0.004**) .

Table (6): Shows that there is no any relation between coping strategies to climate change and demographic &clinical characteristics in depression and bipolar groups except levels of education and number of Admission (P value = 0.014*, 0.019) in depression group while it shows Statistically Significant relation with coping strategies to climate change.

Discussion

Climate change has a negative psychological impact that has previously been characterized as discontent or anxiety. Research has indicated that climate change contributes to feelings of depression and anxiety. Furthermore climate change anxiety can act as a chronic stressor for people, increasing their vulnerability to psychotic symptoms **(Fekih-Romdhane et al., 2024).** Additionally, it was shown that depression and anxiety related to climate change were less adaptable and linked to a reduced sense of wellbeing **(Shahid et al., 2021).** So the present study aimed to assess climate change anxiety and its relation with coping strategies to climate change among patients with mood disorder.

According to the climate change anxiety of the studied patients, the current study found that there was no significant differences between both groups, with the depression group had high impairment scores compared to the bipolar group. This was due to the fact that climate change has a significant impact on depressed patients, according to **(Goldschmied et al., 2024 , Rosenthal et al., 2020, Lukmanji et al., 2019 & Fellinger et al., 2022)** they discovered that depressed symptoms varied with the climate change, with higher levels of symptoms being reported in the winter than in the summer, also **Dominiak et al., (2015)** report the highest levels in the spring and fall. And negative emotions relating to climate change

were likely to be intense enough to contribute climate anxiety**(Di Nicola et al., 2020, Clayton, 2020 & Schwartz et al., 2023).**

Concerning on coping strategies to climate changes, the result showed that there was no significant differences between two groups except in denial of guilt domain with depressed patient show high score, may indicate a significant use of denial of guilt as a coping mechanisms in depressed patient. Because the patient does not feel accountable for the symptom (denial of guilt), serotonin and melatonin enable the body maintain its daily rhythm, which is linked to the climate night-day cycle. This finding was congruent with **Bridi et al., (2018) & Suciu et al., (2021)** who evaluate how adult bipolar disorder patients and depressed individuals differ in their coping mechanisms and found that there was no significant difference, but incongruent with the results of **Suh et al., (2020)** who reported that subjects with bipolar tend to use more task and coping than depression subjects.

The research question was posed by this study. The current study's findings showed that there was highly statistically significant negative correlation between climate change anxiety and coping strategies to climate change in both depression and Bipolar groups. The reduction of climate anxiety appears to be associated with problem-centered coping techniques that incorporate the patient's acceptance of the issue of climate change. Therefore, they acknowledge the existence of climate change by attempting to address the issue (problem-solving), by considering it (expression of emotions), and/or by wishing it would go away on its own (wishful thinking). The techniques associated with this coping style seem to demonstrate that the patient does not hold themselves accountable for the circumstances (denial of guilt); They down play the phenomenon's seriousness (relativization); and they continue to live despite it (pleasure). Notably, these kinds of tactics would be used when the person doesn't think they can change the circumstance. These factors implied that people could adopt certain coping mechanisms as a result of climate change's scary and/or manageable character **(Guillard et al., 2021)**. Additionally coping help protect wellbeing and functioning long-term and reduce anxiety according to **(Crandon et al., 2024, Vercammen et al., 2023, and van Valkengoed & Steg, 2024)** who look into coping with climate anxiety and found that the climate anxiety compass can assist those who have experienced climate anxiety in investigating various coping strategies to lessen their distress. On the other hand, coping capacity was stronger and anxiety and distress were lower, which appeared to undermine mitigation goals for climate change **(Ojala et al., 2021).**

Similarly the relationship between climate change anxiety and demographic &clinical characteristics in both depression and bipolar groups**,** the study represent that there was no statistically significant difference was found between climate change anxiety and demographic & clinical characteristics in both depression and bipolar groups, except numbers of admission show highly statistically significant relation with climate changes anxiety in bipolar group. This due to Climate change has led to an increase in bipolar symptoms, such as mania or depression. according to **(Rosenthal et al., 2020, Fellinger et al., 2022, Goldschmied et al., 2024 & Lukmanji et al., 2029).**Therefore, patients are increasingly admitted to hospital due to increased symptoms., which is raising climate anxiety for fear of the admission and consequences of increased symptoms.

Concerning the relationship between coping strategies to climate change and demographic & clinical characteristics in depression and bipolar groups, the result revealed that there was no statistically significant difference between coping strategies to climate change and demographic & clinical characteristics in depression and bipolar groups except levels of education and number of admission in depression group show Statistically Significant relation with coping strategies to climate change. Can explain that, perception about climate change among educated people increases, those patient are known about climate change and increase symptom so, taking precautions and adhere to treatment and think to take action to cope with climate change, that are help patient to reduce symptom so that admission to hospital will decrease with increase coping to climate change.

Conclusion:

The study came to concluded that :There is negative correlation between climate change anxiety and coping strategies in relation to mood disorders (in both the depressive and bipolar groups). Regarding to bipolar group, depression showed higher impairment scores in climate change anxiety. In the bipolar group, number of admission exhibit a highly statistically significant relation with climate change anxiety.

Recommendations:

According to the results of the current study, the following suggestions are made:

1. The patient must employ efficient coping strategies to lessen their anxiety about climate change.
2. Further research is needed to explore climate anxiety in patients with mood disorders, utilizing a larger sample size, diverse tools, and different setting.

3. In order to alleviate symptoms and teach patients how to cope with climate change, psycho-educational programs on coping strategies are crucial for patients with mood disorders.

References

- **Abbasi, H. (2021):** The effect of climate change on depression in urban areas of western Iran. BMC Research Notes, 14(1), 155.
- **Bridi, K., Loredo-Souza, A., Fijtman, A., Moreno, M., Kauer-Sant'Anna, M., Ceresér, K., & Kunz, M. (2018):** Differences in coping strategies in adult patients with bipolar disorder and their first-degree relatives in comparison to healthy controls. Trends in psychiatry and psychotherapy, 40, 318-325.
- **Burke, S. (2020):** Addressing Climate Change. Handbook of Rural, Remote, and very Remote Mental Health, 1-18.
- **Clayton, S. (2020):** Climate anxiety: Psychological responses to climate change. Journal of anxiety disorders, 74, 102263.
- **Clayton, S. (2021)**: Climate change and mental health. Current Environmental Health Reports, 8, 1-6.
- **Çökmüş, F., Aşçibaşi, K., Dikici, D., Çöldür, E., Emin, A., & Aydemir, Ö. (2020):** Seasonality in bipolar disorder: impact on mood symptoms, psychosocial functioning, neurocognition, and biological rhythm. Archives of Neuropsychiatry, 58(1), 41.
- **Crandon, T., Scott, J., Charlson, F., & Thomas, H. (2024):** Coping with climate anxiety: impacts on functioning in Australian adolescents. Australian Psychologist, 1-12.
- **Daeninck, C., Kioupi, V., & Vercammen, A. (2023):** Climate anxiety, coping strategies and planning for the future in environmental degree students in the UK. Frontiers in psychology, 14, 1126031.
- **Di Nicola, M., Mazza, M., Panaccione, I., Moccia, L., Giuseppin, G., Marano, G., & Janiri, L. (2020):** Sensitivity to climate and weather changes in euthymic bipolar subjects: association with suicide attempts. Frontiers in psychiatry, 11, 95.
- **Dominiak, M., Swiecicki, L., & Rybakowski, J. (2015):** Psychiatric hospitalizations for affective disorders in Warsaw, Poland: Effect of season and intensity of sunlight. Psychiatry Research, 229(1-2), 287-294.
- **Ewert, C., Vater, A., & Schröder-Abé, M. (2021):** Self-compassion and coping: A meta-analysis. Mindfulness, 12, 1063-1077.
- **Fekih-Romdhane, F., Malaeb, D., Postigo, A., Sakr, F., Dabbous, M., Khatib, S. E., & Hallit, S. (2024):** The relationship between climate change anxiety and psychotic experiences is mediated by death anxiety. International Journal of Social Psychiatry, 70(3), 574-581.
- **Fellinger, M., Waldhoer, T., Serretti, A., Hinterbuchinger, B., Pruckner, N., Koenig, D., & Fugger, G. (2022):** Seasonality in major depressive disorder: effect of sex and age. Journal of affective disorders, 296, 111-116.
- **Goldschmied, J., Palermo, E., Sperry, S., Burgess, H., McCarthy, M., Yocum, A., & Gehrman, P. (2024):** Seasonal variation in mood among individuals with and without bipolar disorder. Journal of Affective Disorders, 369, 1131-1135.
- **Guillard, M., Fleury-Bahi, G., & Navarro, O. (2021):** Encouraging individuals to adapt to climate change: Relations between coping strategies and psychological distance. Sustainability, 13(2), 992.
- **Hayes, K., Blashki, G., Wiseman, J., Burke, S., & Reifels, L. (2018).** Climate change and mental health: risks, impacts and priority actions. International journal of mental health systems, 12, 1-12.
- **Homburg, A., Stolberg, A., & Wagner, U. (2007).** Coping with global environmental problems: Development and first validation of scales. Environment and Behavior, 39(6), 754-778.
- **Il Islam, D., Rahman, A., Sarker, N. I., Sarker, S. R., & Jianchao, L. (2021):** Factors Influencing Rice Farmers' Risk Attitudes and Perceptions in Bangladesh amid Environmental and Climatic Issues. Polish Journal of Environmental Studies, 30(1).
- **Kohl, A. (2022):** Climate change and consumer behaviour: The impact of eco-anxiety on the consumption habits of Finns below 30 years of age (Master's thesis).
- **Luciano, M., Steardo Jr, L., Sampogna, G., Caivano, V., Ciampi, C., Del Vecchio, V., & Fiorillo, A. (2021):** Affective temperaments and illness severity in patients with bipolar disorder. Medicina, 57(1), 54.
- **Lukmanji, A., Williams, J., Bulloch, A., Bhattarai, A., & Patten, S. (2019):** Seasonal variation in symptoms of depression: A Canadian population based study. Journal of affective disorders, 255, 142-149.
- **Majeed, H., & Lee, J. (2017):** The impact of climate change on youth depression and mental health. The Lancet Planetary Health, 1(3), e94-e95.
- **Mason, R. (2023):** Urbanism, Climate Change, and the Public Utility of Greening Cairo. The Middle East Journal, 77(2), 204-222.
- **Montes, J., Serrano, C., & Pascual-Sanchez, A. (2021):** The influence of weather on the course of

bipolar disorder: A systematic review. The European Journal of Psychiatry, 35(4), 261-273.

- **Morris, J., Turnbull, D., Martini, A., Preen, D., & Zajac, I. (2020):** Coping and its relationship to post-traumatic growth, emotion, and resilience among adolescents and young adults impacted by parental cancer. Journal of psychosocial oncology, 38(1), 73-88.
- **Ojala, M, Ashlee C, Charles A. Ogunbode, & Jacqueline, M. (2021):** "Anxiety, worry, and grief in a time of environmental and climate crisis: A narrative review." Annual review of environment and resources 46, no. 1 (2021): 35-58.
- **Park, A., & Vasishth, A. (2021):** Exploring how the tone of written climate change communication influences coping strategies. Journal of Student Research, 10(3).
- **Rosenthal, S., Josephs, T., Kovtun, O., & McCarty, R. (2020):** Seasonal effects on bipolar disorder: a closer look. Neuroscience & Biobehavioral Reviews, 115, 199-219.
- **Schwartz, S., Benoit, L., Clayton, S., Parnes, M. F., Swenson, L., & Lowe, S. (2023):** Climate change anxiety and mental health: Environmental activism as buffer. Current Psychology, 42(20), 16708-16721.
- **Shahid, S., Chaudary, M., Majeed, A., & Siddique, R. (2021):** MENTAL DISORDERS EMERGING FROM THE CLIMATE CHANGE: A NEED TO MITIGATE THE ECO-ANXIETIES. FUUAST Journal of Biology, 11(1).
- **Suciu, B., Păunescu, R., & Micluţia, I. (2021):** Coping strategies in an euthymic phase for major depressed patients. The European Journal of Psychiatry, 35(3), 140-144.
- **Suh, H., Kang, T., Moon, E., Park, J., Lee, B., Lee, Y., & Lim, H. (2020):** Similarities and differences of strategies between bipolar and depressive disorders on stress coping. Psychiatry Investigation, 17(1), 71.
- **Tao, L., Jiang, R., Zhang, K., Qian, Z., Chen, P., Lv, Y., & Yao, Y. (2020):** Light therapy in non-seasonal depression: An update meta-analysis. Psychiatry research, 291, 113247.
- **van Nieuwenhuizen, A., Hudson, K., Chen, X., & Hwong, A. R. (2021):** The effects of climate change on child and adolescent mental health: Clinical considerations. Current Psychiatry Reports, 23, 1-9.
- **van Valkengoed, A., & Steg, L. (2024):** The climate anxiety compass: A framework to map the solution space for coping with climate anxiety. Dialogues on Climate Change, 29768659241293226.
- **Vercammen, A., Kioupi, V., & Daeninck, C. (2023):** Climate anxiety, coping strategies and planning for the future in environmental degree students in the UK.