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To Evaluate the Effect of Acupuncture in The Subjects with Mild to Moderate Anxiety and Depression

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1. Introduction

Anxiety and depressive disorders are among the most prevalent mental health conditions globally and are significant contributors to the overall burden of disease and disability [(1)]. Both disorders substantially impair quality of life [(2)].

Depression is characterized by a persistent feeling of sadness and a loss of interest in daily activities [(6)], whereas anxiety is associated with fear and manifests as a future-oriented mood state involving complex cognitive, affective, physiological, and behavioral responses [(8)]. These conditions not only compromise psychosocial well-being but also increase the risk of chronic physical illnesses, including cardiovascular and metabolic disorders (Penninx et al., 2021). Depressive disorders commonly present with sadness, emptiness, or irritability, accompanied by somatic and cognitive changes that significantly reduce an individual's functional capacity [(13).]

Although anxiety and depression are distinct syndromes, there is substantial overlap in clinical symptoms and underlying pathophysiological processes. Comorbid anxiety and depression are more prevalent than either condition alone, with studies showing that 58% of individuals with a history of depression also meet criteria for an anxiety disorder. The World Health Organization has also identified anxiety and depression as the most common coexisting psychological problems in primary care settings. Dysregulation of serotonin and norepinephrine neurotransmission has been implicated in both disorders, and emerging evidence suggests that these systems may provide a mechanistic link between them, with disturbances in one system reflecting in the other. Current theories propose a continuum of illness, suggesting that anxiety and depression may represent different phenotypic expressions of a shared neurobiological origin [(32).]

2. Objective of The Study

- To assess the pre-test and post-test levels of anxiety and depression among subjects of both the sex of age above 18 years and below 65 years
- To assess the effectiveness of acupuncture in reducing anxiety and depression among subjects of both the sex of age above 18 years and below 65 years
- To assess the impact of acupuncture on sleep quality and overall lifestyle quality in subjects with anxiety and depression of both the sex of age above 18 years and below 65 years
- To find out the association between the pre-test levels of anxiety and depression among selected subjects of both the sex of age above 18 years and below 65 years

3. REVIEW OF LITERATURE

3.1 DEFINITION

Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. [6]

Anxiety is linked to fear and manifests as a future-oriented mood state that consists of a complex cognitive, effective, physiological and behavioral response system. [8]

3.2 EPIDEMIOLOGY:

An estimated 3.8% of the population experiences depression, affecting 5% of adults (4% of men and 6% of women) and 5.7% of adults over 60. Around 4% of the global population currently experiences an anxiety disorder. In 2019, 301 million people worldwide had an anxiety disorder, making it the most common mental disorder. [16][17]

According to a 2017 WHO report, 56 million Indians (4.5%) suffer from depression, while 38 million (3.5%) experience anxiety disorders. [18]

3.3 CLASSIFICATION

Depressive disorders

1. Disruptive mood dysregulation disorder: Disruptive mood dysregulation disorder: When outbursts and irritable mood are intense, are frequent, last for significant periods, occur in several contexts, and are associated with behaviors not seen in typically developing children, [15]

2. Major depressive disorder: when an individual has a persistently low or depressed mood, anhedonia or decreased interest in pleasurable activities, feelings of guilt or worthlessness, lack of energy, poor concentration, appetite changes, psychomotor retardation or agitation, sleep disturbances, or suicidal thoughts. [9]

3. Persistent depressive disorder (dysthymia) : is characterized by a depressed mood that occurs for most of the day, for more days than not, for at least 2 years, or at least 1 year for children and adolescents. (9)

4. Premenstrual dysphoric disorder: accounts for the most severe form of PMS with the greatest impairment of women's functioning and perceived quality of life, often prompting them to seek treatment. (16)

5. Depressive disorder due to another medical condition: Many interactions occur between the immune, neural, and psychological systems. These interactions include communication pathways from the brain to the immune system, particularly the hypothalami-pituitary-adrenal (HPA) axis and the autonomic nervous system**,** that mediate the influence of psychological variables, such as stress and emotions, on immunity and resistance to disease. (27) (9)

Anxiety Disorders

1. Separation Anxiety Disorder: An individual with separation anxiety disorder displays anxiety and fear atypical for his/her age and development level of separation from attachment figures.

2. Selective Mutism: This disorder is characterized by a consistent failure to speak in social situations where there is an expectation to speak even though the individual speaks in other circumstances, can speak, and comprehends the spoken language.

3. Specific Phobia: Individuals with specific phobias are fearful or anxious about specific objects or situations which they avoid or endure with intense fear or anxiety.

4. Social Anxiety Disorder: This disorder is characterized by marked or intense fear or anxiety of social situations in which one could be the subject of scrutiny.

5. Panic Disorder: Individuals with this disorder experience recurrent, unexpected panic attacks and experience persistent concern and worry about having another panic attack.

6. Agoraphobia: Individuals with this disorder are fearful and anxious in two or more of the following circumstances: using public transportation, being in open spaces, being in enclosed spaces or being outside of the home alone. The individual fears and avoids these situations because he/she is concerned that escape may be difficult or help may not be available in the event.

7. Generalized Anxiety Disorder: The key feature of this disorder is persistent and excessive worry about various domains, including work and school performance that the individual finds hard to control.

8. Substance/Medication-Induced Anxiety Disorder: This disorder involves anxiety symptoms due to substance intoxication or withdrawal or to medical treatment.

9. Anxiety Disorder Due to Other Medical Conditions: Anxiety symptoms are the physiological consequence of another medical condition. (9)

3.4 ETIOLOGY

- Medications and Substance abuse
- Trauma and conflicts
- Childhood experiences
- Panic disorders
- Neurodegenerative diseases
- cancer
- death or loss of a loved one
- lack or reduced social support
- financial problems
- interpersonal difficulties [13] [14]

3.5 CLINICAL FEATURES

Clinical features of anxiety:

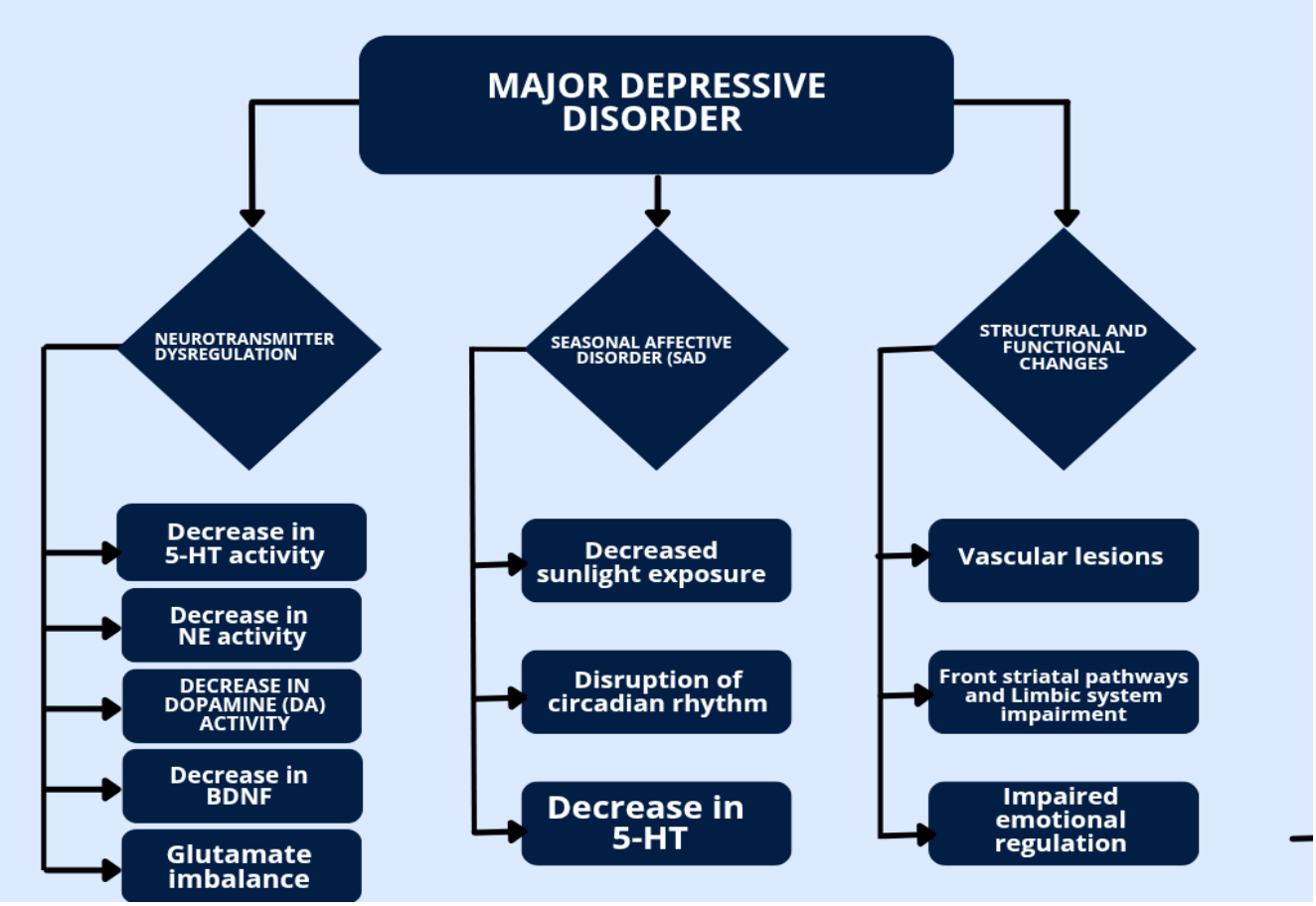
- Excessive worry about various topics
- Feeling tense and restless
- Difficulty in concentrating
- Physical symptoms like palpitation, sweating, trembling, shortness of breath
- Fear of panic attacks
- Avoidance behaviors related to triggers [9]

Clinical features of depression:

- Persistent low mood
- Loss of interest or pleasure in activities previously enjoyed
- Significant changes in appetite or weight
- Sleep disturbances
- Feelings of worthlessness, guilt, or helplessness
- Difficulty thinking clearly or making decisions
- Psychomotor retardation or agitation
- Thoughts of suicide [9]

3.6 ETIOPATHOGENESIS

Major Depressive Disorder

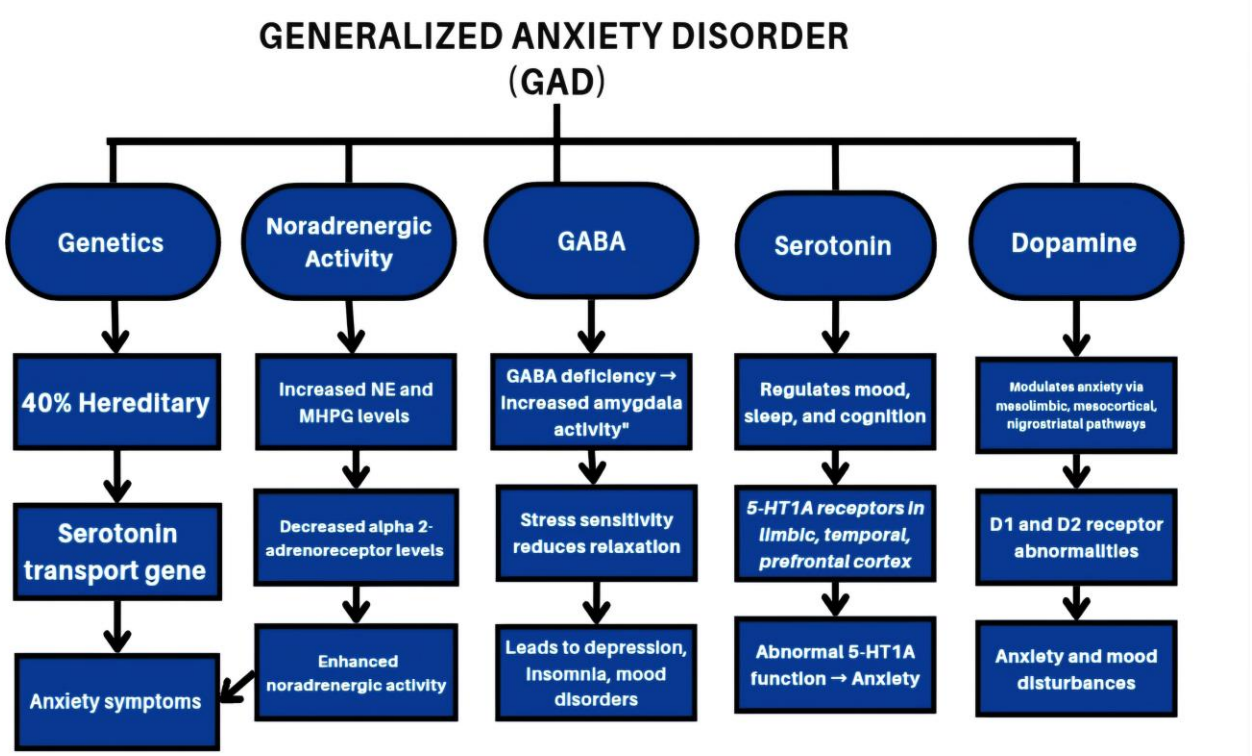


Major Depressive Disorder (MDD) is multifactorial and involves complex interactions between biological, psychological, and environmental factors. One important mechanism is neurotransmitter dysregulation, where there is a decrease in serotonin (5-HT), norepinephrine (NE), and dopamine activity. Additionally, a reduction in brain-derived neurotrophic factor (BDNF) and imbalances in glutamate signaling contribute to impaired synaptic plasticity and neuronal communication, ultimately leading to mood disturbances and cognitive dysfunction.

Another contributing factor is Seasonal Affective Disorder (SAD), which results from decreased sunlight exposure. Reduced light input disrupts circadian rhythms and melatonin secretion, leading to alterations in serotonin regulation. This contributes to depressive symptoms, particularly during winter months when daylight is limited.

Together, these mechanisms highlight that MDD arises not from a single cause but from a combination of neurochemical imbalances, circadian rhythm disturbances, and structural brain abnormalities, leading to persistent low mood, loss of interest, and functional impairment.[13]

General Anxiety Disorder



Generalized Anxiety Disorder (GAD) arises from a combination of genetic and neurochemical factors. It has about a 40% hereditary component, with variations in the serotonin transport gene contributing to anxiety symptoms.

Disturbances in the noradrenergic system, including increased norepinephrine (NE) and its metabolite MHPG along with decreased alpha-2 adrenoceptor levels, enhance noradrenergic activity and cause hyperarousal. GABA, the brain's main inhibitory neurotransmitter, is often deficient in GAD, leading to increased amygdala activity, heightened stress sensitivity, and reduced ability to relax, which can further cause insomnia, depression, and mood instability.

Serotonin, which normally regulates mood, sleep, and cognition through 5-HT1A receptors in the limbic and prefrontal regions, shows abnormal functioning in GAD, directly contributing to anxiety. Additionally, dopamine, which modulates anxiety through mesolimbic, mesocortical, and nigrostriatal pathways, shows abnormalities in D1 and D2 receptors, resulting in further anxiety and mood disturbances. Together, these genetic vulnerabilities and neurotransmitter imbalances explain the persistence and intensity of anxiety symptoms in GAD. [14]

3.7 GENERAL FEATURES

General Features of Depression

Evaluation of depressive symptoms begins with assessing neurovegetative changes, including alterations in sleep, appetite, and energy levels. Positive findings prompt further assessment of core depressive features and suicidal risk, which requires urgent attention through close monitoring or hospitalization if indicated.

Additional investigation includes past and family medical history, current medications, social stressors, and substance use, as well as physical examination to rule out organic causes. Symptom severity is often quantified using standardized tools such as the Beck Depression Inventory (BDI), Hamilton Depression Rating Scale (HAM-D), and Zung Self-Rating Depression Scale. [13]

General Features of Anxiety

Patients with anxiety often present a diagnostic challenge, as somatic symptoms—such as shortness of breath, palpitations, fatigue, headache, dizziness, and restlessness—are frequently more prominent than psychological complaints. Psychological manifestations may include excessive worry, emotional lability, difficulty concentrating, and insomnia.

Factors commonly associated with generalized anxiety include female gender, unmarried status, poor health, low education, and the presence of psychosocial stressors. The median age of presentation is around 30 years. Severity and diagnosis are commonly assessed using standardized tools, with the GAD-7 being a validated instrument for both diagnostic and severity evaluation. [14]

3.8 DIAGNOSTIC CRITERIA:

Depressive disorders:

A. Clinical depression is categorized as continuum disorder
B. The number of depression symptoms along with the frequency and duration of episodes directly relates to indicators of depression
C. Beyond the number of symptoms, the frequency and duration of episodes enhances the validity of depression classification [21]

Anxiety disorders:

A. Excessive anxiety and worry, occurring for more than 6 months.
B. The person finds it difficult to control the worry.
C. The anxiety and worry are associated with three or more of the following six symptoms:-

- Restlessness or feeling keyed up or on edge
- Being easily fatigued

- Difficulty in concentration
- Irritability
- Muscle tension
- Sleep disturbance

D. The focus of the anxiety and worry is not confined to features of an Axis I disorder.
E. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. [9]

3.9 INVESTIGATIONS

- Thyroid function tests
- Blood glucose level
- Echocardiography
- Complete blood cell (CBC) count
- Vitamin B-12
- Electrolytes, including calcium, phosphate, and magnesium levels
- Blood urea nitrogen (BUN) and creatinine
- Liver function tests (LFTs)
- Blood alcohol level
- Blood and urine toxicology screen
- Arterial blood gas (ABG)
- Computed tomography (CT) scanning or magnetic resonance imaging (MRI) of the brain should be considered if organic brain syndrome or hypopituitarism [13] [14]

3.10 DIFFERENTIAL DIAGNOSIS

Differential Diagnosis of depression

- Adjustment disorders
- Anemia
- Chronic Fatigue syndrome
- Dissociative disorders
- Illness anxiety disorders
- Hypoglycemia
- Hypopituitarism
- Schizoaffective disorders
- Schizophrenia
- Somatic symptom disorders [13]

Differential Diagnosis of anxiety

- Hyperthyroidism
- Pheochromocytoma
- Chronic obstructive pulmonary disease
- Transient ischemic attack
- Epilepsy
- Bipolar disorder
- Use of caffeine, decongestants, and albuterol [14]

3.11 CONVENTIONAL/PHARMACOLOGICAL INTERVENTION

- Benzodiazepines
- Buspirone
- Antidepressants
- Tricyclic antidepressants
- Monoamine oxidase inhibitors
- Selective serotonin reuptake inhibitors
- Serotonin-norepinephrine reuptake inhibitors [26]

3.12 NATUROPATHIC MODALITIES FOR ANXIETY AND DEPRESSION:

Acupuncture: it is a technique where fine needles are inserted into the specific points of the body through skin to treat health issues, sometimes enhanced by manual manipulation or small electrical current (electroacupuncture). [5][11] Anxiety can modify heart rate variability during acupuncture treatment and upto 40 minutes after the treatment.[24] If the depression condition becomes acute during the course of treatment, use jing-well points.[12] through acupuncture there is a re-establishment of transmission and dynamic changes at the synaptic level in central nervous system and has a correlation between certain chemical synaptic transmitters such as 5-hydroxy tryptamine. [11]

Aromatherapy: - Aromatherapy, a natural practice that uses essential oils derived from aromatic plants, has been shown to enhance sleep quality, cognition, and emotional well-being, while also alleviating stress, fatigue, pain, anxiety, and depression (Cao et al., 2023). The diverse biological effects of essential oils and their constituents have been extensively studied and reviewed, and can be classified based on their mechanisms of action, such as elevating synaptic monoamine levels, regulating hypothalamic-pituitary-adrenal (HPA) axis activity, exerting neuroprotective effects, supporting immune balance, and promoting anti-inflammatory responses. [28] The review identified that lavender, passionflower, and saffron demonstrated benefits comparable to standard anxiolytics and antidepressants. Additionally, black cohosh, chamomile, and chasteberry were also found to be promising. [30]

Manipulative therapy: It improves sleep quality, concentration and promotes calming, comforting sense of well-being, beneficial for stress and related conditions [19]

Diet therapy: Consumption of non-refined grains, vegetables, fruits, fish, and legumes shows protective effects against depression and anxiety, whereas red/processed meat and alcohol are linked with unfavorable outcomes; dairy findings remain mixed.[29]

Hydrotherapy: Cold water stimulates the skins numerous cold receptors, causing surface constriction and pressure on receptors. This enhances oxygen and nutrient supply to brain and vital organs [22]

Exercise therapy: exercise in physical enhances perception, physical ability and liveliness, easing depression. A strong therapeutic relationship provides empathetic support for patients' vulnerability [20]

Yoga Therapy: Yoga has been found effective in alleviating depression and is particularly beneficial in managing anxiety, including panic disorder. Mindfulness-based interventions also provide sustained benefits for both depression and anxiety when used as adjunct therapies. These interventions not only improve depressive symptoms—with effects lasting six months or longer—but are also free of notable adverse effects. Their overall health benefits further support their role as adjunctive treatments for patients with depression and anxiety disorders. While the optimal frequency and duration remain uncertain, research indicates that even a single 60-minute session per week can lead to symptom reduction. [31]

4. MATERIALS AND METHODS:

Source of data:

The subjects participating in the study are the patients who consulted GNCYMC&H, OPD for the improvement of their condition. The subjects who are eligible were asked to be a part of the study and contact the investigator for screening. Those identified through the screening process as potentially eligible subjects are scheduled to meet the study coordinator for consenting process and to undergo a baseline medical assessment, including a complete medical history and physical examination by the study consultant. The study consultant confers the diagnosis of anxiety and depression and excludes from the study those individuals with other medical problems that could put the patient at risk.

5. METHOD OF COLLECTION OF DATA:

Primary Outcome Variable:
1. Beck's Depression inventory
2. Hamilton anxiety Scale
3. General Health Questionnaire (GHQ-12)

Secondary Outcome Variable
1. Blood pressure
2. Pulse rate
3. Respiratory rate

TO ASSESS THE SEVERITY OF DEPRESSION SYMPTOMS: BECK'S DEPRESSION INVENTORY

Beck's Depression Inventory

This depression inventory can be self-scored. The scoring scale is at the end of the questionnaire.

1.
- 0 I do not feel sad.
- 1 I feel sad
- 2 I am sad all the time and I can't snap out of it.
- 3 I am so sad and unhappy that I can't stand it.

2.
- 0 I am not particularly discouraged about the future.
- 1 I feel discouraged about the future.
- 2 I feel I have nothing to look forward to.
- 3 I feel the future is hopeless and that things cannot improve.

3.
- 0 I do not feel like a failure.
- 1 I feel I have failed more than the average person.
- 2 As I look back on my life, all I can see is a lot of failures.
- 3 I feel I am a complete failure as a person.

4.
- 0 I get as much satisfaction out of things as I used to.
- 1 I don't enjoy things the way I used to.
- 2 I don't get real satisfaction out of anything anymore.
- 3 I am dissatisfied or bored with everything.

5.
- 0 I don't feel particularly guilty
- 1 I feel guilty a good part of the time.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6.
- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7.
- 0 I don't feel disappointed in myself.
- 1 I am disappointed in myself.
- 2 I am disgusted with myself.
- 3 I hate myself.

8.
- 0 I don't feel I am any worse than anybody else.
- 1 I am critical of myself for my weaknesses or mistakes.
- 2 I blame myself all the time for my faults.
- 3 I blame myself for everything bad that happens.

9.
- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10.
- 0 I don't cry any more than usual.
- 1 I cry more now than I used to.
- 2 I cry all the time now.
- 3 I used to be able to cry, but now I can't cry even though I want to.

11.

0	I am no more irritated by things than I ever was.
1	I am slightly more irritated now than usual.
2	I am quite annoyed or irritated a good deal of the time.
3	I feel irritated all the time.

12.

0	I have not lost interest in other people.
1	I am less interested in other people than I used to be.
2	I have lost most of my interest in other people.
3	I have lost all of my interest in other people.

13.

0	I make decisions about as well as I ever could.
1	I put off making decisions more than I used to.
2	I have greater difficulty in making decisions more than I used to.
3	I can't make decisions at all anymore.

14.

0	I don't feel that I look any worse than I used to.
1	I am worried that I am looking old or unattractive.
2	I feel there are permanent changes in my appearance that make me look unattractive
3	I believe that I look ugly.

15.

0	I can work about as well as before.
1	It takes an extra effort to get started at doing something.
2	I have to push myself very hard to do anything.
3	I can't do any work at all.

16.

0	I can sleep as well as usual.
1	I don't sleep as well as I used to.
2	I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3	I wake up several hours earlier than I used to and cannot get back to sleep.

17.

0	I don't get more tired than usual.
1	I get tired more easily than I used to.
2	I get tired from doing almost anything.
3	I am too tired to do anything.

18.

0	My appetite is no worse than usual.
1	My appetite is not as good as it used to be.
2	My appetite is much worse now.
3	I have no appetite at all anymore.

19.

0	I haven't lost much weight, if any, lately.
1	I have lost more than five pounds.
2	I have lost more than ten pounds.
3	I have lost more than fifteen pounds.

20.

0	I am no more worried about my health than usual.
1	I am worried about physical problems like aches, pains, upset stomach, or constipation.
2	I am very worried about physical problems and it's hard to think of much else.
3	I am so worried about my physical problems that I cannot think of anything else.

21.

0	I have not noticed any recent change in my interest in sex.
1	I am less interested in sex than I used to be.
2	I have almost no interest in sex.
3	I have lost interest in sex completely.

INTERPRETING THE BECK DEPRESSION INVENTORY

Now that you have completed the questionnaire, add up the score for each of the twenty-one questions by counting the number to the right of each question you marked. The highest possible total for the whole test would be sixty-three. This would mean you circled number three on all twenty-one questions. Since the lowest possible score for each question is zero, the lowest possible score for the test would be zero. This would mean you circles zero on each question. You can evaluate your depression according to the Table below.

Total Score	Levels of Depression
1-10	These ups and downs are considered normal
11-16	Mild mood disturbance
17-20	Borderline clinical depression
21-30	Moderate depression
31-40	Severe depression
over 40	Extreme depression

TO ASSESS THE SEVERITY OF ANXIETY SYMPTOMS: HAMILTON ANXIETY SCALE

Hamilton Anxiety Rating Scale (HAM-A)

Reference: **Hamilton M. The assessment of anxiety states by rating. Br J Med Psychol 1959; 32:50–55.**

Rating Clinician-rated

Administration time 10–15 minutes

Main purpose To assess the severity of symptoms of anxiety

Population Adults, adolescents and children

Commentary

The HAM-A was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Although the HAM-A remains widely used as an outcome measure in clinical trials, it has been criticized for its sometimes poor ability to discriminate between anxiolytic and antidepressant effects, and somatic anxiety versus somatic side effects. The HAM-A does not provide any standardized probe questions. Despite this, the reported levels of inter-rater reliability for the scale appear to be acceptable.

Scoring

Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe.

Versions

The scale has been translated into: Cantonese for China, French and Spanish. An IVR version of the scale is available from Healthcare Technology Systems.

Additional references

Maier W, Buller R, Philipp M, Heuser I. The Hamilton Anxiety Scale: reliability, validity and sensitivity to change in anxiety and depressive disorders. J Affect Disord 1988;14(1):61–8.

Borkovec T and Costello E. Efficacy of applied relaxation and cognitive behavioral therapy in the treatment of generalized anxiety disorder. J Clin Consult Psychol 1993; 61(4):611–19

Hamilton Anxiety Rating Scale (HAM-A)

Below is a list of phrases that describe certain feeling that people have. Rate the patients by finding the answer which best describes the extent to which he/she has these conditions. Select one of the five responses for each of the fourteen questions.

0 = Not present, 1 = Mild, 2 = Moderate, 3 = Severe, 4 = Very severe.

1 Anxious mood [0] [1] [2] [3] [4]

Worries, anticipation of the worst, fearful anticipation, irritability.

2 Tension [0] [1] [2] [3] [4]

Feelings of tension, fatigability, startle response, moved to tears easily, trembling, feelings of restlessness, inability to relax.

3 Fears [0] [1] [2] [3] [4]

Of dark, of strangers, of being left alone, of animals, of traffic, of crowds.

4 Insomnia [0] [1] [2] [3] [4]

Difficulty in falling asleep, broken sleep, unsatisfying sleep and fatigue on waking, dreams, nightmares, night terrors.

5 Intellectual [0] [1] [2] [3] [4]

Difficulty in concentration, poor memory.

6 Depressed mood [0] [1] [2] [3] [4]

Loss of interest, lack of pleasure in hobbies, depression, early waking, diurnal swing.

7 Somatic (muscular) [0] [1] [2] [3] [4]

Pains and aches, twitching, stiffness, myoclonic jerks, grinding of teeth, unsteady voice, increased muscular tone.

8 Somatic (sensory) [0] [1] [2] [3] [4]

Tinnitus, blurring of vision, hot and cold flushes, feelings of weakness, pricking sensation.

9 Cardiovascular symptoms [0] [1] [2] [3] [4]

Tachycardia, palpitations, pain in chest, throbbing of vessels, fainting feelings, missing beat.

10 Respiratory symptoms [0] [1] [2] [3] [4]

Pressure or constriction in chest, choking feelings, sighing, dyspnea.

11 Gastrointestinal symptoms [0] [1] [2] [3] [4]

Difficulty in swallowing, wind abdominal pain, burning sensations, abdominal fullness, nausea, vomiting, borborygmi, looseness of bowels, loss of weight, constipation.

12 Genitourinary symptoms [0] [1] [2] [3] [4]

Frequency of micturition, urgency of micturition, amenorrhea, menorrhagia, development of frigidity, premature ejaculation, loss of libido, impotence.

13 Autonomic symptoms [0] [1] [2] [3] [4]

Dry mouth, flushing, pallor, tendency to sweat, giddiness, tension headache, raising of hair.

14 Behavior at interview [0] [1] [2] [3] [4]

Fidgeting, restlessness or pacing, tremor of hands, furrowed brow, strained face, sighing or rapid respiration, facial pallor, swallowing, etc.

TO ASSESS THE QUALITY OF LIFE: GENERAL HEALTH QUESTIONNAIRE- 12

General Health Questionnaire (GHQ-12)

Name: _____ **Gender:** _____ **Date of assessment:** _____

Contact information: _____

Instructions: Please choose one response for each question.

1. Been able to concentrate well on what you're doing?

○ 0 Always	○ 0 Frequently	○ 1 Sometimes	○ 1 Never

2. Felt you were playing a useful part in things?

○ 0 Always	○ 0 Frequently	○ 1 Sometimes	○ 1 Never

3. Felt capable of making decisions about things?

○ 0 Always	○ 0 Frequently	○ 1 Sometimes	○ 1 Never

4. Been able to enjoy your normal day to day activities?

○ 0 Always	○ 0 Frequently	○ 1 Sometimes	○ 1 Never

5. Been able to face up to your problems?

○ 0 Always	○ 0 Frequently	○ 1 Sometimes	○ 1 Never

6. Been feeling reasonably happy, all things considered?

○ 0 Always	○ 0 Frequently	○ 1 Sometimes	○ 1 Never

7. Lost much sleep over worry?

○ 0 Never	○ 0 Sometimes	○ 1 Frequently	○ 1 Always

8. Felt constantly under strain?

○ 0 Never	○ 0 Sometimes	○ 1 Frequently	○ 1 Always

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9. Felt you couldn't overcome your difficulties?

0	0	1	1
Never	Sometimes	Frequently	Always

10. Been feeling unhappy and depressed?

0	0	1	1
Never	Sometimes	Frequently	Always

11. Been losing confidence in yourself?

0	0	1	1
Never	Sometimes	Frequently	Always

12. Been thinking of yourself as a worthless person?

0	0	1	1
Never	Sometimes	Frequently	Always

Total score: _____

Scoring and interpretation

Each item can get a score of 0 if options 1 or 2 are chosen or 1 if options 3 and 4 are selected, getting from its sum a total score ranging from 0 to 12.

The cut-off point set for the general population was 3, considering those subjects with scores greater than or equal to 3 are more prone to potential psychiatric morbidity cases.

Higher scores indicate a greater likelihood of health issues. They may also suggest the need for further assessment or intervention.

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6. ASSESSMENT DURING STUDY PERIOD:

After recruiting, date of the subjects will be recorded pre and post interventions (for 10 days) by objective measures

7. SELECTION CRITERIA:

7.1 Inclusion Criteria:

- Above 18 years and below 65 years
- mild and moderate Anxiety and Depression disorder
- Both male and female patients
- under medication for Anxiety and Depression disorder

7.2 Exclusion Criteria:

- Recent surgery
- Cancer
- Contagious skin disease
- Congenital anomalies
- Auto immune disease
- Sexually transmitted diseases
- Severe anxiety and depression
- Bipolar disorders
- Schizophrenia
- Co-morbidities

8. STUDY DESIGN:

Pilot studies of 10 subjects are selected to undergo acupuncture treatment for 10 days, if they satisfy the selection criteria and consent to participate in the study.

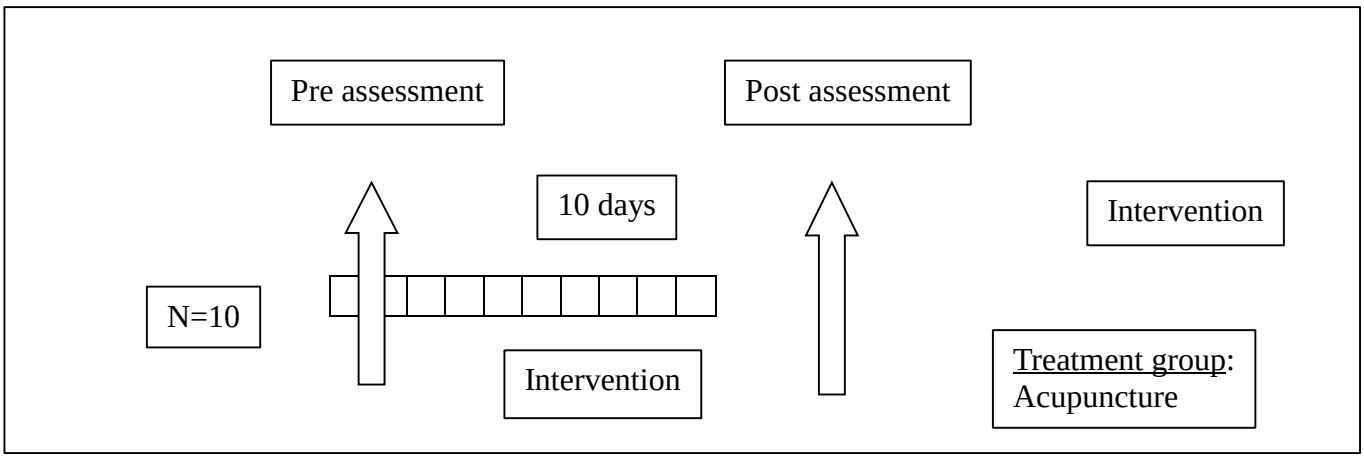
Duration of intervention: 10 days
Sampling method: simple random sampling based on inclusion criteria
Sample size: 10

9. STUDY PLAN:

9.1 SUBJECTS

10 patients who are attending GNCYMC&H, Mysore OPD with diagnosis of Anxiety and Depression satisfying the selection criteria will be recruited for the study after they have been given informed consent to participate in the study.
N=10 10 days Intervention Pre assessment Post assessment Treatment group:

Acupuncture Intervention @



9.2 STUDY DURATION: 10 Days

9.3 INTERVENTION:

Group (N=10) will receive acupuncture for the duration of 20 minutes for 10 days along with the conventional medicine (if any) which will be tapered according to the condition of the subject. Comparison of Pre-intervention and Post-intervention values of Beck's Depression inventory, Hamilton anxiety Scale and General Health Questionnaire (GHQ-12) are made which determines the efficacy of acupuncture in the treatment of anxiety and depression.

9.4 PROCEDURE OF INTERVENTION:

ACUPUNCTURE

1. Patient Preparation

- Explain the procedure in detail and obtain informed consent.
- Assess the patient for any contraindications, including skin infections, lesions, or bleeding disorders.
- Ensure the treatment area is accessible by removing any clothing or jewelry.

2. Method of Application

- Position the patient comfortably, usually in a supine for the treatment.
- Cleanse the selected acupuncture points using alcohol or an appropriate antiseptic.
- Insert sterilized acupuncture needles at the designated points to the recommended depth according to acupuncture guidelines.
- Retain the needles in situ for approximately 20 minutes, monitoring the patient for comfort and any adverse reactions.
- After the treatment duration, carefully remove the needles and dispose of them following standard protocol.

3. POINTS LOCATION AND INDICATION

1. GV 20 (Baihui)

- Location: On the midline of the head, at the intersection of the line connecting the apex of both ears with the mid-sagittal line of the head (basically the crown/top of the head).
- Indications: powerful sedative and tranquilizing effects, schizophrenia, headache, vertigo, insomnia, neurosis, mental anxiety, loss of memory.

2. Ex-6 (Sishencong)

- Location: A group of 4 points located 1 cun (about the width of the patient's thumb) anterior, posterior, and lateral to GV 20.
- Indications: All types of the mental disorders, forgetfulness, vertigo, schizophrenia, addiction, anxiety.

3. Ex-1 (Yintang)

- Location: On the dorsum (back) of the hand, in the webbing between the fingers. There are 8 points total, located in the depressions just proximal to the webs between each pair of fingers (excluding the thumb).
- Indications: frontal headache, migraine,mental disorders, vertigo, ophthalmic diseases, labyrinthitis.

4. LI 11 (Quchi)

- Location: At the lateral end of the transverse cubital crease, midway between cubital crease medial and the lateral epicondyle of the humerus.
- Indications: the best immunity improving point, tonification and homeostatic point, Malaise, weakness and neurasthenia,

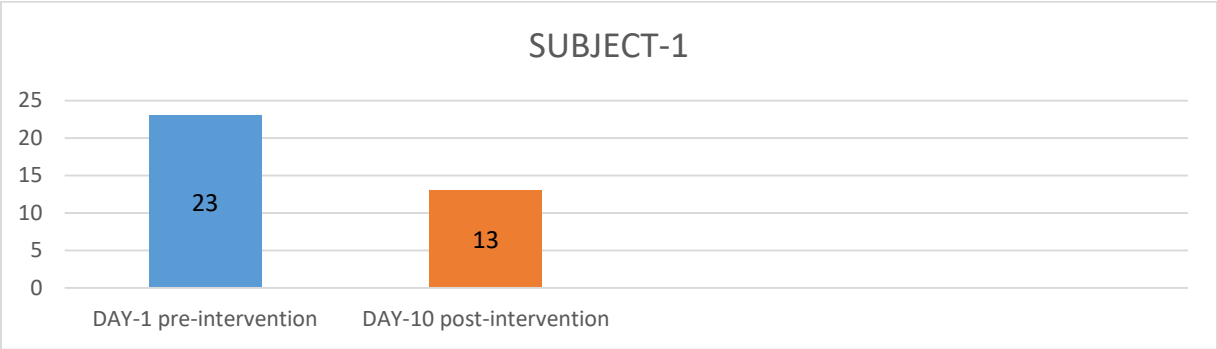
5. P- 6 (Neiguan)

- Location: On the anterior forearm, 2 cun proximal to the wrist crease, between the tendons of palmaris longus and flexor carpi radialis.
- Indications: Palpitation, angina pectoris, anxiety, nausea, gastritis [23] [24] [25] [11]

10. Observation:

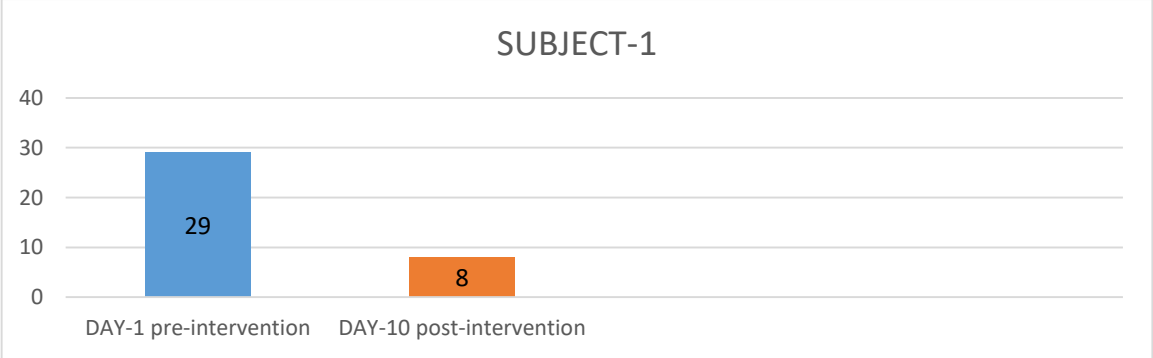
Graphical representation of individual subjects

Hamilton Anxiety Scale of subject-1



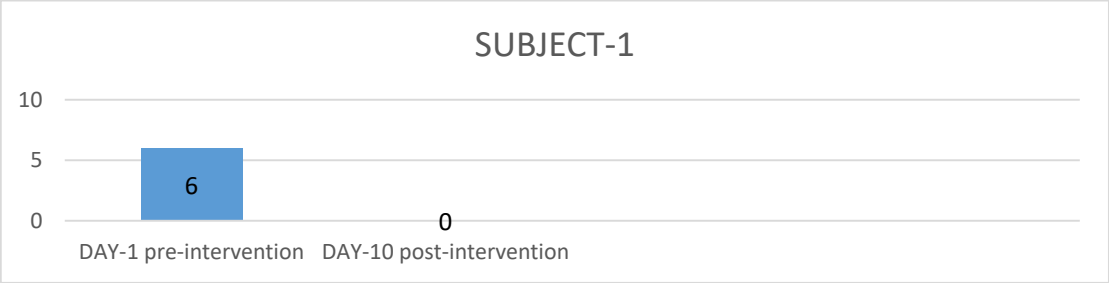
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 1



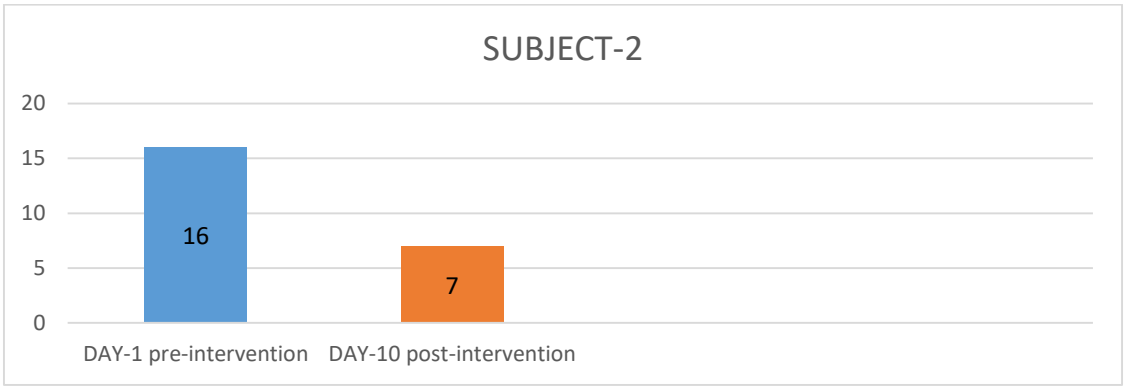
The above graph shows the decrease in the severity depression symptoms after the intervention.

General Health Questionnaire of subject-1



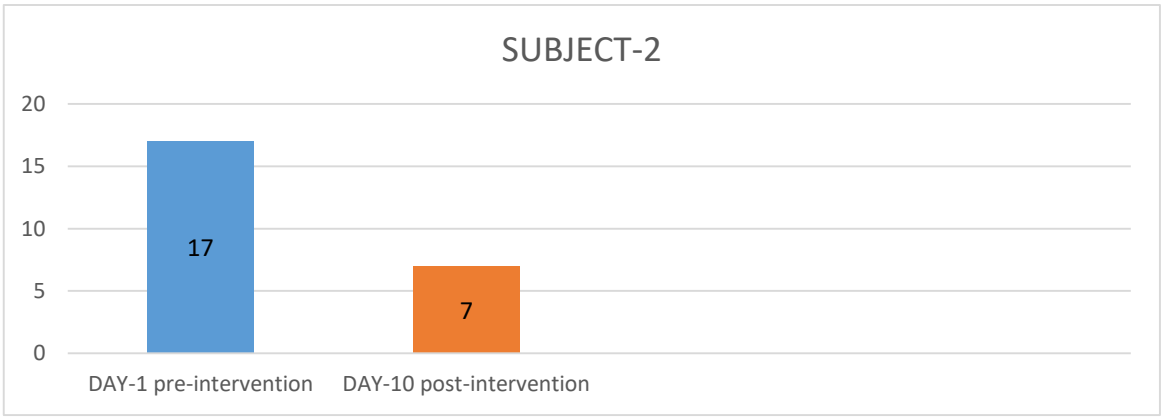
The above graph shows the decrease in the severity of health issues after the intervention.

Hamilton Anxiety Scale of subject-2



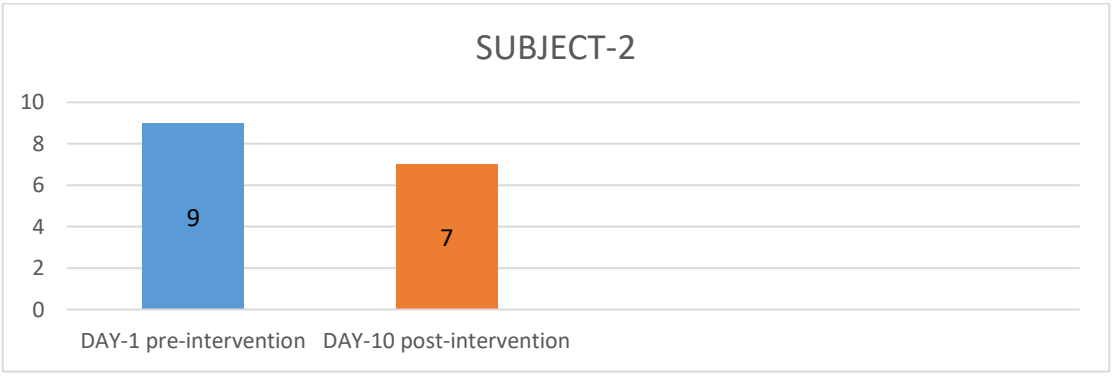
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 2



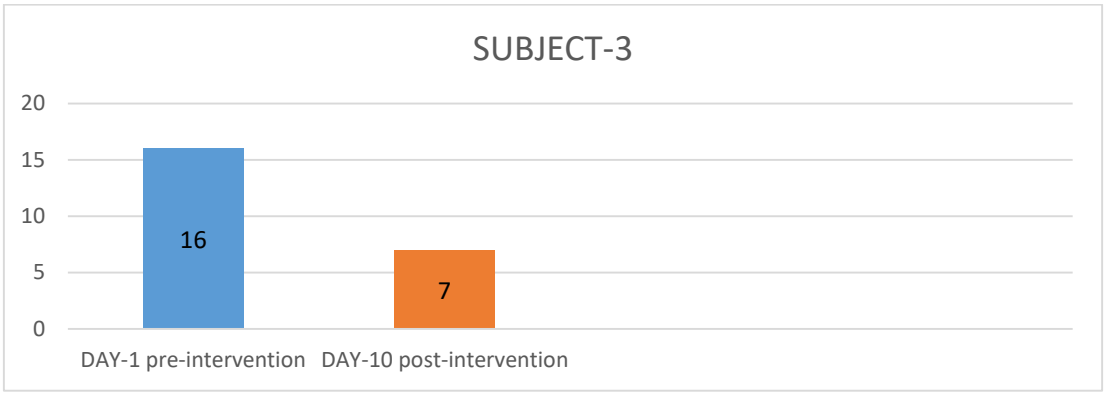
The above graph shows the decrease in the severity of depressive symptoms after the intervention.

General Health Questionnaire of subject- 2



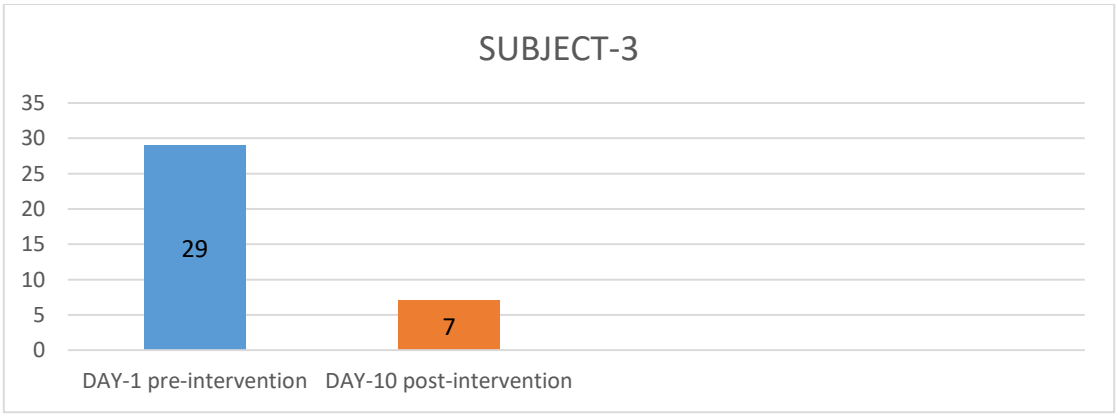
The above graph shows the decrease in the severity of health issues after the intervention.

Hamilton Anxiety Scale of subject- 3



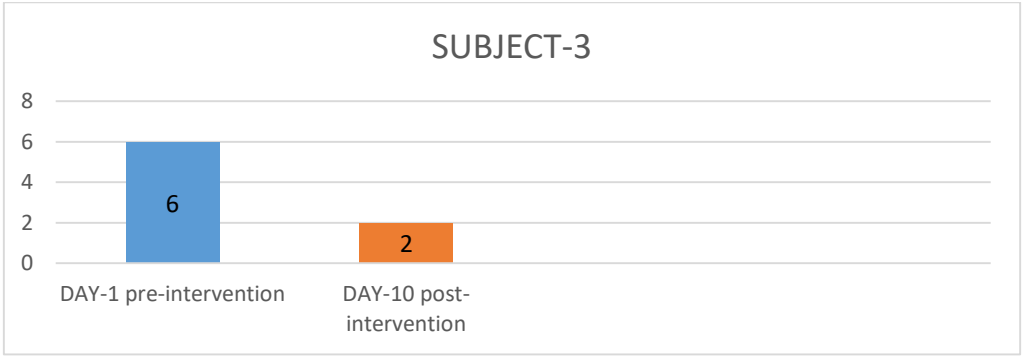
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 3



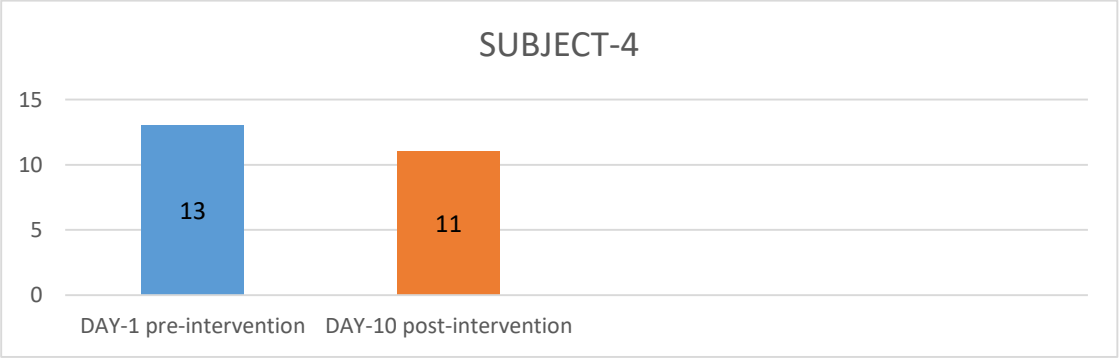
The above graph shows the decrease in the severity of depression symptoms after the intervention.

General Health Questionnaire of subject- 3



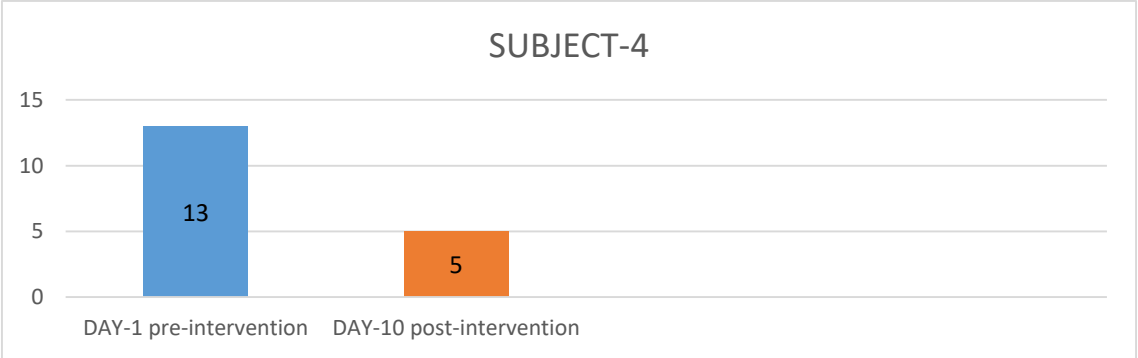
The above graph shows the decrease in the severity of health issues after the intervention

Hamilton Anxiety Scale of subject- 4



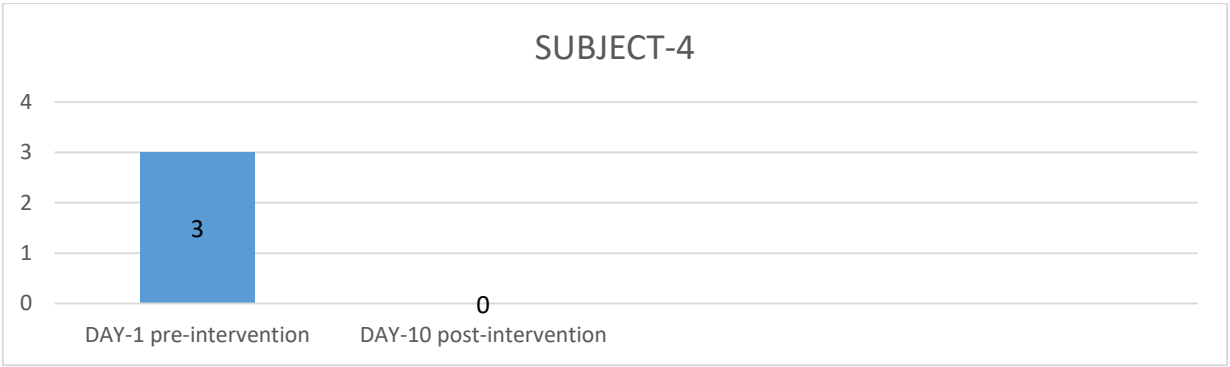
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 4



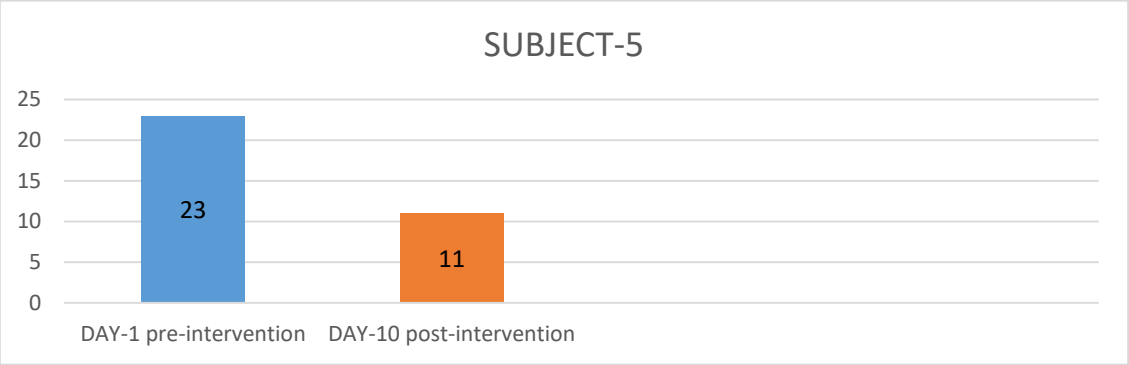
The above graph shows the decrease in the severity of depression symptoms after the intervention.

General Health Questionnaire of subject- 4



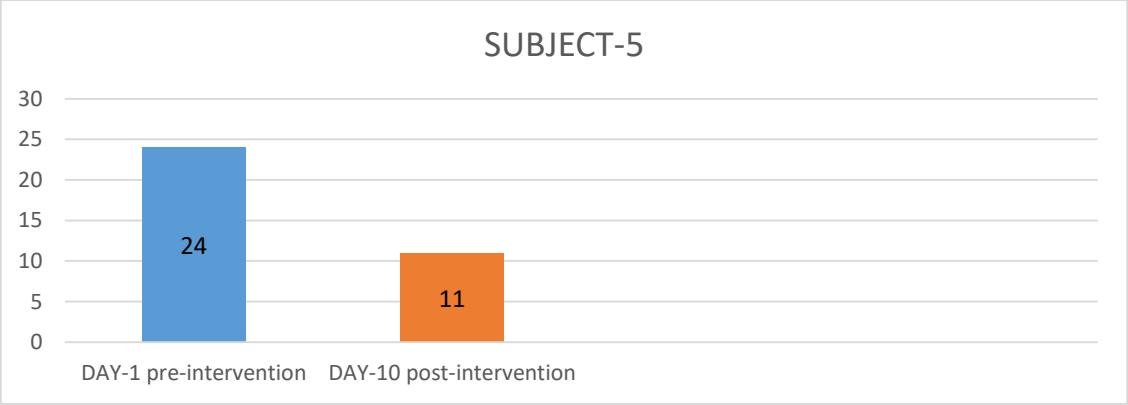
The above graph shows the decrease in the severity of health issues after the intervention.

Hamilton Anxiety Scale of subject- 5



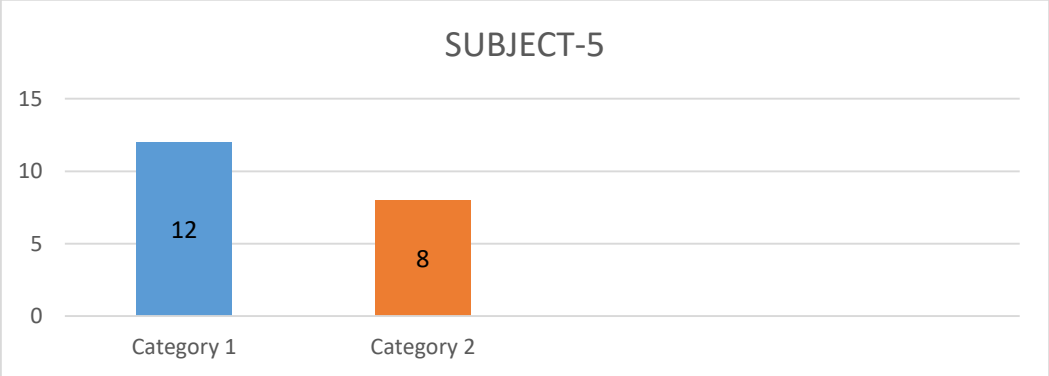
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 5



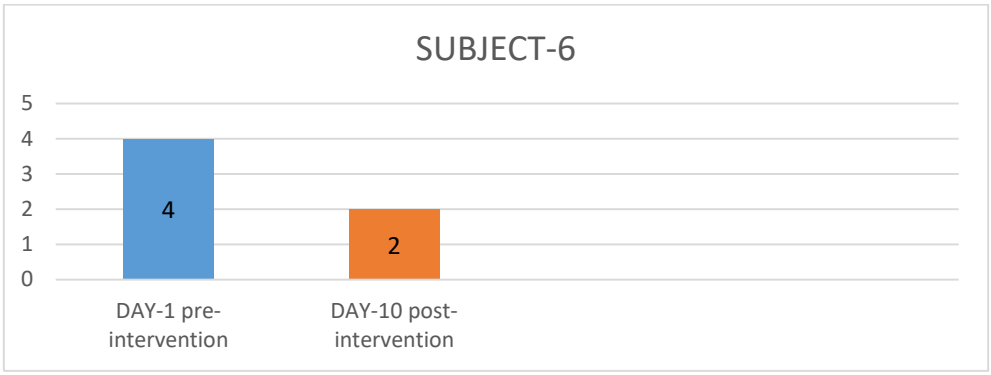
The above graph shows the decrease in the severity of depression symptoms after the intervention.

General Health Questionnaire of subject- 5



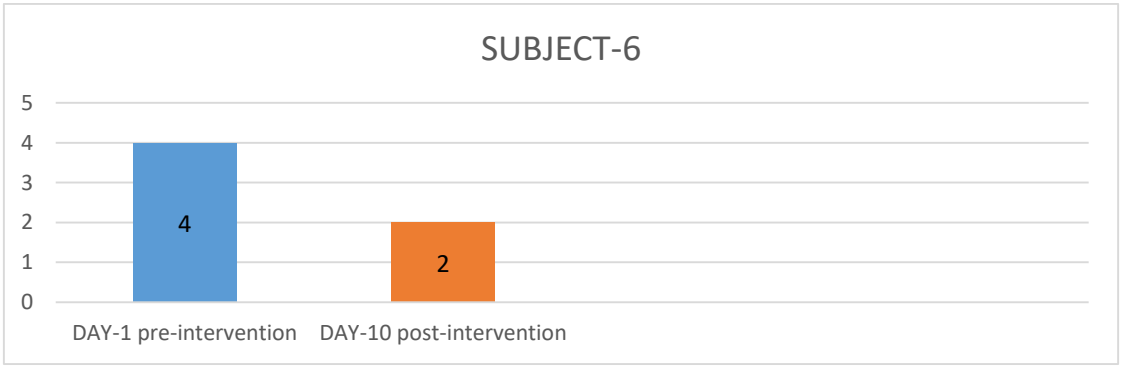
The above graph shows the decrease in the severity of health issues after the intervention.

Hamilton Anxiety Scale of subject- 6



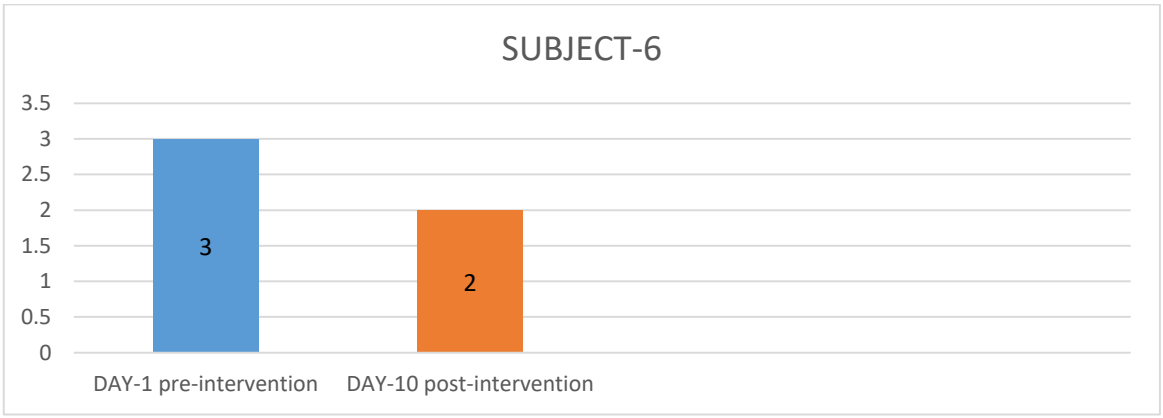
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 6



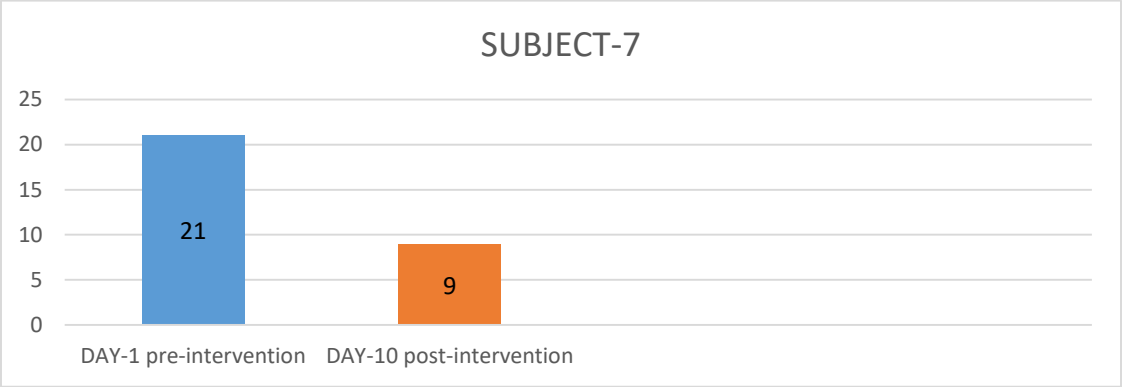
The above graph shows the decrease in the severity of depression symptoms after the intervention.

General Health Questionnaire of subject- 6



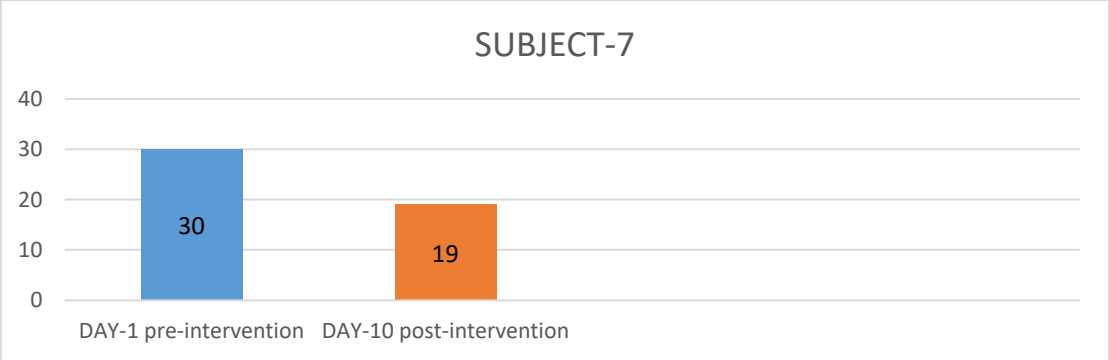
The above graph shows the decrease in the severity of health issues after the intervention.

Hamilton Anxiety Scale of subject- 7



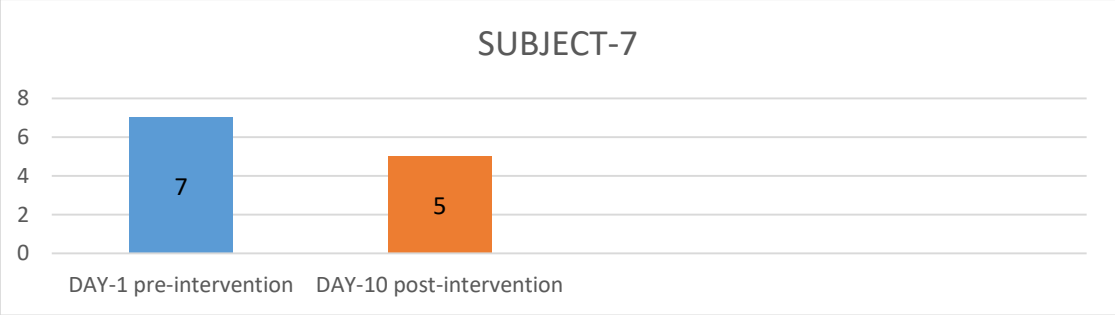
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 7



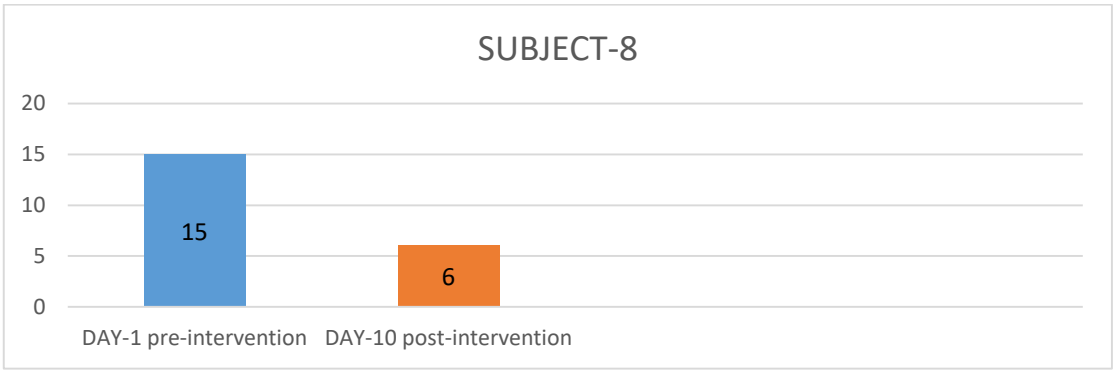
The above graph shows the decrease in the severity of depression symptoms after the intervention.

General Health Questionnaire of subject- 7



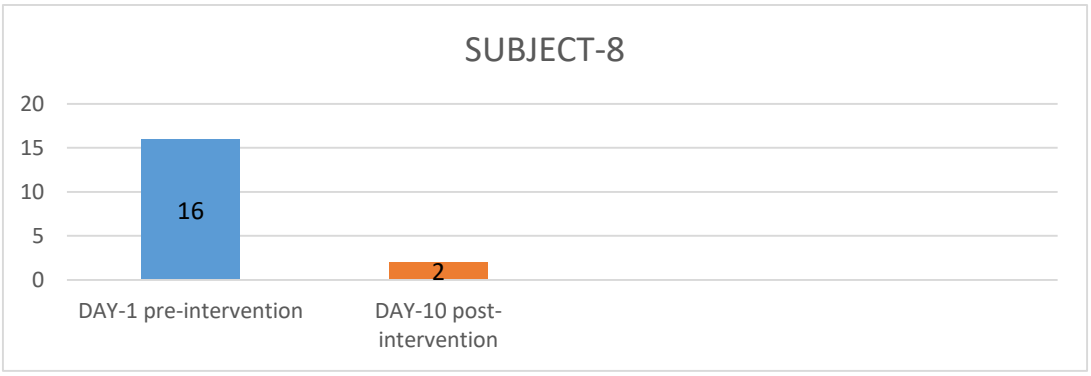
The above graph shows the decrease in the severity of health issues after the intervention.

Hamilton Anxiety Scale of subject- 8



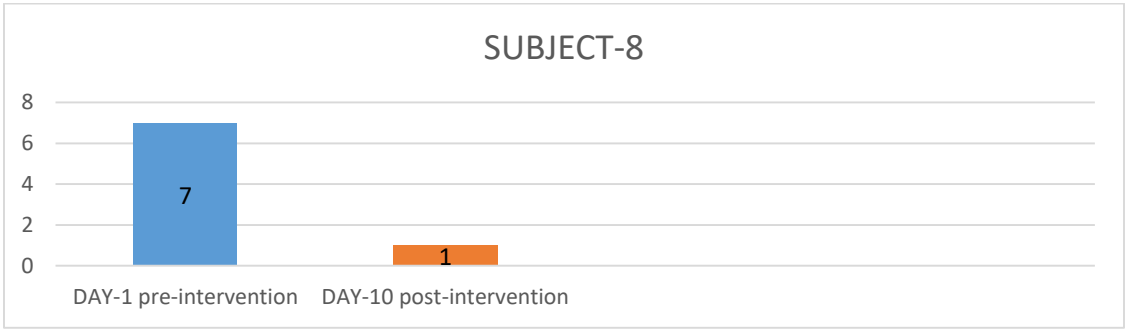
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 8



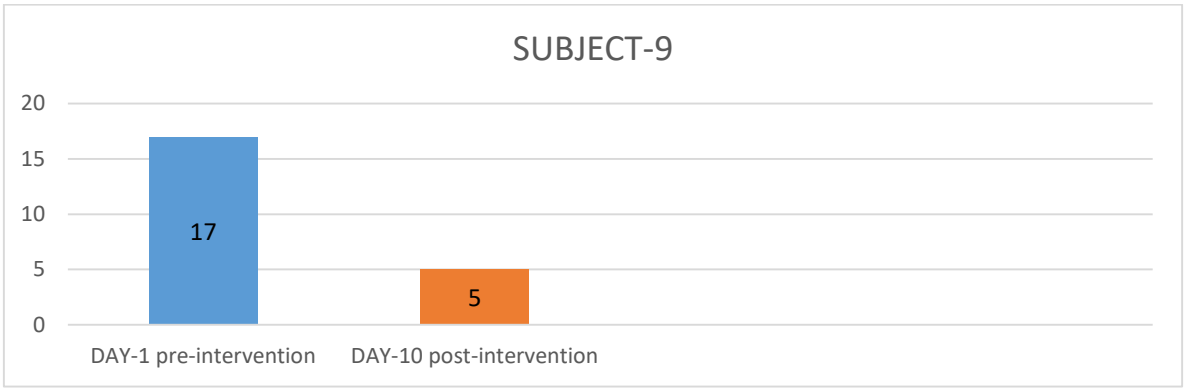
The above graph shows the decrease in the severity of depression symptoms after the intervention.

General Health Questionnaire of subject- 8



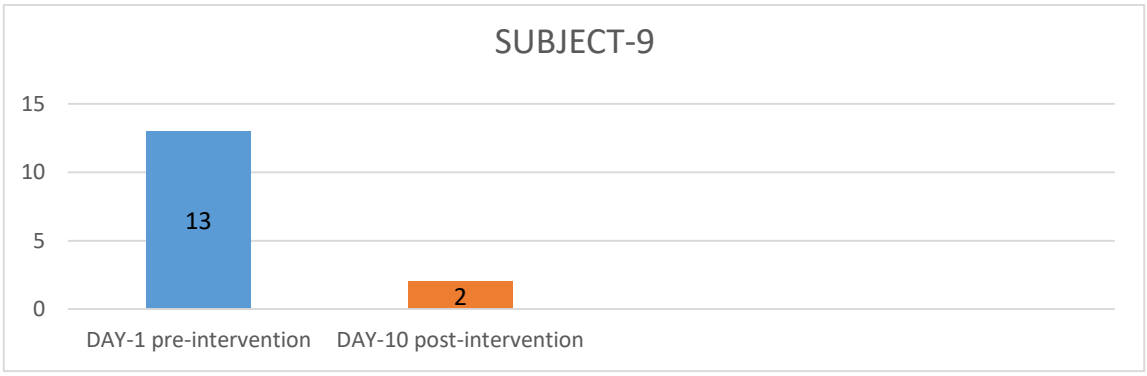
The above graph shows the decrease in the severity of health issues after the intervention.

Hamilton Anxiety Scale of subject- 9



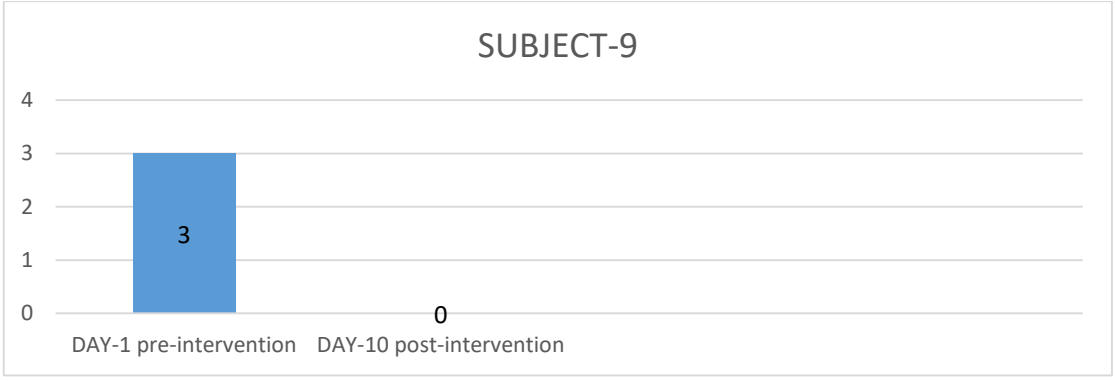
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 9



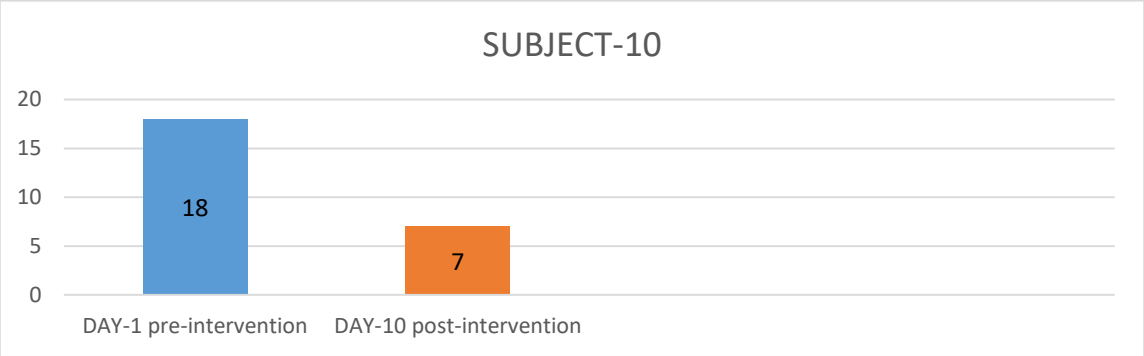
The above graph shows the decrease in the severity of depression symptoms after the intervention.

General Health Questionnaire of subject- 9



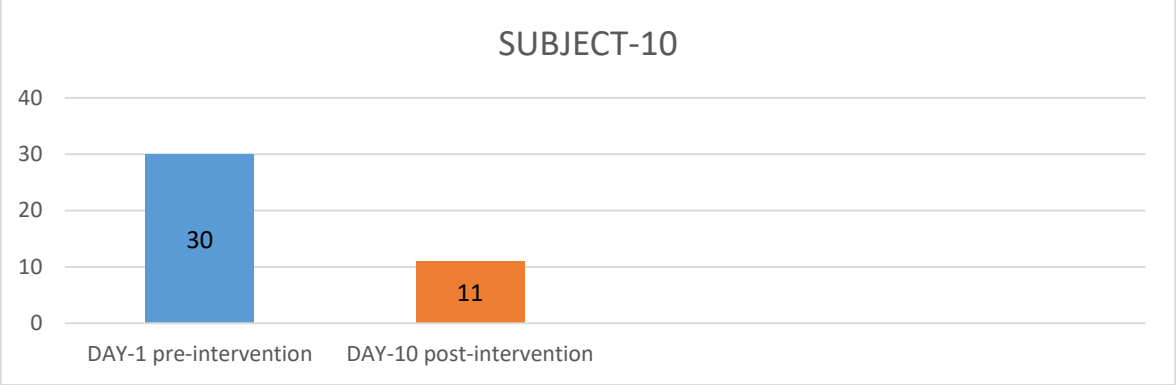
The above graph shows the decrease in the severity of health issues after the intervention.

Hamilton Anxiety Scale of subject- 10



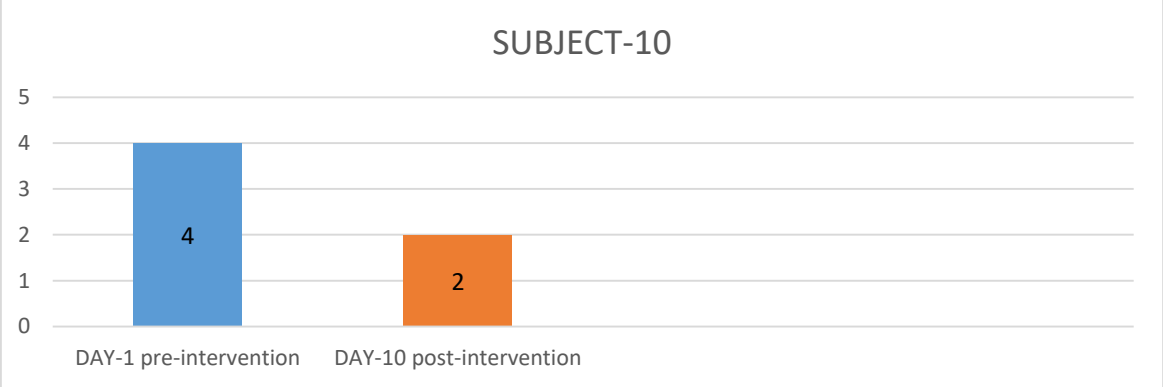
The above graph shows the decrease in the severity of anxiety symptoms after the intervention.

Beck's Depression Inventory of subject- 10



The above graph shows the decrease in the severity of depression symptoms after the intervention.

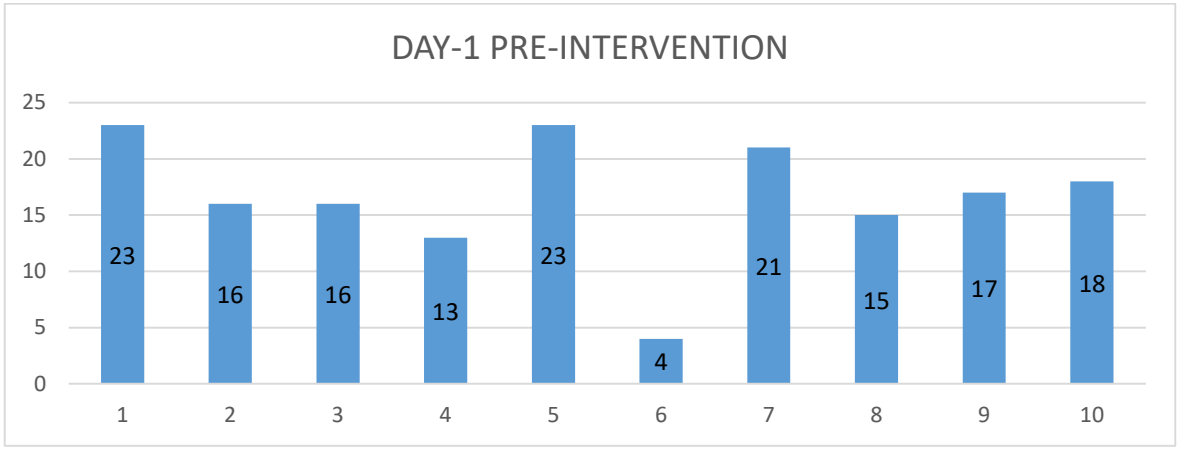
General Health Questionnaire of subject- 10

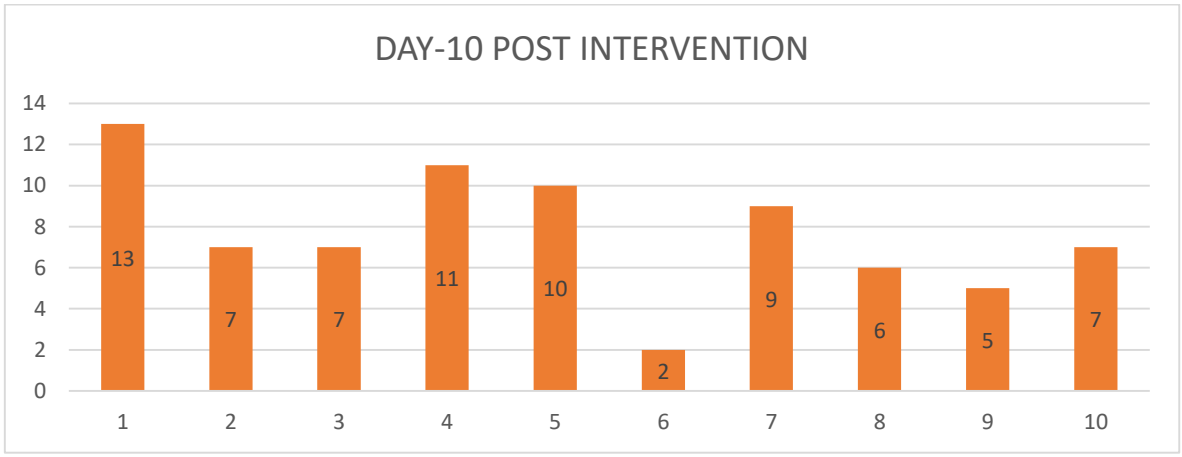


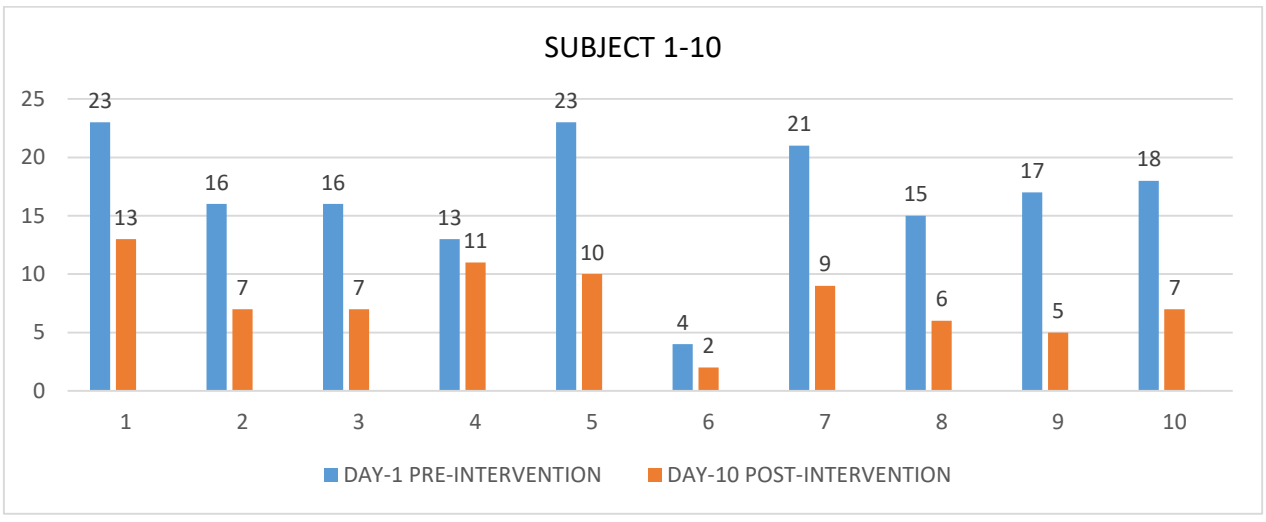
The above graph shows the decrease in the severity of health issues after the intervention.

DATA OF ALL SUBJECTS:

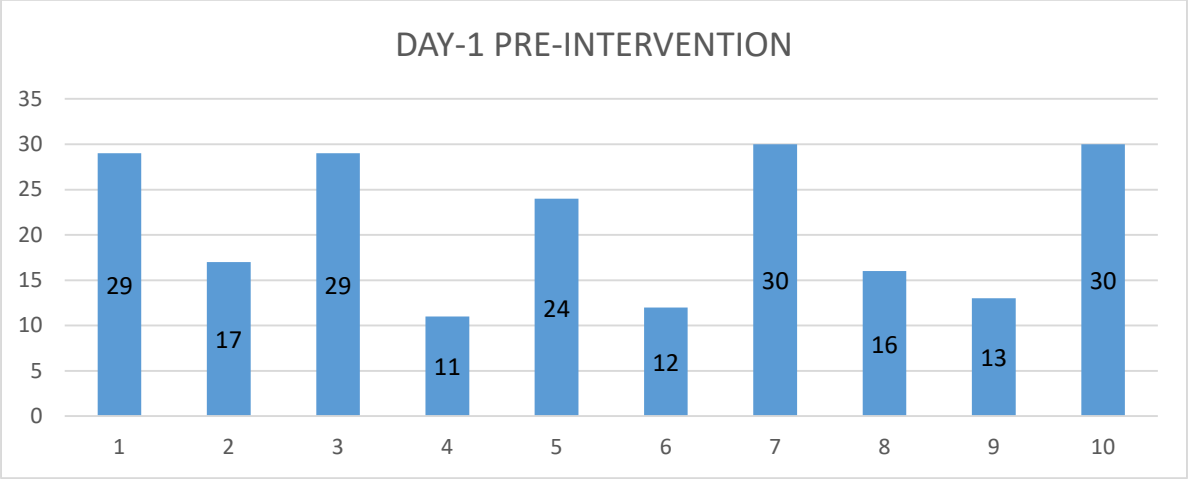
HAMILTON ANXIETY SCALE

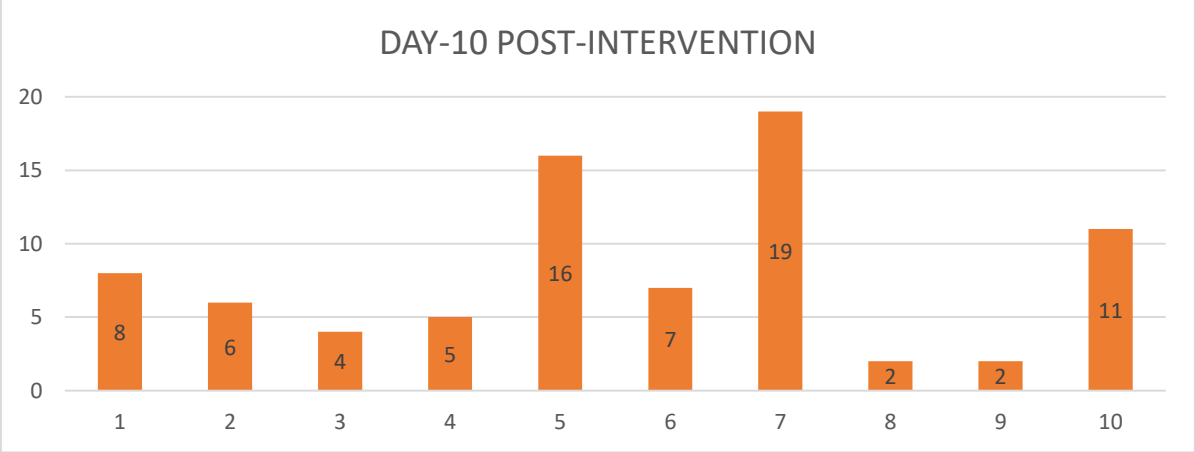


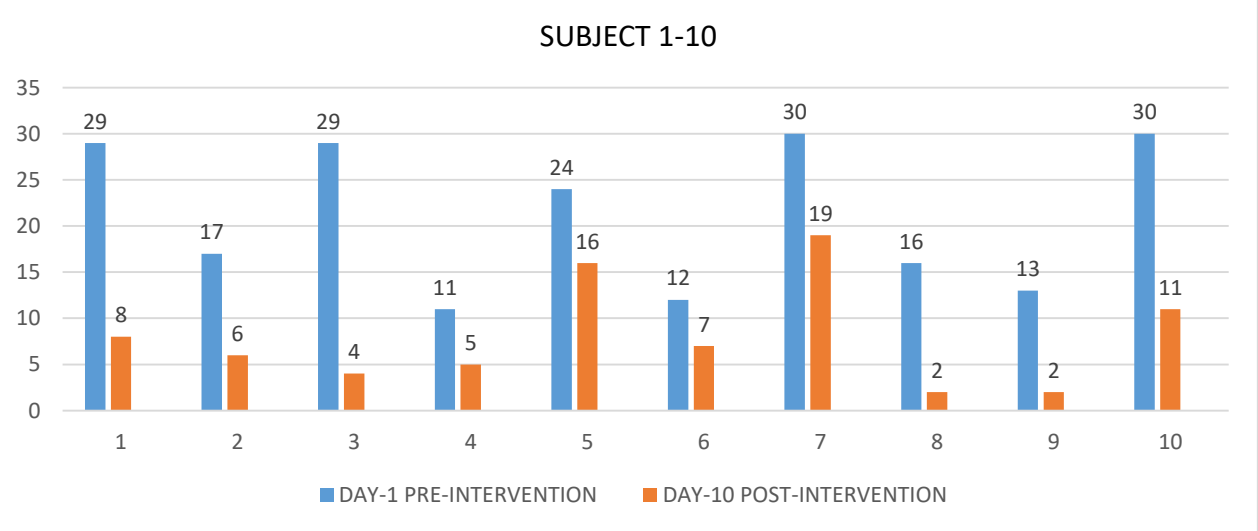




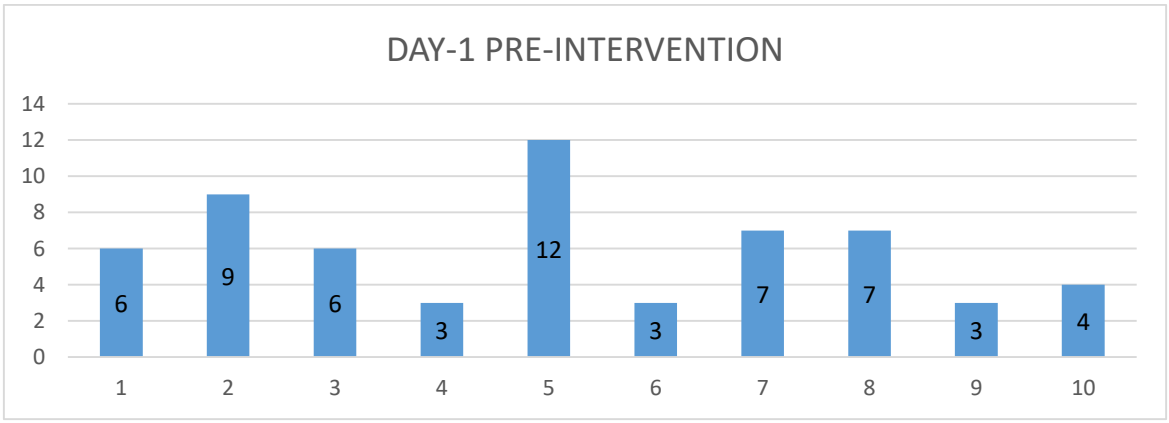
BECK'S DEPRESSION INVENTORY

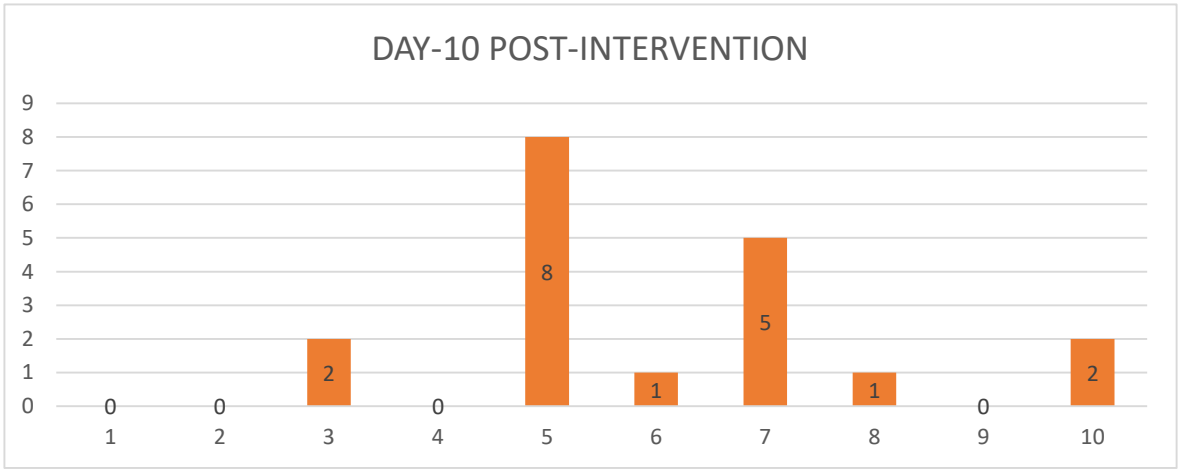


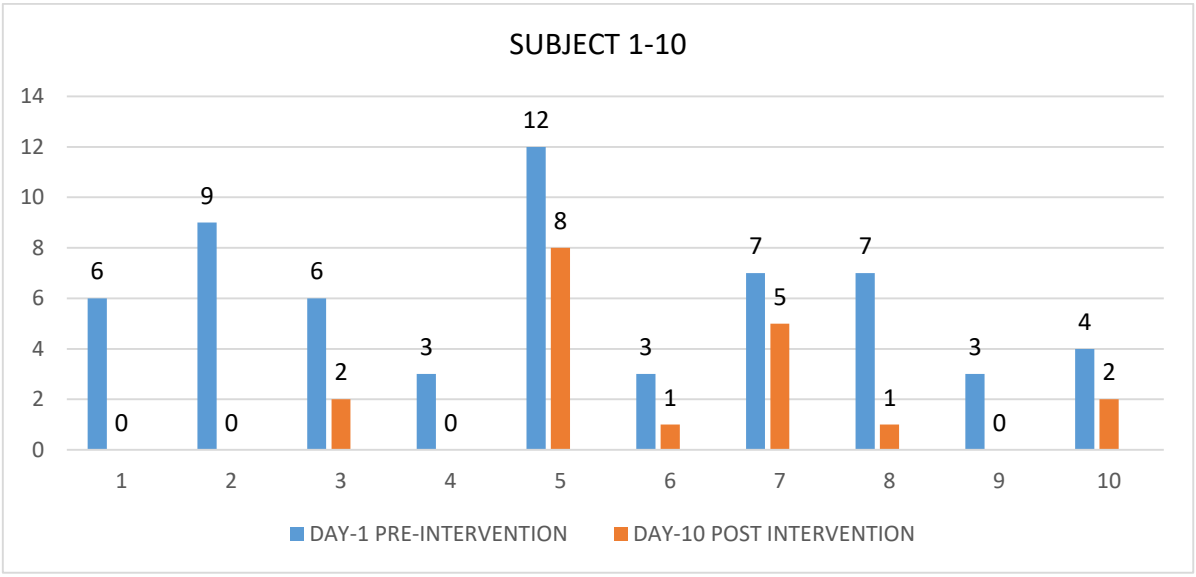




GENERAL HEALTH QUESTIONNAIRE- 12







Distribution:

In the present study 10 participants were registered who underwent the interventions for 10 days.

Among these 10 subjects
Gender wise distribution:

- Male subjects- 4
- Female subjects- 6

Age wise distribution:

- 18-20 years- 8
- 21-25 years- 2

All the subjects were informed about the present study and the written consent was obtained for the same prior to the intervention.

11. RESULT:

This report presents the results of paired t-tests and a chi-square test conducted to evaluate changes in anxiety, depression, general health questionnaire (GHQ) scores, and GHQ categories before and after an intervention. The paired t-tests assessed differences in mean scores for three variables: Anxiety, Depression, and GHQ. Additionally, a chi-square test examined the association between GHQ categories and time points (pre- and postintervention). Allpairedt-testsshowedstatisticallysignificantimprovements post-intervention ($p < 0.001$), while the chi-square test indicated no significant association ($p = 0.096$).

This statistical analysis evaluates the effectiveness of an intervention by comparing pre- and post-intervention scores for anxiety, depression, and general health (GHQ). Paired t-tests were used to assess changes in continuous variables, and a chi-square test was applied to examine the association between GHQ categorical outcomes and time points. The analysis aims to determine whether the intervention led to significant improvements in the measured outcomes.

The study involved 10 participants, with measurements taken before (pre) and after (post) the intervention. The following variables were analyzed using paired t-tests:

- Anxietyscores(ANXIETYPRE,ANXIETYPOST)Depressionscores(DEPRESSIONPRE,D
- General Health Questionnaire scores (GHQPRE,GHQPOST) Each paired t-test compared pre- and post-intervention means, with a significance level of $\alpha = 0.05$. Additionally, a chi-square test was conducted to assess the association between GHQ categories (Possible Case of Distress vs. Normal) and time points (Pre vs. Post). Fisher's Exact Test was also computed due to small cell counts.

Paired T-Tests

The paired t-tests revealed significant reductions in all measured variables postintervention. The results are summarized in the tables below.

Table 1: Paired Samples Statistics and Test for Anxiety Scores

	Mean	N	Std. Deviation	Std. Error Mean
Paired Samples Statistics				
ANXIETY$_P$*RE*	16.6000	10	5.5618	1.7588
ANXIETY$_P$*OST*	7.7000	10	3.1640	1.0006

Paired Samples Test				
	Mean	Std. Deviation	t	df
Sig. (2-tailed)				
ANXIETY0.000*PRE* − *ANXIETY*$_P^{OST}$	8.9000	3.9001	7.216	9

Table 2: Paired Samples Statistics and Test for Depression Scores

	Mean	N	Std. Deviation	Std. Error Mean
Paired Samples Statistics				
DEPRESSION$_P$*RE*	21.1000	10	8.0616	2
DEPRESSION$_P$*OST*	8.000	10	5.7349	1

Paired Samples Test			
	Mean	Std. Deviation	t
Sig. (2-tailed)			
DEPRESSION0.000$_P$*RE* − *DEPRESSION*$_P$*OST*	13.1000	6.6203	6.254

Table 3: Paired Samples Statistics and Test for GHQ Scores

	Mean	N	Std. Deviation	Std. Error Mean
Paired Samples Statistics				
GHQ$_P$*RE*	6.0000	10	2.9439	0.9309
GHQ$_P$*OST*	1.9000	10	2.6437	0.8360

Paired Samples Test				
	Mean	Std. Deviation	t	df
Sig. (2-tailed)				
GHQ$_P$*RE* − *GHQ*$_P$*OST*	4.1000	2.2828	5.680	9
0.000				

Table 4: GHQCAT ∗ TIMEPOINTCrosstabulation

GHQ$_{C}AT$		TIME$_{P}$ $OINT$ PRE	TIME$_{P}$ $OINT$ POST	Total
POSS CASE OF DISTRESS	Count	6	2	8
	% within TIME$_{P}OINT$	60.0%	22.2%	42.1%
NORMAL	Count	4	7	11
	% within TIME$_{P}OINT$	40.0%	77.8%	57.9%
Total	Count	10	9	19
	% within TIME$_{P}OINT$	100.0%	100.0%	100.0%

The chi-square test examined the association between GHQ categories (Possible Case of Distress vs. Normal) and time points (Pre vs. Post). The crosstabulation and test results are presented below.

Table 5: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2.773	1	.096	
Fisher's Exact Test				.170

The paired t-tests indicate that the intervention significantly reduced anxiety (mean difference = 8.90, $p < 0.001$), depression (mean difference = 13.10, $p < 0.001$), and GHQ scores (mean difference = 4.10, $p < 0.001$), suggesting improvements in mental health and general well-being. The chi-square test ($p = 0.096$) and Fisher's Exact Test ($p = 0.170$) showed no significant association between GHQ categories and time points, possibly due to the small sample size or limited categorical variation.

The intervention led to statistically significant improvements in anxiety, depression, and GHQ scores ($p < 0.001$ for all). However, the chi-square test did not detect a significant association between GHQ categories and time points ($p = 0.096$).
Larger studies may be needed to confirm these findings.

12. DISCUSSION:

Acupuncture is one of the most sought treatments of naturopathy in cases of mild to moderate anxiety and depression. In this study we have used acupuncture for reducing anxiety and depressive symptoms in subjects diagnosed with mild to moderate anxiety and depression, and it has given effective results.

Acupuncture was administered to 10 patients of either gender diagnosed with mild to moderate anxiety and depression. The duration of the treatment was 10 days, and by the end of the 10th day, improvement in improving the sleep quality, quality of lifestyle, emotional well-being and sleep quality, reduction in anxiety, and alleviation of depressive symptoms were observed, and it has given effective results.

Naturopathy modalities have proven to be an effective mode of treating chronic psychosomatic disorders. Naturopathy, being a drugless system, emphasizes the self-healing capacity of the individual. It promotes homeostatic mechanisms in the body and mind of individuals. The treatment modalities such as hydrotherapy, acupuncture, massage therapy, aromatherapy, yoga therapy, physiotherapy, fasting therapy and diet, etc., emphasize healing the patient's condition without causing adverse effects.

13. CONCLUSION:

Naturopathic modalities are proven to be an effective mode of treating chronic disorders. Naturopathy being a drugless system emphasizes on self-healing capacity of the individual. It promotes hemostatic mechanism in the body of individuals.

The treatment modalities such as Hydro therapy, Acupuncture, Manipulative therapy, Aromatherapy, Yoga therapy, Physiotherapy, Fasting therapy and Diet etc. emphasizes on healing the patient condition without causing adverse effects.

In our study we have used Acupuncture treatment modality, which is of great value in improving the sleep quality and quality of lifestyle in anxiety and depression patients. The same has been observed in this study both statistically and clinically. The subjects showed good responses like improvement in Beck's Depression inventory, Hamilton anxiety Scale and General Health Questionnaire (GHQ-12) suggest that quality of life was increased. Thus proving to be effective in conditions of anxiety and depression.

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