

# **Gardening: A Feasibility Testing of Intervention for Sleep and Emotional Regulation among School going Adolescents**



by

**Syeda Qurat-ul-ain Naqvi  
BSP191007**

**A Research Thesis submitted to the  
DEPARTMENT OF PSYCHOLOGY  
in partial fulfillment of the requirements for the degree of  
BACHELOR OF SCIENCE IN PSYCHOLOGY**

**Faculty of Management and Social Sciences  
Capital University of Science & Technology,  
Islamabad  
Feb, 2023**

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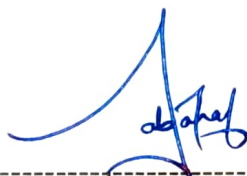
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## CERTIFICATE OF APPROVAL

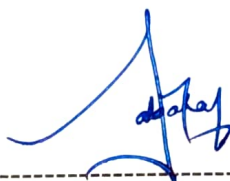
It is certified that the Research Thesis titled “ **Gardening: A Feasibility Testing of Intervention for Sleep and Emotion Regulation among School going Adolescents**” carried out by **Syeda Quratulain Naqvi**, Reg. No. **Bsp191007**, under the supervision of **Dr. Sabahat Haqqani**, Capital University of Science & Technology, Islamabad, is fully adequate, in scope and in quality, as a Research Thesis for the degree of **BS Psychology**.

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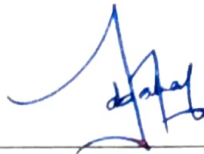
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**Registration # BSP191007**

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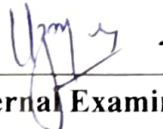
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*This thesis is wholeheartedly dedicated to my parents, especially my father who has made it possible for me through his moral, spiritual, emotional, and financial support.*

## DECLARATION

It is declared that this is an original piece of my own work, except where otherwise acknowledged in text and references. This work has not been submitted in any form for another degree or diploma at any university or other institution for tertiary education and shall not be submitted by me in the future for obtaining any degree from this or any other University or Institution.



**Syeda Quratulain Naqvi**

**Bsp191007**

**February 2023**

## **ACKNOWLEDGEMENTS**

First and foremost, I would like to praise and thank Allah, the Almighty, for bestowing many blessings, knowledge, and opportunities on me, allowing me to finally complete the thesis. I'd want to convey my gratitude and appreciation to my father, Syed Qamar-ul-Hassan Naqvi, who delivered this intervention, as well as his guidance, support, and encouragement during this study. I am grateful to my supervisor, Dr. Sabahat Haqqani, for her valuable assistance, dedication, and overall insights in this field, which have made this an inspirational experience for me. She moved me out of my procrastination bubble, helping me to finish my work. I'd also like to thank my participants as well as Islamabad Model School for Boys Rawat for their cooperation. A special thanks to Fatima Zia Abbas, for sharing her knowledge with me. I am grateful to all of my peers who provided emotional support along this journey.



## ABSTRACT

Despite living in the modern era, our bodies are best adapted to and crave nature. In this era adolescents' stress levels have increased, which has triggered many other psychosocial issues including sleep and emotional disturbances. Keeping this in view, a guided self-help, mindful gardening intervention was designed to improve sleep and emotion regulation among school-going adolescents based on the Green Mind Theory and Six Step Model of Nature-Based Therapy. Feasibility testing of the intervention was done on 60 adolescent boys (experimental group= 30 and control group= 30) aged 14 to 16 years recruited through convenient sampling. A pre-post quasi-experimental design was used to pilot test the effect of intervention on sleep and emotion regulation. Emotion Regulation Questionnaire and Cumhuriyet Subjective Sleep Quality Scale were employed. Following the baseline evaluation, adolescents participated in 21-day gardening intervention, after which post-test results were acquired. The results revealed a change in sleep quality (0.001) and emotion regulation's cognitive reappraisal facet (.001) in experimental as well as control group. A number of confounding factors are discussed in this thesis along with probable improvements suggested in the intervention based on results and field observation.

## Table of Contents

<b>DECLARATION</b>	4
<b>CERTIFICATE OF APPROVAL</b>	5
<b>ACKNOWLEDGEMENTS</b>	6
<b>ABSTRACT</b>	7
<b>Chapter 1 - Introduction</b>	10
<b>Literature Review</b>	11
<i>Gardening as an Intervention of Horticulture Therapy</i>	11
<i>Adolescents</i>	12
<i>Sleep Quality during Adolescents</i>	13
<i>Gardening and Sleep Quality</i>	13
<i>Emotion Regulation</i>	14
<i>Sleep and Emotion Regulation</i>	15
<i>Gardening and Emotion Regulation</i>	16
<b>Theoretical framework</b>	16
<b>Rationale</b>	17
<b>Objectives</b>	18
<b>Hypothesis</b>	19
<b>Chapter 2 - Methodology</b>	20
<b>Research Design</b>	20
<b>Population and Sample</b>	20
<b>Sampling Procedures/Techniques</b>	20
<b>Sample Selection Criteria</b>	20
<i>Inclusion</i>	20
<i>Exclusion</i>	21
<b>Measures/Instruments</b>	21
<i>Cumhuriyet Subjective Sleep Quality Scale</i>	21
<i>Emotion Regulation Questionnaire</i>	21
<b>Translation and adaptations of instrument</b>	22
<i>Forward Translation</i>	22

	11
<i>Review of Forward Translation</i>	22
<i>Back Translation</i>	23
<i>Review of back translation</i>	23
<b>Procedures</b>	23
<b>Intervention Development</b>	23
<b>Ethical Considerations</b>	25
<b>Analysis</b>	25
<b>Chapter 3- Results</b>	26
<b>Reliabilities of Scales in Terms of Cronbach's Alpha Reliability (<i>a</i>)</b>	28
<b>Sleep Quality of Intervention Group</b>	37
<b>Emotion Regulation Differences in the Intervention Group and Control Group</b>	40
<b>Chapter 4- Discussion</b>	42
<b>Conclusion</b>	44
<b>Limitations</b>	45
<b>Recommendations</b>	45
<b>References</b>	47
<b>Appendices</b>	56

## Chapter 1 - Introduction

Gardening appears to positively affect both physical and mental well-being (Hine et al., 2008). According to a meta-analysis that looked at all facets of our connection to nature, spending time in nature improves physical conditions (hypertension, cardiac disease, and chronic pain), emotional well-being and decreases feelings of social isolation, helps those with attention disorders, mood disorders, and various forms of anxiety, and lastly, it increases proactive behavior toward environmental issues (Seymour, 2016).

According to several research studies, horticultural activities in schools are beneficial in fostering respect for nature, life skills, academic competence, and pleasant emotional experiences (Waliczek & Zajicek, 1999; Alexander et al., 1995). There has been a lot of focus on the effectiveness of gardening for insomnia symptoms in dementia and Alzheimer's patients. As a result, the effectiveness of the gardening intervention on sleep issues must be evaluated.

Adolescents' growth places a high priority on their ability to sleep well and control their emotions. Various strategies are available to address sleep-related issues. Harm reduction approaches and evidence-based interventions are currently being proposed (Best et al., 2016).

Non-pharmacological interventions are preferred because other sleep-related medications contain sedative ingredients (Substance Abuse and Mental Health Services Administration, 2014). Light therapy, transcutaneous electrical nerve stimulation, and cognitive behavioral therapy were identified as effective non-pharmacological treatments for sleep disturbances in dementia patients in a systematic review and meta-analysis (Mannion et al. 2019). In the United States, one of the non-pharmacological, occupational interventions used in various rehabilitation centers is nature therapy, which includes gardening, which falls under the umbrella of horticultural and nature therapy (Cornille et al., 1987). It is important to comprehend the

mechanisms underlying the advantages of nature-based therapies to assist in implementing programs to enhance well-being. This aids in the comprehension of the health advantages of nature and the development of successful treatments, such as gardening.

## **Literature Review**

This section includes supporting evidence from previous studies on the issue at hand. Below, we discuss gardening's impact on overall well-being using several theories, as well as its relationship to sleep and emotional regulation specifically.

### ***Gardening as an Intervention of Horticulture Therapy***

Clinebell coined the term "ecotherapy," which he defined as "both the healing and the growth that is nurtured by healthy interaction with the earth" (Clinebell, 1996). Then, various theoretical models, such as the Biophilia Hypothesis, Eco-Existential Positive Psychology, Attention Restoration Theory, and Stress Reduction Theory, proposed a link between the human mind and nature (Chaudhury et al. 2020).

A group gardening study in outpatients documented patient well-being outcomes such as satisfaction with the experience as a good combination of exercise, a sense of togetherness, calmness, cheerful feelings, and enthusiasm (Korpela et al., 2008). It is a natural way of connecting with reality and helps to build a connection with nature by involving both the mind and the body to provide a sense of relaxation, mindfulness (Laing, 1960), inner serenity, peacefulness, and tranquillity (Lewis, 1996). The presence of *Mycobacterium vaccae* may cause these effects, a kind of bacteria found in soil that can be used to treat asthma, cancer, depression, phobia, dermatitis, and even TB (Chowdhury, 2022). Because of its antidepressant properties, this bacterium is sometimes known as a "happy bacterium" (Lowry et al., 2007).

Horticultural activities such as gardening provide the physical sensations associated with a sense of strength and achievement (Korpela et al., 2008). Furthermore, participants report less stress after participating in gardening activities (Lehman et al., 2018). A study demonstrated that group gardening provides a sense of accomplishment, validation, and a life skill that will allow them to participate in gardening in the future (Rousseaux, 2017).

Gardening is a popular activity for children and teenagers because it is engaging, according to a qualitative case study by Chawla and colleagues (2014) on 52 American youths engaging in three distinct gardening programs. In interviews, adolescents stated that working in the garden provided them with time to reflect, feel focused, and let go of academic stress (Chawla et al., 2014).

### ***Adolescents***

Adolescence is a time of psychological and social transformation (Vranda et al., 2011). World Health Organization defines adolescence as the period between the age of 10 and 19 years (WHO, 2005). Children often finish elementary school at the start of puberty and begin secondary education, such as middle or high school (Lata, 2016). Due to anatomical, neurological, physiological, and cognitive processes that take place during this time in life, teenagers experience altering patterns in daily life (Coe-Odess et al., 2019). One behavioral change that occurs throughout this time is the sleep patterns and the sleep EEG (Feinberg et al., 2010).

### ***Sleep Quality during Adolescents***

Sleep habits and physiology significantly develop during adolescence, Many teenagers develop a pattern of getting little sleep due to changes in the biological mechanisms that control sleep (Tarokh et al., 2016). As a result, time spent sleeping at night significantly decreased

(Fukuda et al., 2001). According to a meta-analytical study, this age-related influence on adolescents' sleep time is found worldwide. However, Asian adolescents are more likely to experience this effect due to their later bedtimes (than North American adolescents), shorter sleep durations (than European samples), and propensity to report higher rates of daytime sleepiness (Gradisar et al., 2011). This sleep disruption is caused by both external factors, such as extracurricular activities, an excessive amount of homework, media use in the evening, caffeine consumption, and early school start times, as well as internal biological processes, such as the typical shift (delay) in circadian rhythm that occurs in association with puberty (Owens et al., 2017). Another study showed bad sleep quality is correlated with negative life events and negative coping styles (Ren et al., 2021).

### ***Gardening and Sleep Quality***

Gardening is effective for rehabilitating sleep issues, resulting in improved naps, nighttime sleep quality, quantity, and waking after sleep onset in dementia and Alzheimer's patients with insomnia symptoms. (Kim et al., 2007; Sauer, 2016). As an intervention, it has the potential to reduce reliance on sleeping pills while preserving energy levels (Cases et al., 2016) as well as images of the outdoors and artificial plants in hospital rooms have been shown to improve sleep quality and general quality of life in a study of cancer patients (Alitajer & Mostaghim, 2016).

In addition to these direct linkages between gardening and sleep quality, gardening as a form of exercise and meditation can also be a predictor of better sleep quality and duration. To be classified as meditation, the approach must include a clearly defined technique incorporating muscular relaxation, cognitive relaxation, and a self-induced condition while employing a

self-focus skill (Cardoso et al., 2004). Gardening, in this sense, is a type of movement meditation that teaches us to be attentive and present by focusing our feelings, delight, and concentration on digging, planting, pulling or watering (*Mindful Gardening - How to Turn Gardening Into Meditation*, 2019). In an early research study by Manson et al. (1997) meditation was found to enhance slow-wave sleep (SWS) and rapid eye movement (REM) sleep. Meditation has been shown to increase melatonin levels (Tooley et al., 2000). Melatonin and its precursors are used to manage sleep rhythm disorders (Martinez and Lenz, 2010) because it improves total time asleep by advancing circadian cycles of sleep-wake (Kristiaan et al., 2007). Like meditation, gardening is also a natural way to exercise because it makes us use all of the large muscle groups like the back, neck, shoulders, stomach, arms, buttocks, and legs, which are responsible for the majority of the body's calorie-burning (The national gardening association, n.d.). According to a meta-analysis by Uchida and colleagues (2012), regular exercise leads to more consistent and long-lasting sleep improvements that are probably the result of several physiological changes brought on by regular exercise which directly and indirectly impact sleep quality.

### ***Emotion Regulation***

Emotion regulation refers to purposeful or instinctive actions people take to control the emotions they feel, and how they experience or express them (Mauss et al., 2007). There are numerous additional elements than sleep quality that affect emotion regulation such as age, emotion regulation strategies used by mothers of teenagers, parenting style, gender, and social relations (Mulyati et al., 2020). Emotion regulation and mental wellness are closely related (Nyklicek et al., 2011), One of the most significant symptoms of teenage mood and anxiety disorders is the inability to successfully control emotions (APA, 2000). There is scientific agreement that children and adolescents who can control their emotions are better able to control



their behavior, explore and adapt to new situations, people, and items, and fit in with their peers (Eisenberg et al., 2001; Eisenberg, 2002; Eisenberg et al., 2003; Eisenberg et al., 2007). Individuals manage their emotions in a broad range of ways, but some of these ways are healthier than others. During social encounters, many adolescents and adults have experienced suppressing outward displays of emotion, which may have social, emotional, and health-related consequences, including ties to depression and anxiety, cognitive impairment, and worse health outcomes (Gross, 2013). Utilizing cognitive reappraisal to manage emotions is linked to better affective patterns, social functioning, and overall well-being than adopting expressive suppression (Cutuli, 2014).

### ***Sleep and Emotion Regulation***

Sleep deprivation and bad sleep quality are associated with worse cognitive and psychological performance in adolescents (Serge et al., 2011). It has a detrimental impact on their cognitive resources, such as learning capacity, memory rate, attention and focus, and decision-making, and psychological aspects such as mood swings, depression and anxiety, greater impatience, and weaker emotional control (Kollam, 2018). According to studies lack of sleep affects emotion regulation and the brain's capacity to determine what is deserving to evoke an emotional response and what is not (Rachael, 2022). Because different forms of emotion regulation rely to different degrees on cognitive-control processes, sleep quality may have variable effects on each type (Mauss et al., 2007). An experimental investigation found that the capacity to control unpleasant emotions through cognitive reappraisal is weaker when sleep quality is poor (Mauss et al., 2013).

### ***Gardening and Emotion Regulation***

Interacting with nature has numerous benefits for the brain and emotions (Berman et al., 2008). School gardening initiatives are also being implemented to foster prosocial conduct, a healthy diet, and restorative qualities (Blair, 2008; Park et al., 2016). In previous studies, gardening has been found to improve social skills, language, thinking, investigative abilities, and creativity (Jeong et al., 2010, 2011, 2014; Keum et al., 2014; Lee and Kim, 2007; Miller, 2007; Zajicek, 2003). According to Dadvand and colleagues (2015), children who attended schools with higher outdoor greenness had a greater gain in working memory and a greater reduction in inattentiveness.

The ability to learn and social skills of children are subsequently impacted by their time spent in nature while in school (Scott et al., 2022). Horticulture practices also appear to enhance emotional intelligence, according to the evidence (Park et al., 2016). Their surroundings can significantly influence the self-regulation of adolescents. The natural environment impacts three aspects of self-regulation: metacognition, metacognitive control, and emotional control and motivation (Rachmawaty et al., 2020). In particular, executive cognitive activities with a high demand for directed attention processes, such as cognitive reappraisal, have been demonstrated to benefit from interactions with natural surroundings and nature-related stimuli (Stenfors et al., 2019).

### **Theoretical framework**

The current study is based on the green mind theory (Pretty et al., 2017). It explains the relationship between the human mind, brain, and body and connects the body to natural and social environments. Environment shape bodies, brains, and minds, and minds change body

behaviors, which shape the external environment. Working with or being near plants may provide numerous psychological, physical, and social benefits in addition to meeting basic needs. According to research on people-plant interactions, gardening and spending time in gardens promote human well-being, including sleep regulation. According to the six-step model of nature-based therapy by Dong Jun Kim, this progress of healing involves Stimulation, acceptance, purification, insight, recharging, and change (Shin et al., 2020). Exposure to green space increases feelings of comfort, introspection, and hope, and it also helps to lessen negative emotions, which can result in positive development (Shin et al., 2020).

## **Rationale**

Over the previous three decades, our environment has undergone rapid transformation, including the growing use of technology that exposes us to more artificial aspects that have also exacerbated our stress levels (Song et al., 2016). Many issues have arisen as a result of the disconnection between the natural environment (Dye, 2008). One of them is sleep problems and the risk factors that come with them. Sleep deprivation is a quiet epidemic impacting millions of students worldwide (Tariq, 2019). The prevalence of sleep abnormalities among the Pakistani population from the education community is significant; of the 1998 individuals surveyed, 1584 (79.28%) had a sleep disorder, including insomnia (45.20%) and sleep apnea (34.08%) (Umar et al., 2021). Students of adolescent age have an aberrant sleep schedule and are sleepy during the day (Anjarwala et al., 2020). Sleep disruption or poor sleep quality causes a variety of human bodily dysfunctions, including moderate stress, headaches, migraines, melancholy, diabetes, obesity, myopia, and emotion dysregulation (Umar et al., 2021; Rachael, 2022). As a result of these factors, nature therapy, a health-promotion strategy that uses medically established effects, such as relaxation by exposure to natural stimuli from forests, urban green spaces, and plants, is

required (Song et al., 2016). Therefore, the purpose of this study is to investigate the impact of mindful gardening on sleep and emotion management in adolescents.

### **Objectives**

The following are the objectives of this study.

1. To develop nature therapy-based mindful gardening intervention to improve sleep quality and emotion regulation.
2. To conduct the feasibility testing of gardening intervention.
3. To analyze the effectiveness of the intervention on sleep and emotion regulation of adolescents.

### **Hypotheses**

H1: There will be a significant decrease in the score of sleep disturbances at time 2 as compared to time 1 of the experimental group.

H2: There will be an increase in emotion regulation score of the experimental group at time 2 as compared to time 1 of the experimental group.

H3: There will be a difference between the experimental group and the control group's scores at the post-test of sleep disturbances.

H4: There will be a difference between the experimental group and the control group's scores at the post-test of emotion regulation.

## **Chapter 2 - Methodology**

This chapter describes the design and techniques of this investigation. A description of scales and their translation procedure are explained in this chapter.

### **Research Design**

This quasi-experimental study was carried out using a control and experimental group as a pretest-posttest design.

### **Population and Sample**

Sixty adolescent from public schools were recruited for this study.

### **Sampling Procedures/Techniques**

Convenient sampling was used to recruit the participants.

### **Sample Selection Criteria**

#### ***Inclusion***

**Following are the inclusion criteria of the study.**

1. Participants from age 14 to 16 years were included in the study.
2. Participants who were willing to take part in the study with written informed consent from parents were included in the study.

#### ***Exclusion***

**Following are the exclusion criteria of the study.**

1. Individuals that were absent at the time of pre-testing were not included in the study.
2. Individuals who had physical or mental disabilities that could hinder them from taking part in the process were not included.

## **Measures/Instruments**

### ***Cumhuriyet Subjective Sleep Quality Scale***

In addition to some demographic information, a self-report measure of Sleep disturbances was used. CSSQS was developed by Saricam, (2022). The 4-point Likert-type scale consists of 18 items having 3 subdomains named "psychosomatic effects", "sleep course" and "sleep satisfaction". The total score is obtained by summing all the items and a higher score means a higher level of sleep deterioration. Items 3, 10, 11, 15, and 17 are reverse scored. This scale consists of Internal consistency of 0.91 and good construct validity.

### ***Emotion Regulation Questionnaire***

To measure emotion regulation, the Emotion Regulation Questionnaire was used (Gross et al., 2003). It is a 10-item scale designed to measure respondents' tendency to regulate their emotions in two ways: (1) Cognitive Reappraisal and (2) Expressive Suppression. In which respondents answer each item on a 7-point Likert-type scale. The scoring of each subscale is kept separate and continues. The higher level shows the high level of emotion regulation strategy in each facet. In all samples, it has good internal consistency reliability, ERQ cognitive reappraisal ( $\alpha = .89-.90$ ), and expressive suppression ( $\alpha = .76-.80$ ).

## **Translation and adaptations of instrument**

Emotion regulation questionnaire was already accessible in Urdu. Cumhuriyet's subjective sleep quality measure was adapted for use in Urdu. The primary goal of translating scales was to obtain a culturally relevant and theoretically similar instrument for the intended

demographic. Brislin's revised model of translating instruments was used to translate the instruments. This approach involves a group of bilingual translators, translating and back-translating an instrument until practically all differences in the translated versions are eliminated.

### ***Forward Translation***

After receiving permission from the scale's developer, the Cumhuriyat subjective sleep quality scale was first translated from its original version into the target language (Urdu). A copy of the translation was provided by two separate, masters-level qualified bilingual translators.

### ***Review of Forward Translation***

The research project's supervisor then examined the initial draft. Word choice, semantics, content, and conceptual equivalence faults were looked for in the draft. The use of relatively simple language that could be understood by students with elementary and middle education was used to substitute difficult words. These initial drafts were sent for backward translations after any potential problems were fixed.

### ***Back Translation***

The forward translation's final document was provided to two independent people who were fluent in both English and Urdu. These two people weren't familiar with the scales' original English form.

### ***Review of back translation***

The supervisor of this study examined back translations. Backward translations were checked for discrepancies with the original version. After eliminating things that were not contextually and semantically comparable, the translated version was finalized.

## **Procedures**

The study was conducted in a public school. Thirty people who completed baseline questionnaires were included in the experimental group through random assignment by using the lottery method. Each participant had a 21-day gardening assignment, which was followed by a follow-up evaluation using questionnaires to measure the severity of sleep disruptions and emotional control. A 30-student control group, which did not receive the gardening intervention, had the same baseline and was screened for sleep disturbances and emotion regulation after 21 days at the same interval as the experimental group.

## **Intervention Development**

This intervention was designed by considering the six-step model of nature-based therapy by Pretty and colleagues (2017). The intervention consisted of a total of 4 stages, each of which was further broken down into 5 to 6 days. Every day included a task meant to strengthen participants' bond with the plant they were cultivating. The process specifics are listed below.

Stage 1: Following pretesting, the intervention starts with the intention of stimulating participants with natural stimuli. Participants were involved in the initial plantation during this 6-day stage. A single plant was given to each participant to grow. Participants were also provided written and verbal information about the plant they were growing at this point, prior to the plantation. Included plants were Ficus, Bloodleaf Plant, and Heart-leaved Moonseed.

Stage 2: To make the process more attentive, breathing exercises were done with the plant during this stage. The purpose of this practice is to encourage them to express their unpleasant feelings, share their deepest emotions with nature, and engage in open dialogue.



Stage 3: This stage was designed to make participants more insightful. They were asked to think and then share what kind of positive emotion they experienced. During these 5 days, they exercised this activity along with taking care of plants.

Stage 4: The participants were requested to care after each other's plants at stage four, during which the plants were distributed among them. This activity was designed to increase their interaction and foster a sense of community. On the final day, participants engaged in a group activity where they discussed their experiences with the experimenter.

### **Ethical Considerations**

The study was conducted under supervision, and approved by the department of Psychology of Capital University of Science and Technology. All the ethical standards of APA were applied. An informed consent form for parents and an assent form were prepared and given to parents and students before the study was initiated.

### **Analyses**

Data were analyzed using the statistical package for social sciences (SPSS). Descriptive statistics were used to examine demographic characteristics. For categorical variables, frequency distributions were analyzed. Cronbach's alpha reliabilities were determined in order to evaluate the reliability of the scales. To examine the distribution of the data, sample characteristics, and normality testing was also carried out. K-S statistics, as well as the values of skewness and kurtosis, were utilized to verify the normality. In order to do a paired sample t-test and an independent sample t-test, it was determined that the Cumhuriyet Subjective Sleep Quality Scale results were regularly distributed. Mann-Whitney and Wilcoxon tests were used to investigate the hypothesis that the data were not regularly distributed.

### Chapter 3- Results

This chapter covers the study's findings, including reliability analysis, correlation, and descriptive statistics for demographic characteristics, sleep quality, and emotion regulation.

#### Sample Characteristics

There were 60 participants in the sample, 30 of whom were assigned to the experimental group, and the remaining 30 to the control group. The table below shows the demographic details of the experimental group and control group.

**Table 1.1**

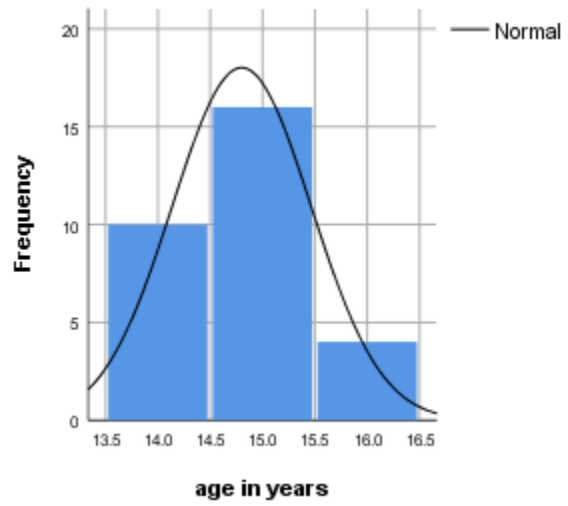
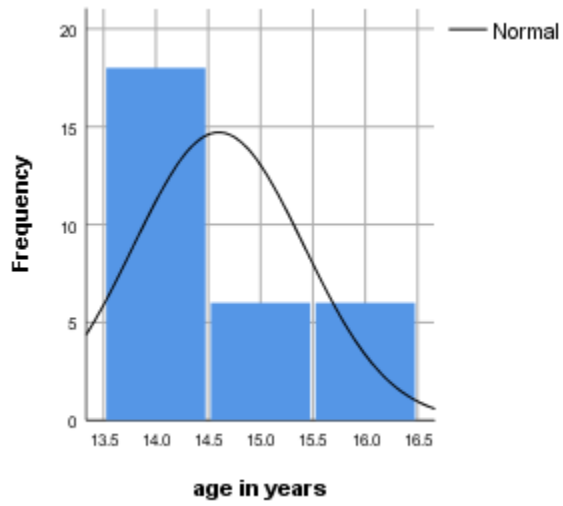
*Frequencies (f) and percentages (%) for the demographic characteristics (N = 60).*

Variables	Categories	Experimental Group		Control Group	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Age in years	14	18	60.0	10	33.3
	15	6	20.0	16	53.3
	16	6	20.0	4	13.3
Education Level	Primary	11	36.7	5	16.7
	Middle	19	63.3	25	83.3

The sample's mean age was 14.60, median was 14.00, mode was 14, standard deviation was .814, skewness was .889, and kurtosis was -.866 in the experimental group. In the control group the sample's mean age was 14.80, its median was 15.00, its mode was 15, its standard deviation was .664, its skewness was .242, and its kurtosis value was -.634. In both groups, all participants were from the low economic status that was determined by parental income through Dawn's survey statistics.

**Figures 1 and 2**

*Distribution of age in the experimental group (N = 30) and control group (N = 30)*



### Reliabilities of Scales in Terms of Cronbach's Alpha Reliability ( $\alpha$ )

The reliability of the scales employed in this research study is shown in the table below.

#### Table

*Cronbach's Alpha reliabilities of Emotion Regulation Questionnaire (ERQ), and the Cumhuriyet Subjective Sleep Quality Scale (CSSQS) (pretest). (N=60)*

Scales	Subscales	N	M	SD	$\alpha$	Range		Skewness
						Potential	Actual	
ERQ		10	51.85	10.8	.73	10-70	21-70	-.82
	Cognitive Reappraisal	6	31.45	7.03	.657	6-42	12-42	-.927
	Expressive Suppression	4	20.40	5.67	.628	4-28	6-28	-.789
CSSQS		18	18.48	4.94	.50	0-54	9-29	.12

Note.  $N$  = Total number of items,  $M$  = Mean,  $SD$  = Standard Deviation,  $\alpha$  = Cronbach's alpha

As presented in the table above, the Cronbach reliability for the Cumhuriyet Subjective Sleep Quality Scale's translated version was found to be moderately reliable. The alpha reliability of the emotion regulation questionnaire's each facet had good reliability level as well.

### **Scales descriptives and normality testing of experimental group**

The following tables provide descriptive statistics for the pretest and posttest of both scales Cumhuriyet Subjective Sleep Quality and Emotion Regulation Questionnaire of experimental group, and the following figures show the distribution of scores throughout the scales.

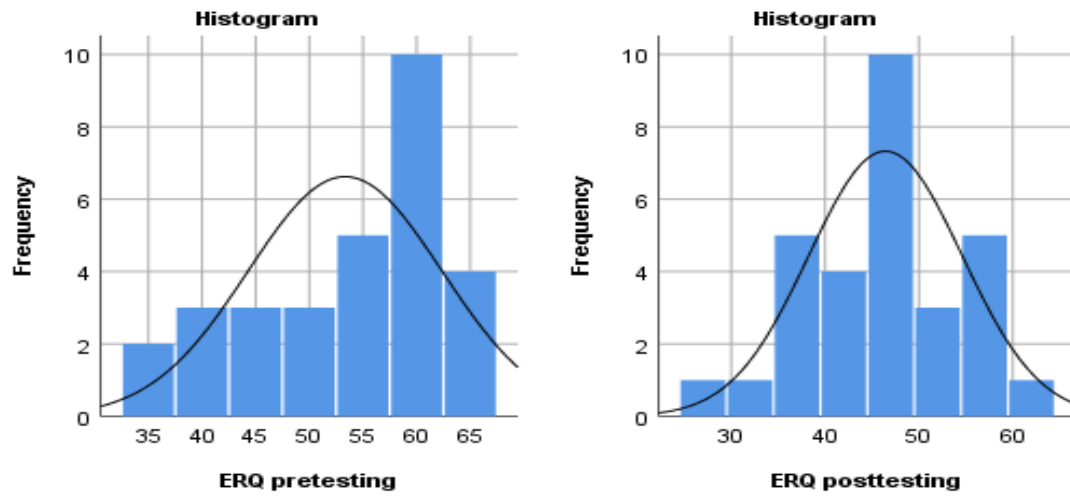
**Table** Mean, Median, Mode, Standard Deviation, Skewness, Kurtosis, and Kolmogorov-Smirnov test statistics of aggression of the experimental group. (N=30)

Scales	Subscales	M	Media n	Mode	SD	Skewness	Kurtosi s	K-S	(p)
<b>ERQ</b>		53.3	57	58	9.03	-.686	-.769	.206	.002
<b>(pretest)</b>	Cognitive Reappraisal	32.47	33	33	5.47	-.99	1.7	.205	.002
	Expressive Suppression	20.87	22	25	5.6	-.912	.189	.179	.015
<b>ERQ</b>		46.43	46	49	8.16	-.271	-.311	.104	.200
<b>(posttest)</b>	Cognitive Reappraisal	27.23	27	24	5.84	-.505	-.206	.115	.200
	Expressive Suppression	19.2	19.5	19	5.41	-.864	.922	.185	.010
<b>CSSQS</b>		19.60	18	18	5.13	-.052	-.265	.156	.062
<b>(pretest)</b>									
<b>CSSQS</b>		17.60	17.5	16	4.64	.709	.393	.136	.165
<b>(posttest)</b>									

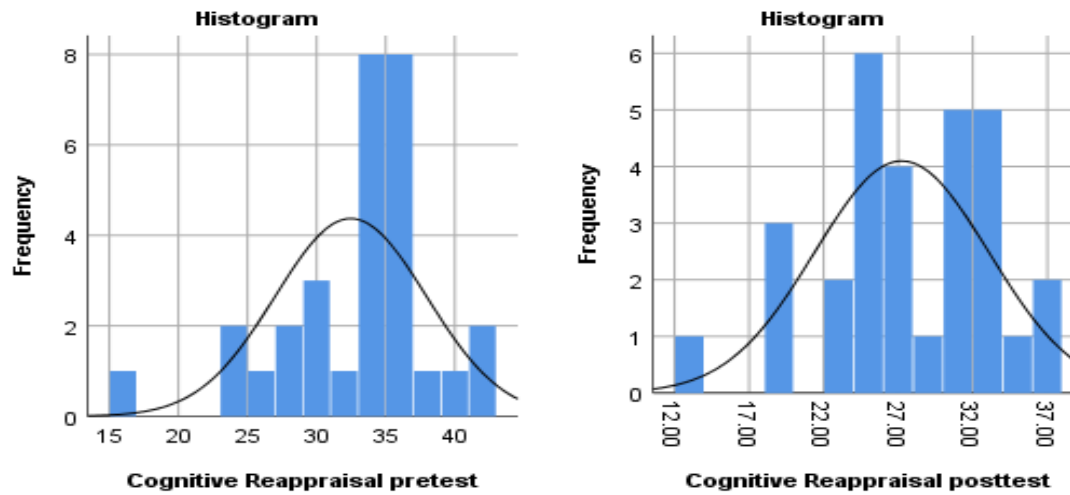
Note: M = Mean, SD = Standard Deviation, K-S = Kolmogorov-Smirno

### Figures

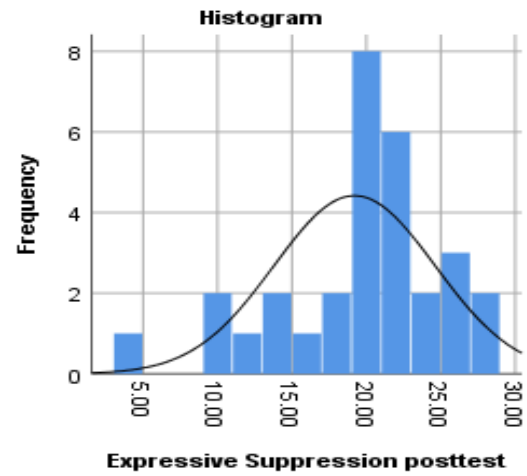
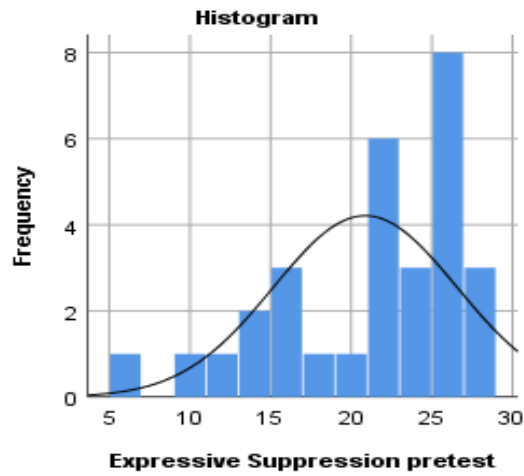
*Distribution of scores across the Emotion Regulation questionnaire scale's pretest and posttest of the experimental group (N = 30, each).*



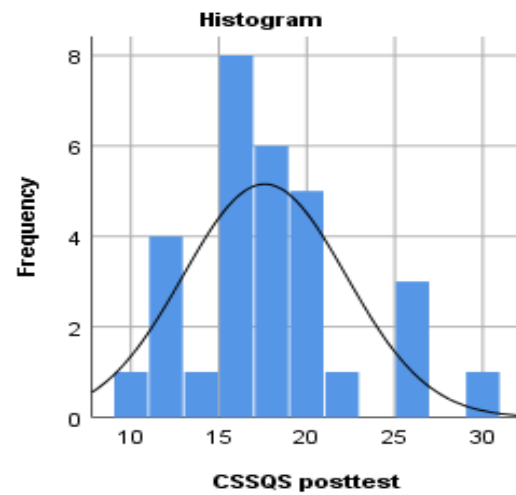
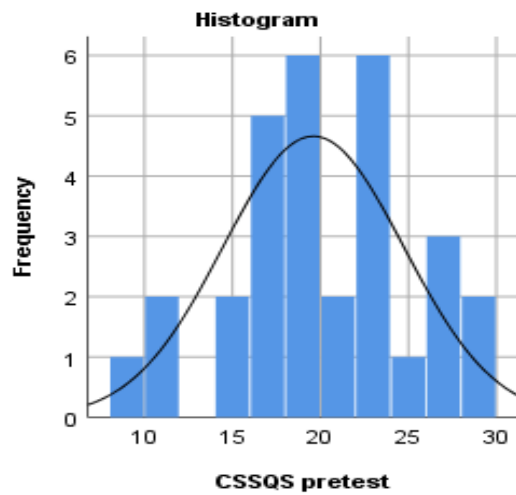
*Distribution of scores across subscale "Cognitive Reappraisal" of ERQ pretest and posttest of the experimental group (N = 30).*



*Distribution of scores across subscale “Expressive Suppression ” of ERQ pretest and posttest of the experimental group (N = 30).*



*Distribution of scores across Cumhuriyet Subjective Sleep Quality Scale pretest and posttest of the experimental group (N = 30).*





### Scales descriptives and normality testing of control group

The following tables provide descriptive statistics for the pretest and posttest of both scales: Cumhuriyet Subjective Sleep Quality and Emotion Regulation Questionnaire of control group.

#### Table

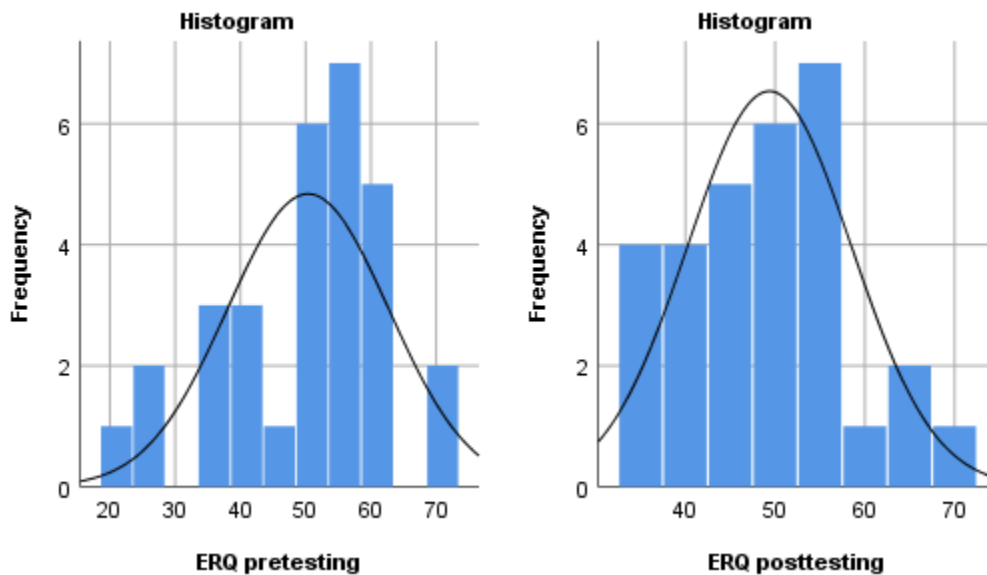
Mean, Median, Mode, Standard Deviation, Skewness, Kurtosis, and Kolmogorov-Smirnov test statistics of aggression of the control group. (N=30)

Scales	Subscales	M	Median	Mode	SD	Skewness	Kurtosis	K-S	(p)
<b>ERQ</b>		50.37	53	53	12.36	-.717	-.018	.186	.010
<b>(pretest)</b>	Cognitive Reappraisal	30.43	30	27	8.28	-.687	.219	.173	.023
	Expressive Suppression	19.93	22	22	5.7	-.725	-.115	.241	.000
<b>ERQ</b>		49.37	51	52	9.156	.264	-.600	.114	.200
<b>(posttest)</b>	Cognitive Reappraisal	29.9	29	33	5.16	.273	-.672	.155	.064
	Expressive Suppression	19.4	19	28	6.12	-.312	-.249	.119	.200
<b>CSSQS</b>		17.37	17	17	4.56	.190	-.620	.132	.193
<b>(pretest)</b>									
<b>CSSQS</b>		15.20	15.5	9	5.64	-.419	.468	.092	.200
<b>(posttest)</b>									

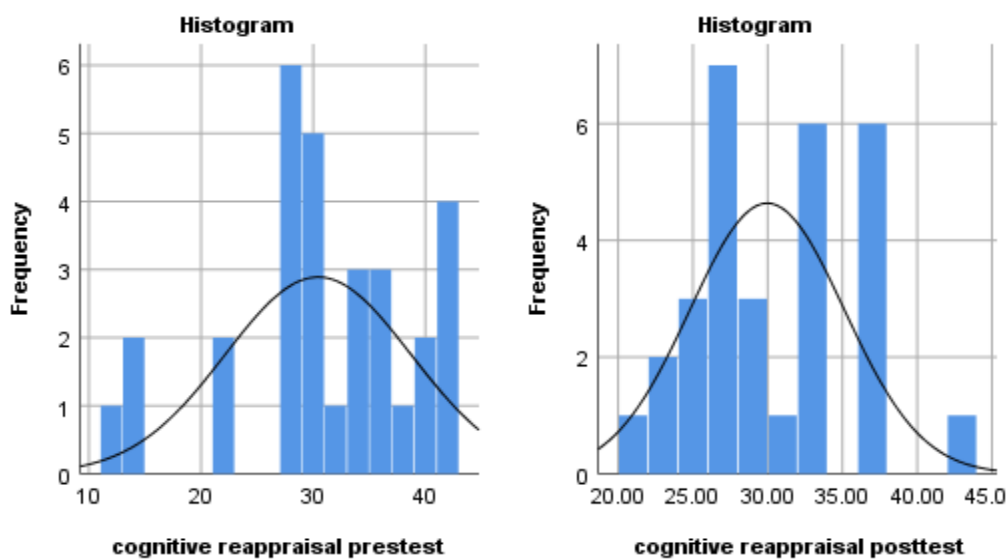
Note: M = Mean, SD = Standard Deviation, K-S = Kolmogorov-Smirnov

### Figures

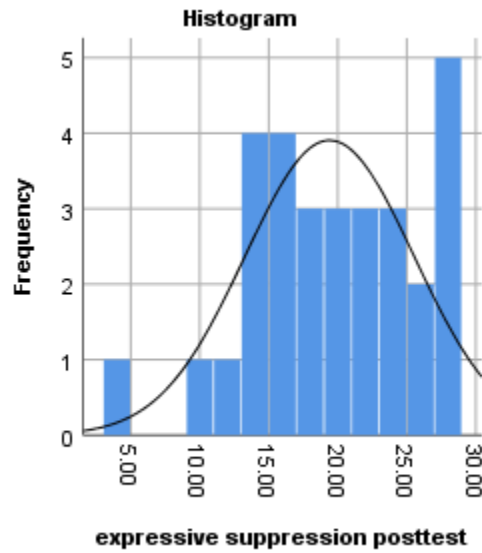
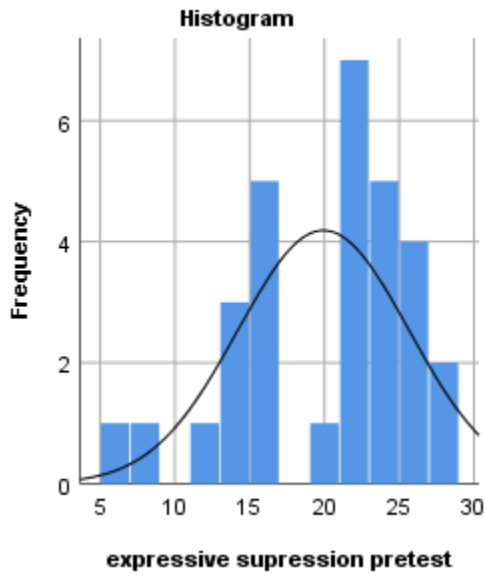
*Distribution of scores across the Emotion Regulation questionnaire scale's pretest and posttest of the control group (N = 30, each).*



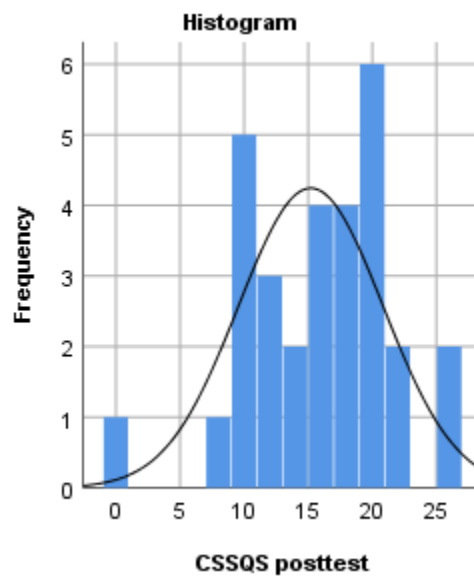
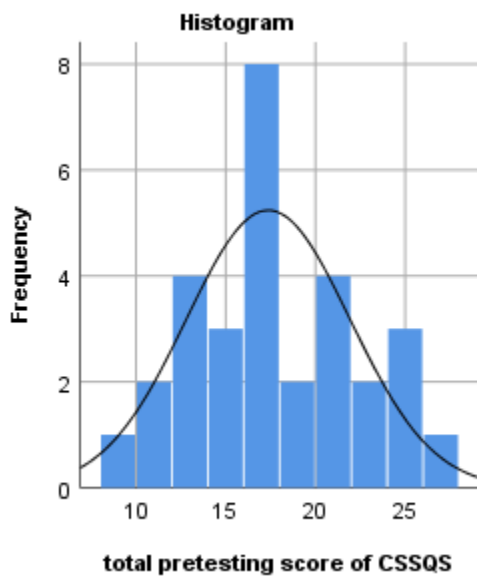
*Distribution of scores across subscale "Cognitive Reappraisal " of ERQ pretest and posttest of the control group (N = 30).*



*Distribution of scores across subscale “Expressive Suppression ” of ERQ pretest and posttest of the control group (N = 30).*



*Distribution of scores across Cumhuriyet Subjective Sleep Quality Scale pretest and posttest of the control group (N = 30).*



## Hypothesis Testing

### Hypothesis 1

*There will be a significant decrease in the score of sleep disturbances at time 2 as compared to time 1 of the experimental group.*

The score on sleep disturbances will be reduced at the post-intervention time as compared to scores at the pre-intervention time. The table below presents the pretest and posttest results of the experimental group for the scale “Cumhuriyat Subject Sleep Quality Scale” for which the data is normally distributed.

### Sleep Quality of Intervention Group

**Table 5.1**

*Comparison of pretest and posttest scores on “Cumhuriyat Subject Sleep Quality Scale” (N = 30)*

	Pretest		Posttest		<i>t</i>	<i>p</i>	Cohen's D
	M	SD	M	SD			
CSSQS	19.60	5.13	17.60	4.64	2.362	.001	0.408

*Note: M = Mean, SD = Standard Deviation, p = Significance value.*

In the above table, paired sample t test indicates that in sleep disturbances there is a significant difference between the pretest and post-test.

### Hypothesis 2

*There will be an increase in emotion regulation score of the experimental group at time 2 as compared to time 1 of the experimental group.*

The table below presents the pretest and posttest results of the experimental group for the subscale “cognitive reappraisal” and “expressive suppression” for which the data are non-normally distributed.

### Emotion Regulation of Intervention Group

**Table 5.2**

*Comparison of pretest and posttest scores on “cognitive reappraisal and expressive suppression”. (N = 30)*

	Pretest		Posttest		<i>p</i>
	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>	
<b>Cognitive Reappraisal</b>	32.47	5.47	27.23	5.84	.001
<b>Expressive Suppression</b>	20.87	5.68	19.20	5.41	.150

*Note: M = Mean, SD = Standard Deviation, p = Significance Level.*

The Wilcoxon Signed Rank Test revealed that there was a significant difference in the scores on cognitive reappraisal, and a non-significant score on expressive suppression between the pretest and posttest.

### Hypothesis 3

*There will be a difference between the experimental group and the control group's scores at the post-test of sleep disturbances.*

The table below represents the information of the data that was normally distributed.

### Sleep Quality Differences in the Intervention Group and Control Group

**Table 5.5**

*Comparison of “Cumhuriyet subjective sleep quality scale” score between experimental group and control group at pretest and posttest time. (N=30)*

	<b>Group</b>	<b>N</b>	<b>M</b>	<b>SD</b>	<b>MD</b>	<b>df</b>	<b>t</b>	<b>p</b>	<b>Cohen's D</b>
<b>Pretest</b>	Experimental	30	19.60	5.1	2.23	58	1.78	.08	0.46
<b>Pretest</b>	Control	30	17.37	4.5					
<b>Posttest</b>	Experimental	30	17.60	4.6	2.40	58	1.79	.07	0.468
<b>Posttest</b>	Control	30	15.20	5.6					

*Note: N = Number of participants, M = Mean, SD = Standard Deviation, MD = Mean Difference, df = Degree of freedom.*

According to the independent sample t-test, there is no significant difference observed between the control group and the experimental group.

#### Hypothesis 4

There will be a difference between the experimental group and the control group's scores at the post-test of emotion regulation. The table below represents the information of the data that was non-normally distributed.

#### Emotion Regulation Differences in the Intervention Group and Control Group

**Table 5.6**

*Comparison of “ Emotion regulation scale” score between experimental group and control group at pretest and posttest time. (N=30)*

		Control Group		Experimental Group			
		N	M	N	M	U	p
<b>Cognitive Reappraisal</b>		30	28.45	30	32.55	388.5	.36
<b>Pretest</b>							
<b>Cognitive Reappraisal</b>		30	34.05	30	26.95	343.5	.113
<b>Posttest</b>							
<b>Expressive Suppression</b>		30	29.00	30	32.00	405.0	.503
<b>Pretest</b>							
<b>Expressive Suppression</b>		30	30.52	30	30.48	449.5	.994
<b>Posttest</b>							

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*Note: N = Number of participants, M = Mean, U = Mann-Whitney Test Value, p = Significance level*

In the above table Mann-Whitney indicates that there was no significant difference between the control group and experimental group's score on all the facets of the emotion regulation questionnaire.



## **Chapter 4- Discussion**

This thesis presents the development and feasibility testing of the gardening intervention on a sample drawn from a public school in Rawalpindi, Pakistan. The study included 14 to 16-year-old elementary and middle school students. However, the total data was skewed toward younger age in which all the participants were males from low socio-economic status. To collect the data Cumhuriyet Subjective Sleep Quality Scale and Emotion Regulation questionnaire were used. The Urdu version of the Cumhuriyet Subjective Sleep Quality Scale had an alpha reliability of .50. The scale was translated from English to Urdu using Brislin's updated translation methodology. The internal consistency of the first scale, however, was .91. The emotion regulation scale's individual facet alpha reliabilities, as determined by this research sample, were similarly relatively high. Further, this section will discuss the results in relation to prior research.

### **Overview of Study Aims**

The goal of this study was to create a nature therapy-based intervention to enhance adolescent sleep quality and emotion regulation. The theoretical foundation of this study was drawn from the six-step model of nature-based therapeutic processes and green-mind theory. To achieve the goal, a 21-day gardening program was designed, which also included activities to promote participants' mindfulness, such as breathing exercises. These exercises were introduced to make the procedure more insightful for students since past research has shown that it can affect their emotion regulation and sleep hygiene. The intervention's entire content was preserved in line with cultural norms. Instructions were given in Urdu because the intervention was delivered to Pakistani students. The students were seen actively engaged in the learning process throughout. After each session, a review of students was taken in which they discussed the

feelings they had over the intervention's 21 days. The study's findings in objective measures are further discussed in this section that follows in the order that the chapter 2 hypotheses were provided.

### **Sleep Disturbances ( hypotheses 1 and 3)**

The current study demonstrated a significant difference in the levels of sleep disruptions before and after the intervention, but the degree of sleep degradation was also reduced in the control group, therefore there was no significant difference between the control and experimental groups. This discovery has several interpretations. The "academic examination" that occurred between the interventions is one of the key factors that suggest a lack of sufficient control. So the change in sleep quality in both groups might be attributed to the fact that sleep quality improves after exams (Astill et al., 2013). These findings are inconsistent with the results of previous interventions.

### **Emotion Regulation ( hypotheses 2 and 4)**

The cognitive reappraisal component improved considerably after the intervention. This finding is congruent with previous studies (Rachmawaty et al., 2020). However, there was no substantial enhancement in expressive suppression. Although it is not the goal of this study to determine how gardening might aid with emotion regulation's various forms. Yet, expressive repression is viewed as a bad technique to regulate emotions (Cutuli, 2014), as mentioned in the literature review suppressing outward displays of emotions has associations with depression, anxiety, cognitive impairment, and worse health outcomes (Gross, 2013). Hence it may be assumed based on the results of this study and other research that gardening aids in controlling emotions without stifling their expression. Similar to sleep quality, there was a statistically

insignificant difference between the control and experimental groups in cognitive reappraisal. This might also be related to the exams that occur in between intervention times. Aside from these findings, students were seen to participate in the process with enthusiasm and actively participate in the activity designed to have them talk about their feelings throughout the process.

### **Feasibility Evaluation**

Various aspects of feasibility were investigated. First and foremost, the target population was engaged effectively through institutional support. Sixty-five students were invited to the research and took part in the post-testing with their assent. Five students withdrew before the intervention, but the remaining 60 consented and attended all sessions. The research protocol (questionnaires and demographic sheet) was delivered exactly as planned, with no missing data.

Gardening had no apparent negative effects on individuals over the trial period, and it was observed to be a viable exercise. During the container gardening, no allergic reactions, injuries, or fatigue were anticipated. The intervention was completed by all participants, and no one complained during the procedure. Students' enjoyment, relaxation, and attitude toward gardening were observed during the research period. The intervention and research methods were viable since all participants attended and completed all sessions.

The prevalent review among all participants was a change in their attitude regarding plants and the environment, and how they considered it comparable to themselves as alive and cultivating as a result of the care. This suggests that such activities can encourage prosocial behavior. However, it should be noted that the study sample was composed of male adolescents, and hence the study results may not be generalizable to other genders. Moreover, the intervention can develop more intensely to make it effective while controlling the other external factors.

## **Limitations**

1. There are limitations that should be considered when interpreting the results, such as the small sample size, dependence on self-reported data, and a lack of proper control, such as the most notable confounding factor, an academic assessment of students between the intervention time period.
2. Another major limitation of the study was that it only included male participants, therefore the results cannot be extended to other genders.
3. Because this intervention was provided by a teacher, a master gardener is required to improve the integrity and efficacy of the procedure.
4. Gardening was container-based in this intervention; to make the activity more exciting through nature, outside gardening activities might be incorporated.

## **Recommendations**

1. Despite its limitations, the program fulfills an identified demand for an evidence-based, accessible, and low-cost intervention to improve teenagers' emotion control and sleep quality. However, More environmental control by random sampling can be needed to eliminate external variables.
2. It is both practicable and acceptable, and no ethical concerns are raised. Gardening is one of the most promising physical activities because it can be tailored to meet a variety of students' physical, cognitive, and social requirements, allowing it to be used as an intervention for them.
3. Gardening programs can also be assessed as part of the curriculum.

## **Conclusion**

The goal of this study was to create a nature therapy-based horticultural intervention to improve emotion regulation and treat sleep deprivation in school-aged adolescents. Although both variables indicated a substantial improvement in the findings, the fact that there was no difference in the post-intervention ratings between the experimental group and the control group makes the conclusion more equivocal. Large sample sizes, stimulating natural environments, and timing of intervention delivery with fewer confounding variables, like the pressure of academic exams in this study, are all possible suggestions for future research investigations.

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## **Appendices**



## معلوماتی فارم



میں سیدہ قرآۃ العین نقوی، کپٹل یونیورسٹی آف سائنس اینڈ ٹیکنالوجی میں نفسیات کی طالب علم ہوں، اور میں آپ کے بچے کو ایک تحقیق میں حصہ لینے کی دعوت دینا چاہتی ہوں۔ آپ کو فیصلہ کرنے سے پہلے یہ سمجھنے کی ضرورت ہے کہ تحقیق کیوں کی جا رہی ہے اور اس میں کیا کرنا ہوگا۔

برائے مہربانی! مندرجہ ذیل معلومات کو احتیاط سے پڑھیں۔ اگر آپ مزید جاننا چاہتے ہیں تو آپ سوالات پوچھ سکتے ہیں۔ اس تحقیق میں شرکت کی اجازت دینے کا فیصلہ کرنے کے لیے آپ ایک دن کا وقت لے سکتے ہیں۔

### تحقیق کا مقصد

اس تحقیق کا مقصد بچوں کی نیند کو بہتر بنانے اور جذبات کو بہتر طریقے سے منظم کرنے میں مدد دینا ہے۔

آپ کے بچے کو اس تحقیق میں حصہ لینے کے لئے کیا کرنا ہوگا؟

اس تحقیق میں حصہ لینے کے لیے آپ کی رضامندی ضروری ہے۔ اس کے بعد کچھ بنیادی معلومات کا فارم اور سوال نامے

آپ کے بچے کو بھرنے ہوں گے۔ اجتماعی طور پر باغبانی کروائی جائے گی، جس میں پودا اگانے کے بعد 21 دن تک اُسکی دیکھ بھال کرنی ہوگی۔

اس تحقیق کی منظوری کس نے دی ہے؟

یہ تحقیق کپٹل یونیورسٹی آف سائنس اینڈ ٹیکنالوجی کے شعبہ نفسیات سے منظور شدہ ہے۔

کیا آپ کے بچے کے جوابات کو رازداری میں رکھا جائے گا؟

جوابات کو سختی سے خفیہ اور گمنام رکھا جائے گا۔ اس کے علاوہ نتائج کے شائع ہونے کے دوران آپکی شناخت کو کسی بھی شکل میں ظاہر نہیں کیا جائے گا۔

**تحقیق میں حصہ لینے کے کیا فوائد یا نقصانات ہیں؟**  
 اس تحقیق میں حصہ لینے کے کوئی ذاتی یا تعلیمی فوائد یا نقصانات نہیں ہیں۔ بچہ بغیر وجہ بتائے کسی بھی موقع پر حصہ لینا بند کر سکتا ہے۔ تحقیق میں حصہ نہ لینے کے فیصلے سے بچے کی تعلیم وغیرہ پر کوئی اثر نہیں پڑے گا۔ اس تحقیق میں ایسے سوالات ہو سکتے ہیں جو حساس یا پریشان کن ہوں۔ اگر بچہ پریشان ہوتا ہے تو کسی بھی وقت اس تحقیق میں حصہ لینا بند کر سکتا ہے۔

**سوالات یا مزید معلومات کے لئے مجھے کس سے رابطہ کرنا چاہئے؟**  
 کسی بھی سوال یا مسئلے کی صورت میں آپ ڈاکٹر صباحت حقانی سے یہاں رابطہ کر سکتے ہیں:- 178 : 051-111-555-666 Ext.  
 یا (sabahat.haqqani@hotmail.com) کیپیٹل یونیورسٹی آف سائنس اینڈ ٹیکنالوجی، شعبہ نفسیات۔

**مددگاروں کا پتہ**

well being center: -1

یہاں پر آپ صبح 9 سے 2 بجے تک جا سکتے ہیں

پتہ: کیپیٹل یونیورسٹی آف سائنس اینڈ ٹیکنالوجی، کہوٹہ روڈ اسلام آباد

2- یوتھ ہیلپ لائن: 22444 0800 اس نمبر پر زیادہ تر فون لائن سے مفت کال کر سکتے ہیں (موبائل سے عام ریٹ کے حساب سے بھی کال ملائی جا سکتی ہے)۔ ہی صبح 10 بجے سے رات 8 تک کھلی رہتی ہے۔

### والدین / سرپرست کا اجازت نامہ



میں تصدیق کرتا/کرتی ہوں کہ میں نے معلوماتی پرچہ پڑھ اور سمجھ لیا ہے۔ اور مجھے سوال پوچھنے کا موقع دیا گیا ہے۔ میں نے اپنے بچے کو اس تحقیق میں اپنی مرضی سے شرکت کی اجازت دی ہے اور میرے بچے کو تحقیق کے دوران کسی بھی وقت اپنی تعلیمی سہولتوں کے متاثر ہونے بغیر دستبردار ہونے کا حق ہے۔ میں سمجھتا ہوں کہ سوالناموں سے حاصل کردہ معلومات کو گمنام رکھا جائے گا۔ اور صرف تحقیق کے مقاصد کے لیے استعمال کیا جائے گا۔

میں اس تحقیق میں اپنے بچے کو حصہ لینے کی اجازت دیتا / دیتی ہوں۔

دستخط: \_\_\_\_\_

تاریخ: \_\_\_\_\_

### طالب علم کی رضامندی کا فارم

میں اس بات کی تصدیق کرتا/کرتی ہوں ہے کہ مجھے اس پروگرام کے بارے میں اور اس میں ہونے والی سرگرمیوں اور طریقہ کار کے بارے میں معلومات فراہم کی گئی ہیں۔ میں جانتا / جانتی ہوں کہ میری شرکت رضا کارانہ ہے اور میں کسی بھی وقت بغیر کسی فائدے یا نقصان کے اپنی شرکت ختم کرنے کا حق برقرار رکھتا / رکھتی ہوں۔ میں سمجھتا / سمجھتی ہوں کہ میری معلومات خفیہ رہیں گی اور صرف تحقیقی پروگرام کے مقاصد کے لئے استعمال کی جائیں گی۔ میں یہ بھی جانتا / جانتی ہوں کہ نتائج کے شائع ہونے کے دوران میری شناخت کسی بھی طرح ظاہر نہیں کی جائے گی۔ میں اس تحقیق میں حصہ لینے کے لئے رضامند ہوں۔

دستخط \_\_\_\_\_ تاریخ \_\_\_\_\_

## پروگرامک شیٹ



	نام	1
	تاریخ پیدائش	2
	عمر	3
	تعلیم	4
	رہائش گاہ	5
	والدین کی آمدنی	6
	کوئی ذہنی یا جسمانی بیماری	7

### Cumhuriyat Subjective Sleep Quality Questionnaire

<p>ہر جملے کو صحیح سے پڑھیں اور پچھلے ایک ماہ میں جو جملہ آپ کی کیفیت، خیالات اور احساسات سے زیادہ متعلق رہا ہو اس آگے دینے گئے انتخابات پر ٹک کا نشان لگا کر اپنی رائے کا اظہار کریں۔ آپ کا کوئی جواب غلط یا صحیح نہیں ہے۔ شمار کرنے کا پیمانہ مندرجہ ذیل / یہ ہے۔ (0 = ہرگز نہیں، 1 = کبھی کبھار، 2 = مناسب حد تک یا زیادہ تر، 3 = بہت زیادہ حد تک یا اکثر اوقات)</p>				
1- مجھے دن میں تناؤ / پر چڑھاٹ محسوس ہوئی کیونکہ میں صحیح طرح سو نہ سکا۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
2- مجھے دن میں اکتاہٹ / تھکاوٹ محسوس ہوئی کیونکہ میں صحیح طرح سو نہ سکا۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
3- میں اچھی طرح سے سو گیا جب میرا سر تکتے پہ ٹکا۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
4- باوجود کہ مجھے کوئی درد / تکلیف نہیں تھی مجھے سونے میں مشکل پیش آئی۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
5- میں دن میں توجہ نہیں دے پایا کیونکہ میں صحیح سے سو نہ سکا تھا۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
6- جب میں جاگا ایسا لگا جیسے میں بالکل نہیں سویا تھا۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
7- جب میں جاگا مجھے ایسا لگا کم محسوس ہوا میرے اوپر سے ابھی ابھی ٹرک گزرا ہے۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
8- میں رات بھر کروٹیں بدلتا رہا۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
9- میں رات میں کہیں بار جاگا۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ
10- میں نے دن میں بہت پر جوش / توانا محسوس کیا کیونکہ میں رات کو صحیح سے سویا تھا۔	ہرگز نہیں	کبھی کبھار	زیادہ تر	بہت زیادہ

بہت زیادہ	زیادہ تر	کبھی کبھار	ہرگز نہیں	11- میں گہری نیند سویا اس سے کوئی فرق نہیں پڑتا کہ میں کن حالات سے گزرا۔
بہت زیادہ	زیادہ تر	کبھی کبھار	ہرگز نہیں	12- میں نے نیند کے لیے دوا / گولی استعمال کی۔
بہت زیادہ	زیادہ تر	کبھی کبھار	ہرگز نہیں	13- دن میں میرے سر میں درد رہا کیونکہ میں سہی سے سو نہ پایا تھا۔
بہت زیادہ	زیادہ تر	کبھی کبھار	ہرگز نہیں	14- اگر میں رات کو جاگ جاؤں تو سونے کے لیے مجھے مشکل ہوتی ہے۔
بہت زیادہ	زیادہ تر	کبھی کبھار	ہرگز نہیں	15- میں کافی سویا۔
بہت زیادہ	زیادہ تر	کبھی کبھار	ہرگز نہیں	16- میں دن میں تقریباً ہو گیا تھا کیونکہ میں صبح سے سو نہ پایا تھا۔
بہت زیادہ	زیادہ تر	کبھی کبھار	ہرگز نہیں	17- میں اپنی نیند سے مطمئن ہوں۔
بہت زیادہ	زیادہ تر	کبھی کبھار	ہرگز نہیں	18- میرے قریبی لوگ کہتے ہیں کہ میں سونے وقت خراٹے (شور کرتا) لیتا ہوں۔

### Emotion Regulation Questionnaire

ہدایات: ہم آپ سے آپ کی جذباتی زندگی کے بارے میں کچھ سوالات سے پوچھنا چاہیں گے، خصوصاً کس طرح آپ اپنے جذبات پر قابو پاتے ہیں (جو یہ پیہے درست رکھنا اور منبھا)۔ مندرجہ ذیل سوالات آپ کی جذباتی زندگی کے مختلف پہلوؤں کے بارے میں ہیں۔ ایک پہلو آپ کے جذباتی تجربہ یا آپ کیا محسوس کرتے ہیں کے بارے میں ہے۔ دوسرا آپ کے جذباتی اظہار کے بارے میں ہے، یا آپ کس طرح اپنے جذبات کا اظہار کرتے ہیں، بات کرنے کے اشارے یا برتاؤ کے انداز میں۔ اگرچہ درج ذیل میں سے کچھ سوالات ایک جیسے لگ سکتے ہیں، وہ اہم طریقوں سے مختلف ہیں۔ ہر بیان کے لئے، براہ مہربانی مندرجہ ذیل پیمانہ استعمال کرنے ہوئے جواب دیں۔

1	2	3	4	5	6	7
انتہائی غیر متعفن			غیر جانبدار			انتہائی متعفن

1- انتہائی غیر متعفن	2	3	4	5	6	7- انتہائی متعفن	1	جب میں زیادہ مثبت جذبات محسوس کرنا چاہوں جیسا کہ (خوشی یا لطف) تو میں جس بارے میں سوچ رہا ہوں اسے بدل لیتا ہوں۔
انتہائی غیر متعفن	2	3	4	5	6	انتہائی متعفن	2	میں اپنے جذبات اپنے تک رکھتا ہوں۔
انتہائی غیر متعفن	2	3	4	5	6	انتہائی متعفن	3	جب میں کم منفی جذبات محسوس کرنا چاہوں (جیسا کہ اداسی یا غصہ) تو میں جس بارے میں سوچ رہا ہوں اسے تبدیل کر لیتا ہوں۔
انتہائی غیر متعفن	2	3	4	5	6	انتہائی متعفن	4	جب میں مثبت جذبات محسوس کر رہا ہوں، میں محتاط ہوتا ہوں کہ ان کا اظہار نہ کروں۔

5	انتہائی متعق	2	3	4	5	6	انتہائی متعق	جب مجھے کسی دباؤ والی صورت حال کا سامنا ہو میں اس بارے میں اس طرح سوچتا ہوں جس سے مجھے پرسکون رہنے میں مدد ملے۔
6	انتہائی متعق	2	3	4	5	6	انتہائی متعق	میں اپنے جذبات کا اظہار نہ کر کے ان کو قابو میں رکھتا ہوں۔
7	انتہائی متعق	2	3	4	5	6	انتہائی متعق	جب میں زیادہ مثبت جذبات محسوس کرنا چاہوں تو میں صورتحال کے بارے میں جس طرح سوچ رہا ہوں اسے تبدیل کر لیتا ہوں۔
8	انتہائی متعق	2	3	4	5	6	انتہائی متعق	میں جس صورتحال میں ہوں اس کے بارے میں اپنے سوچنے کا انداز تبدیل کر کے اپنے جذبات کو قابو میں کرتا ہوں۔
9	انتہائی متعق	2	3	4	5	6	انتہائی متعق	جب میں منفی جذبات محسوس کر رہا ہوں، تو میں اسکو یقینی بناتا ہوں کہ انکا اظہار نہ کروں۔
10	انتہائی متعق	2	3	4	5	6	انتہائی متعق	جب میں کم منفی احساسات محسوس کرنا چاہوں تو میں اس صورتحال کے بارے میں سوچنے کا طریقہ بدل دیتا ہوں۔



## **Field Notes (observation-based)**

### **Session 1**

Students took 1 hour for completing the first session, three to four students perceived it as part of their curriculum so they were debriefed again, most of the students were participating as it was being guided. Some students showed more enthusiasm and leadership qualities as they were helping and guiding other students.

### **Session 2**

At this session students were provided information regarding the plants. Some scientific terminology or scientific name of the plants were not being understood by the students so written information was also delivered verbally by the experimenter. This activity was observed to arise the curiosity among students regarding the plants.

### **Session 3**

At this session before starting the next activity students gave the review about previous session, some of the students have recalled the important element of the information related to the plants that was given in the previous session. Students were helping each other to filter out the impurities from soil. They seemed to enjoy this activity.

### **Session 4**

Students were very excited when they were giving plants. Each student was assigned a plant to grow. Some of the students asked questions regarding would they allowed to grow it in the school garden.

### **Session 5**

This session just took less than 10 minutes because plants doesn't required to maintain the moisture.

**Session 6**

In this session students touched the plants, they were observed to interact each other and showing their plants to each other during this session. Because this day activity was not very much engaging it lasted for 10 min.

**Session 7 to 11**

During the breathing exercise, at initial days students practice deep breathing for 5 to 6 minutes that was increased during the next days. In initial sessions some of the students laugh at the instructions during the breathing exercise, it seems they were not familiar to it. However after first 2 days students took part in the process with much seriousness.

**Session 12 to 16**

In each day they talk about what kind of positive emotions they felt during the process. They shared feeling of joy, peacefulness and most of the students said that they found plants growth similar to their growth. And that they have this sense of belongingness with their plants.

**Session 17 to 20**

At first day when their plants were shifted with each other, students showed a little bit possessiveness. A participant instructed the other participant to take care of his plant in a certain manner. They were also seem to compare the growth of each other's plants as this was competition. Among all plants there was a single plant that was not in good condition, students seem to be concerned to that plant.

**Session 21**

Finally they reviewed about the process. Most of them reported to have increased positive attitude towards the plantation. Some of the students said that as human being needs care and love to grow, plants does too and we are motivated to continue plantation after the activity.

# **Nature Therapy-Based Gardening Intervention for Adolescents**

**Syeda Quratulain Naqvi**

**Gardening Intervention**

**Gardening: A Feasibility Testing of Intervention for Sleep and Emotion Regulation among  
School going Adolescents**

**Total days of program: 21**

**Total sessions: 4**

**Session 1 (Plantation)**

**Stimulation And Acceptance**

<b>DAYS</b>	<b>TIMING</b>	<b>ACTIVITY</b>
<b>1</b>	45 minutes to 1-hour	Seedbed preparation (cleaning the site, pot preparation, cleaning, and painting the pots).
<b>2</b>	20 to 30 minutes	Written and verbal information will be given to the participants about the plant (its historical and traditional uses and botany of plant, etc.) they will grow.  (Detailed of this information is given in the Appendix).
<b>3</b>	20 to 30 minutes	Soil and compost mixing (organic matter), extracting any substance from it, filling the pots, and cleaning the area.

4	20 to 30 minutes	Planting the baby plant.
5	10 to 15 minutes	Maintaining the moisture of the plant area.
6	10 to 15 minutes	Taking care of plants (cleaning the dust off, water if needed.) Have physical touch with the plant and notice the texture, and how the soil feels in your hands.

**Session 2****Purification**

<b>DAYS</b>	<b>TIMING</b>	<b>ACTIVITY</b>
<b>7 to 11</b>	10 to 15 minutes for each participant each day	<p>Along with taking care of plants and watering, participants will be asked to engage with plants. On all 5 days, they will be asked to release negative emotions during a breathing exercise. Participants will be instructed to notice the change in their bodies and emotions. This session will be individual-based.</p> <p>The rationale of this activity is to make them vent out their negative emotions, reveal their innermost feelings to nature, and have an honest conversation.</p>

### Session 3

#### Insight

<b>DAYS</b>	<b>TIMING</b>	<b>ACTIVITY</b>
<b>12 to 16</b>	15 minutes for each participant each day	Along with taking care of plants, participants will be asked to engage with plants and talk about what kind of positive emotions they have felt during the process or today. What are the problems they are going through, and what can be the possible solutions?

### Session 4

#### Recharging and Change

<b>DAYS</b>	<b>TIMING</b>	<b>ACTIVITY</b>
<b>17 to 19</b>	20 minutes	Group activity of taking care of each other's plants. The rationale of this activity is to bring them together and strengthen social interaction and group cohesiveness.

20	20 minutes	Same activity as above
21	1-hour	Group activity in the natural environment in which participants will be asked to share their experiences with each other about what emotional, behavioral, and cognitive changes they have experienced during this time.

### پہلے دن کی سرگرمی

21 دن کا یہ پروگرام ہے جس میں ہم نے گارڈنگ کرنی ہے۔ اسے ہم آج سے شروع کریں گے۔ پہلے دن کی سرگرمی (ایکٹیوٹی) تقریباً 45 منٹ سے 1 گھنٹے تک کا وقت لے سکتی ہے یا اس سے بھی کم وقت لگ سکتا ہے۔ لیکن آپ کو یہ آرام سے کرنا ہوگا، اس میں کوئی جلدی نہیں ہے نہ ہی بہت زیادہ تھکاوٹ والا کام ہوگا۔ آپ جس قدر پرسکون ہو کر اس کو کر سکتے ہیں آپ نے کرنا ہے۔ کچھ ہدایات آپ کو دی جائیں گی جس کے مطابق آپ کو یہ سرگرمی کرنی ہوگی۔ یہ ایک گروپ ایکٹیوٹی ہے جس میں ہر فرد کو ایک گملہ دیا جائے گا آج کے دن کے لیے ہمارا ہی کام ہوگا کہ ہم نے سب سے پہلے گملوں کو صحیح طریقے سے صاف کرنا ہے اور رنگ کرنا ہے۔ ویسے تو یہ گملے بہت زیادہ گندے نہیں ہیں، دھلے ہوئے ہیں لیکن پھر بھی تھوڑی بہت جو گرد یا مٹی وغیرہ ہے وہ آپ گیلے کپڑوں سے صاف کریں گے پھر اسے خشک کریں گے۔ اس کے بعد تین رنگ کے پینٹ (رنگ) میں سے ہر بندہ ہوں خود منتخب کرے گا کہ وہ کونسا رنگ کرنا چاہے گا پینٹ کرنے کے لئے آپ کو دستاں دینے دیے جائیں گے۔ اس کے بعد آپ



پینٹ کریں گے اور اسے خشک کریں گے آج کے لیے ہمارا اتنا ہی کام ہے۔ آپ لوگوں میں سے کوئی بھی اگر درمیان میں تھکاوٹ محسوس کرتا ہے تو وہ بتا سکتے ہیں۔ آپ کو کسی جگہ پر کوئی مشکل پیش آتی ہے تو آپ پوچھ سکتے ہیں۔

## دوسرے دن کی سرگرمی

(پچھلی ایکٹیویٹی کے جائزے کے بعد)

آج ہماری اس ایکٹیویٹی کا دوسرا دن ہے۔ جس میں آپ کو بتایا گیا تھا کہ ہم پودے لگائیں گے۔ پودوں سے متعلق آپ کو کچھ لکھی ہوئی معلومات دی جائے گی جو کہ آپ نے پڑھنی ہے اگر آپ میں سے کسی کو یہ معلومات پڑھنے میں مشکل پیش آ رہی ہے تو یہ آپ کو بول کر بھی بتائی جائیں گی۔ اگر آپ کو کوئی چیز سمجھ نہیں آتی تو آپ بغیر ہچکچاہٹ کے پوچھ سکتے ہیں۔ ان معلومات کا مقصد آپ کی اس پودے سے واقفیت کرنا ہے تاکہ آپ اس کو غور سے پڑھے اور سمجھنے کی کوشش کریں اور اس کو زبانی یاد رکھنے کی کوشش کریں، کہ کس قسم کا پودا آپ کو دیا جا رہا ہے۔

پودے سے متعلق دی گئی معلومات اگلے صفحے پر درج ہیں۔

## بلڈ لیف پلانٹ

Iresine herbstii کا تعلق گل کیش (Amaranthaceae) خاندان سے ہے۔

اسے عام طور پر بلڈ لیف، چکن گیزارڈ، یف سٹیک پلانٹ اور ہربسٹ کہا جاتا ہے۔

یہ جنوبی امریکہ، خاص طور پر برازیل سے تعلق رکھتا ہے۔ لیکن یہ ہندوستان اور ایشیا

کے کئی حصوں میں پایا جاتا ہے۔ یہ پودا چھوٹے تنوں اور چھوٹے سبز یا سفید

پھولوں پر مشتمل ہوتا ہے، لیکن پھولوں کے بجائے، یہ عام طور پر گھنے پتوں کے



لیے اگانے جاتے ہیں۔ یہ پودہ جنوبی برازیل میں، زخم بھرنے کے لیے استعمال کیا جاتا ہے۔ اس کے پتے کینسر کے علاج میں استعمال ہوتے ہیں۔ دوسرے پودوں کے ساتھ مل کر بیماریوں کی تشخیص یا دیگر رسمی علاج میں استعمال کیا جاتا ہے۔

اس پودے کو اگانے کے لیے ہدایات:

یہ پودا پوری دھوپ یا جزوی سایہ والی جگہ پر لگائیں، اسے اُگنے کے لیے زرخیز یا نامیاتی طور پر بھپور مٹی کی ضرورت ہوتی ہے۔ اس کا رنگ زیادہ دھوپ میں اگانے سے بہتر ہوتا ہے۔ پودہ اگانے سے پہلے کھاد کو مٹی میں اچھی طرح سے شامل کریں، جب تک کہ مٹی میں مادے زیادہ نہ ہوں۔ عام طور پر، سردیوں میں باہر کی بنسبت گھر کے اندر گرم درجہ حرارت کی وجہ سے اگانا بہترین ہے۔ یہی وجہ ہے کہ گھروں کے اندر یہ اچھی طرح پھلتے ہیں۔ بارش نہ ہونے کی صورت میں ہر ہفتے پانی دے کر تمام گرمیوں میں مٹی کو یکساں طور پر نم رکھیں۔ نمی کو بخارات بننے سے روکنے کے لیے نامیاتی ملچ (ادھ سڑی گھاس) کی 2 سے 3 اینچ (5-8 سینٹی میٹر) تہہ استعمال کریں۔ موسم خزاں اور سردیوں میں نمی کو کم کریں۔

اگر اسکے پتے لمبے اور باریک یا کمزور نظر آئے تو شاید یہ کافی روشنی حاصل نہیں کر رہے ایسی صورت میں پودے کو زیادہ دھوپ میں رکھیں۔ سردیوں میں، پودے کی پانی کی ضروریات اتنی زیادہ نہیں ہوتی ہیں۔ آپ ہفتے میں صرف ایک بار پانی دے سکتے ہیں۔ یاد رکھیں مٹی کو مکمل طور پر خشک نہ ہونے دیں۔ جڑوں کے سڑنے سے روکنے کے لیے پانی دینے کے بعد ڈرنیج ٹرے کو

ہمیشہ خالی کریں۔

فائکس

(Ficus. benjamina) یہ پھولدار پودے کی ایک قسم ہے، جو ایشیا اور آسٹریلیا سے تعلق رکھتی ہے۔

اپنی خوبصورت نشوونما اور خراب حالات میں بھی اُگنے کی صلاحیت رکھنے کی وجہ سے یہ ایک بہت



مشہور گھریلو پودا ہے۔ جو کہ معتدل یا درمیانے درجہ حرارت والے علاقوں میں پایا جاتا ہے۔ یہ روشن، دھوپ والے حالات میں بہترین نشوونما پاتا ہے،

لیکن یہ کافی حد تک سائے کو بھی برداشت کر سکتا ہے۔ گرمیوں میں اسے درمیانی مقدار میں پانی دینے کی ضرورت ہوتی ہے اور سردیوں میں پانی

صرف اسے خشک ہونے سے بچانے کے لیے کافی ہے۔ کم وقت میں اُگنے کے لیے لمبے دن، زیادہ یا معتدل درجہ حرارت سازگار حالات ہیں۔ گھر کے

اندر اگانے پر، یہ اپنے مقام کے لحاظ سے بہت بڑا ہو سکتا ہے اس لیے اس کی کٹائی یا جگہ تبدیل کرنے کی ضرورت پڑ سکتی ہے۔ اس کے علاوہ یہ

دیکھا گیا ہے کہ یہ گھر کی اندرونی ہوا سے گیسو فارملڈ ہائیڈ (زیر پٹی گیس) کو مؤثر طریقے سے ہٹانے کی صلاحیت رکھتا ہے۔ اس کے کچھ استعمالات

مندرجہ ذیل ہیں۔ اس کا لیٹیکس (شیرہ) معمولی زخموں کو بند کرنے کے لیے استعمال ہوتا ہے۔ چھال کا رس جگر کے امراض میں استعمال ہوتا

ہے۔ پتوں اور ٹہنیوں کو کیڑے مار دوا کے طور پر استعمال کیا جاتا ہے۔

اس کے لیٹیکس اور کچھ پھلوں کے عرق کو مقامی کمیونٹیز جلد کے امراض، سوزش، قے، ملیریا، ناک کے امراض اور کینسر کے علاج کے لیے استعمال

کرتے ہیں۔ دنیا کے کچھ حصوں میں، اس کے پتوں اور پھلوں کے عرق کو مقامی کمیونٹیز جلد اور سانس کے امراض کے علاج کے لیے استعمال کرتی

ہیں۔

**اس پودے کو اگانے کے لئے ہدایات :**

اس پودے کے لیے صحیح جگہ تلاش کرنا ضروری ہے۔ ایسی جگہ کا انتخاب کریں جہاں پہ روشنی ہو لیکن براہ راست دھوپ میں نہ رکھیں۔ کھڑکی سے

چند فٹ کی پوزیشن بہترین ہے۔ اس بات کو یقینی بنائیں کہ پودا خشک جگہ پر نہیں ہے یا سردیوں میں ریڈی ایٹریا ہیٹر کی گرمی کے قریب نہ رکھیں۔

اس کو پھلنے پھولنے کے لیے کم از کم 16 °C کے درجہ حرارت کی ضرورت ہوتی ہے، سردیوں میں 13 °C سے زیادہ ٹھنڈا موسم ان کے لئے صحیح

نہیں ہے۔ اس پودے کو ایک گہرے گملے میں لگائیں جس میں نکاسی کے سوراخ ہوں۔ پانی دینے کے بعد، اس بات کو یقینی بنائیں کہ اضافی پانی نکل جائے۔ پودے کی جگہ بار بار مت بدلیں، اس کی وجہ یہ ہے کہ اس پودے کے پتے بہت زیادہ گرتے ہیں۔ اس کو سنبھالتے وقت دستانے کا استعمال کریں۔

### Heart-leaved Moonseed



ہارٹ لیومون سیڈ (Tinospora cordifolia) بھارت کی ایک اہم جڑی بوٹی ہے جو خون میں شوگر کی سطح کو کنٹرول کرنے اور مدافعتی نظام کو مضبوط بنانے میں مدد کرتی ہے۔ یہ جھاڑی خاص طور پر ہندوستان میں پائی جاتی ہے جہاں اسے امرتیا گڈوچی کے ناموں سے بھی جانا جاتا ہے۔ Tinospora cordifolia ذیابیطس، ہائی کولیسٹرول، الہرک ناک کی سوزش، پیٹ کی خرابی، گاؤٹ، پیمانٹس، پیپٹک السر کی بیماری (PUD)، بخار اور دیگر بیماریوں کے لیے استعمال کیا جاتا ہے۔

اس پودے کو اگانے کے لئے ہدایات :

یہ پودا فی دن 4-6 گھنٹے کی مکمل سورج کی روشنی میں اچھی نشوونما پاتا ہے۔ جب پودا چھوٹا ہو تو اسے دوپہر کی سخت دھوپ میں رکھنے سے گریز کریں۔ گملے کو گہرائی سے اور یکساں طور پر صرف اس وقت پانی دیں جب اوپر کی مٹی چھونے میں خشک محسوس ہو۔ دوبارہ پانی دینے سے پہلے مٹی کی سطح کو خشک ہونے دیں۔ گرمیوں کے دوران کثرت سے پانی دیں، لیکن سردیوں میں اس شرح کو کم کریں۔

غیر نامیاتی، کیمیائی فیڈ کے بجائے صرف نامیاتی کھاد کا استعمال کریں۔

یہ ایک پیل نما پودا ہے۔ باغ وغیرہ میں یہ دوسرے پودے کا سہارا لیتا ہے۔ آپ اس کی پیل کو جالی، لٹھی یا بانس سے ترتیب دے سکتے ہیں۔ آج تک، اس پودے کو کیرٹوں سے پاک جڑی بوٹی کے طور پر رپورٹ کیا گیا ہے۔ زیادہ پانی دینا ممکنہ مسائل کو دعوت دے سکتا ہے لہذا اس سے ہر قیمت پر پرہیز کریں۔

### تیسرے دن کی سرگرمی

#### پچھلے دن کی ایکٹیوٹی کے جائزے کے بعد

آج کے دن ہم گملوں کے اندر مٹی بھرے گے تاکہ بعد میں اس میں پودا لگا سکے۔ آپ کو کھاد اور مٹی فراہم کی جائے گی۔ سب سے پہلے مٹی میں اگر کوئی غیر ضروری ذرات وغیرہ ہیں تو آپ وہ صاف کریں گے مٹی کو بھر بھرا بنائیں گے صاف کرنے کے بعد فرش پر ہی مٹی کے اندر آپ نے کھاد مکس کرنی ہے۔ کھاد مکس کرنے کے بعد آپ اس کو اپنے گملوں کے اندر ڈال دیں گے۔ اس کے بعد اپنے یہ جگہ صاف کر دینی ہے۔ کوشش کریں کہ جب آپ مٹی میں ہاتھ ڈالے تو اسے بھرپور طریقے سے محسوس کرنے کی کوشش کریں کہ آپ کے ہاتھ مٹی میں ڈالنے سے کس طرح کی کیفیات رونما ہو رہی ہے۔

### چوتھے دن کی سرگرمی

#### پچھلی ایکٹیوٹی کے جائزے کے بعد:

آج آپ کو پودے دیے جائیں گے جو کہ آپ نے گملوں میں لگانے ہیں۔ آپ دستانوں کے بغیر بھی یہ کام کر سکتے ہیں لیکن اگر آپ کو کسی قسم کی خارش ہو رہی ہے تو آپ دستانے بھی استعمال کر سکتے ہیں۔ آپ نے سب سے پہلے مٹی کو ترک کرنا ہے پھر اس میں پودا لگانا ہے اور مناسب مقدار میں پانی دینا ہے جو فائنکس لگا رہے ہیں انہوں نے اسے دھوپ کے مکمل سامنے نہیں رکھنا بلکہ ہلکی سی سایہ دار جگہ پر رکھیں۔ ریڈ بلڈ لیف پلانٹ کو زیادہ روشنی والی جگہ پر رکھنا ہے اس کا رنگ اس سے سبز ہوتا ہے۔

## پانچویں دن کی سرگرمی

پچھلی ایکٹیوٹی کے جائزے کے بعد

فائنکس جس نے لگایا ہے وہ سپرے سے پتوں کو تھوڑا گیلا کر دیں۔ اگر کوئی گرد وغیرہ ہو تو صاف کر دے۔ اس کو بہت زیادہ دھوپ میں مت

رکھیں اور نہ ہی اس کو بہت زیادہ پانی سے بھرے ہوئے گلمے میں رکھنا ہے۔ ریڈ بلڈ لیف پلانٹ، چونکہ سردیاں ہیں اس لیے جہاں زیادہ روشنی

آ رہی ہوں وہاں رکھنا ہے۔ کیونکہ سب گلموں میں مٹی گیلی ہے اس لیے آج ہم پانی نہیں دیں گے۔

ہارٹ لیف پینٹ کے لیے بھی ہدایات ہیں اس دن صرف پتوں وغیرہ کو چھو سکتے ہیں یا گرد وغیرہ ہے تو صاف کر دی

## چھٹا دن

پچھلی ایکٹیوٹی کے جائزے کے بعد

اپنے ہاتھ کی انگلیوں سے چیک کریں کہ مٹی خشک تو نہیں ہے اگر خشک ہے تو پانی دینے کی ضرورت ہے آج آپ پودے اور گلمے میں موجود مٹی کو

چھو کے دیکھیں گے کہ یہ کیسا محسوس ہوتا ہے۔

## سات سے گیارویں دن کی سرگرمی

مزید اب آگے پانچ دنوں میں آپ کو ایک ورزش کروائی جائے گی جو آپ نے اپنے پودے کی موجودگی میں کرنی ہے کوشش کریں کہ جو ہدایات آپ

کو دی جائیں آپ ان پر مکمل عمل کریں۔ مندرجہ ذیل ہدایات کے مطابق ورزش کروائی جائے۔

• کرسی پر بیٹھتے وقت اپنی پیٹھ سیدھی رکھیں۔ اب اپنے جسم کو بالکل آرام دہ حالت میں لائیں لیکن کرسی پر لیٹیں نہ۔ اپنی آنکھیں بند

کریں۔ -

• ایک ہاتھ اپنے پیٹ پر رکھیں، اپنی پسلیوں کے بالکل نیچے۔ دوسرا ہاتھ اپنے سینے پر رکھیں۔

- اب اپنی ناک سے آہستہ آہستہ، گہرا سانس لیں۔ اور اپنی سانس دو یا تین سیکنڈ تک روکیں۔ آہستہ آہستہ اپنے منہ سے سانس باہر نکالیں۔ توجہ دیں کہ کیسے آپ کے پیٹ پر ہاتھ سانس کے ساتھ باہر جاتا ہے۔
- اس عمل کو کئی بار کریں جب تک کہ آپ کو پرسکون حالت میں نہ آجائے۔
- اب سانس لیتے ہوئے تصور کریں کہ جو ہوا آپ اپنی سانس کے ذریعے اندر لے کے جا رہے ہیں وہ آپ کے پورے جسم میں سکون پھیلا رہی ہے۔
- اب اس پودے کو تصور کریں جس کی آپ دیکھ بھال کر رہے ہیں۔ اس کے بڑھنے اور پھلنے کا تصور کریں۔
- جیسے ہی آپ سانس باہر نکالتے ہیں، تصور کریں کہ آپ کی تمام منفی جذبات، احساسات اور تجربات سانس کے ساتھ باہر نکل رہے ہیں۔ 10 منٹ تک گہرا سانس لینے کی کوشش کریں یا جب تک کہ آپ پرسکون اور کم تناؤ محسوس نہ ہو۔

### بارہ - سولہواں دن

#### پچھلی ایکٹیوٹی کے جائزے کے بعد

آج آپ نے بتانا ہے کہ پودے کی دیکھ بھال کرتے ہوئے آپ نے کس قسم کے جذبات محسوس کیے ہیں اس کے بعد ہم اور مزید چار دن ایسی ایکٹیوٹی کریں گے اب آپ نے یہ کرنا ہے کہ جیسے آپ نے آج بتایا ہے اسی طرح اگلے چار دن میں پودے کی دیکھ بھال کے بعد آپ اپنا تجربہ (ایکسپیرینس) شیئر کریں گے۔

### سترہ - پیسواں دن

#### پچھلی ایکٹیوٹی کے جائزے کے بعد

آج سے آپ نے ایک دوسرے کے پودے کی دیکھ بھال کرنی ہے۔ آپ لوگوں کے پودے تبدیل کیے جائیں گے۔ اس کے بعد اگلے تین دن بھی آپ نے ایک دوسرے کے پودوں کی دیکھ بھال کرنی ہے۔ آپ ایک دوسرے سے ان کے پودوں کے بارے میں پوچھ بھی سکتے ہیں یا آپ کو ایک دوسرے سے مدد چاہیے وہ بھی دے سکتے ہیں۔

### اکیسواں دن

پچھلی اکیٹیویٹی کے جائزے کے بعد

آج اس پروگرام کا آخری دن ہے۔ آج آپ سب باری باری سب کے سامنے اپنا تجربہ بیان کر سکتے ہیں کہ ان 21 دنوں میں آپ نے کیسا محسوس کیا آپ اپنے جذبات یا خیالات کا اظہار کر سکتے ہیں آپ کی کہی گئی کوئی بھی بات غلط یا صحیح نہیں ہے۔ اس اکیٹیویٹی کا مقصد یہ جاننا ہے کہ 21 دن میں آپ کی کیفیت کیسی تھی۔



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