

**NATURE REJUVENATES: TREATING DEPRESSIVE SYMPTOMATOLOGY WITH THREE
GOOD THINGS IN NATURE (TGTiN)**



IFRA KHALID

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Approval for ExaminationScholar's Name: Ifra Khalid

Registration No. 01-275212-009

Programme of Study: Master of Clinical Psychology

Thesis Title: Nature Rejuvenates: Treating depressive symptomology with three good things in nature.

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DEDICATION

To my beloved mother and father, who have always supported, encouraged, and ensured their presence for me through thick and thin.

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All praise is due to Allah Almighty (سُبْحَانَهُ وَتَعَالَى), The Lord of Worlds, The Most Compassionate, The Most Merciful. I am humbled and thankful to Allah, the Almighty, for providing me with the insight, physical health, and window of opportunity to complete this thesis. All respect and possible tribute go to Holy Prophet Muhammad (صَلَّى اللهُ عَلَيْهِ وَسَلَّمَ) who is forever guidance and knowledge for all human beings on earth.

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I devote everything, including this to **my family**. I ought to express my thankfulness to my entire family, especially **my mother**, who taught me the importance of education and how it can improve your character, and **my father**, who taught me that no matter how simple a task may seem, it demands hard work and your undivided attention.

Abstract

The purpose of the study was to investigate the effectiveness of treating depressive symptomatology with three good things in nature (TGTin). Three good things in nature intervention is used to reduce depressive symptomatology among university students. Pretesting before intervention and post testing after intervention was done with sample of 5 participants. It was hypothesized that TGTin intervention will reduce depressive symptomatology and enhance mental wellbeing, positive affect, and nature connectedness. To measure the variables, Center for Epidemiologic Studies Depression Scale (CES-D), Warwick Edinburgh Mental Well-being Scale (WEMWBS), Positive and Negative Affect Schedule (PANAS), Connectedness to Nature Scale (CNS) were used. The results of the study confirmed the hypothesis. All participants showed decrease in their depressive symptomatology and increase in mental wellbeing, positive affect and connectedness to nature.

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Chapter 1

Introduction

Background of the study

A mental illness called depression is among the most prevalent health issues affecting young people in Pakistan. According to one study, the overall frequency of depressive symptoms among Pakistani university students was 42.66%. Individuals event, hormonal involvement, physiological inequalities, as well as inheritance may all involve in diverse roles and be potential causes of depression in every person. While every young person reacts differently to life events, numerous situations that might heighten depressive symptoms and anxiousness in teens comprise disagreements through intimate or companion, transitioning to university, being bullied, going through a breakup, recently losing someone, or experiencing abuse or neglect.

Young people, as others, might have temper changes, become agitated sometimes, and are markedly vulnerable towards refusal as well as critique. Though, uncertainty these sensations or actions continue to more than 14 days, individual diagnosed as a depressive disorder. Being annoyed or irritable, sense exhausted, sense useless and embarrassed utmost period, taking views of decease or self-destruction, experiencing distress asleep - moreover at the start of sleep and middle of sleep, absent inspiration as well sense the whole thing difficult, down concentration of nourishment or else intake more, down mass or else fast gaining mass, not caring about their personal cleanness, spending cigs, liquor, or unlawful medicines comprise the signs of depression. Individuals who do not entirely satisfy the criteria for depression may still exhibit some symptoms that interfere with their everyday functioning. Low mood, melancholy, loss of interest, lack of ambition and energy, and sleep difficulty are some of symptoms. As a result, there is a depressive

symptomatology in the general population that is not present in clinically diagnosed depression patients.

Depressing symptoms combination of signs linked by despair, like dejected tone with failure of satisfaction with their routine performance that perform ahead of the usual hostile sentiments that an particular may practice. Depressive symptoms are common in puberty and are expected to stay during middle age, exhibiting while medical despair after in lifespan. A variety of community, emotive, family relatives and organic reasons which is seen as cause to the origin of depression and depressive symptomatology, and individual events differ. The prevalence of depressive symptomatology in young people range greatly, with community studies showing increases ranging from 13% to 33%.

There are many interventions and approaches to deal with depressive symptomatology. Positive psychology interventions mainly emphasis as improving persons wellbeing and positive affects and reducing depressive and negative symptoms. Focused notable personal experiences experienced in past (wellness, happiness, and gratification), here and now (flow, a state of immersive, active enrolment in person's activeness that performs as a forecaster of happy state), and the future (hope and expectancy). Positive psychology in this period focuses on lessening the hardships and boosting happiness, because happiness delivers significantly more benefits than simply feeling good. People that are cheerful are happier, healthier, and more socially involved. Participants who did an internet-based 'TGT' used to stayed cheerful and excluding unhappy at the 1-month and 6-month additional session than at the baseline. Positive psychological therapies, such as self-help, group, and individual therapy (for example, TGT, hope therapy, and well-being therapy), have been demonstrated to improve mental health.

Positive psychology intervention TGTin can be used as self-help technique, in which individual walk in the natural environment and observe three good things from the nature and then reflect on these good things. It can help in reducing negative symptoms and increase in positive symptoms, it also enhances individuals mental wellbeing and increases connection with nature. Positive affect enhances and negative affect reduces by outdoor walking and decreasing signs of anxiety and depression and these benefits have been shown in nature-based therapy therapies. Connecting people to nature is primarily concerned with a person's sense of self, sense of inclusion in nature, and awareness of human connectedness to nature. A better developed ecological self is associated with a greater appreciation for nature and ecological behavior.

Hundreds of studies have been done to study the impact of PPIs on many elements of well-being, such as pleasant emotions, engagement, and happiness (e.g., Lyubomirsky et al., 2005; Seligman et al., 2005; Sheldon & Lyubomirsky, 2006). PPIs promote both hedonic and eudemonic well-being, according to two meta-analyses on the subject (Bolier et al., 2013).

Methodological gap

In previous research, TGT was merely qualitatively study with nature connectedness. TGT data collected from the participants should be analyzed qualitatively (Richardson and Sheffield, 2017).

Population gap

In previous research, TGTin intervention was usually applied with the clinically relevant sample. It was merely used by the general population or students in connection with nature.

Problem statement

Depression is now prevalent around the world, affecting an increasing number of people. The twentieth century was the century of fear and anxiety, whereas the twenty-first century was the century of depression and melancholy. An estimated 20 to 25% of persons in the general population are currently experiencing significant depressive symptoms. There are 100 reasons that increase depressive symptoms in young adults. By 2050, 70 percent of the world's population, according to current predictions, would live in cities (Dye, 2008). Urban settings are linked to an increase in mental illnesses, such as depression, and the use of medicine (McKenzie, Murray and Booth, 2013). According to Bratman et al. (2015), fewer people are experiencing nature, and green areas are associated with fewer mental health issues and more well-being (Logan and Selhub, 2012). Improvements in nature-related well-being may be linked only for increasing bodily activeness (Logan and Selhub, 2012) the intervening effect that NCx on revealing with nature and psychological wellness illustrates the importance of our connection to it (Pritchard et al., 2020). Evidence suggests that NCx and simple activities, instead to nature exposure and socio-demographics, are among the most significant indicators of high mental wellbeing (Richardson et al., 2021), and have a connection with mental wellbeing (Pattel, 2007). Nature connectedness has also been linked to depression and anxiety disorders. (Brymer and Martyn, 2014)

Nature-based interventions have been demonstrated to benefit in the recovery from stress-related mental illnesses decreasing, reported by individuals in health serving centres (Wahrborg et al., 2014) and improving psychological aspects (Pálsdóttir, Grahn, and Persson, 2014). These results suggested that through well-established interventions nature can be used to improve outcomes.

According to previous researchers, positive psychology intervention TGTin was used with diagnosed depression and anxiety clients. So, there is a need to check this intervention with the

general population with depressive symptomology. And there is little literature in Pakistan on TGTiN intervention. So, there is also a need to check this intervention in our culture. Previous study has also suggested that it be explored qualitatively. A mixed-methods study would clarify the effectiveness and function of nature connectivity on well-being by discovering TGTiN in this population (Richardson et al., 2021).

Depression strikes 350 million individuals globally and, like anxiety, is associated with a broad spectrum of mental health related issues (WHO, 2004). While challenges in medicine are common, a lack of qualified professionals further complicates situations. Receiving psychological help can be complicated (Grandes et al., 2011). Financial ramifications are significant, with the Republic of Ireland spending €8.2 billion annually on mental health care (Jones, 2019). Due to their low cost, greenspace interventions provide an alternative that could save society money (Lovell, 2016). Access to green space has been associated with enhanced happiness and positive mental health (Richardson et al., 2021) (Lovell, 2016). These benefits are observed in interventions that are based on nature (Song et al., 2016), and outdoor walking is helpful in increasing happiness and positive emotions and decrease in negative affect. Eventually depressive and anxiety symptoms reduced (Bratman et al., 2015).

1.3 Purpose of the Study

With TGTiN intervention of positive psychology people will get close to nature which will enhance positive affect and reduce negative affect. Positive affect will induce prolonged feelings of pleasure. This intervention will connect people to nature and this connectedness will give a better understanding of self. It is a self-help intervention that will be cost effected and there are not enough professional psychologists that can provide psychological help to individuals, and it makes the process difficult. A lot of people are unable to approach professionals due to stigmas. TGTiN

being self-help will resolve all these issues. It will also help in the overall well-being of the person, with depressive symptomology.

Research questions

- Would TGTiN intervention help people to increase their connectedness to nature?
- Would TGTiN intervention enhance the positive effects and reduce the negative effects?
- Would TGTiN intervention reduce depressive symptomology?
- Would TGTiN enhance the well-being of young adults?

Research objectives

- To connect people with nature through this intervention.
- To enhance the positive effect on people and reduce negative effects.
- To evaluate the effectiveness of intervention TGTiN in reducing depressive symptomology.
- To improve the psychological well-being of the person with TGTiN.

Significance of Study

With TGTiN intervention of positive psychology people will get close to nature which will enhance positive affect and reduce negative affect. Positive affect will induce prolonged feelings of pleasure. This intervention will connect people to nature and this connectedness will give a better understanding of self. It is a self-help intervention that will be cost effected and there are insufficient trained psychologists for individuals psychological help that cause difficulty in

acquiring help. A lot of people are unable to approach professionals due to stigmas. TGTiN being self-help will resolve all these issues. It will also help in the overall well-being of the person, with depressive symptomatology.

Definitions of key terms

Depressive symptomatology

it is the group of signs and symptoms categorizing depression, that include down mood, anhedonia for most of the day to day actions, all of which is on the far side of regular pessimistic feelings one could undergo occurrence.

Nature connectedness

Connectedness to nature can be characterized by self-perception of state between person and natural surroundings (Schultz et al., 2004); reflecting a feeling of kinship also emotional occurrence of connection with nature (Mayer and Frantz, 2004).

Positive affect

Positive affect refers to the extent to which an individual subjectively experiences positive moods such as joy, interest, and alertness Peterson, C. (2006)

Negative affect

Negative affect is a broad concept defined by the common difference between anxiety, sadness, fear, anger, guilt and shame, irritability, and other unpleasant emotions (Watson, Clark, & Tellegen, 1988).

Mental wellbeing

Referred as personal wellness. Personal wellness elaborated as one's perceptual experience along with the appraisal in one's life (Keyes, 2006). each of the element contains individual's personal wellness: hedonic and eudaemonia. Hedonism is pleasance and happy state.

Chapter 2

Literature review

Mental diseases contribute significantly to the disease burden among young people worldwide. Most mental health problems develop during adolescence (12 to 24 years of age), however they are frequently identified later in life. Poor mental health is significantly associated to a wide range of health and development issues in adolescents, including reduced educational attainment, substance misuse, violence, and poor reproductive and sexual health. Although some interventions have been demonstrated shown to be useful for various mental problems in this age group, more research is urgently needed to expand the range of inexpensive and practicable interventions, because most mental-health needs among young people are unmet, even in high-income countries. The shortage of mental-health practitioners, as well as inadequate competence and motivation, are major obstacles to meeting mental-health needs (Iacenta, 2007). Stress reduction theory and attention restoration theory are the two basic explanatory frameworks. Stress reduction theory, which is part of psycho-evolutionary theory, holds that when people encounter natural elements that help them survive (e.g., water, food), they have a psycho physiological response that includes a decrease in physiological arousal, a drop-off in negative affect, and an gain in positive affect (Ulrich et al., 1991). Recently developed One Health health models recognize that humans are interconnected with nature, due to which their psychological and biological wellbeing is related to nature (Rabinowitz et al., 2018). Similarly, scientific ecology defines a symbiotic link between health and diversity in a therapeutic environment Nelson et al. (2019).

A increasing body of research suggests a link between a) population-level exposure to natural environments and b) individual usage of natural habitats and a variety of favorable mental health outcomes. The effects tend to change depending on socioeconomic position as well as other

demographic parameters such as age or gender. Interventions that use natural settings as settings for mental health promotion or therapy have weak but favorable results and are shown to be cost effective. While there is a growing amount of rigorous research in which confounding factors that may affect the association are controlled for, some of the existing evidence comes from studies that may be vulnerable to certain types of bias, and which are not as rigorous (Lovell., 2016). The contribution of outdoor physical activity and well-being includes to the previously identified Nature Relatedness-anxiety relationship (Brymer et al., 2017). The mediation influence of NCx on exposure to nature and mental wellbeing highlights the significance of our relationship (Pritchard and et al., 2020). Evidence suggests that nature connectedness and simple activities, rather than nature exposure and socio-demographics, are the most important determinants in expecting increased mental well-being (Richardson et al., 2021), while also being associated to psychological recovery (Pattel, 2007). Visits to nature have been connected to life satisfaction, rather than the amount spend between nature; nature connectivity, instead of the period spent with nature, connected to or denoted to meaningful existence (Martin et al, 2020). Nature connectedness, observing nature are found to link with major predictors of happiness and worthwhile living by Richardson et al., (2021). These discrepancies could be related to differences in evaluating self-reported period of time with nature v/s staying close to nature. In general, the importance of natural connectedness, noticing nature, and spending time with nature is emphasized. It is becoming clear that emotional and psychological access to nature is as important, if not more important, for some outcomes than physical access to nature. Recent research, as well as current findings, influence the more holistic conceptualisation founded on acceleratory access to, promoting ambient connections to nature by means of recognizing nature

(McEwan et al., 2019) systematized intercession nature connectedness paths (Lumber et al., 2017; Richardson et al., 2020).

The TGT intervention involves thinking about and writing down three pleasant things that happened in one's day, as well as the reasons for them. TGT alongside different gratitude therapies these activities that promote wellbeing by encouraging people to focus on what they have rather than what they lack a deficiency (Emmons & McCullough, 2003). Hence, the actions are opposed to hedonistic modification to ordinarily taken as for granted experiences. Moreover, thankfulness is incompatible with negative emotions, thus it may diminish feelings like envy and greed. (McCullough et al., 2003) Gratitude treatments also promote savoring, which is the prolonged pleasure of a pleasurable experience, so enhancing the benefit of positive life experiences (Bryant, 2003). The intervening role of nature connection and contact to nature and wellbeing gives significant relation to our study (Pritchard et al., 2020). Evidence suggests that nature connectedness and simple activities are the most important variables influencing healthy mental health (Richardson et al., 2021).

The environment influences feelings and thought influencing Positive affect and negative affect with nature connectedness, resulting in greater oneness to the nature, which improves well-being (Atchley et al., 2012). The findings revealed that implementing the three good things intervention for 21 consecutive days resulted in an improvement in subjective well-being. According to Seligman et al. (2005), a one-week three good things intervention can boost happiness and minimize depression symptoms. Furthermore, Watkins et al. (2015) found that a one-week intervention of write down three things to show appreciation for improved subjective well-being. When performed intensively, the intervention of writing down things to be satisfying can improve subjective well-being. According to Watkins and McCurrach (2016), the cognitive part of the three

nice things intervention includes training the ability to focus on and recall happy occurrences, perceiving them as causes for thankfulness, and enhancing memory. According to Watkins and Scheibe (2018), retelling and writing about one's blessings might produce feelings of appreciation, leading to greater well-being. The emphasis on visits, time in nature, and succeeding number of suggestions reflects the biological framework of wellness preferably to the inner components which could be important to happiness and mirrored onto the psychosocial framework created by Engel (1977). TGT encourages people to reflect on and journal TGT they have experienced, which improves their wellbeing. It will promote nature connectedness when used in conjunction with (TGTiN) (Richardson & Sheffield, 2017).

Chapter 3

Theoretical Framework

Positive psychology interventions, often known as PPIs, are a set of scientific techniques and strategies aimed at promoting joy, wellbeing, and positive thoughts and feelings (Keyes, Fredrickson, & Park, 2012). Evidence indicates that, over time, psychologists have centered on therapy rather than prevention (Bolier et al., 2013). Psychotherapy and assessments that were previously established in positive psychology mostly addressed abnormalities like depression, anxiety, tension, anxiety, and trauma, among others.

Sin and Lyubomirsky (2009) define PPI as a therapeutic method which mainly centers on increasing satisfying feelings, positive thoughts, and beneficial action. All positive psychology interventions have two fundamental components:

- Focusing on improving pleasure in unique ideas and feelings
- Maintaining the change over time.

Considering the previous literature, the state of being happy could be gained as well as maintained with the help of variety different kind of techniques, that includes receptive cognizance, socially communicating, practising thankfulness, and cognitively self-reformation. In the end, every aspect was classified altogether for applicatory process famed as the PPI (Parks & Schueller, 2014).

Positive psychological therapies, such as self-help, group and individual therapy (e.g., TGT, hope therapy, and well-being therapy), have been shown to improve wellbeing and reduce depressed symptoms. Although there are a lot of therapeutic approaches of its kind, which includes online available self-assisting strategies as in TGT focuses onto the symptoms, and even though

that the concepts of relief, wellbeing, and happy state was used for physically fit but psychologically people at distress, there is little precise research available about the types of good experiences and increases the subjective wellbeing of health care professional. Therefore, this research was conducted to investigate the positive things mentioned by healthcare workers who took part in the Three Positive Things intervention.

Richardson and Sheffield, (2017) modified to TGTiN, connecting with nature may help to reduce negative feelings and depression symptoms. Withal, bantam knowledge is available about how nature may leave effects on to the clinical populations such as depression and anxiety (Brooks et al., 2017), hence modifying, measuring efficacy of TGTiN in health care community is requisite. From previous studies, it is proved that it would be effective for decreasing depressive and anxiety symptomatology McEwan et al., (2019), TGTiN is evaluated on general population who are not accurately diagnosed as depression patient but have some symptoms experimentally. Evident from literature review shows that there is a significant decrease in negative affect and depressive symptoms and increase in positive affect, mental wellbeing, and nature connectedness.

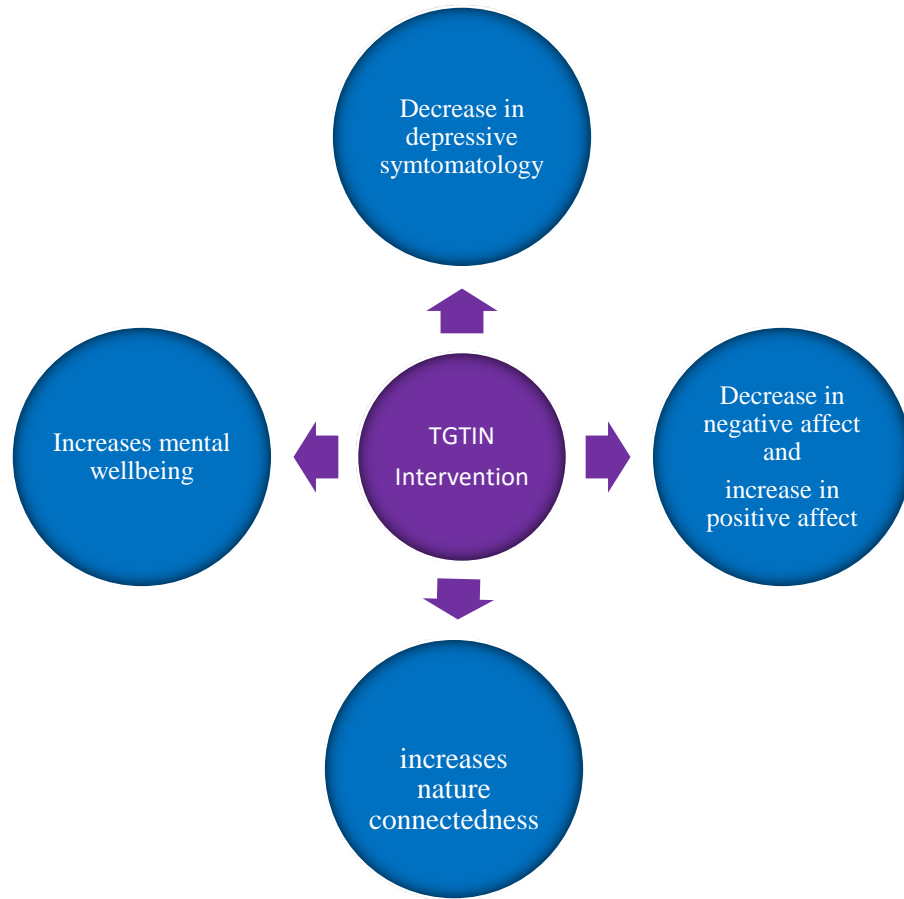


Figure 3.1 Conceptual framework

3.1 Hypotheses

1. After receiving TGTiN intervention participants scores decrease in depressive symptomatology than the baseline measures.
2. After receiving TGTiN intervention participants score higher on nature connectedness scale than the baseline measures.
3. After receiving TGTiN intervention participants score higher on mental wellbeing scale than the baseline measures.
4. After receiving TGTiN intervention participants score high on positive affect and decrease on negative affect than the baseline measures.

Chapter 4

Method

4.1 Research Design

This current study employed “small n” research design, Also called ABA research design.it is mixed method research quantitative as well as qualitative.

4.2 Participants

Participants of the study consisted of university students who are willing to participate in this study. A total number of 5 students were selected from university. All participants range from age 20 to 26 as they are considered young adults by WHO.

4.2.1 Inclusion Criteria

- Young adult’s age range between 18y to 35.
- Participants with depressive symptoms, and depressive symptomology are included in my study. Depressive symptoms are measured through the scale CESD.
- Participants who agreed to participate in by providing informed consent.

4.2.2 Exclusion Criteria

- Clinical populations are excluded from my desired population.
- Students with scores lower than 16 on CESD scale are excluded from my study.

4.2.3 Sampling Technique

This study used random convenient sampling as the sampling method. The study’s participants participated on a volunteer basis. The students at university were sent online and printed advertisements about taking part in this study through social media channels. The

researcher received contacts from prospective applicants. Participants were chosen from among all interested applicants using the screening tool's results as well as inclusion and exclusion criteria.

4.3 Measures

1- Center for Epidemiologic Studies Depression Scale (CES-D)

This instrument was formulated to use for the usage of lay-man. It is now being used for screening depression for specific work environments. A twenty-item form which inquires about how frequently someone faces signs and indications associated to depression for past seven days. The response options for each item range from 0 to 3 (0 = Occasionally or Never, 3 = Most or Almost All of the Time). The scale is zero to sixty, the greater score indicates towards severe depressive symptoms. Along side this, it gives cut-off scores (e.g., sixteen or higher) this helps in the process of the identification of people which fall on jeopardy for clinical depression, with useful internal consistency and good sensitivity and specificity (Lewinsohn, Seeley, Roberts, et al., 2004)

2- Warwick Edinburgh Mental Well-being Scale (WEMWBS)

Tennant et al. (2007) developed the Warwick Edinburgh Mental Well-being Scale (WEMWBS) to assess hedonic (happy feeling) and eudemonic (self-awareness) well-being. Responses are graded on a 5-point scale from 1 (none of the time) to 5 (all the time) based on events over the previous two weeks. Scores in range of fourteen to seventy, with high values indicating greater happiness.

WEMWBS, a fourteen-item mental wellbeing measuring instrument covering personal wellbeing and psychic performances.

3- Positive and Negative Affect Schedule (PANAS)

A measuring instrument by Watson, Clark, & Tellegen, (1988) which contains two ten-items mood scales measuring PA (e.g., alertness, enthusiasm), NA (e.g., anger, nervousness) components of moods. Individuals of the study have to rate their nature of affect of the previous one week on a range of 1 (never) to 5, with a total generated for both types of effects. Cronbach's alpha values ranged from 0.82 to 0.91 for both dimensions.

4. Nature Connectedness Scale (NCS)

The Connectedness to Nature Scale (CNS) (Mayer and Frantz, 2004) evaluates individuals' connectedness to nature. It is 13-item measure utilizing five point Likert measure which includes 1 (strongly disagree) till 5 (strongly agree) statements as " A mean score is computed, with higher scores indicating greater amounts of NCx. The authors state that the items and scales have high internal consistency and test-retest reliability (Cronbach's Alpha =.85, Guttman's split half reliability =.84).

4.4 Procedure

A research advertisement was circulated to the students at university via printed and online medium. Research title, variables of the study, time and mode of therapy research were mentioned in the advertisement. The researcher's contact was provided and interested participants were asked to contact the researcher. Total 14 students contacted the researcher. Out of 14, the 8 students with score higher than 16 on CESD scale. And out of 8 only five student given consent for the therapy. Then arranged first session with all of them, in which instructions for interventions are given to the participants. Measure positive and negative affect, mental wellbeing, and nature connectedness at baseline. Then applied the intervention, and asked people to walk 30 minutes in a nature (park) and noticed three good things from nature. After a walk, they all responded on a google form.

There are some questions related to three good things, after daily 30 mints walk, they all responded to this question. At the end of this intervention, we arranged another session in which again measures the positive and negative affect, depressive symptomatology, mental wellbeing, and nature connectedness.

4.5 Data Analysis

The Statistical Package for Social Sciences (SPSS v. 21) was used for the statistical analysis. The interpretation of the collected data based on statistical calculation and relations. The main analysis was done through paired sample t test.

Qualitative data analysis was done through NVIVO, nodes and codes formation, thematic analysis, word frequency and word cloud.

4.6 Ethical considerations

Informed consent was taken from participants after giving them the detail of the research. There was no parody of information with the clients. Participants were not exposed to any kind of emotional, psychological, or physical damage. Information regarding participants was kept highly confidential. Furthermore, the results of the study was shared with the participants.

Chapter 5

Results

The purpose of this study was to analyze the effects of three good things in nature (TGTin) intervention on mental wellbeing, depressive symptoms, negative affect, and nature connectedness of participants. This study was an ABA design that aimed to find the effectiveness of TGTin on university students. Baseline consisted of measuring depressive symptomatology, mental wellbeing, positive and negative affect, and nature connectedness before the intervention and after the intervention. The data was analysed in two parts, quantitative analysis, and qualitative analysis. First part quantitative analysis consists of demographic statistics of variables, reliability analysis and paired sample t tests was applied to see the difference in the level of mental wellbeing, depressive symptoms, negative affect, and nature connectedness of participants through SPSS 21. Second part qualitative analysis consists of nodes and codes formation, word frequency, word cloud and thematic analysis of data through NVIVO 10.

Table 5.1 Frequency of Demographic Variable (N=5)*Frequency of Demographic Variable (N=5)*

Variables	<i>F</i>	%
Age Range		
21y	1	20
22y	2	40
23y	1	20
26y	1	20
Gender		
Male	2	40
Female	3	60
Education		
Undergraduate	3	60
Graduate	2	40
Family Type		
Nuclear	4	80
Joint	1	20

Note: f=Frequency. %=Percentage

Descriptive Statistics for Center for Epidemiologic Studies Depression Scale (CES-D), WEMWBS, PANAS and NCS were found out.

Table 5.2 Descriptive Statistics and Reliability analysis for CESD, WEMWBS, PANAS and NCS.

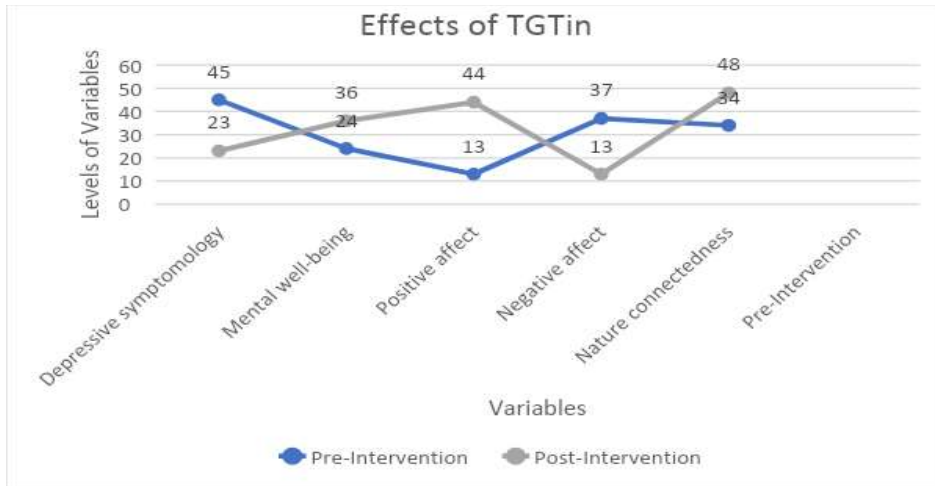
<i>Scales</i>		<i>K</i>	<i>M</i>	<i>SD</i>	<i>Range</i>		<i>A</i>
					<i>Actual</i>	<i>potential</i>	
Center for Epidemiologic Studies Depression Scale	Pre	20	32.20	5.97	45-30	0-60	.727
	post		19.60	2.70	26- 16	0-60	.833
Warwick Edinburgh Mental Well-being Scale	Pre	14	25.20	2.77	29-22	14-70	.503
	post		35.20	2.80	36-34	14-70	.860
Positive Affect	Pre	10	15.60	2.40	19-13	10-50	.889
	Post		39.00	3.60	44-35	10-50	.936
Negative Affect	Pre	10	35.20	4.43	40-30	10-50	.764
	post		16.80	2.77	20-13	10-50	.856
Nature Connectedness Scale	Pre	14	32.20	4.54	37-25	14-70	.728
	Post		42.20	4.96	47-37	14-70	.859

Note: Item number=K, M=Mean, SD=Standard Deviation, α =Cronbach alpha value

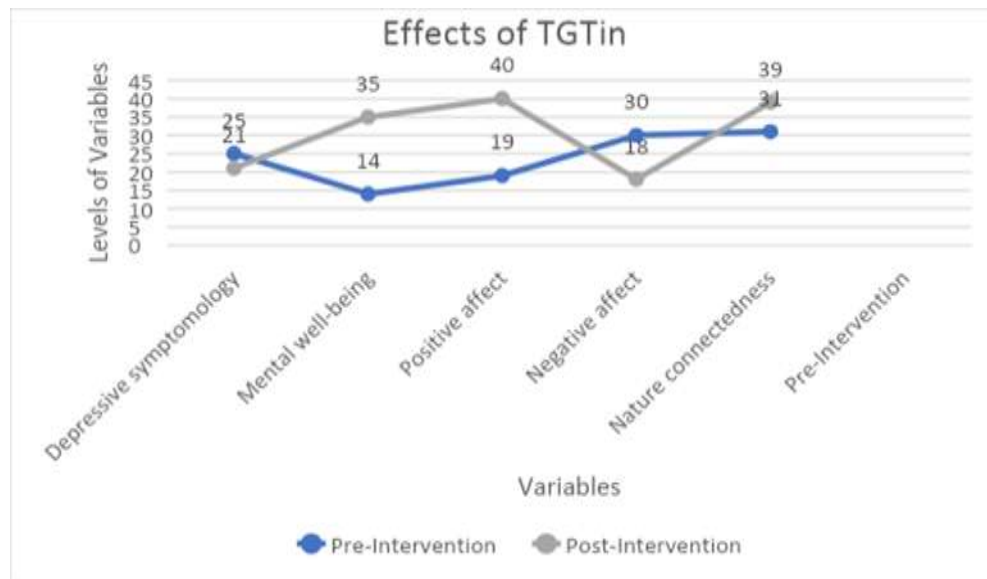
Table 5.3 Paired Sample t-test comparing Depressive symptomatology, WEMWBS, PANAS and NCx in pretest and post-test (N=5)

Paired Sample t-test comparing Depressive symptomatology, Mental Well-Being, Positive and Negative Affect Schedule and Nature Connectedness in pretest and post-test (N=5)

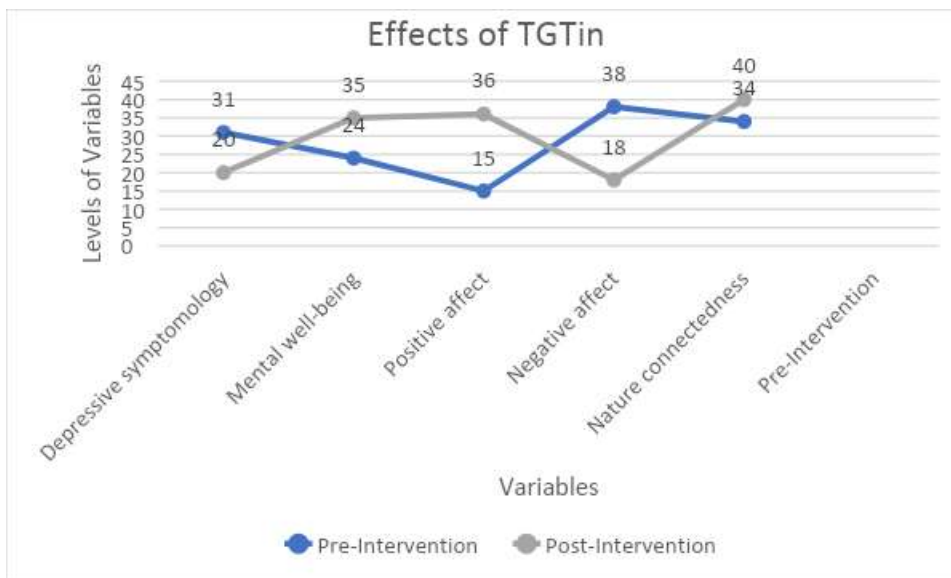
<i>Scales</i>	<i>Pre- Intervention</i>		<i>Post- Intervention</i>		<i>t</i>	<i>P</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Center for Epidemiologic Studies Depression Scale	32.20	5.97	19.60	2.70	6.23	.003	2.71
Warwick Edinburgh Mental Well-being Scale	25.20	2.70	35.20	2.80	-7.071	.002	3.59
Positive Affect	15.60	2.40	39.00	3.60	-7.028	.002	7.64
Negative Affect	35.20	4.43	16.80	2.77	13.498	.000	4.98
Nature connectedness scale	32.20	4.54	42.20	4.96	-5.540	.005	2.10



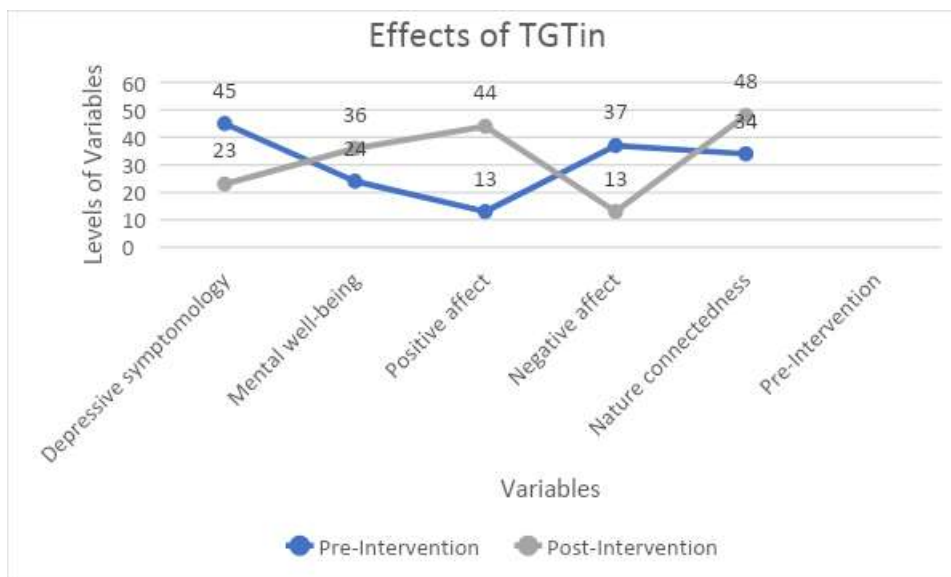
Graphical representation of Participant 1



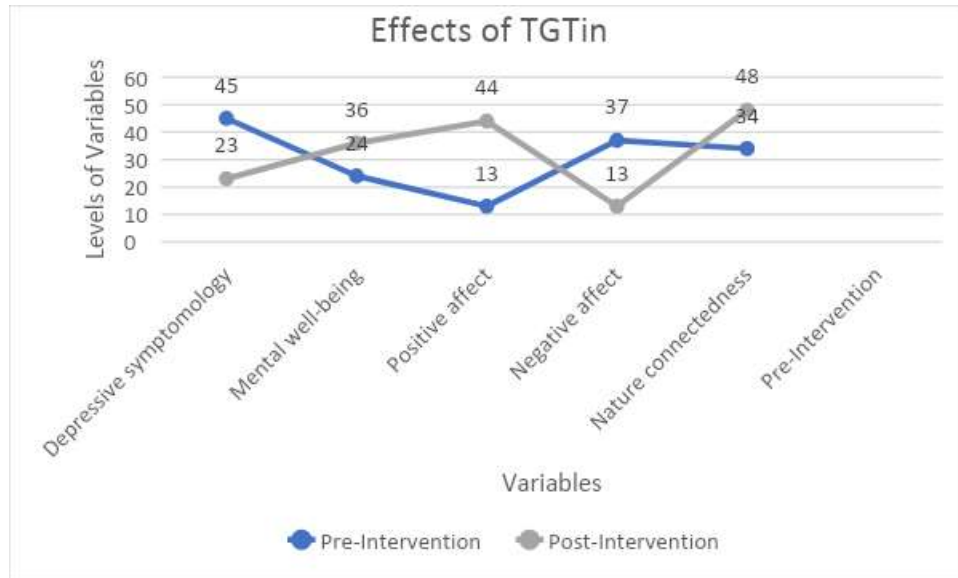
Graphical representation of Participant 2



Graphical representation of Participant 3



Graphical representation of Participant 4



Graphical representation of Participant 5

Qualitative analysis

In this section nodes are made along with thematic analysis of treating depressive symptomatology with three good things in nature, measure depressive symptoms, nature connectedness, well-being, and positive and negative effect at baseline. Then applied the intervention, and asked people to walk 30 minutes in a park and noticed three good things from nature. After this again measure all these variables and see the difference. Five participants were included in this intervention, their daily responses after walk recorded on google forms, which were further analyzed by adding them into software.

Their responses or daily responses after walk has been qualitatively analyzed through NVIVO 10. Different themes have been derived from their responses, which were recorded after daily walk. Responses relevant to research questions were coded.

Table 5.4: : Word frequency query with percentage.

<i>Word</i>	<i>Length</i>	<i>Count</i>	<i>Percentage</i>
Look	5	80	4.60
Beautiful	9	30	2.09
Happy	5	24	2.04
Park	4	23	1.96
Different	9	21	1.79
Birds	5	20	1.70
Connection	10	20	1.70
Soothing	8	17	1.45
Refreshing	10	16	1.36
Nature	6	13	1.06
Positive	8	17	1.06
Calm	4	12	0.98
Excited	7	9	0.77
Amazing	7	10	0.66
Attracted	9	13	0.53
Enjoyed	7	9	0.47
Makes	5	21	0.76
Clear	5	23	1.36
Rain	4	11	0.88

Table represents the words along with percentage which are mostly repeated in the text of the participants.

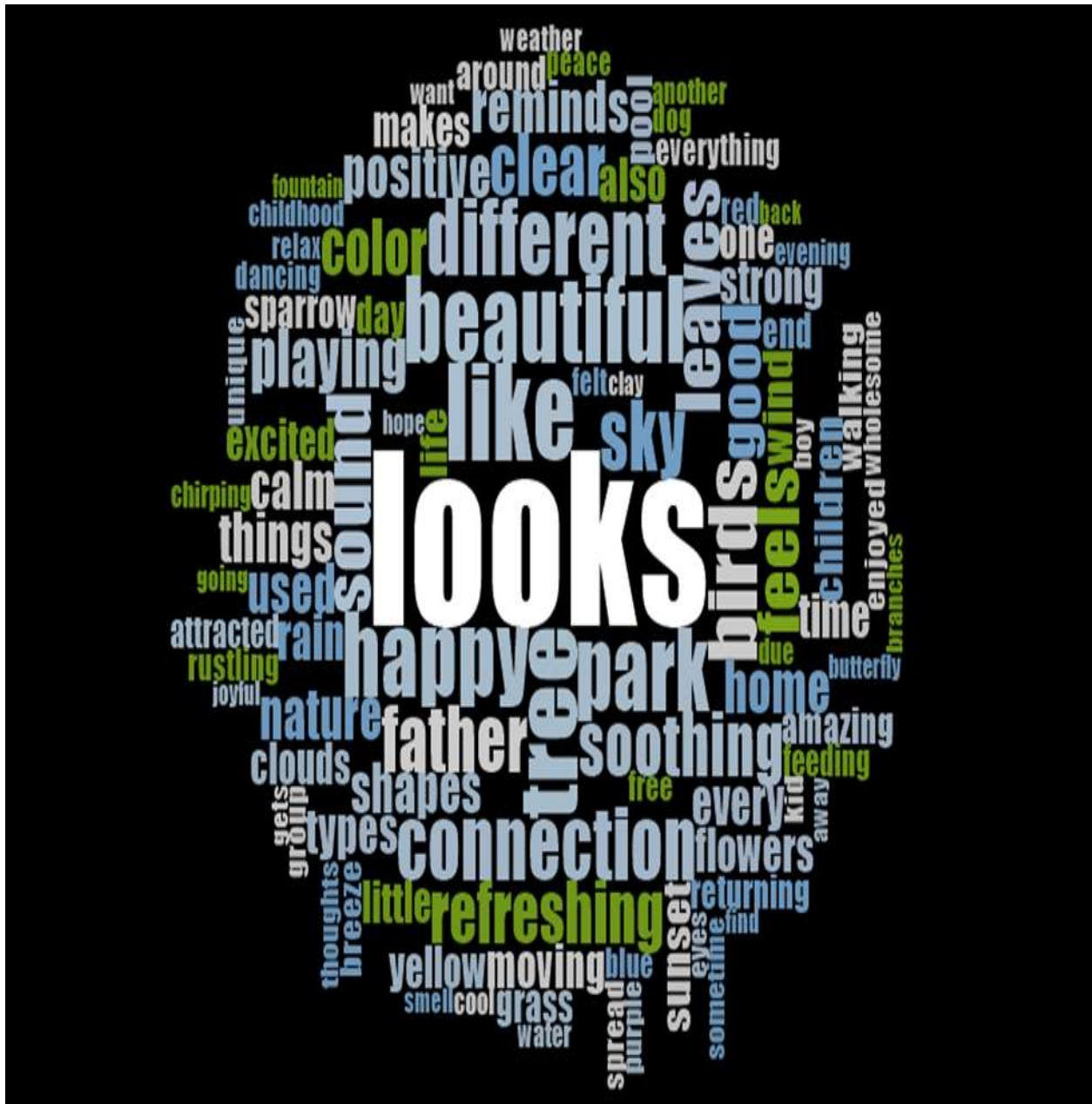


Figure 1: Word cloud of the words' frequency.

Table 5.5: First Node

Three Good Things Nodes and sub nodes with their Codes and References (N=125)

Nodes/Sub Nodes/codes	References
1. Identified three good things	125
1.1. Natural phenomena	
1.1.1. Clouds	14
1.1.2. Sky	17
1.1.3. Sunset	14
1.1.4. Rain	10
1.2. Environmental Stimuli	
1.2.1. Chirping of Birds	12
1.2.2. Wind whistle	11
1.2.3. Sounds of playing kids	06
1.3. Vegetation	
1.3.1. Flowers	12
1.3.2. Trees	19
1.3.3. Grass	10

This table presents the first node of the TGTin Intervention which is the 'Identify three good things'. It shows the areas in which people identified three good things in nature during their daily 30 mint walk.

Table 5.6: Second Node

Appertaining to good things Nodes with their codes and references (N=125)

Nodes/Codes	References
2. Appertaining to good things	125
2.1. Beauty and aesthetic	76
2.2. Interconnectedness	22
2.3. Relaxation and stress relief	27

This table presents the second node of the TGTin Intervention which is the ‘appertaining to good things’. It shows the areas in which people told how they can relate their self with good things in nature during their daily 30 mint walk.

Table 5.7: Third Node

Reasons of recognizing good things Nodes with their codes and references (N=125)

Nodes/Codes	References
3. Reason of recognizing good things	125
Colorful	39
Diversity	26
Nature abundance	41
Sense of serenity	19

This table presents the third node of the TGTin Intervention which is the ‘reasons of recognizing good things’. It shows the areas in which people told the reasons why they choose these good things in nature during their daily 30 mint walk.

Table 5.8: Fourth Node*Positive feelings or emotions Nodes with their codes and references (N=125)*

Nodes/codes	References
4. Positive feelings or emotions	125
4.1. Excitement	13
4.2. Happiness	24
4.3. Refreshing	19
4.4. Soothing	13
4.5. Calming	28
4.6. Peaceful	19
4.7. Hopeful	09

This table presents the fourth node of the TGTin Intervention which is the 'positive emotions or feelings'. It shows the areas in which people talked about the experience of positive emotion or feelings during their daily 30 mint walk.

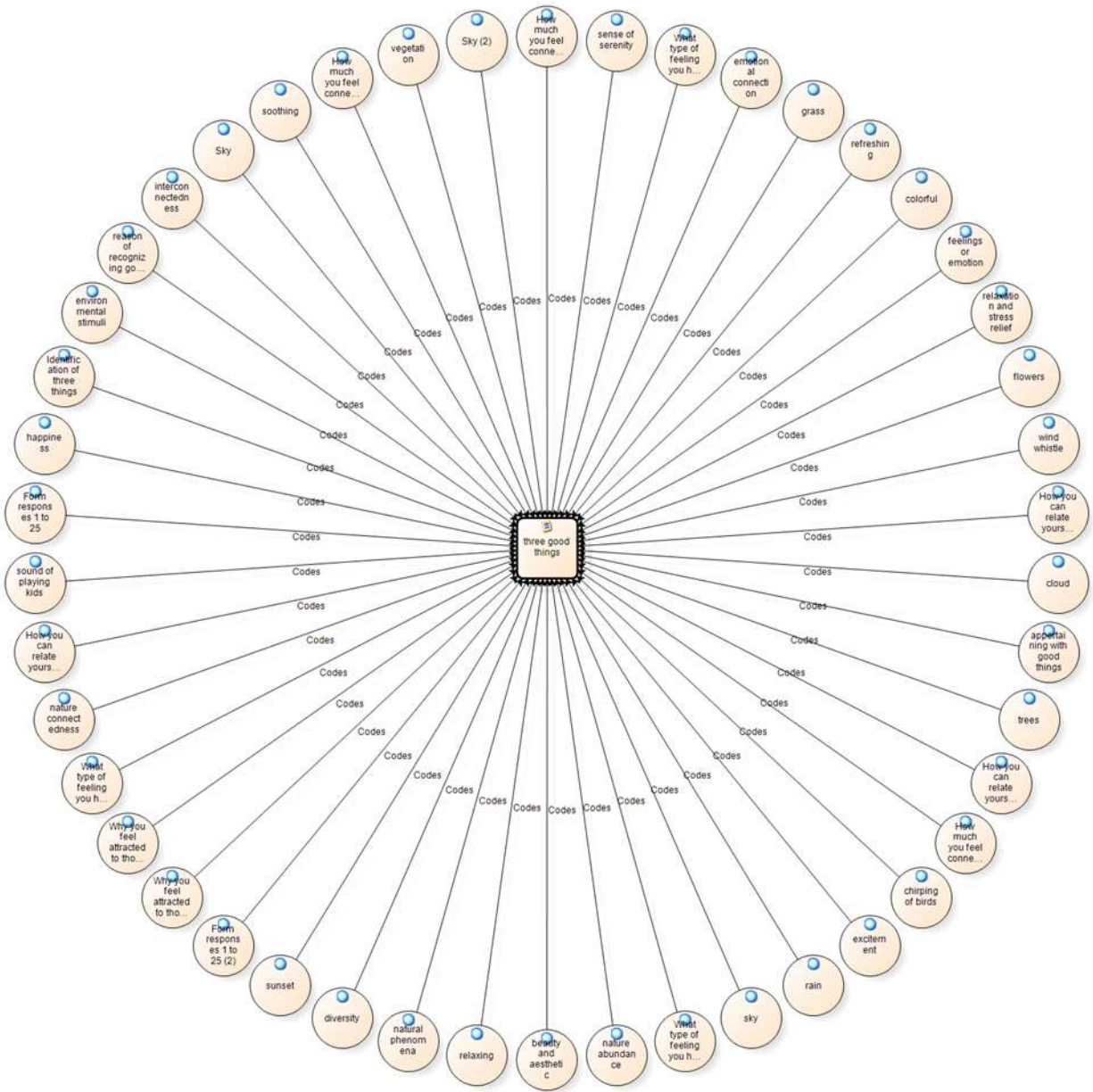


Figure 2: Nodes/Codes

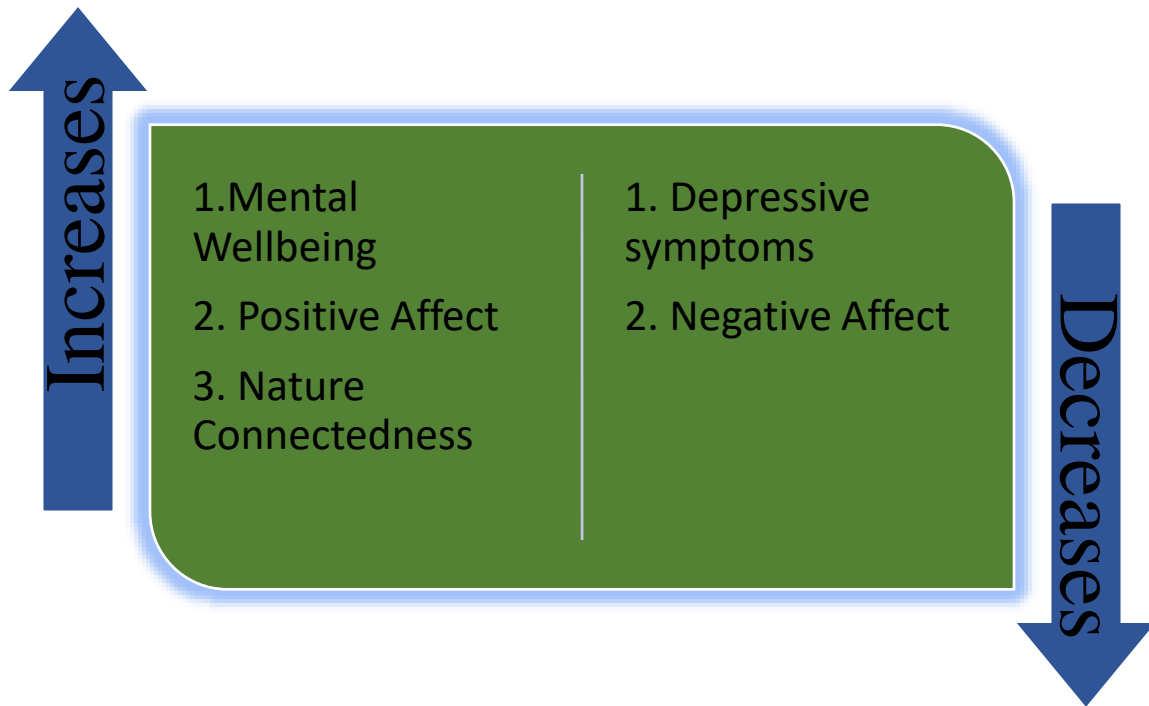


Figure 3: Conceptual Map of TGTiN Intervention

Thematic Analysis

After data analysis, four themes have been derived from the participants responses, who participated in TGTin intervention. The themes are:

- (a) Discovering tranquility and hidden diversity of nature.
- (b) Appreciation of natural aesthetics.
- (c) Enhancing positive emotions and feelings.
- (d) Experience deep affinity with nature.

Discovering tranquility and hidden diversity of nature

Participants were asked to identify three good things about nature during their 30-minute walk. Respondents find calmness and peace during this activity, mostly participants experience tranquility state. For example, one participant mentioned that “*smell of rain feels soothing to my senses*”. And they discover wonder of nature, they discover different natural phenomena, like how everything is linked to each other, every tree is different from one another, their leaves, their barks their green color. For example, one participant mentioned that “*sunflower, looking at them closely felt kind of nice and warm*”. And another mentioned that “*sunset colors spread on the sky looks beautiful*”. They discover different colors of clay in the park, everything in nature has diversity. They discover different types of birds and their chirping. Some of them experience wholesome when they saw a mother bird feeding their little ones.

the pool, which are of different colors. They talk about the sky before and after rain, it looks beautiful. They find these things aesthetic, and they choose them because they want to appreciate the beauty of nature.

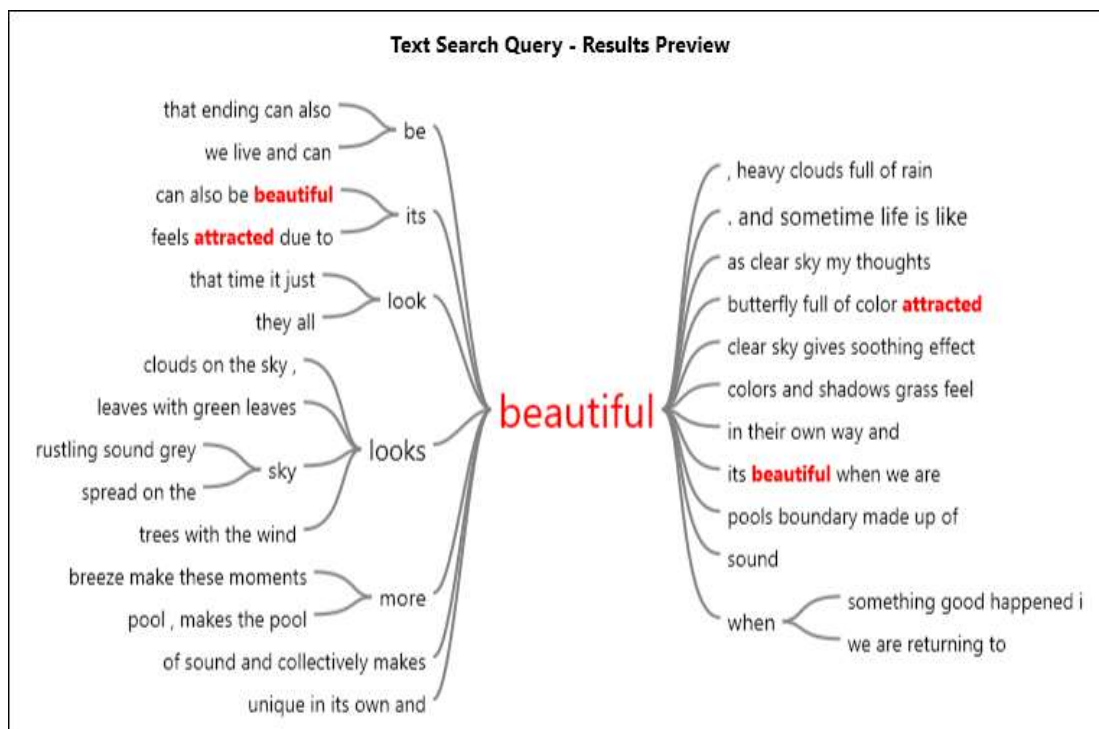


Figure 5: Tree Map

Enhancing positive emotions and feelings

Participants were asked to talk about their feelings when they are doing walk and observe good things. They all talk about the positive emotion, feeling happy, excited, soothing, refreshing, joy. For example, participants mentioned that “feeling *refreshing, positive and happy*” “*excited, happy, soothing, and refreshing*”. When they talk about different things of nature, they relate them with positive emotions. This intervention enhances positive emotions in the participants. They always feel relaxed and happy after 30 minutes of walks.

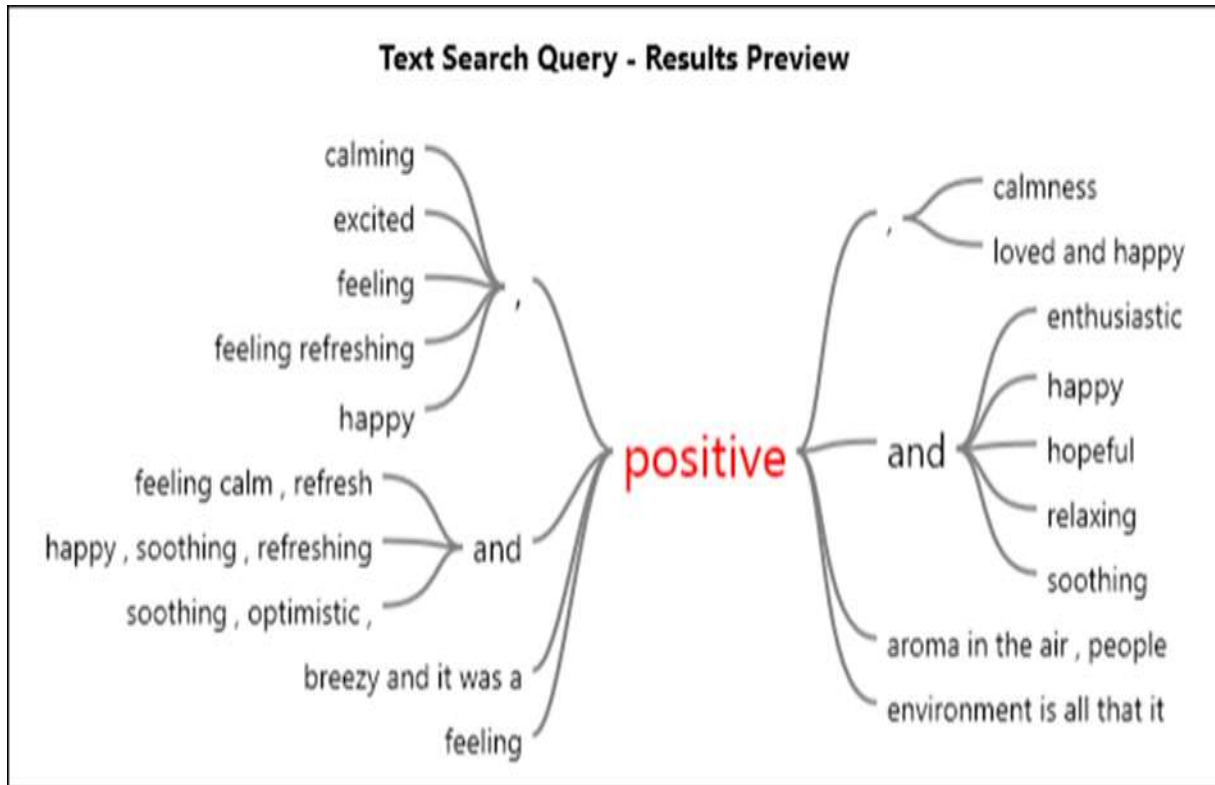


Figure 6: Tree Map

Experience deep affinity with nature

When participants were asked about how much you feel connected to nature, they all responded they feel deep connection with nature. Their statements are feels strong connection with nature, feeling interconnected with nature, they rate high out of 10 when talked about the connection with nature. For example, participant mentioned that “*feel strongly connected to nature*”. According to them everything is linked to each other in nature. Connection of nature help in better understanding of oneself.

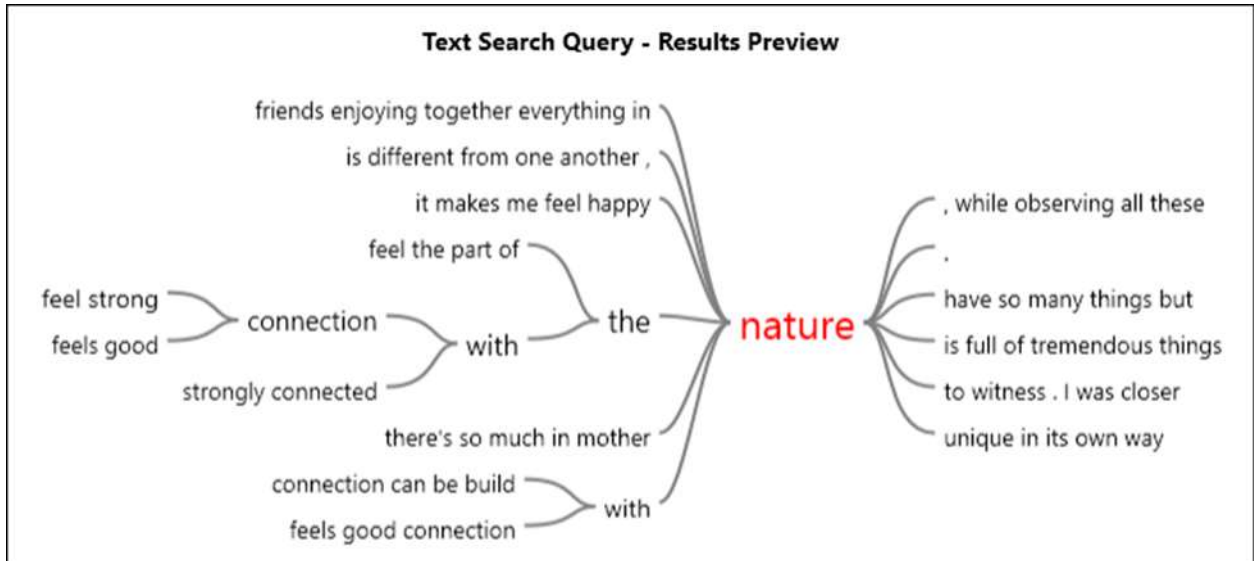


Figure 7: Tree Map

Chapter 6

Discussion

This study has utilized Three Good Things in Nature (TGTiN) adopted by (Richardson and Sheffield, 2017) as an intervention for diagnosed depression and anxiety patients. There is a significant reduction in the symptoms of anxiety and depression. Three good things when combined to the nature, it shows positive result and increases connection with the nature. There are very few studies in Pakistan to deal with depressive symptoms in connection with nature. There are many other interventions that are used to treat depressive symptoms in general population, but limited studies available in Pakistan with three good things, specially three good things in nature. Depression affects thirty million people worldwide, which is a major health issue (WHO, 2004). While medication and psychotherapy are not common or in approach of everyone, and shortage of professionals for therapy make it more difficult (Grandes, et al., 2011). The monetary impacts are significant, with the country of Ireland spending €8.2 billion annually on mental health care (Jones, 2019). Due to their affordability, greenspace interventions present a potential remedy that could save society money (Lovell, 2016). Access to green space has been associated with enhanced happiness and good mental health (Richardson et al., 2021) (Lovell, 2016). These advantages have been observed in nature-based therapeutic methods (Song et al., 2016), and outdoor walking has been shown to boost happiness and positive affect (PA) with a decrease in negative affect (NA) and symptoms of depression and anxiety (Bratman et al., 2015). Greenspaces have been linked to a reduction in psychological distress and an improvement in wellbeing (Logan and Selhub, 2012).

It was observed that there is a significant depressive symptom among university students that affects their functioning, but they are not diagnosed clinically. So, there is need to treat these

depressive symptoms which do not meet the full criteria of depression but affect the functioning of students. The first hypothesis of the study was, there is a decrease in the depressive symptomatology before and after receiving intervention. Second hypothesis of the study was, there is decrease in negative affect and increase in positive affect before and after receiving intervention. Third hypothesis of the study was, there is a significant change in mental wellbeing before and after receiving intervention. Fourth hypothesis was, there is a increased nature connectedness before and after receiving intervention. TGTiN increased wellbeing and positive affect as it was evident from literature. The Three Good Things (TGT) intervention encourages gratitude to reduce negative emotions while extending pleasant ones (Bryant, 2003). TGT enables participants to reflect on and gather TGT they received that has enhanced their wellbeing. There is less depression could appear six months or more after (Seligman et al., 2005). Well-being is enhanced when Three Good Things in Nature (TGTiN) is adopted (Richardson and Sheffield, 2017). Here, the environment affects thoughts and feelings (Atchley, Strayer, and Atchly, 2012), and NCx promotes a deeper appreciation of oneself as a crucial component of nature and all that it must provide (McEwan et al., 2019).

So, to evaluate all these hypotheses TGTiN applied to university students who are willing to participate in this study, five participants were taken for this study and for measure depressive symptoms center for epidemiologic studies depression scale (CES-D), twenty items scale was used. To positive and negative affect measures Positive and Negative Affect Schedule (PANAS) was used which is twenty items scale. To measure wellbeing, Warwick Edinburgh Mental Well-being Scale (WEMWBS) is used which is fourteen items scale. To measure nature connectedness, Connectedness to Nature Scale (CNS) was used which is also fourteen items scale. The reliability of all scales is significant, which is shown in reliability table of results

chapter. So, there is a significant reduction in depressive symptoms and negative affect and increased wellbeing, positive affect, and nature connectedness after TGTiN intervention. In qualitative analysis it clearly shown that there is an increase in experience of positive emotion, when participants walk in the park and observe three good things from nature. It also shows that there is experience of strong connection to nature, during this intervention. Main themes derived after the analyses are (a) Discovering tranquility and wonder of nature, (b) Appreciation of natural aesthetics, (c) Enhancing positive emotions and feelings, (d) Experience deep affinity with nature. Word frequency and tree maps also showed positive results and nature connectedness. It was analyzed through the data, which were gathered as responses of participants after daily 30 minutes' walk.

Conclusion

The study was directed to find out the effectiveness of TGTiN intervention among university students who experienced depressive symptomatology. It was hypothesized that TGTiN decreases depressive symptoms and negative affect, and increases positive affect, mental wellbeing, and nature connectedness among university students. The results revealed that TGTiN significantly reduces depressive symptoms and negative affect and increases positive affect, mental wellbeing, and nature connectedness. At the end of intervention these results were found. Both qualitative and quantitative analysis proved the effectiveness of TGTiN intervention.

Implications

The implication of this study is, it is a self-help technique, and anyone can use this intervention for decrease negative affect and depressive symptoms and enhance positive symptoms, nature connectedness and wellbeing. As we know, students face many types of difficulties in their daily life, so whenever they feel distress, they use this intervention and

manage their stress. It will help them to regulate their emotions and connect to nature. Except this, there are limited professionals in our country to seek therapeutic help, so this intervention is used as a self-help technique and manage their issues without any professional and it also cost effective. Another implication is, we rarely spend time with nature due to technologies and social media. So, through TGTiN we reconnect our people with nature and build strong connections with nature.

Recommendations

In future, researchers can apply this intervention on larger scale with substantial number of samples. It can be applied to different age groups like teens and older people, it will also be helpful for them. This study was conducted specifically with the population who have depressive symptomatology. It can be used for other psychological issues and mental illness. In this study we specify the park area for a walk, but in future other natural environments can be suggested for a walk like riverside, mountain areas and seaside. Other natural environments must be explored through TGTiN. It can also apply to the general population, so people can manage their stress in a healthy way and will learn healthy coping.

Although there is a significant decrease in depressive symptoms and negative affect after intervention, but for future researcher there must be incorporated follow up session for the participants after 2 months to again measure the effectiveness of intervention.

Limitation

As the study was a small n, ABA research design, it consisted of five participants. Due to small sample size, the results cannot be generalized onto a larger population. Further, it was restricted to university students of same area. It could have been done on diverse population. All the participants belonged to middle and upper socio-economic status and there is lack of

representation from lower socio-economic status. And to measure long term effects, follow-up sessions must be included in future studies.

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ANNEXURE A

INFORMED CONSENT

Ifra Khalid, student of MS Clinical Psychology Bahria University Islamabad, conducting his research titled “Nature rejuvenates: Treating depressive symptomatology with three good things in nature (TGTin)” under the supervision of Dr. Rizwana Amin. Targeted Population: To be completed by general population. Age group young adulthood (18- 35). Please don’t engage if you suffer from diagnosed mental illness (depression and anxiety). Purpose: Student who have moderate to severe scores on Center for Epidemiologic Studies Depression Scale (CES-D) Questionnaire-20 will be offered positive psychology intervention Three good things in nature (TGTin) with their consensus. Confidentiality: I assure that every individual’s information and responses will be confidential and will only be used for research purpose. If you have any queries and concerns kindly approach me at ifrakhalid8@gmail.com your input and inestimable time will be highly valued. Thank you.

DEMOGRAPHICS

Name/ Email _____

Age _____

Gender _____

Qualification _____

Socio Economic Status _____

Family System _____

Any medical or mental illness _____

ANNEXURE B

PART B

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

Statements	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally/moderate amount of time (3-4 days)	Most or all the time (5-7 days)
1. I was bothered by things that usually don't bother me.				
2. I did not feel like eating; my appetite was poor.				
3. I felt that I could not shake off the blues even with help from my family or friends.				
4. I felt I was just as good as other people.				
5. I had trouble keeping my mind on what I was doing.				
6. I felt depressed.				
7. I felt that everything I did was an effort.				
8. I felt hopeful about the future.				
9. I thought my life had been a failure.				
10. I felt fearful.				
11. My sleep was restless.				
12. I was happy.				
13. I talked less than usual.				
14. I felt lonely.				
15. People were unfriendly.				
16. I enjoyed life.				
17. I had crying spells.				

18. I felt sad.				
19. I felt that people dislike me.				
20. I could not get "going.				

PART C

Statements	None of the time 1	Rarely 2	Some of the time 3	Often 4	All the time 5
I've been feeling optimistic, about the future					
I've been feeling useful					
I've been feeling relaxed					
I've been feeling interested in other people					
I've had energy to spare					
I've been dealing with problems well					
I've been thinking clearly					
I've been feeling good about myself					
I've been feeling close to other people					
I've been feeling confident					
I've been able to make up my own mind about things					
I've been feeling loved					
I've been interested in new things					
I've been feeling cheerful					

PART D

Indicate the extent you have felt this way over the past week.	slightly or not at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
1 - Interested					
2- Distressed					
3- Excited					
4- Upset					
5- Strong					
6- Guilty					
7- Scared					
8- Hostile					
9- Enthusiastic					
10- Proud					
11- Irritable					
12-Alert					
13- Ashamed					
14- Inspired					
15- Nervous					
16- Determined					
17- Attentive					
18- Jittery					
19- Active					
20- Afraid					

ANNEXURE:C



Nature Rejuvenates

“NATURE HEALS EVERYONE!”

- JOIN US ON THIS INITIATIVE FROM 'STUDENT WELLBEING CENTER' WHERE YOU CAN ALLEVIATE YOUR SADNESS AND IMPROVE YOUR MOOD THROUGH THE EXPERIENCE OF NATURE.
- WE WILL PROVIDE FREE OF COST THERAPY SESSIONS FOR PARTICIPANTS.
- SO ARE YOU READY???

REGISTER NOW!

Contact Us

☎ 051-9264057

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Bahria University, Islamabad