

Project Report

On

**STATISTICAL SURVEY ON THE EFFECT OF
MINDFULNESS ON GRATITUDE**

Submitted

in partial fulfilment of the requirements for the degree of

BACHELOR OF SCIENCE

in

MATHEMATICS

by

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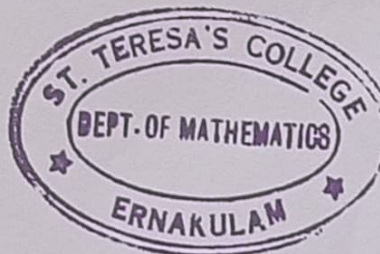


CERTIFICATE

This is to certify that the dissertation entitled, **STATISTICAL SURVEY ON THE EFFECT OF MINDFULNESS ON GRATITUDE** is a bonafide record of the work done by Ms. **AQUILIN THERESA** under my guidance as partial fulfillment of the award of the degree of **Bachelor of Science in Mathematics** at St. Teresa's College (Autonomous), Ernakulam affiliated to Mahatma Gandhi University, Kottayam. No part of this work has been submitted for any other degree elsewhere.

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DECLARATION

I hereby declare that the work presented in this project is based on the original work done by me under the guidance of Dr. Elizabeth Reshma M T, Assistant Professor, Department of Mathematics, St. Teresa's College(Autonomous), Ernakulam and has not been included in any other project submitted previously for the award of any degree.

Ernakulam.

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AB20AMAT051

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Ernakulam.
Date:23/02/23

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Chapter 1

INTRODUCTION AND PRELIMINARIES

We experience many mental, social and emotional changes that negatively affect our emotions and quality of life. Different stages of life deal with different changes in emotional well-being that lead to stress, anxiety, depression and many other factors. Quality of life can be defined as how a person understands and deals with different aspects of his/her life. Practicing mindfulness and gratitude allows us to shift our perspective and see things through a lens of positivity. According to Harvard Health, practicing gratitude can also make you happier and more fulfilled. Mindfulness and gratitude are consistently and positively related to well-being in various population groups. Mindfulness is the non-judgmental awareness and acceptance of the reality of the present moment. It is associated with higher quality of life, life satisfaction and happiness. It is also associated with lower levels of stress, depression and anxiety. Gratitude is a feeling with which we are grateful and appreciate the positive aspects of our life. It is associated with reduced anxiety, stress, and depression, as well as increased life satisfaction, positive affect, and health behaviours. Gratitude interventions usually involve spending a long time thinking or writing about the things you feel grateful for. The purpose of this study is to find out the effect of mindfulness on gratitude in different age groups. Based on this study, we will find out if positive videos and meditation have an effect on in-

creasing gratitude in different age groups.

This paper is a statistical study of the effect of mindfulness on gratitude. Mindfulness is the non-judgmental awareness and acceptance of reality at the present moment. Gratitude is the emotion in which we are thankful and appreciative of the positive aspects of our life. A statistical survey was conducted to know whether the videos regarding mindfulness on gratitude have a positive effect on people. For this statistical survey, two google forms were circulated. The first google form regarding mindfulness on gratitude is circulated along with the positive videos attached to it. The people were asked to watch the videos and practice yoga and fill out the second google form after a week. The tests used for the analysis of the survey are the 'Paired sample test' and 'chi-square test', we test whether there is an effect on people with these videos. The initial hypothesis taken is the video has no effect of mindfulness on gratitude and the alternative hypothesis is the video has a positive effect of mindfulness on gratitude.

In these times, it is necessary to understand the importance of being mindful and to have a sense of gratitude in ourselves. The aim of the study was to understand the relationship between different factors of mindfulness and gratitude between different age groups and genders. To investigate the effectiveness of two two-component interventions, one based on mindfulness and one based on gratitude, to reduce depression and stress and increase happiness.

1.1 PRELIMINARIES

Statistics is a discipline that deals with collecting, organizing, analysing and drawing conclusions from samples of the entire population. This requires appropriate research design, appropriate selection of the study sample and selection of an appropriate statistical test. Adequate statistical information is necessary to properly design research or clinical tri-

als. Incorrect statistical methods can lead to wrong conclusions, which can lead to unethical practice.

1.1.1 ATTRIBUTES

An attribute is a characteristic that varies from one member of a population to another. Attributes such as height and weight are measured on a type of scale that conveys quantitative information. Gender and eye colour provide qualitative information.

1.1.2 DESCRIPTIVE AND INFERENTIAL STATISTICS

Descriptive statistics tries to describe the relationship between variables in a sample or population. Descriptive statistics provide a summary of data in the form of mean, median and mode. Inferential statistics use a random sample of data taken from a population to describe and make inferences about the whole population. It is valuable when it is not possible to examine each member of an entire population.

1.1.3 INFERENTIAL STATISTICS

Inferential statistics analyses data based on a sample to draw conclusions based on a larger population. The goal is to answer or test a hypothesis (plural hypothesis) is a proposed explanation for a phenomenon. Hypothesis tests are thus methods for making rational judgments about the reality of observed effects. In inferential statistics, the term "null hypothesis" (H_0) means that there is no relationship (difference) between the variables in the population of the question. The alternative hypothesis (H_1) means that the statement between the variables is true. The p-value (or calculated probability) is the probability that an event will occur if the null hypothesis is true. If the p-value is less than an arbitrary value (called the significance level), the null hypothesis(H_0) is rejected. It is more cost-effective as sample data is used.

1.1.4 STATISTICAL SURVEY

A statistical survey is the study of the characteristics of a certain population by collecting information from a sample of that population and evaluating their characteristics using a systematic statistical method. There are different stages in conducting a statistical survey. These steps must be done in sequential order. If we do not follow these steps systematically, we may not get good results from the study. The important stages of statistical research are:

- Defining the problem and determining the objective
- Preparations for data collection
- Data collection and processing
- Data classification and tabulation
- Data analysis and interpretation
- Report preparation

1.2 OBJECTIVES

- To find and interpret the relationship between focus and age group.
- To find and interpret the relationship between anxiety/depression and age group.
- To find and interpret the relationship between the preoccupied mind and gender.
- To find and interpret the relationship between facing situations and age groups.
- To find and interpret the relationship between appreciating positive aspects of life and age group.
- To find and interpret the relationship between stress and age group.

1.3 LITERATURE REVIEW

In 2016 Umut ARSLAN, University of Montana conducted a study on the topic Mindfulness and Stress. The current study examines mindful-

ness levels and perceived stress among therapist trainees at the University of Montana. 80 master's students in social work and counseling participated in the study. The purpose of the study was to explore and identify factors influencing stress in graduate psychology students so that graduate psychology programs can target these factors to improve students' stress management, academic performance, and clinical skills. The following instruments were used for data collection: Sleep Hygiene Index, Time Management, Exercise Multidimensional Scale of Perceived Social Support, Emotional Regulation, Philadelphia Mindfulness Scale, and Perceived Stress Scale. Students also completed a demographic questionnaire and answered a question about the frequency of mindfulness practice. The results of this study suggest that self-care practices are related to perceived stress levels in psychology graduate students. Specifically, better sleep hygiene, strong social support, and the emotion regulation strategies of cognitive reappraisal and suppression were significantly associated with lower levels of perceived stress.

In 2017 Siew Tim Lai and Ronan E. O' Carroll done a study on the 'Effect of gratitude practice on wellbeing:A randomised controlled trial'. This study investigated a commonly used gratitude intervention to promote physical and psychological well-being in a UK sample. 108 healthy participants (aged 18-36) were randomly assigned to one of two conditions (gratitude or action without prescription). People in the gratitude condition kept a daily gratitude journal for 21 days. Participants completed self-report measures of gratitude, affect, and physical and subjective well-being. These measures were collected at two time points (pre-intervention and post-intervention) three weeks apart. Two separate analyses were performed, including participants who completed the intervention (full analysis) and those who dropped out (intention-to-treat analysis, ITTI). The full analysis showed that those in the grace condition had greater feelings of gratitude and positive affect compared to the control condition, which reported decreased well-being. Overall, the ITT analysis produced essentially the same re-

sults as the full analysis. This study shows that simple blessing counting can improve psychological well-being and can be used in conjunction with existing psychological interventions.

In 2018 August, a study was conducted by Erinn B Duprey, Laura McKee, C. W. O'Neal and Sara B. Algoe on the topic 'Stressful life events and internalising symptoms in emerging adults: the role of mindfulness and gratitude'. This study examines the indirect effect of stressful life events (SLE) on internalizing symptoms through two cognitive traits, mindfulness, and gratitude, in a sample of emerging adults (N=256). Examining stressful life events and internalizing symptoms is particularly important for the emerging adult population, given the high prevalence of both SLE and psychopathology during this developmental period. Mindfulness and gratitude are both related to mental health outcomes but have not been studied in relation to SLE and psychopathology. The results showed that the indirect relationship between SLE and internal symptoms through mindfulness was statistically significant. Psychoeducational interventions for adults who develop post-SLE may benefit from incorporating cognitive resources such as mindfulness and gratitude.

In 2021 May, a paper was published by Pallavi Anand, Arti Bakhshi, Richa Gupta and Mridula Bali on the topic 'Gratitude and quality of life among adolescents: the meditating role of mindfulness'. This was a study that assessed the relationship between gratitude and quality of life through the mediating role of mindfulness. Data is collected from secondary schools located in North India. 249 adolescents between 16 and 18 years of age were included, with an average age of 16.9 years, of which 96 (39%) were men and 153 (61%) were women. A two-step approach to structural equation modeling was used to analyze the data. The gratitude questionnaire, the mindfulness scale (MAAS), and the WHO quality of life assessment were used to complete the survey. Age and gender were their control variables. Their findings were that grat-

itude significantly affects the quality of life through the mediation of mindfulness.

In 2021 July, a paper was published on the topic Educational and social research by Aljawharh Ibrahim Alsukah and Shaimaa Ezzat Basha. The study was called The Relative Contribution of Mindfulness and Gratitude to Predicting Happiness in University Students. A total of 447 students aged 18-25 were selected for the selected survey. The main objective of the study was to identify the separate and interactive contributions of gratitude and mindfulness in predicting happiness, to find out the relationships between these variables, and to identify differences in gratitude and mindfulness between students with low happiness, and levels of gratitude. Mindfulness scales and happiness questionnaires were used in the survey. And the study found that gratitude and mindfulness played an important role in predicting happiness among college students.

In 2021 April, a study was done on the topic 'Being present and thankful: a multistudy investigation of mindfulness, gratitude and employee helping behaviour' by Katina B. Sawyer, Christian N. Thoroughgood, Elizabeth E. Stillwell, Michelle K. Duffy, Kristin L. Scott and Elizabeth A. Adair. This research mainly consists of four studies. Participants in this study were selected using Mturk- Amazon's Mechanical Turk. Participants who were at least 18 years old were selected for the sample study. They conducted an experiment in which participants were randomly assigned to either a 16-minute mindfulness intervention or an inactive control group. Participants were then asked to talk about things in their lives for which they were grateful. Study 2 sought to find out the relationship between gratitude and employees' desire to help other people. This experiment was conducted using 8 minutes of attention. In the third and fourth studies, field studies were conducted with the aim of paying theoretical attention to spatial perception and its internal relationships with the meditator and work outcome variables.

Research has shown that mindfulness has helped employees create a more grateful work culture.

In 2021 March, Rebecca Y.M. Cheung and Elsa Ngar-Sze Lau published a paper on the topic– ‘Is Mindfulness linked to life satisfaction? Testing Savouring Positive Experiences and Gratitude as Mediators’. In this study, a total of 133 Chinese practitioners were selected during a three-day traditional meditation. The participants were between 20 and 72 years old. Individuals’ gratitude and life satisfaction were measured using questionnaires and various scales. The 8-week online awareness program was conducted. The research area of the study was the enjoyment of positive experiences and the feeling of gratitude can be important to generate subjective well-Being. The study concluded that mindfulness interventions increase life Satisfaction.

In November 2021, a paper named ‘Emotional intelligence mediates the connection between mindfulness and gratitude a Meta- Analytic structural equation modelling study’ was published by Nicola S. Schutte, Shian -Ling Keng and Mike W-L Cheung. This meta-analytic study examined a series of mean effects across studies on the relationship between mindfulness and gratitude, dispositional mindfulness and emotional intelligence and gratitude. This study also tested the emotional intelligence model Posting as a pathway linking mindfulness and gratitude. Two-step structural equation modeling provides information on the relationship between mindfulness and gratitude in eight samples, the relationship between mindfulness and emotional intelligence in 26 samples, the relationship between emotional intelligence and gratitude in seven samples, and the mediating role of emotional intelligence in the association between mindfulness and gratitude. The samples were heterogeneous and the populations varied. In trials with a total of 3,130 participants, greater mindfulness was associated with significantly greater feelings of gratitude. In a sample of 6,369 participants, greater mindfulness was associated with significantly higher

emotional intelligence. In a sample of 3,998 participants, higher emotional intelligence was associated with significantly greater feelings of gratitude. Emotional intelligence was a significant mediator between mindfulness and gratitude. The findings add to the evidence for the benefits of mindfulness. Mindfulness can be the basis for the continuous development of positive qualities that lead to prosperity.

In 2022 August, Brant D. Winn conducted a study on the topic ‘Mindfulness and gratitude: does it really make a difference for the college students?’. Mindfulness is the intentional and non-judgmental awareness of all thoughts, feelings, and sensations that are present in the present moment. Mindfulness has also been associated with a higher quality of life, sleep quality, and duration, as well as life satisfaction and happiness. Also, gratitude is the tendency to appreciate the positive in life. It has also been linked to well-being, such as reduced anxiety, stress and depression, and increased life satisfaction. This article takes these findings and examines them to determine whether consistent practices of mindfulness and gratitude impact students’ lives by reducing anxiety, stress, and uncertainty, and increasing the ability to be present and feel evaluation of his current life.

1.4 SIGNIFICANCE OF THE STUDY

- The main findings of this study show the importance of gratitude and mindfulness in reducing stress, anxiety, and many similar factors.
- Research also identifies a major barrier to toxic thoughts and feelings.
- It can help decision-makers formulate different strategies to relieve tension, stress, and thoughts and work effectively with good health.

1.5 LIMITATIONS OF THE STUDY

Even though the study yielded major findings, there were a few limitations in our survey

- The survey is limited to 13–59-year-olds. Other age groups were not

considered.

- Due to time and other constraints, only 200 participants participated in the study.
- The study used only qualitative data.
- The study is limited to a specific area, so generalization is not possible.
- Since the answers obtained were the personal choices of the respondents, it is possible that the data may or may not be biased.

Chapter 2

METHODOLOGY

2.1 EXPLORATORY DATA ANALYSIS

Exploratory data analysis consists of the descriptive characteristics of the data. Graphical methods are used in this data analysis. Graphical methods are more qualitative in nature and involve subjective analysis. Bar charts and pie charts are some graphical methods used in the analysis. A bar chart is a graph that shows grouped data with rectangular bars whose length is proportional to their values, allowing the bars to be drawn vertically or horizontally. A bar chart is a graph that uses either a horizontal or vertical bar to show category comparisons. One axis of the graph shows the specific classes compared and the other axis represents the discrete value. A pie chart is another data presentation method used in this study. A pie chart displays data, information, and statistics in an easy-to-read "pie-slice" format with different-sized slices and provides insight into the data. The main use of a pie chart is to show a comparison of data variables.

2.2 METHODS

The target group of the study was the population between 13 and 59 years old. To complete the survey, two google forms were distributed. The first Google Form regarding mindfulness on gratitude is shared with positive videos. People are asked to watch videos and practice yoga and fill out a new google form after a week. The questionnaire

consisted of 21 questions, including age, gender, educational institution, type of school or university, and place of residence.

2.3 CHI-SQUARE TEST

The Chi-square Test is an important test among the several tests of significance. It was developed by Karl Pearson in 1900. In general, the test that is used to measure the difference between what is observed and what is expected according to an assumed hypothesis is called Chi-Square Test. Simply we can say that Chi-Square Test is a relationship between two variables. H_0 that is the null hypothesis represents that there is no relationship between the two variables. H_1 that is alternative hypothesis indicates that there exists a significant relationship between two variables. The significant level is the probability of rejecting the null hypothesis, when it is true. In most of the cases, we use significant level as 0.05. First, we created the table of observed frequency from obtained data. Then expected frequency values are calculated using the following equation:

$$(\text{Row total} \times \text{Column total}) \div \text{Grand Total}$$

Then we created the table of expected frequency, we can calculate the Chi-Square values using the equation:

$$\chi^2 = \sum \frac{(\text{Observed value} - \text{Expected value})^2}{\text{Expected value}^2} = \sum \frac{(O_i - E_i)^2}{E_i}$$

Tabular Chi-Square value can be obtained by using degrees of freedom and significance level

$$\text{Degrees Of Freedom} = (\text{column} - 1) \times (\text{rows} - 1)$$

Degrees of freedom refer to the maximum number of logically independent values, which are values that have the freedom to vary, in the data sample. If calculated Chi-Square is greater than the tabular Chi-Square, then we reject null hypothesis and accept alternate hypothesis.

2.4 PAIRED SAMPLE TEST

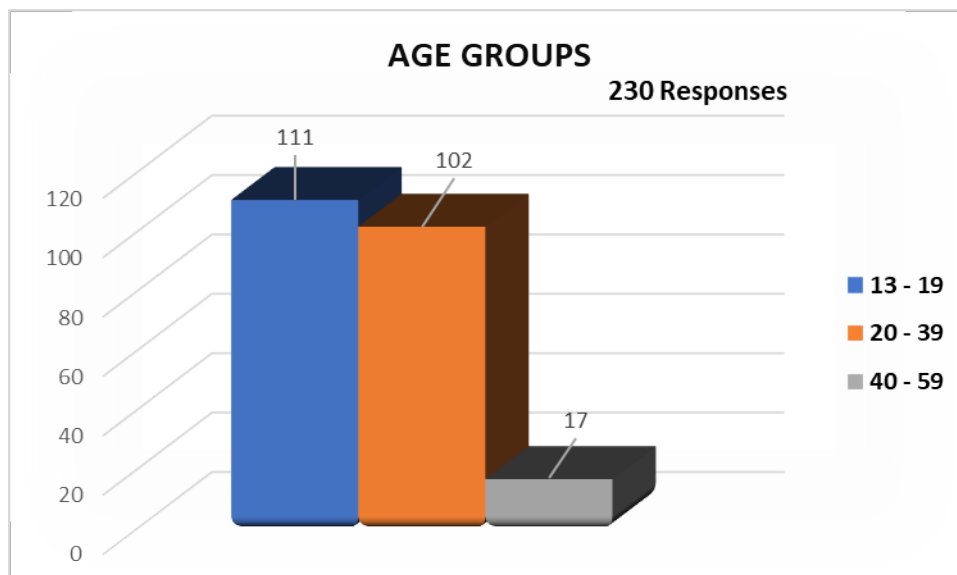
Paired t-test is a parametric approach (or large sample approach) used to compare the means of two paired groups (dependent groups or matched groups). The matching/pairing can be the same person measured under different treatments, the same person measured before and after treatment, match individuals in different treatment groups based on gender, age, etc. The null hypothesis is given by, $H_0: \mu = \mu_2$ and the alternative hypothesis will be, $H_1 = \mu_1 < \mu_2$ or $\mu_1 > \mu_2$ where μ_1 and μ_2 are the means of two populations taken. Let x_i and y_i be the observations before and after the treatment respectively. Where $i=1,2,3,4,\dots,n$. The test statistic used here is $t = \frac{(\bar{u}-0)\sqrt{n-1}}{Sd}$ where $u_i = x_i - y_i$, $i=1,2,3,\dots,n$, \bar{u} =mean, Sd= standard deviation of differences. 't' follows student's t distribution with n-1 d.f and we can determine the critical region as usual.

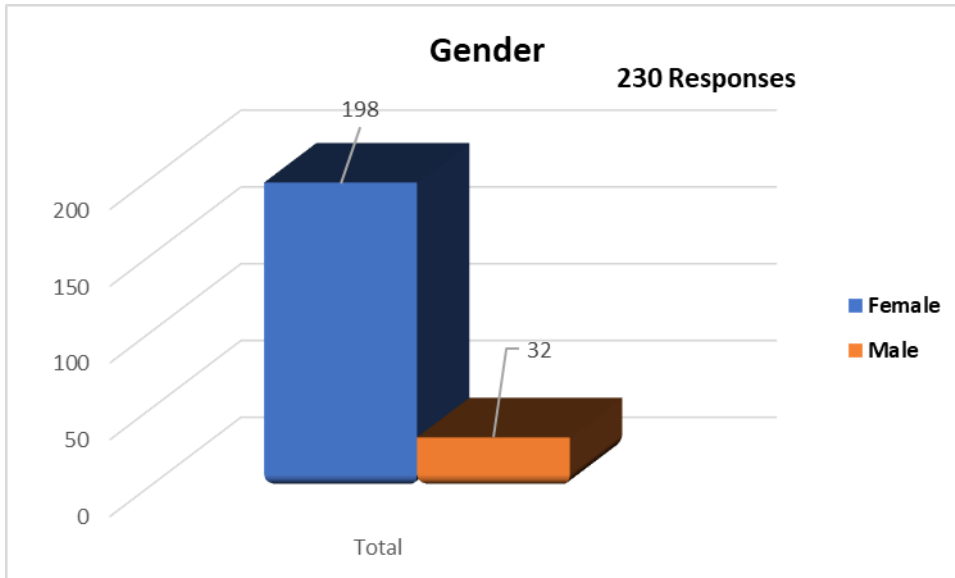
Likert scale: It is a scale commonly used in researches that employ questionnaires. Its purpose is to scale responses in a survey. It can also be referred to as a rating scale to measure attributes such as opinions, behaviours, or attitudes. In the above paired-t test, a 3 scale Likert scale was used where the scaling was given by (1) Agree; (2) Neutral; (3) Disagree. The Likert scale was used in excel while performing the paired t-test.

Chapter 3

PRESENTATION OF DATA

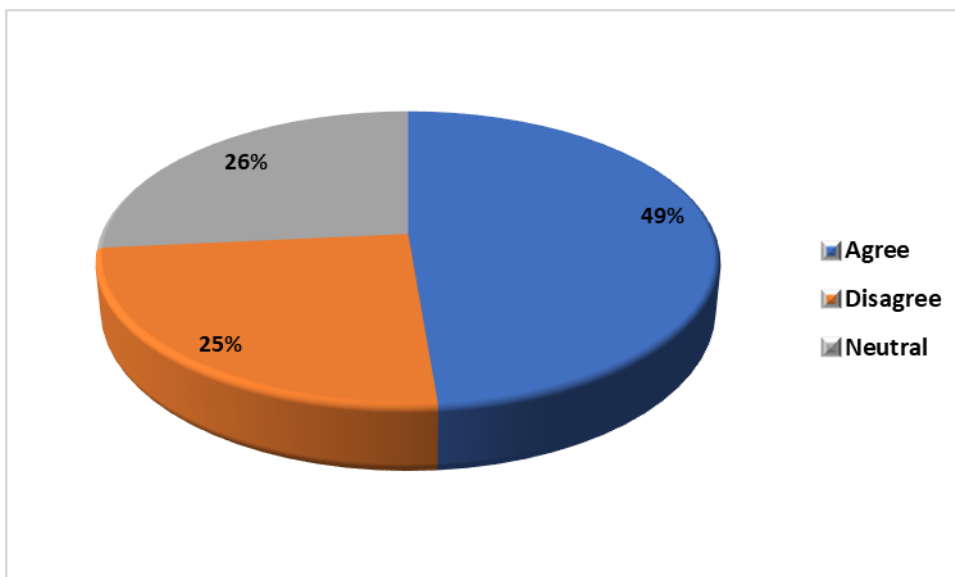
A statistical survey was conducted to know whether the videos regarding mindfulness on gratitude have a positive effect on people. For this statistical survey, two google forms were circulated. The first google form regarding mindfulness on gratitude is circulated along with the positive videos attached to it. Then, the people were asked to watch the videos and practice yoga and fill out the second google form after a week. The results from respondents for the two google forms are shown below as follows:



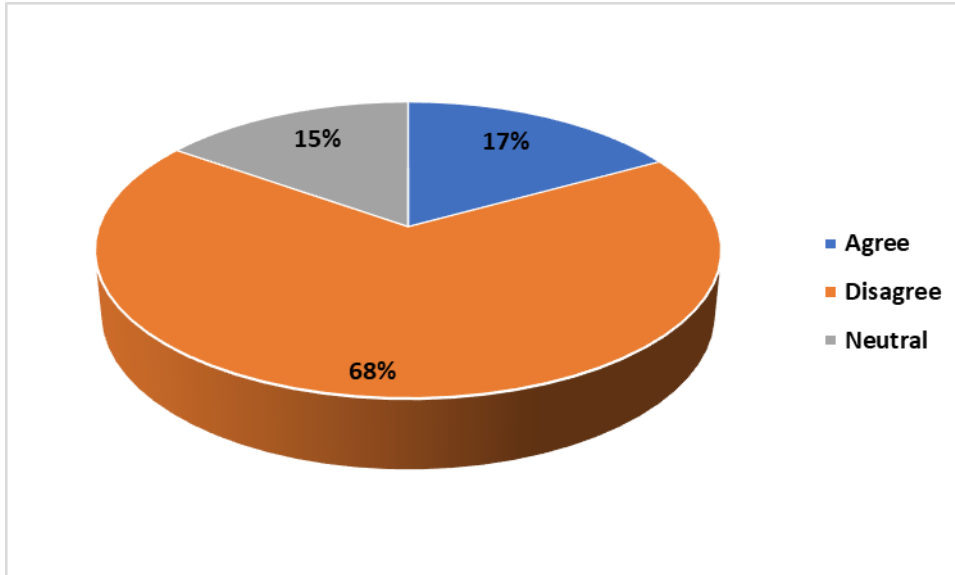


Q1) Have you faced difficulty to stay focused on what's happening in the present?

Before watching mindfulness-gratitude videos: -

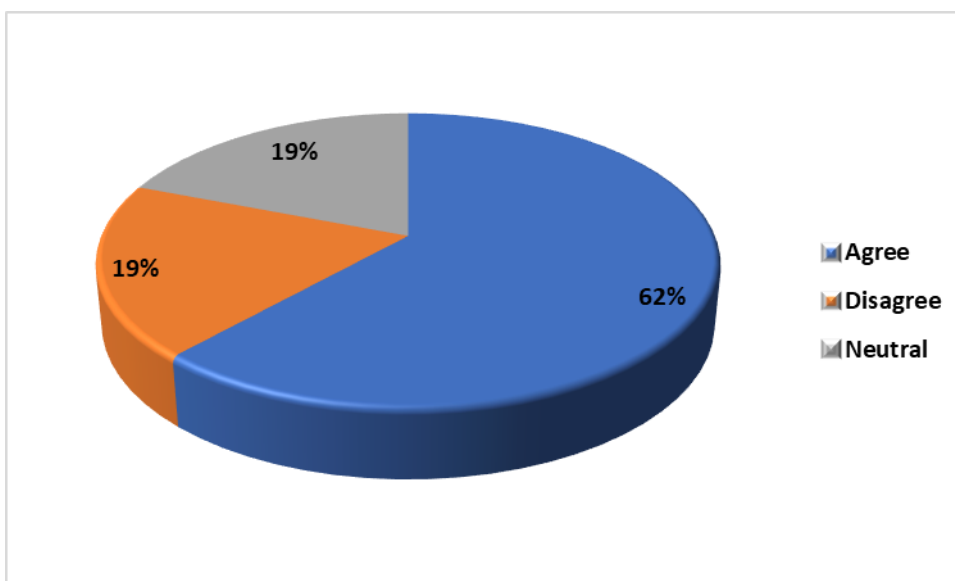


After watching mindfulness-gratitude videos: -

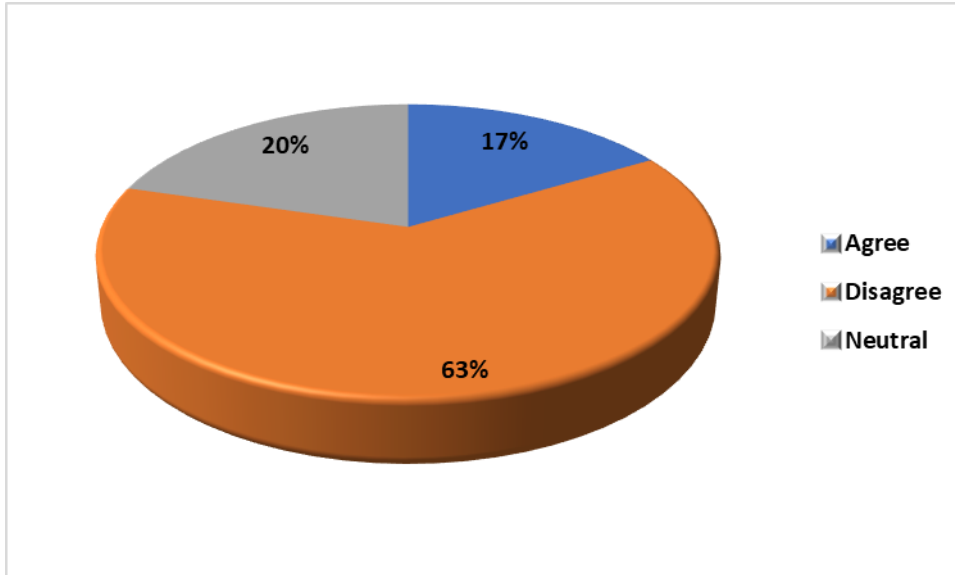


Q2) Have you felt any physical and mental tension/stress and discomfort at times for no reason?

Before watching mindfulness-gratitude videos: -

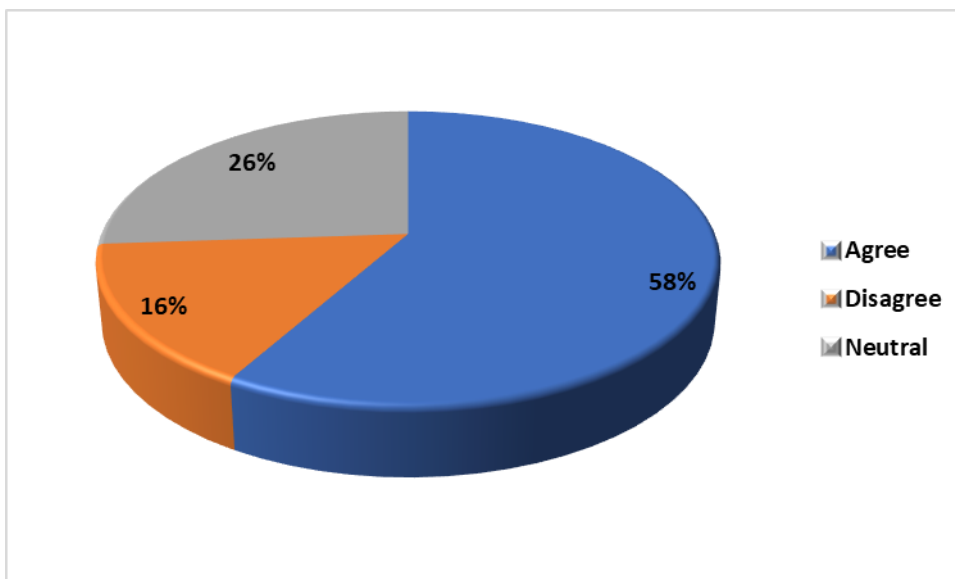


After watching mindfulness-gratitude videos: -

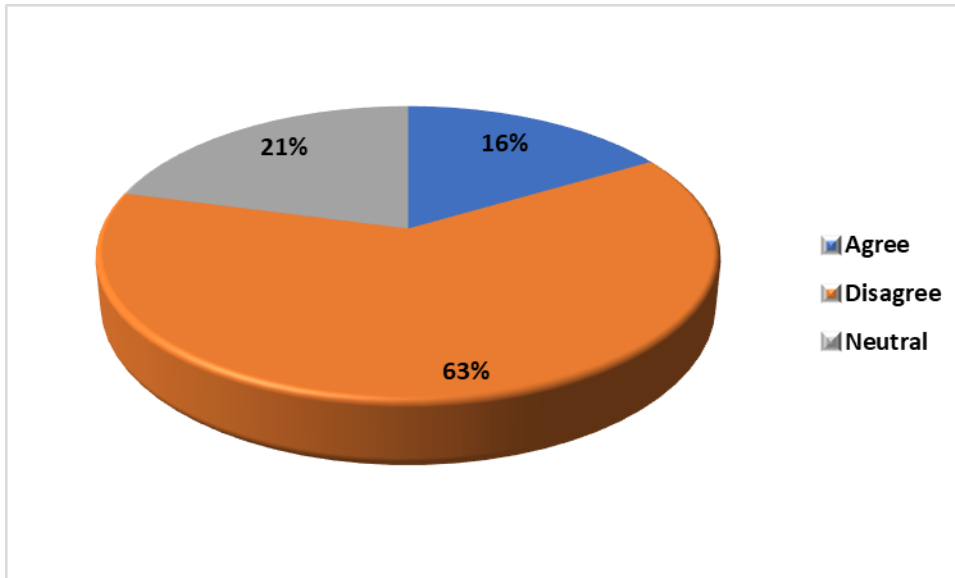


Q3) Are you preoccupied with the thoughts of the future or the past?

Before watching mindfulness-gratitude videos: -

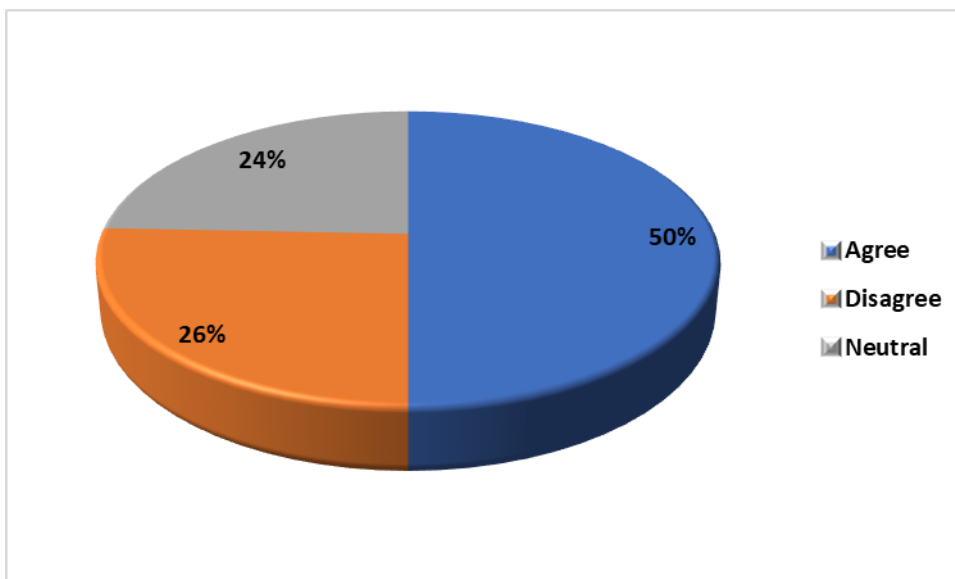


After watching mindfulness-gratitude videos: -

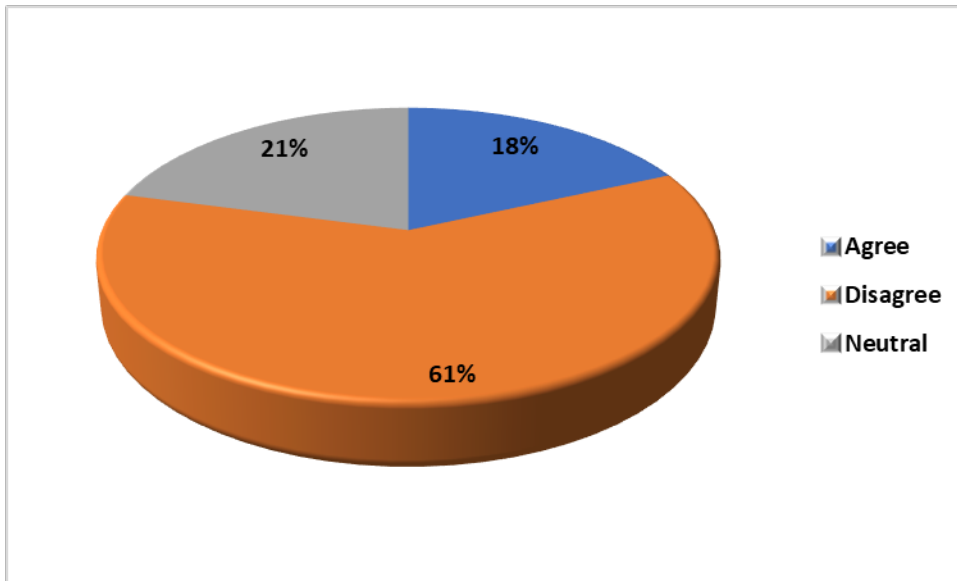


Q4) Have you felt yourself doing things without paying attention?

Before watching mindfulness-gratitude videos: -

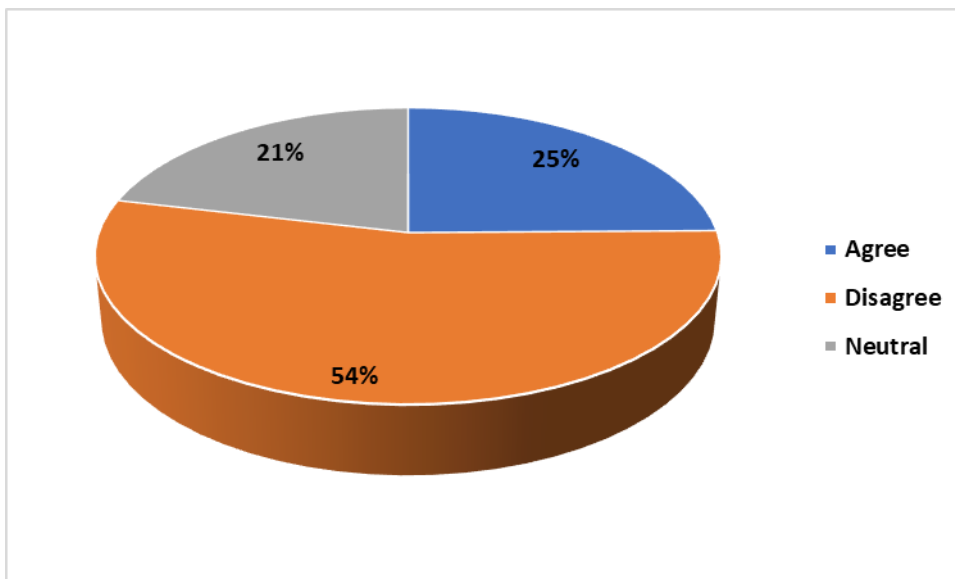


After watching mindfulness-gratitude videos: -

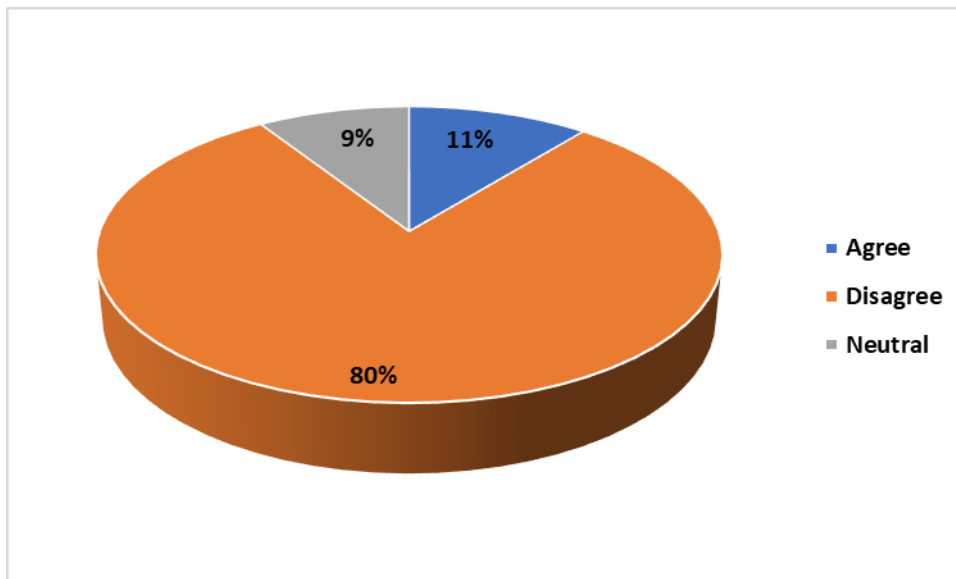


Q5) Have you wondered that you don't want this life that you got?

Before watching mindfulness-gratitude videos: -

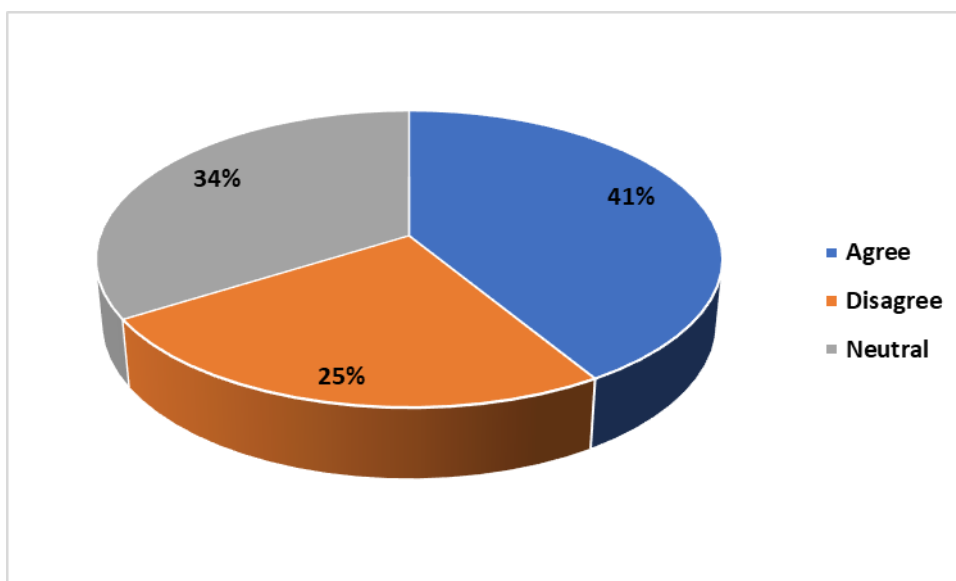


After watching mindfulness-gratitude videos: -

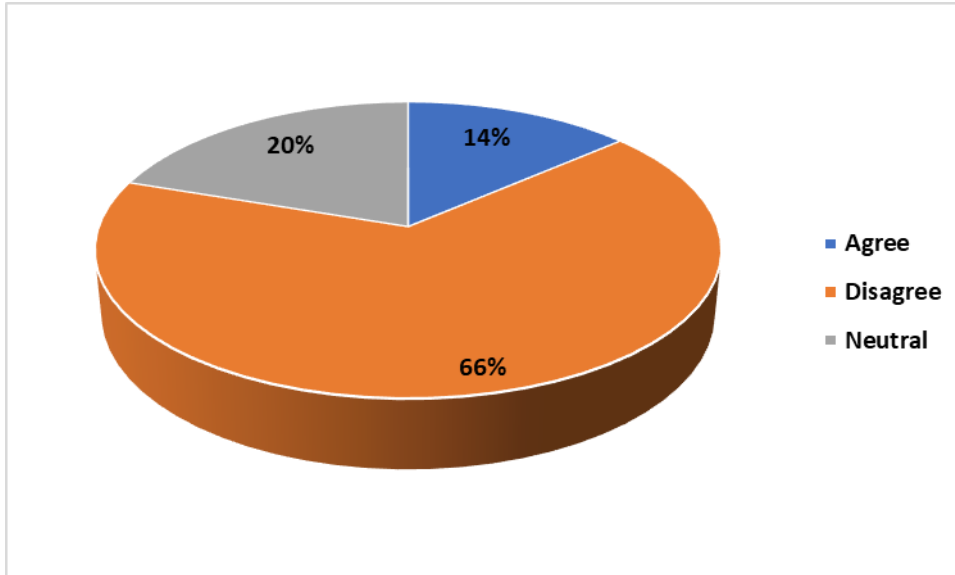


Q6) Have you felt any difficulty coping with the situations that you face in your life?

Before watching mindfulness-gratitude videos: -

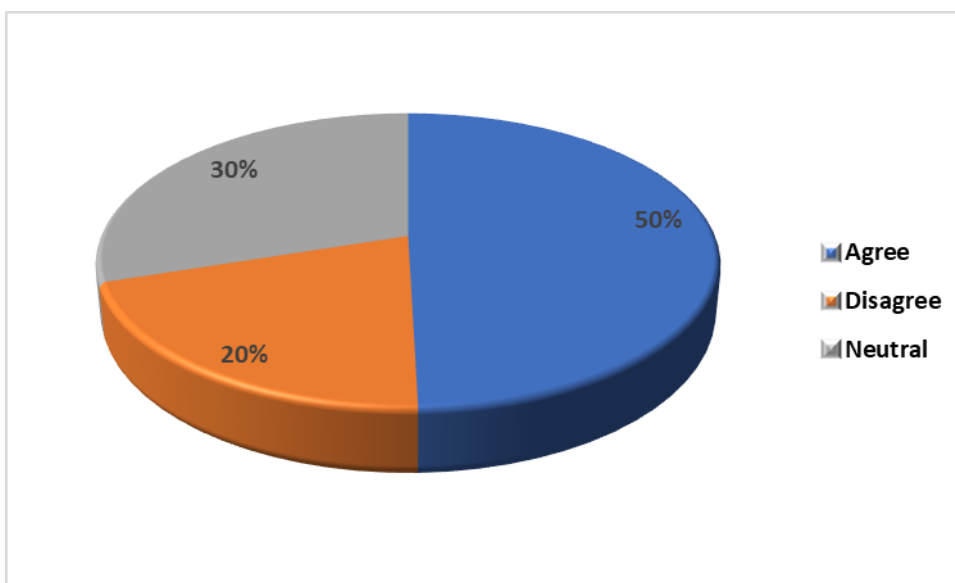


After watching mindfulness-gratitude videos: -

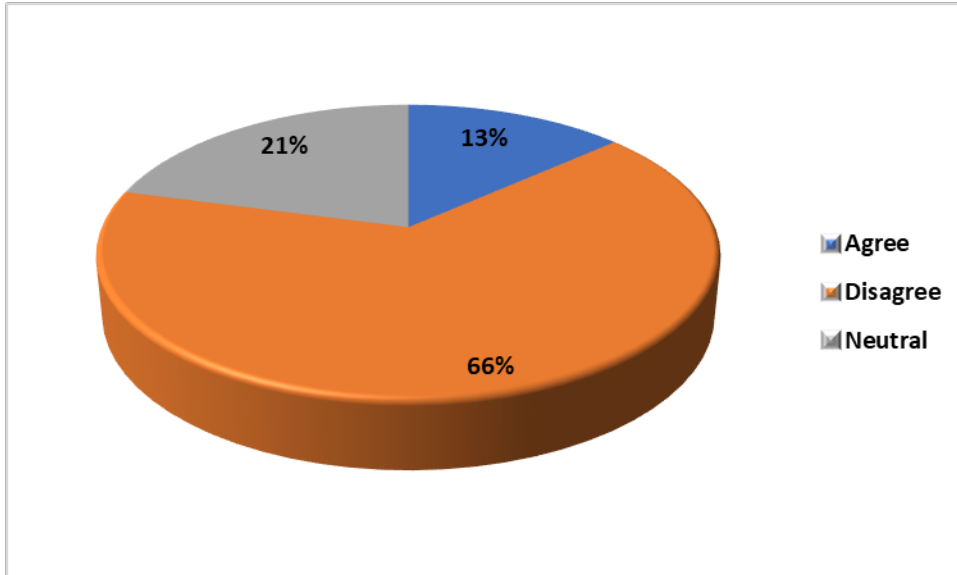


Q7) Have you experienced stressful thoughts and feelings (negative feelings) while doing any work?

Before watching mindfulness-gratitude videos: -

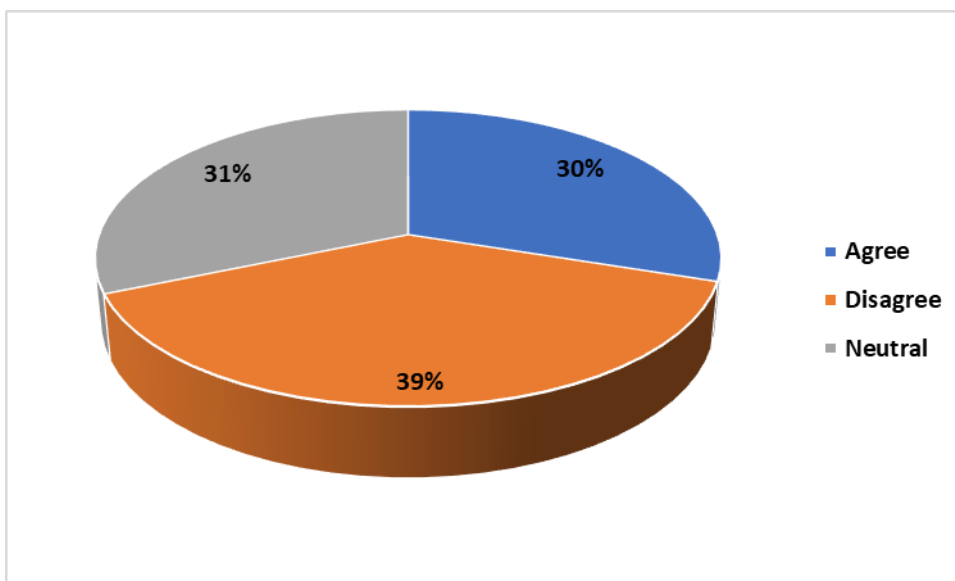


After watching mindfulness-gratitude videos: -

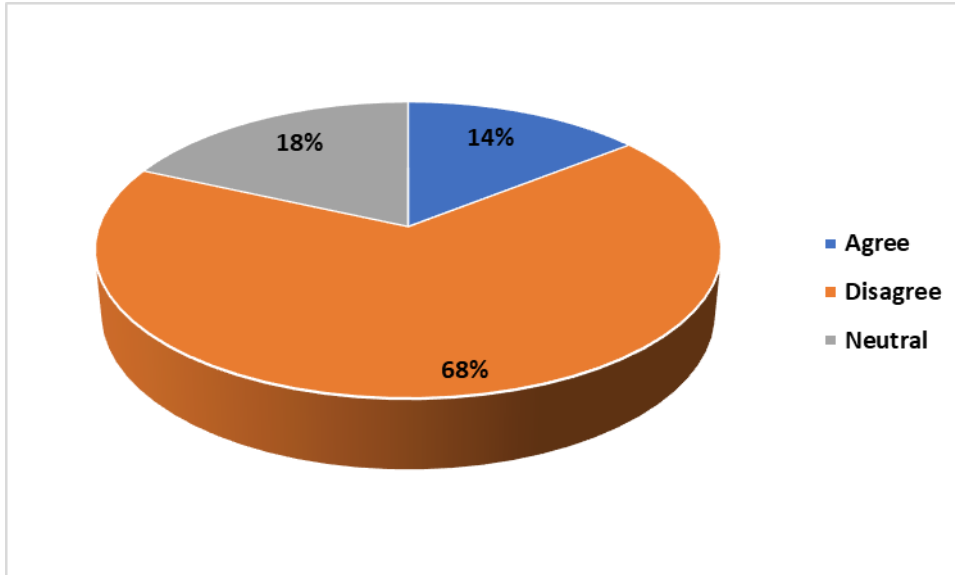


Q8) Have you felt like giving up things instead of trying to cope up with the situation?

Before watching mindfulness-gratitude videos: -

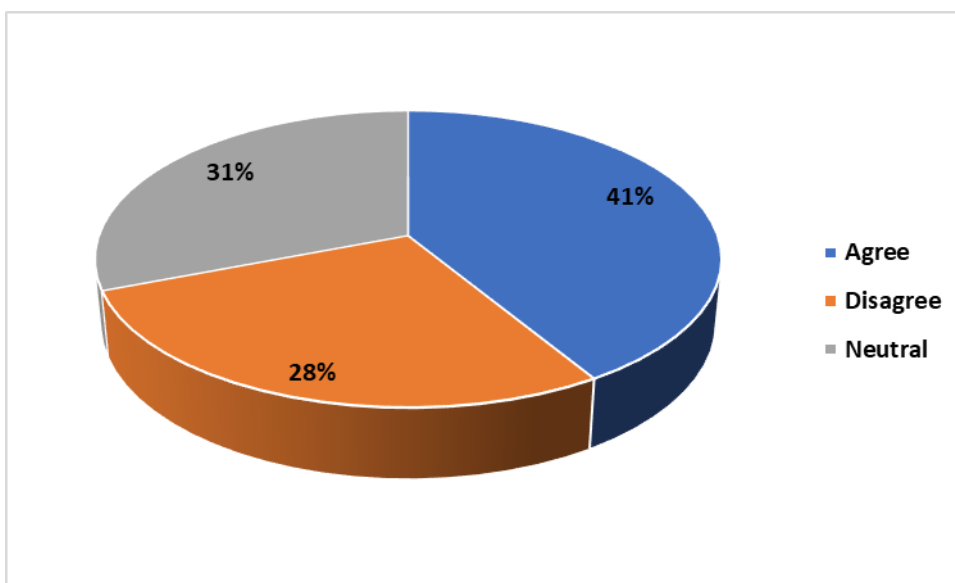


After watching mindfulness-gratitude videos: -

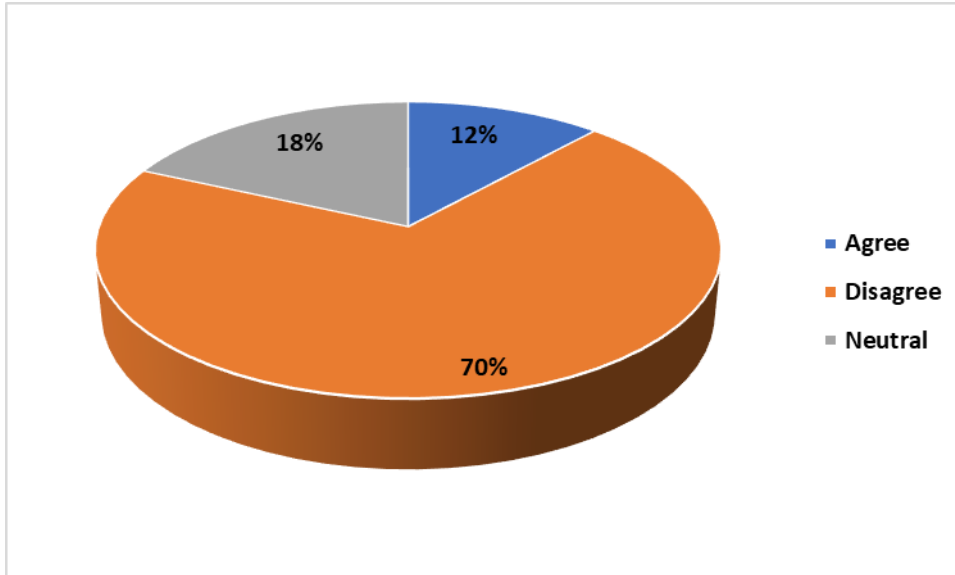


Q9) Have you experienced depression or anxiety with/without any reason?

Before watching mindfulness-gratitude videos: -

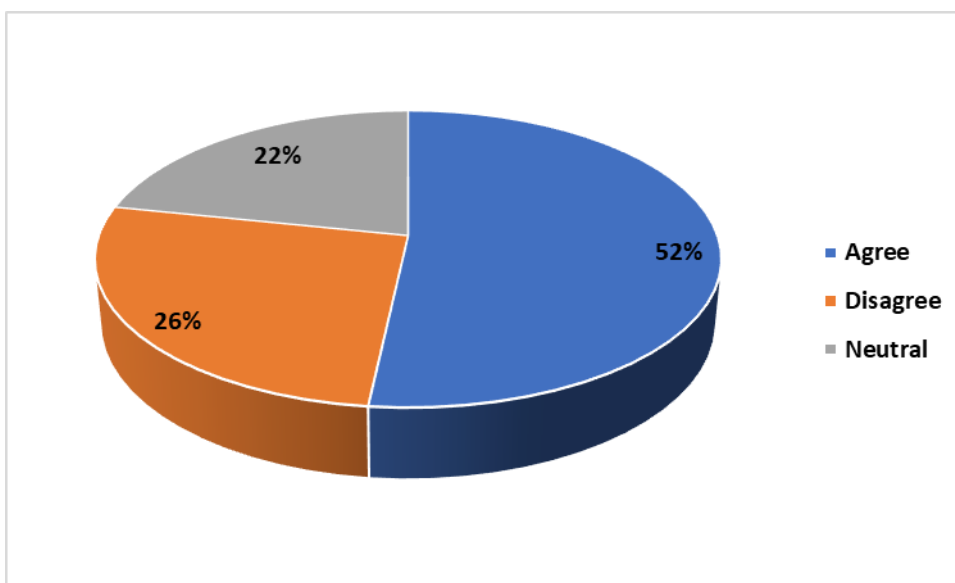


After watching mindfulness-gratitude videos: -

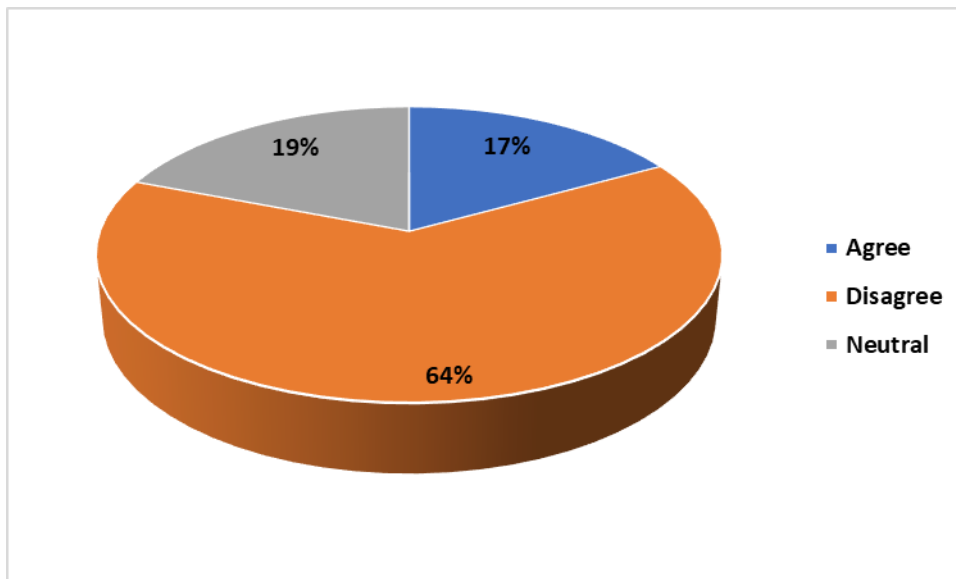


Q10) Have you criticized yourself for having irritational thoughts and emotions?

Before watching mindfulness-gratitude videos: -

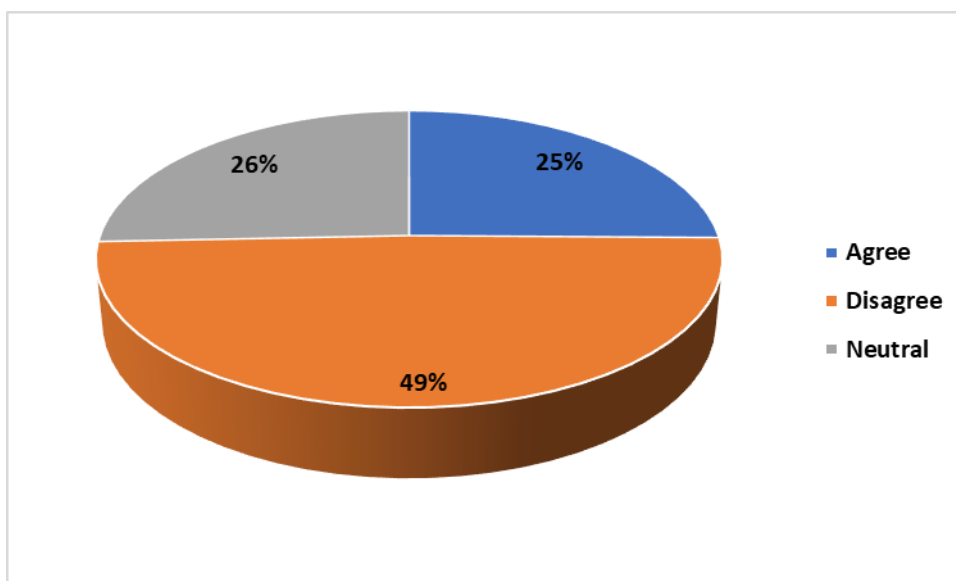


After watching mindfulness-gratitude videos: -

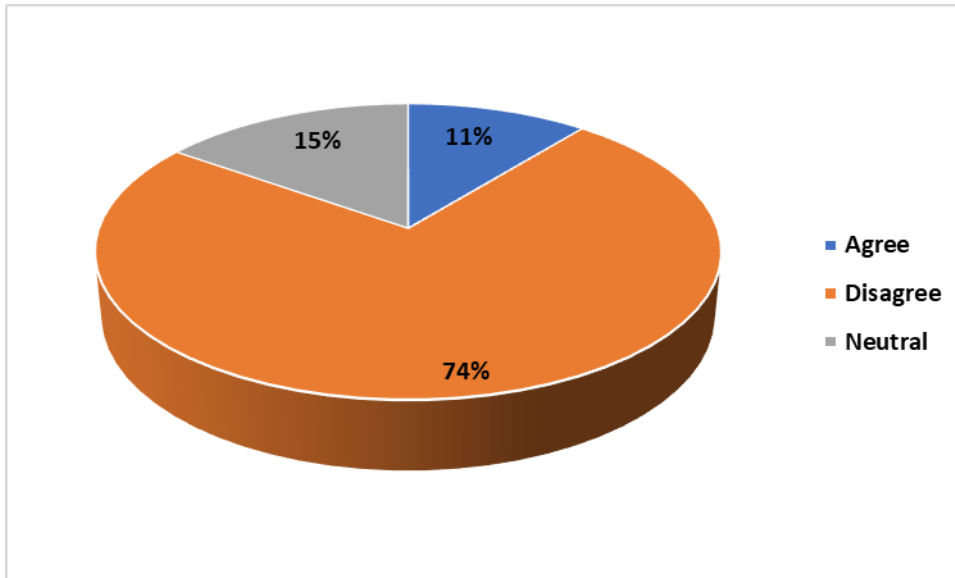


Q11) Have you criticized yourself for having irritational thoughts and emotions?

Before watching mindfulness-gratitude videos: -

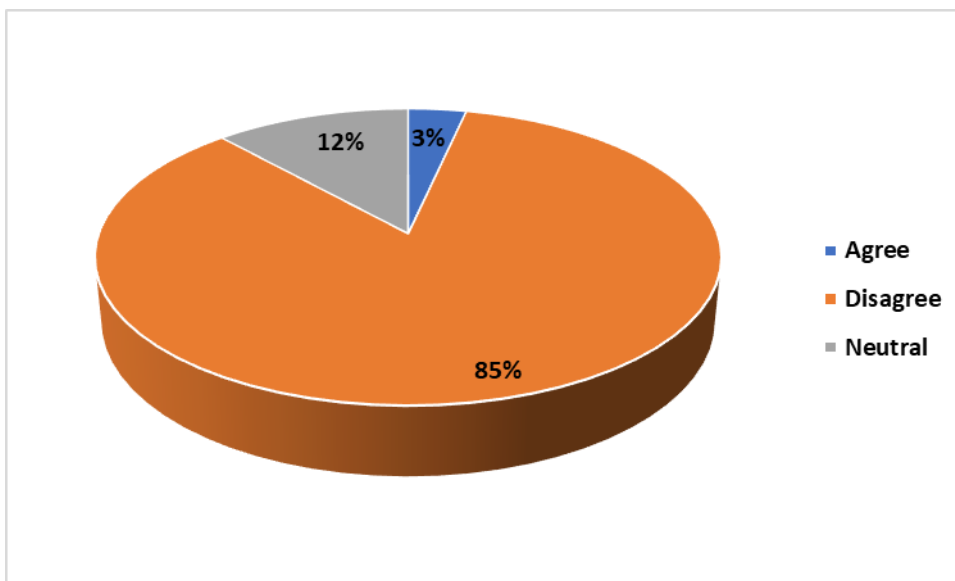


After watching mindfulness-gratitude videos: -

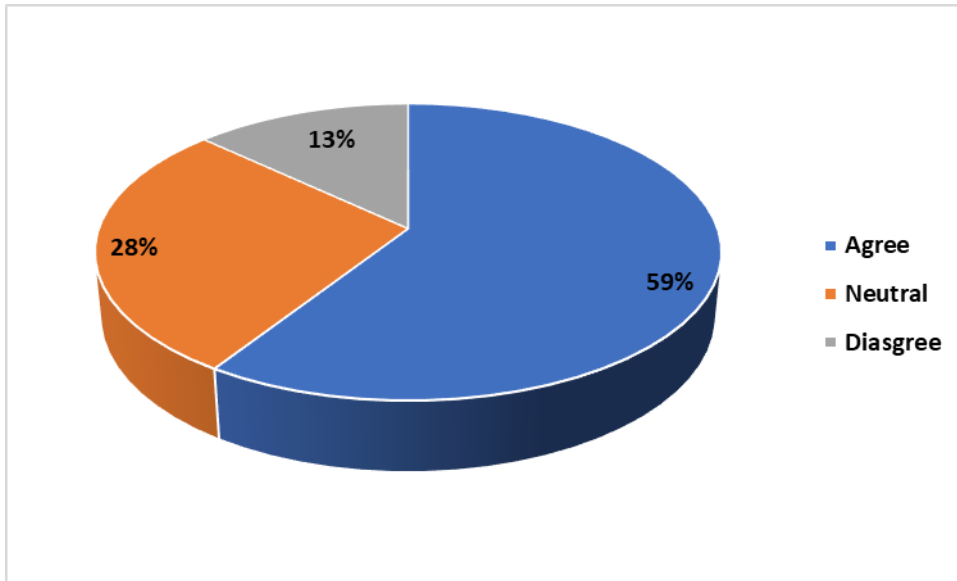


Q12) Do you practice yoga every day?

Before watching mindfulness-gratitude videos: -



After watching mindfulness-gratitude videos: -



Chapter 4

DATA ANALYSIS

The analysis of the data is performed with the help of Chi square test. The expected frequency is calculated with the help of observed frequency and the p value is determined. With the help of this p value, the dependency of two attributes is determined.

CHI-SQUARE TEST:-

1. FOCUS OF MIND – GENDER

From the responses we got regarding how difficult it is to stay focussed on what's happening in the present, we got the following data:-

Before watching videos:

OBSERVED FREQUENCY

Gender	Agree	Disagree	Neutral	Grand Total
Female	102	40	56	198
Male	10	17	5	32
Grand Total	112	57	61	230

H_0 : There is no relationship between focus of mind and gender.

H_1 : There is a relationship between focus of mind and gender. Critical value: 0.05

EXPECTED FREQUENCY

Gender	Agree	Disagree	Neutral	Grand Total
Female	96.4173913	49.06956522	52.5130435	198
Male	15.5826087	7.930434783	8.48695652	32
Grand Total	112	57	61	230

$$\text{Expected Frequency} = \frac{\text{ColumnTotal} * \text{RowTotal}}{\text{GrandTotal}}$$

p value: 0.000329461

Since p value is less than 0.05, we will reject the null hypothesis.

Hence, we can conclude that there exists a relationship between focus of mind and gender.

After watching videos:

OBSERVED FREQUENCY

Gender	Agree	Disagree	Neutral	Grand Total
Female	31	142	25	198
Male	6	17	9	32
Grand Total	37	159	34	230

H_0 : There is no relationship between focus of mind and gender.

H_1 : There is a relationship between focus of mind and gender.

Critical value: 0.05

EXPECTED FREQUENCY

Gender	Agree	Disagree	Neutral	Grand Total
Female	31.85217391	136.8782609	29.26956522	198
Male	5.147826087	22.12173913	4.730434783	32
Grand Total	32	159	34	230

$$\text{Expected Frequency} = \frac{\text{ColumnTotal} * \text{RowTotal}}{\text{GrandTotal}}$$

P value = 0.04934775

Since p value is less than 0.05, we will reject the null hypothesis.

Hence, we can conclude that there exists a relationship between focus

of mind and gender.

2. STRESS - AGE GROUP

The responses of the respondents for facing any physical and mental tension/stress and discomfort at times for no reason gave the following observations:-

Before watching videos:

OBSERVED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	59	29	23	111
20-39	75	10	17	102
40-59	8	5	4	17
Grand Total	142	44	44	230

H_0 : There is no relationship between Stress and Age group.

H_1 : There is a relationship between Stress and Age group.

Critical value: 0.05

EXPECTED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	68.53043478	21.23478	21.2348	111
20-39	62.97391304	19.51304	19.513	102
40-59	10.49565217	3.252174	3.25217	17
Grand Total	142	44	44	230

$$\text{Expected Frequency} = \frac{\text{ColumnTotal} * \text{RowTotal}}{\text{GrandTotal}}$$

p value = 0.010009415

Since p value is less than 0.05, we will reject the null hypothesis.

Hence, we can conclude that there exists a relationship between Stress and Age group.

After watching videos:-

OBSERVED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	16	73	22	111
20-39	17	65	20	102
40-59	5	7	5	17
Grand Total	38	145	47	230

H_0 : There is no relationship between Stress and Age group.

H_1 : There is a relationship between Stress and Age group.

Critical value: 0.05

EXPECTED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	18.33913043	69.97826087	22.6826087	111
20-39	16.85217391	64.30434783	20.84347826	102
40-59	2.808695652	10.7173913	3.473913043	17
Grand Total	38	145	47	230

$$\text{Expected Frequency} = \frac{\text{ColumnTotal} * \text{RowTotal}}{\text{GrandTotal}}$$

p value = 0.384555734

Since p value is greater than 0.05, we will accept the null hypothesis.

Hence, we can conclude that there exists no relationship between Stress and Age group.

3. EXPERIENCING DEPRESSION/ANXIETY - AGE GROUP

The responses for experiencing depression or anxiety with/without any reason gave the following observations:- Before watching videos:

OBSERVED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	41	38	32	111
20-39	47	21	34	102
40-59	7	5	5	17
Grand Total	95	64	71	230

H_0 : There is no relationship between experiencing depression/anxiety and age group.

H_1 : There is a relationship between experiencing depression/anxiety and age group.

Critical value: 0.05

EXPECTED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	45.84782609	30.88695652	34.26521739	111
20-39	42.13043478	28.3826087	31.48695652	102
40-59	7.02173913	4.730434783	5.247826087	17
Grand Total	95	64	71	230

$$\text{Expected Frequency} = \frac{\text{ColumnTotal} * \text{RowTotal}}{\text{GrandTotal}}$$

p value = 0.286143691

Since p value is greater than 0.05, we will accept the null hypothesis.

Hence, we can conclude that there exists no relationship experiencing depression/anxiety and age group.

After watching videos:

OBSERVED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	12	79	20	111
20-39	10	75	17	102
40-59	5	7	5	17
Grand Total	27	161	42	230

H_0 : There is no relationship between experiencing depression/anxiety

and age group.

H_1 : There is a relationship between experiencing depression/anxiety and age group.

Critical value: 0.05

EXPECTED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	13.03043478	77.7	20.26956522	111
20-39	11.97391304	71.4	18.62608696	102
40-59	1.995652174	11.9	3.104347826	17
Grand Total	27	161	42	230

$$\text{Expected Frequency} = \frac{\text{ColumnTotal} * \text{RowTotal}}{\text{GrandTotal}}$$

p value = 0.076300149

Since p value is greater than 0.05, we will accept the null hypothesis.

Hence, we can conclude that there exists no relationship experiencing depression/anxiety and age group.

4. APPRECIATING - AGE GROUPS

The responses corresponding to the factor that people forget to appreciate good things that they do is the following data given below:-

Before watching videos:

OBSERVED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	24	56	31	111
20-39	28	51	23	102
40-59	6	6	5	17
Grand Total	58	113	59	230

H_0 : There is no relationship between appreciating good things and age

group.

H_1 : There is a relationship between appreciating good things and age group. Critical value: 0.05

EXPECTED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	27.99130435	54.53478261	28.47391304	111
20-39	25.72173913	50.11304348	26.16521739	102
40-59	4.286956522	8.352173913	4.360869565	17
Grand Total	58	113	59	230

$$\text{Expected Frequency} = \frac{\text{ColumnTotal} * \text{RowTotal}}{\text{GrandTotal}}$$

p value = 0.579194979

Since the p value is greater than 0.05, we will accept the null hypothesis.

Hence, we can conclude that there exists no relationship between experiencing depression/anxiety and age group.

After watching videos:

OBSERVED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	11	88	12	111
20-39	9	75	18	102
40-59	5	7	5	17
Grand Total	25	170	35	230

H_0 : There is no relationship between appreciating good things and age group.

H_1 : There is a relationship between appreciating good things and age group.

Critical value: 0.05

EXPECTED FREQUENCY

Age Group	Agree	Disagree	Neutral	Grand Total
13-19	12.06521739	82.04347826	16.89130435	111
20-39	11.08695652	75.39130435	15.52173913	102
40-59	1.847826087	12.56521739	2.586956522	17
Grand Total	25	170	35	230

$$\text{Expected Frequency} = \frac{\text{ColumnTotal} * \text{RowTotal}}{\text{GrandTotal}}$$

p value = 0.012155974

Since p value is less than 0.05, we will reject the null hypothesis.

Hence, we can conclude that there exists a relationship between appreciating good things and age group.

PAIRED t-TEST:

t-Test: Paired Two Sample for Means		
	Group 1 (Before watching videos)	Group 2 (After watching videos)
Mean	1.5	2.194466403
Variance	0.250544662	0.399954908
Observations	460	460
Pearson Correlation	0.534949334	
Hypothesized Mean Difference	0	
df	459	
t Stat	-26.67344541	
P(T<=t) one-tail	1.18675E-95	
t Critical one-tail	1.648180137	
P(T<=t) two-tail	2.3735E-95	
t Critical two-tail	1.965145755	

Figure 4.1: Table 1

Hypothesis under study:

Null hypothesis (H_0): No difference among two groups considered (Group 1 & Group 2)

Alternative hypothesis (H_1): There is a difference among two groups considered (Group 1 & Group 2)

Decision Criteria:

If p-value less than 0.05, we reject null hypothesis at 5% level of significance.

If p-value greater than 0.05, we accept null hypothesis at 5% level of significance.

As seen in Table 1, there is a significant difference between the two groups i.e., Group 1(Before watching videos) and Group 2(After watching videos).

Also, the results indicate that p value is less than 0.05, hence we will reject the null hypothesis and accept the alternate hypothesis.

Therefore, we can conclude that there is a difference among two groups considered (Group 1 & Group 2).

Chapter 5

RESULT AND CONCLUSION

5.1 RESULT

After carefully analysing the data, we were able to find out that 91% of the female participants felt it difficult to stay focused on what's happening at the present before watching the mindfulness gratitude videos and it reduced to 84% after watching the videos.

While examining the collected data, in the 13 – 19 age group, 53% agreed, 21% neutral and 26% disagree on the fact that they tend to feel physical and mental tension and discomfort at times for no reason. In the 20–39 age group, 73% agreed, 17% neutral and 10% disagreed that they tend to feel physical and mental tension and discomfort at times for no reason and in the age group 40–59, 47% agreed, 24% neutral and 29% disagreed that they tend to feel physical and mental tension and discomfort at times for no reason.

After showing the mindfulness gratitude videos, it was seen that in the age group 13–19, 14% agreed, 20% neutral and 66% disagreed on the fact that they tend to feel physical and mental tension and discomfort at times for no reason. In the 20–39 age group, 19% agreed, 19% neutral and 64% disagreed. In the 40–59 age group, 41% disagreed, 29% neutral and 30% agreed.

From the obtained data, it was observed that 50% disagreed, 28% neutral and 22% agreed in the age group of 13–19 that they forget to appreciate people and things around them. 50% disagreed, 23% neutral and 27% agreed on this in the age group 20–39. It was seen a 35% agree and disagree and 30% neutral in the age group 40–59 that they forget to appreciate people and things around them before watching the videos.

After watching the videos, it was seen that 79% disagreed, 11% neutral and 10% agreed in the age group 13–19 that they forget to appreciate people and things around them. In the age group 20–39, 73% disagreed, 18% neutral, 9% agreed on this fact and 41% disagreed, 29% neutral and 30% agreed that the videos had a positive effect on them for appreciating people and things around them before watching the videos.

When it comes to experiencing depression, anxiety with/without any reason, it was observed that 34% agreed, 29% neutral and 37% disagreed in the age group 13–19. 46% agreed, 33% neutral and 21% disagreed in the age group 20–39. In the age group 40–59, 41% agreed, 29% neutral and 30% disagreed.

After watching the videos, 65% disagreed, 20% neutral and 14% agreed in the age group 13–19 that they experience depression, anxiety with/without any reason. 64% disagreed, 19% neutral and 17% agreed in the age group 20–39. 41% disagreed, 29% neutral and 30% agreed on this fact.

5.2 CONCLUSION

From our questionnaire, we got more responses from the females rather than males and we were able to find out that more no. of female participants felt it difficult to stay focused on what's happening at present before watching the mindfulness gratitude videos and it reduced to less no. after watching the videos.

From the responses, we identified that our mindfulness gratitude video becomes more effective to young people at the age of 13–19 and it becomes lesser effective to the people in the age group 20–39 and in the age group 40–59.

We also identified that, before watching the mindfulness gratitude videos, more no. of people tend to feel physical and mental tension and discomfort at times for no reason. And after watching the videos it was seen that the no. of peoples becomes less in the fact that they tend to feel physical and mental tension and discomfort at times for no reason.

And also we found that, most of the young people disagreed or forget to appreciate people and things around them and after watching the video, the no. of young people become less and it shows that the videos had a positive effect on them for appreciating people and things around them.

Hence, we can conclude that there was a positive effect on people with the use of videos and hence mindfulness gratitude videos have a positive effect on mindfulness on gratitude.

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ANNEXURE

EFFECT OF MINDFULNESS ON GRATITUDE

We are students from 3rd year BSc Mathematics. We are conducting a statistical survey on the topic '**Effect of Mindfulness on Gratitude**'. As we know, mindfulness is the non judgmental awareness and acceptance of reality at the present moment. Gratitude is the emotion with which we are thankful and appreciate for the positive aspect our life at the present moment.

We would like to request your participation for the same by filling out this form. You are requested to fill this form honestly. The data provided by you will be kept confidential.

By clicking on the button, I give my full consent to participate in this study *

I Agree

1. Your Name? *

Short-answer text

2. Your Email Address? *

Short-answer text

3. Age group *

1. 13 - 19

2. 20 - 39

3. 40 - 59

4. Gender *

1. Male

2. Female

5. Occupation *

Student

Unemployed





Employed

6. I feel difficult to stay focused on what's happening at present. *

Agree

Disagree

Neutral

<p>7. I tend to feel physical and mental tension and discomfort at times for no reason. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>	<p>11. I find it difficult to cope up with the situation that I face in life. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>	<p>15. I criticize myself for having irritational thoughts and emotions. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>
<p>8. I find myself preoccupied with the future or the past. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>	<p>12. I have stressful thoughts and feelings(negative feelings) while doing any work. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>	<p>16. I forget to appreciate people for the good things they do. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>
<p>9. I find myself doing things without paying attention. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>	<p>13. I feel like giving up things instead of trying to cope up with the situation. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>	<p>17. Do you practice yoga everyday? *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>
<p>10. I have wondered that I don't want this life that I have got. *</p> <p>B <i>I</i> <u>U</u>  </p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>	<p>14. I experience depression, anxiety with/without any reason. *</p> <p><input type="radio"/> Agree</p> <p><input type="radio"/> Disagree</p> <p><input type="radio"/> Neutral</p>	<p>18. What all are you thankful for in your life? *</p> <p>B <i>I</i> <u>U</u>  </p> <p>Long-answer text</p> <hr/>



EFFECT OF MINDFULNESS ON GRATITUDE

Questions Responses **230** Settings

230 responses



By clicking on the button I give my full consent to participate in this study *

I agree

1. What is your name *

Your answer

2. What is your age *

13 - 19

20 - 39

40- 59

3. Your gender *

Male

Female

4. Occupation *

Student

Unemployed

Employed

5. Your email adress *

Your answer

6. Have you filled the previous google form without watching positive motivational video ? *

No

Yes

7. Have you watched the positive motivational video and practiced yoga for a week? *

Your answer

8. I feel difficult to stay focused on what's happening at present . *

Agree

Disagree

Neutral

9. I tend to feel physical and mental tension and discomfort at times for no reason *

Agree

Disagree

Neutral

10. I find myself preoccupied with future or the past *

- Agree
- Disagree
- Neutral

16. I experience depression, anxiety with /without reason *

- Agree
- Disagree
- Neutral

11. I find myself doing things without paying attention *

- Agree
- Disagree
- Neutral

17. I criticize myself for having irritational thoughts and emotions *

- Agree
- Disagree
- Neutral

12. I wondered that I don't want this life that I have got . *

- Agree
- Disagree
- Neutral

18. I forget to appreciate people for the good things that they do *

- Agree
- Disagree
- Neutral

13. I find it difficult to cope up with situation that I face in life

- Agree
- Disagree
- Neutral

19. Do you practice yoga ? *

- Yes
- No
- Sometimes

14. I experience stressful thoughts and feelings (negative feelings) while doing some work *

- Agree
- Disagree
- Neutral

20. What all are you thankful for in your life ? *

Your answer _____

15. I feel like giving up things instead of trying to cope up with the situation *

- Agree
- Disagree
- Neutral

PROCEEDINGS OF
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Statistical Survey on the Effect of Mindfulness on Gratitude

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Abstract

This paper is a statistical study of the effect of mindfulness on gratitude. Mindfulness is the non-judgmental awareness and acceptance of reality at the present moment. Gratitude is the emotion in which we are thankful and appreciative of the positive aspects of our life. A statistical survey was conducted to know whether the videos regarding mindfulness on gratitude have a positive effect on people. For this statistical survey, two google forms were circulated. The first google form regarding mindfulness on gratitude is circulated along with the positive videos attached to it. The people were asked to watch the videos and practice yoga and fill out the second google form after a week. The tests used for the analysis of the survey are the Paired sample test and chi-square test, we test whether there is an effect on people with these videos. The initial hypothesis taken is **the video has no effect of mindfulness on gratitude** and the alternative hypothesis is **the video has a positive effect of mindfulness on gratitude**.

Key words: Mindfulness, Gratitude, Positive Effect, Well Being.

1 Introduction

We experience many mental, social, and emotional changes that negatively affect our emotions and quality of life. Different stages of life deal with different changes in emotional well-being that lead to stress, anxiety, depression, and many other factors. Quality

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