

“Dissemination of Education for Knowledge, Science and Culture”
-Shikhanmaharshi Dr. Bapuji Salunkhe



VIVEKANAND COLLEGE, KOLHAPUR
(Empowered Autonomous)

DEPARTMENT OF STATISTICS

A PROJECT REPORT
On

**“STATISTICAL ANALYSIS OF MENTAL
HEALTH
AMONG STUDENTS**

Submitted by

Mr. Shipugade Shubham Sarjerao

Ms. Gawade Shweta Sanjay

Mr. Dhavale Pratik Vijay

Ms. Patil Trupti Vijay

In partial fulfilment for the award of

the degree of

BACHELOR OF SCIENCE

In

STATISTICS

2023-24

“Dissemination of Education for Knowledge, Science and Culture”
-Shikhanmaharshi Dr. Bapuji Salunkhe



(स्वायत्त) कोल्हापूर

VIVEKANAND COLLEGE, KOLHAPUR
(Empowered Autonomous)

DEPARTMENT OF STATISTICS

Certificate

This is to certify that,

Name	Roll No.
Mr. Shipugade Shubham Sarjerao	8329
Ms. Gawade Shweta Sanjay	8306
Mr. Dhavale Pratik Vijay	8304
Ms. Patil Trupti Vijay	8321

Have satisfactorily completed the project work on “STATISTICAL ANALYSIS OF MENTAL HEALTH AMONG STUDENTS” as a part of skill enhancement course for B. Sc. III, prescribed by the Department of Statistics, *Vivekanand College, Kolhapur (Empowered Autonomous)* in the academic year 2023-24.

This project has been completed under our guidance and supervision. To the best of our knowledge and belief, the matter presented in this project report is original and has not been submitted elsewhere for any other purpose.

Project Guide

(Ms. Makandar A. M.)

Examiner

Head

(Mrs. Shinde V. C.)

HEAD
DEPARTMENT OF STATISTICS
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

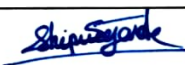
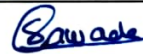


DECLARATION

We hereby declare that the project report entitled "STATISTICAL ANALYSIS OF MENTAL HEALTH AMONG STUDENTS" written and submitted to **Vivekanand College, Kolhapur (Empowered Autonomous)** partial fulfillment of B.Sc. III (Statistics) under the guidance of **Miss. Makandar A. M.** is our original work. The empirical results in this project are based on the data collected by ourselves.

We understand that any copying is liable to be published as the authorities deem fit.

Date:

Place: Kolhapur

Name	Roll No.	Sign
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The project has been prepared under the guidance of Miss. Makandar A. M. madam. We would like to thank Ms. Makandar A. M. mam & Ms. Pandhare R. S. mam for their support, suggestions and guidance for this project.

We also thankful to all teaching staff as well as non-teaching staff members of Department of Statistics Vivekanand College, Kolhapur (Empowered Autonomous) for the direct & indirect support.

And so, we sincerely thankful to our parents for helping us in all aspects to complete the project work, as well as would like to appreciate to our friends, colleagues for their direct and indirect contribution.

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INTRODUCTION

Mental health is a critical aspect of overall well-being, especially among students who face various academic, social, and personal challenges. Understanding the mental health status of students through statistical analysis can provide valuable insights into their needs and the effectiveness of support systems in educational settings.

In this study, we aim to analyse the mental health trends, patterns, and factors affecting students' well-being using statistical methods. By collecting data on factors such as stress levels, anxiety, depression, academic workload, and access to support services, we seek to uncover correlations and trends that may indicate areas of concern or success.

The analysis will involve descriptive statistics to summarize the characteristics of the student population and their mental health indicators. Additionally, inferential statistics will help us draw conclusions and make predictions about the broader student population based on our sample data.

By conducting this statistical analysis, we hope to contribute to the understanding of mental health issues among students and inform the development of targeted interventions and support programs to promote positive mental health outcomes in educational environments.

OBJECTIVES

- ✦ To identify the major sources of mental health among students.
- ✦ To determine mental health among students who live in hostel or PG's and that that live in home.
- ✦ Asses the mental health among males and females.
- ✦ To check level of academic stress among the students.
- ✦ To identify various symptoms of stress experienced by the students.

COLLECTION OF DATA

In this project, we want to study the statistical analysis of mental health among students. We have collected the data by using convenient sampling method.

We collected data by administering a well-structured and non-disguised questionnaire consisting 26 questions. The questions based on personal and academic information regarding mental health. The questionnaire was distributed among the respondents through online mode via Google form.

The 416 sample sizes were taken for study from the undergraduate and postgraduate students who live in home as well as hostel/PGs of science, commerce and arts background.

STATISTICAL TOOLS USED FOR ANALYSIS

Diagrammatic representation of data: -

- Bar graph
- Clustered Bar Graph
- Pie chart
- 3-D Pie Chart
- Sunburst

Test used for Analysis: -

- Chi-square Test

Software used: -

- Microsoft Excel



- Microsoft Word



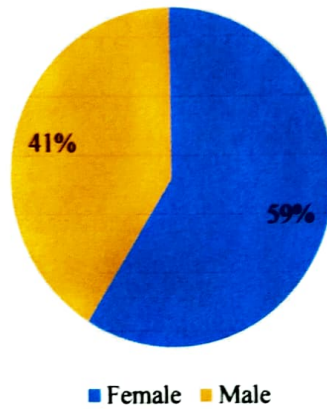
- R-Programming



DEMOGRAPHIC PROFILE OF RESPONDENTS

❖ Gender wise distribution

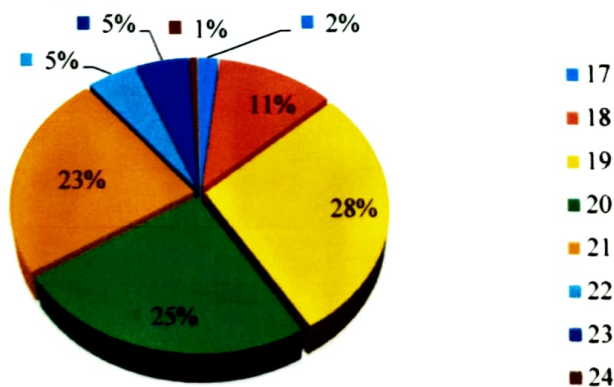
Gender	Frequency	Percentage
Female	244	59%
Male	172	41%



A total of 416 respondents were involved, out of this, **females** took the greater percentage of 59% and the remaining 41% went for the **males**.

❖ Age-wise Distribution

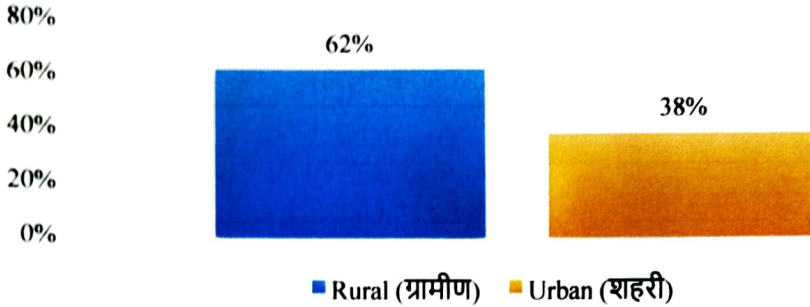
Age	17	18	19	20	21	22	23	24	Grand Total
Frequency	8	47	117	102	97	20	21	4	416



From above pie chart most of the respondents were between the age group **19 to 21** (it is about 76% respondents).

❖ Locality-wise Distribution

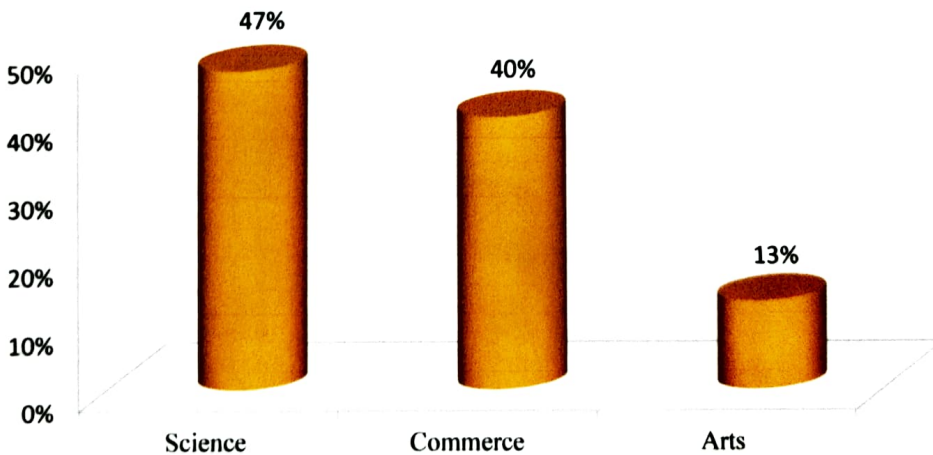
Locality	Total	Percentage
Rural (ग्रामीण)	258	62%
Urban (शहरी)	158	38%



According to graph the highest percentage of respondents were from the **rural area** (62%) as compared to the **urban area** (38%).

❖ Faculty / Stream wise Distribution

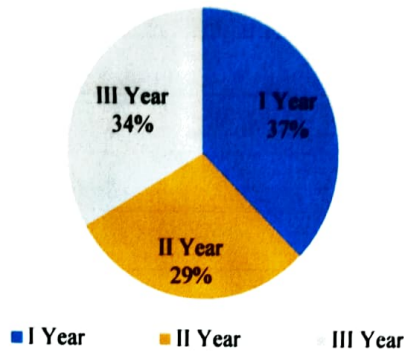
Faculty / Stream	Total	Percentage
Science	196	47%
Commerce	166	40%
Arts	54	13%



According to graph the highest percentage of respondents were from the **science** (47%) and **commerce** (40%) background as compared to the **arts** (13%).

❖ **Year-wise Distribution**

Year of Study	Frequency	Percentage
I st Year	154	37%
II nd Year	121	29%
III rd Year	141	34%

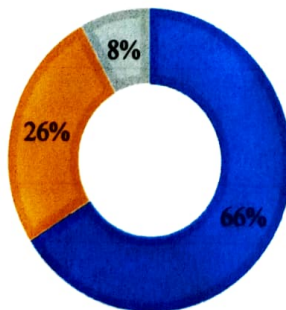


From the pie chart that the respondents were about 37% in I year, 34% in II year and 29% in III year.

❖ **Distribution of the respondents by who are living in Hostel/PGs or Home**

Reside	Frequency	Percentage
Home	276	66%
Hostel	110	26%
PG's	30	8%

■ Home ■ Hostel ■ PG's



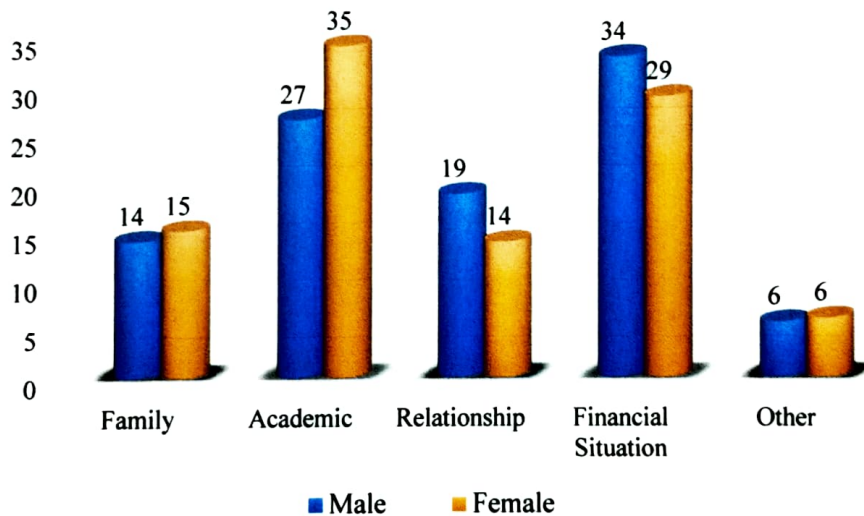
It is found that from above chart that most of the respondents were residing in their **homes** (66%) as compared to the other.

GRAPHICAL PRESENTATION

➤ Sources of mental health among males and females

Sources	Male	Female
Family	14%	15%
Academic	27%	35%
Relationship	19%	14%
Financial Situation	34%	29%
Other	6%	6%

Sources of mental health among males and females

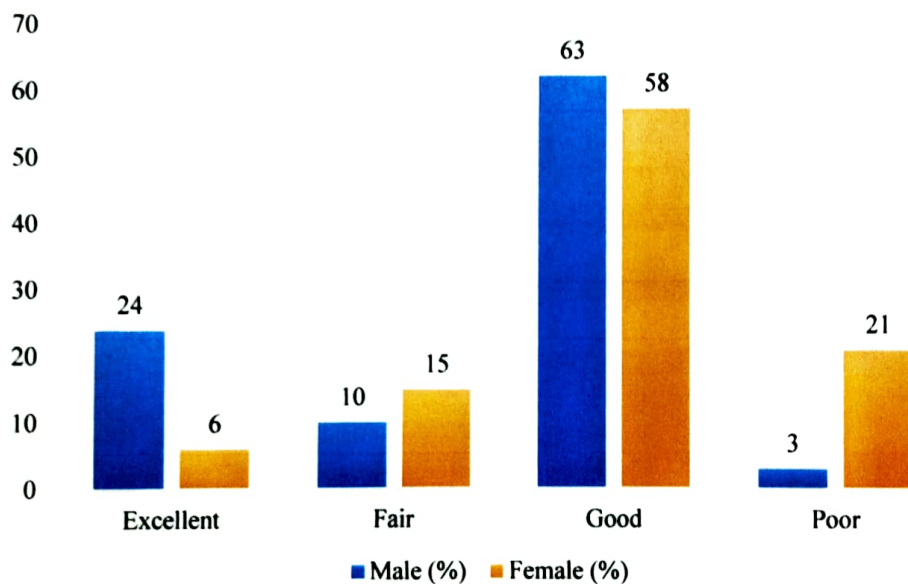


Most of males stressed due to **Financial Situation** & most of Females stressed due to **Academic Pressure**.

➤ **Mental health among males and females**

Mental health	Male (%)	Female (%)
Excellent	24%	6%
Fair	10%	15%
Good	63%	58%
Poor	3%	21%

Mental health among males and females

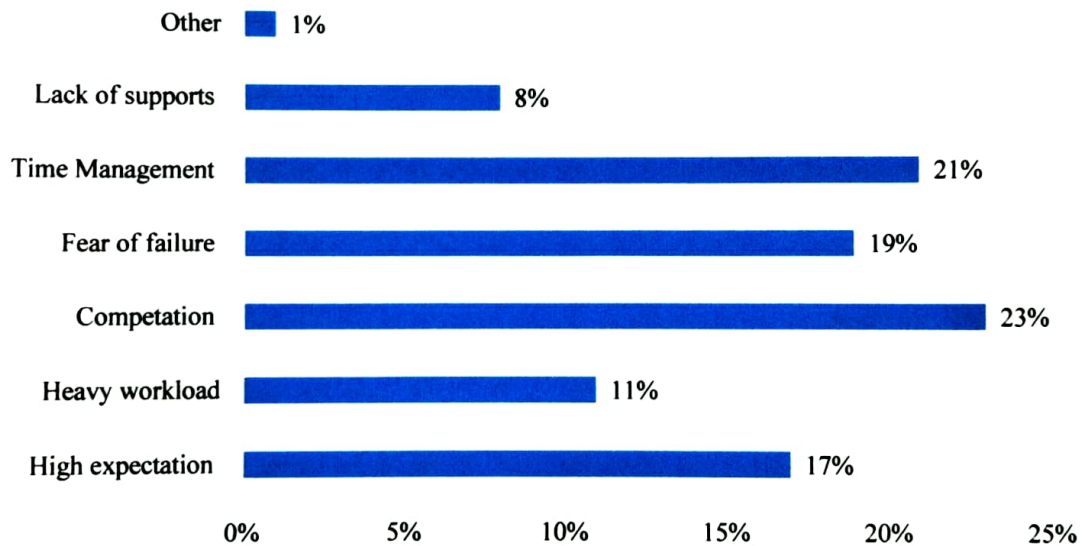


From above chart we say that, mental health among both males and females is **good**.

➤ **Factors responsible for the Academic stress**

Factors responsible for academic stress	Total	Percentage
High expectation	138	17%
Heavy workload	92	11%
Competition	184	23%
Fear of failure	154	19%
Time management	171	21%
Lack of supports	63	8%
Other	5	1%

Factors responsible for the Academic stress

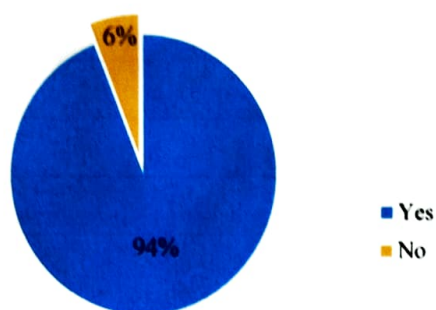


The most responsible factors for the Academic stress are **competition** (23%) and **time management** (21%).

➤ **Users of social media**

Users of social media	Frequency (%)
Yes	94%
No	6%

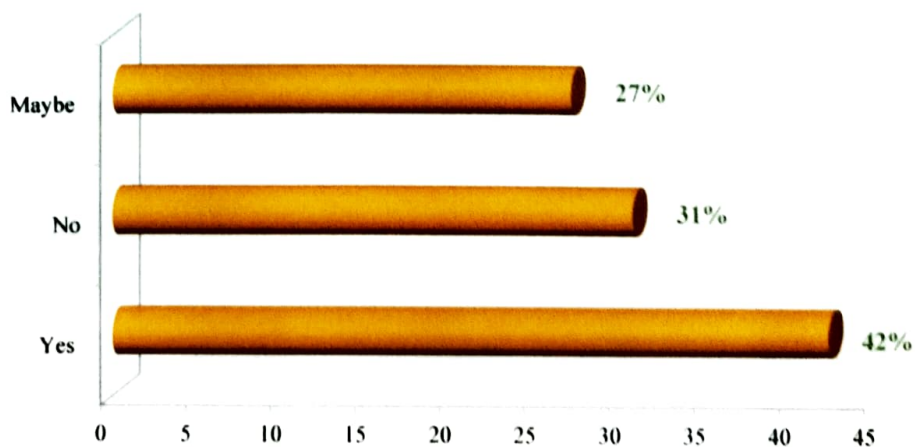
Users of social media



➤ **Is social media affects the mental health?**

Is social media affects the mental health	Frequency	Percentage
Yes	165	42%
No	120	31%
Maybe	106	27%

Is Social media affects the mental health

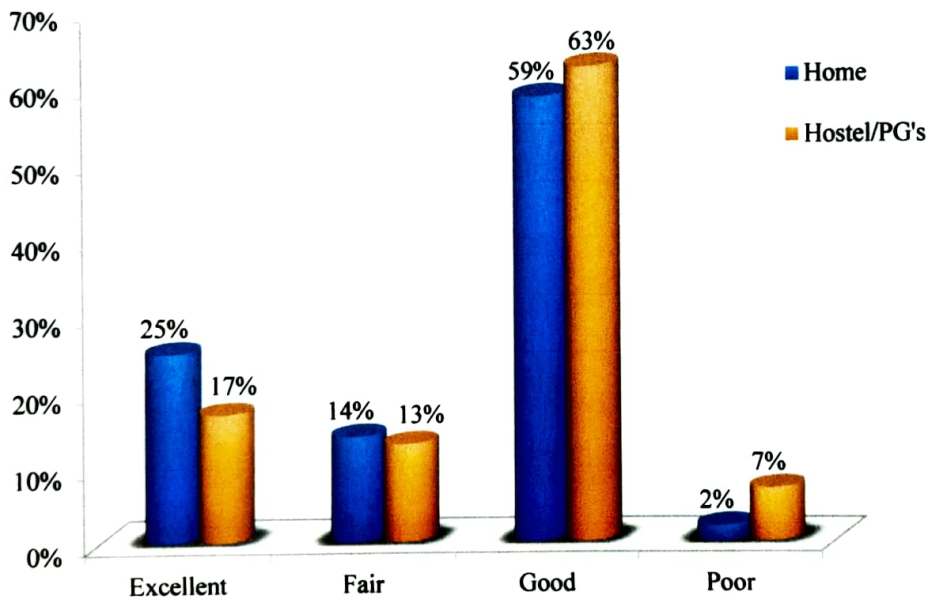


From above table, we say that about 94% students are using social media and from these 94 % students, about 42% students thinks that social media affects the mental health.

➤ **Mental health among students who live in home and hostel/PG's**

Mental health	Home	Hostel/PG's
Excellent	25%	17%
Fair	14%	13%
Good	59%	63%
Poor	2%	7%

Mental health among students who live in home and hostel/PG's

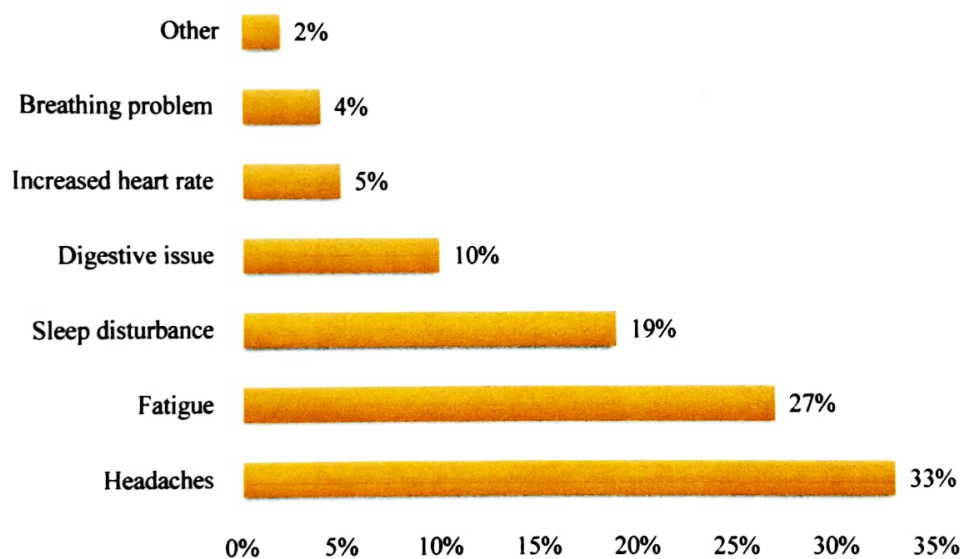


From the above chart, we see that the mental health is **good** among the students who live in home and hostel/PG's.

➤ Symptoms of Mental health faced by students

Symptoms	Total	Percentage
Headaches	261	33%
Fatigue	210	27%
Sleep disturbance	145	19%
Digestive issue	78	10%
Increased heart rate	40	5%
Breathing problem	32	4%
Other	14	2%

Symptoms of Mental health faced by students

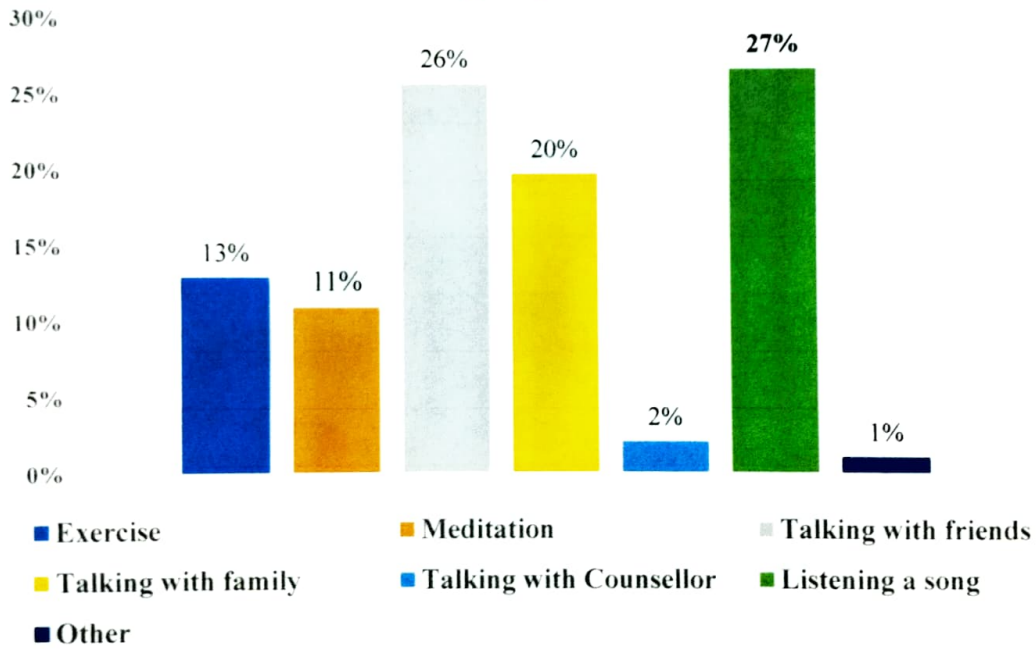


Headache (33%) and **Fatigue** (27%) are the most common symptoms found in the students as compared to the other symptoms.

➤ **Stress managed by the students**

Manage of Stress	Total	Percentage
Exercise	122	13%
Meditation	98	11%
Talking with friends	233	26%
Talking with family	180	20%
Talking with counselor	17	2%
Listening a song	249	27%
Other	10	1%

Stress managed by the students



According to the table, it is found the most of the students prefers to **talking with friend** (26%) and **listening a song** (27%) to control their stress.

STATISTICAL ANALYSIS OF DATA

❖ To test the independency between mental health and Gender.

Hypothesis:

H₀: The mental health and gender are independent.

H₁: The mental health and gender are dependent.

Mental Health	Male	Female
Excellent	41	13
Fair	18	37
Good	109	140
Poor	6	52

$$\chi^2_{(cal)} = \sum_{i=1}^8 \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2_{(cal)} = 182.58$$

$$\text{And } \chi^2_{(tab)} = \chi^2_{(r-1)(c-1), \alpha\%}$$
$$= \chi^2_{(4-1)(2-1), 1\%}$$

$$\chi^2_{(tab)} = 11.3448$$

Therefore, $\chi^2_{(cal)} > \chi^2_{(tab)}$

Conclusion:

Therefore, the mental health and gender are dependent.

❖ To test the independency between Sources of mental health and Gender

Hypothesis:

H₀: The Sources of mental health and gender are independent.

H₁: The Sources of mental health and gender are dependent.

Sources	Male	Female
Family	37	55
Academic	70	124
Relationship	50	51
Financial Situation	87	105
Other	15	22

$$\chi^2_{(cal)} = \sum_{i=1}^{10} \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2_{(cal)} = 6.1385$$

And $\chi^2_{(tab)} = \chi^2_{(r-1)(c-1), \alpha\%}$
 $= \chi^2_{(5-1)(2-1), 1\%}$

$$\chi^2_{(tab)} = 13.2767$$

Therefore, $\chi^2_{(cal)} < \chi^2_{(tab)}$

Conclusion:

Therefore, The sources of mental health and gender are independent.

❖ To test the independency between mental health and Stream

Hypothesis:

H₀: The mental health and stream are independent.

H₁: The Mental health and stream are dependent.

Stream	Excellent	Good	Fair	Poor
Science	40	115	29	11
Commerce	37	100	21	8
Arts	16	26	6	7

$$\chi^2_{(cal)} = \sum_{i=1}^{12} \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2_{(cal)} = 9.9193$$

$$\text{And } \chi^2_{(tab)} = \chi^2_{(r-1)(c-1), \alpha\%}$$
$$= \chi^2_{(3-1)(4-1), 1\%}$$

$$\chi^2_{(tab)} = 16.81$$

Therefore, $\chi^2_{(cal)} < \chi^2_{(tab)}$

Conclusion:

Therefore, the mental health and stream are independent.

❖ To test the independency between mental health and Year of study

Hypothesis:

H_0 : The mental health and Year of study are independent.

H_1 : The mental health and Year of study are dependent.

Year of Study	Excellent	Good	Fair	Poor
I st Year	39	91	14	11
II nd Year	26	73	15	8
III rd Year	28	76	26	9

$$\chi^2_{(cal)} = \sum_{i=1}^{12} \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2_{(cal)} = 199.9796$$

$$\text{And } \chi^2_{(tab)} = \chi^2_{(r-1)(c-1), \alpha\%}$$
$$= \chi^2_{(3-1)(4-1), 1\%}$$

$$\chi^2_{(tab)} = 16.81$$

Therefore, $\chi^2_{(cal)} > \chi^2_{(tab)}$

Conclusion:

Therefore, the mental health and year of study are dependent.

OVERALL CONCLUSION

- ✚ There are many personal and social factors that leads to mental health among students and have increased beyond comparison. Students appeared mostly stressed by pressure originating from academic and financial situation. The finding revealed that academic stress and financial situation are the major cause of mental health among the students.
- ✚ The finding of this study led us to conclude that the mental health among the males and females are good.
- ✚ The finding of this study leads us to conclude that the mental health among the students who lives in home and hostel/PG's is almost similar.
- ✚ The study revealed that academic stress is mostly affected by the time management of student and competition in the world.
- ✚ There are about 94% students are using social media. And from this 94% students, about 42% students says that mental is affected by the social media platform, 31% students says that mental health is not affected by the social media platform and 27% students can't say about this.
- ✚ Headache and Fatigue are most common symptoms found in the students.
- ✚ It found that students use talking with friends and listening songs to control their stress.

REFERENCE

Books Preferred:-

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- Research report Mental health problems among students: Eveline Smit (17 July 2015)
- Altmaier, E.M (1983): Helping students manage stress. San Francisco: Jossey Boss Inc
- Fisher.S. (1994): Stress in academic life, New York: Open university press
- Statistical Analysis: Graphs and Diagrams
- Spectrum Books PVT. LTD. Fundamental of statistics : S. G. Gupta
- Testing of Statistical Hypotheses: E. L. Lehmann, Joseph P. Romano

Website preferred:-

- World Health Organization:- <https://www.who.int/>
- Department of Health and Family welfare:- <https://main.mohfw.gov.in/?q=organisation/Departments-of-Health-and-Family-Welfare/mental-health-division>
- Video link:- <https://youtu.be/hZVcqi-qU64?si=raSh6jGASFptdgCt>

QUESTIONARIE

- 1) Email: -
- 2) Gender: -
 - a) Male
 - b) Female
- 3) Age: -
- 4) Locality: -
 - a) Rural (ग्रामीण)
 - b) Urban (शहरी)
- 5) Family income (in lakh): -
 - a) Below 1
 - b) 1 to 3
 - c) 3 to 5
 - d) 5 and above
- 6) Name of college: -
- 7) Faculty / Stream: -
 - a) Science
 - b) Commerce
 - c) Art
 - d) Other
- 8) Class: -
 - a) Under Graduate (UG)
 - b) Post Graduate (PG)
 - c) Other
- 9) Year of Study's: -
 - a) I Year
 - b) II Year
 - c) III Year
 - d) Other
- 10) Where you stay (जिथे तुम्ही राहता): -
 - a) Home
 - b) Hostel
 - c) PGs
 - d) Other
- 11) Overall, how would you rate your diet?
(एकंदरीत तुम्ही तुमच्या आहाराचे मूल्यांकन कसे कराल?)
 - a) Excellent
 - b) Good
 - c) Fair
 - d) Poor

12) Overall, how would you rate your physical health?
(एकदरीत तुम्ही तुमचे शारीरिक आरोग्य कसे रेट कराल?)

- a) Excellent
- b) Good
- c) Fair
- d) Poor

13) Overall, how would you rate your mental health?
(एकदरीत तुम्ही तुमचे मानसिक आरोग्य कसे रेट कराल?)

- a) Excellent
- b) Good
- c) Fair
- d) Poor

14) Which factors affect your mental health? (Multiple choice)
(कोणते घटक तुमच्या मानसिक आरोग्यावर परिणाम करतात?*)

- a) Family कुटुंब
- b) Academic शैक्षणिक
- c) Relationship नाते
- d) Financial Situation आर्थिकपरिस्थिती
- e) Other

15) Have you chosen your field with your Interest?
तुम्ही तुमच्या आवडीने तुमचे क्षेत्र निवडले आहे का?

- a) Yes
- B) No
- c) Maybe

16) Overall, how would you rate your academic workload?
एकदरीत तुम्ही तुमच्या शैक्षणिक वर्कलोडला कसे रेट कराल?

- a) Very high खूपउच्च
- b) High उच्च
- c) Average सरासरी
- d) Low कमी
- e) No नाही

17) Which factors responsible for academic stress? (Multiple choice)
शैक्षणिक तणावासाठी कोणते घटक जबाबदार आहेत?*

- a) High expectation उच्चअपेक्षा
- b) Heavy workload कामाचा प्रचंड ताण
- c) Competitionस्पर्धा
- d) Fear of failure अपयशाची भीती
- e) Time Management वेळेचे व्यवस्थापन
- f) Lack of supports आधारांचा अभाव
- g) Other:

18) Do you use social media?

तुम्ही सोशल मीडिया वापरता का?

- a) Yes
- b) No

IF YES

A) Do you think social media affects your mental health?

सोशल मीडियाचा तुमच्या मानसिक आरोग्यावर परिणाम होतो असे तुम्हाला वाटत का?

- a) Yes
- b) No
- c) Maybe

B) How much time you spend on social media? (In hrs)

तुम्ही सोशल मीडिया किती वेळ वापरता? (तासात)

- a) 0 to 1
- b) 1 to 2
- c) 2 to 4
- d) 4 and more

19) How many hours do you sleep on an average each day? (In hours)

तुम्ही दररोज सरासरी किती तास झोपता? (तासात)

- a) Less than 4
- b) 4 to 6
- c) 6 to 9
- d) 9 and more

20) How much time you use electronic devices (e.g., smart phone, laptop, T.V.) Before sleep? (In hours)

झोपण्यापूर्वी तुम्ही इलेक्ट्रॉनिक उपकरणे (उदा. स्मार्टफोन, लॅपटॉप, टीव्ही) किती वेळ वापरता? (तासात)

- a) 0 to 1
- b) 1 to 3
- c) 3 and more

21) Does your daily travelling or up down affects your mental health?

तुमचा रोजचा प्रवासयाचा तुमच्या मानसिक आरोग्यावर परिणाम होतो का?

- a) Yes
- b) No
- c) Maybe

22) Which symptoms do you experienced due to stress? (Multiple choice)

तणावामुळे तुम्हाला कोणती लक्षणे जाणवतात?

- a) Headaches डोकेदुखी
- b) Fatigue थकवा
- c) Sleep disturbance झोपेचात्रास
- d) Digestive issue पचनसमस्या
- e) Increased heart rate हृदय गती वाढणे
- f) Breathing problem श्वासाचा त्रास
- g) Other:

23) How do you manage your stress? (Multiple choice)

तुम्ही तुमच्या तणावाचे व्यवस्थापन कसे करता? *

- a) Exercise व्यायाम करा
- B) Meditation ध्यान
- c) Talking with friends मित्रांशी गप्पा मारणे
- d) Talking with family कुटुंबियांशी बोलणे
- e) Talking with Counselor समुपदेशकाशी बोलणे
- f) Listening a song गाणे ऐकणे
- g) Other:

24) Do you feel supported by your family and friends regarding your mental health?

तुमच्या मानसिक आरोग्याबाबत तुम्हाला तुमच्या कुटुंबाचा आणि मित्रांचा आधार वाटतो का?

- a) Yes
- b) No
- c) Maybe

25) Are you aware of the mental health services and resources available at the institution?

संस्थेमध्ये उपलब्ध असलेल्या मानसिक आरोग्यसेवा आणि संसाधनांबद्दल तुम्हाला माहिती आहे का?

- Yes
- No
- Maybe

26) Your opinion about this topic

