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# IMPACT OF COVID-19 IMPOSED ONLINE LEARNING ON PHYSICAL-MENTAL HEALTH OF UNDERGRADUATE STUDENTS FROM THANE REGION OF INDIA

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***Abstract:*** The unprecedented COVID-19 pandemic has imposed lockdowns but opened gates to e-learning across the globe. Despite challenges, India opted for online learning for the first time. It brought novelty in pedagogy but increased health concerns and snatched away the co-learning experience of students. The current research project enquires about psycho-physical issues faced by undergraduates of VPM's B.N. Bandodkar Autonomous College of Science from Thane region of India. The research presents extensive statistical analysis of responses obtained through a well-structured online questionnaire. The results of inferential statistical tools of one-way ANOVA and Chi-square tests indicated that a significant number of college students suffer from various temporary illnesses which are induced due to prolonged exposure to gadgets. Around 70% of students preferred to take self-medication on health issues using home remedies and inculcated habits of regular physical exercise, yoga and meditation. About 65-70% students expressed considerable degree of emotional attachment towards many facets of Offline College which cannot be satisfied in the e-learning process. The degree of emotions differs significantly among male and female candidates who are from nuclear family. Such study may become useful in designing a few strategies to overcome shortcomings of e-education up to certain extent.

**Keywords:** Online pedagogy, Psychological issues, Health problems, Questionnaire

## I. INTRODUCTION

Recently due to the sudden outbreak of novel corona virus and subsequent fetal results of COVID-19 cases, restricted mobility and social distancing became a major preventive measure across the world. Undoubtedly, it severely hampered not only the economy but also education. According to All India Survey on Higher Education (AISHE 2018-19), the Indian Higher Education sector included 993 Universities and 39931 Colleges imparting education to 37.3 million students (Raj, 2020). India used to greatly rely on offline mode of teaching-learning process. The country started a nationwide lockdown for educational institutes from March 2020 after confirmation of COVID cases. It took place in different phases. Since then, Indian school children, college students and teachers have undergone an immensely challenging situation. The transition to virtual modes was difficult due to issues related to access towards digital technology, lack of gadgets, inconsistent internet access, cost factor and adaptation to new methods involved in online classes (Agarwal, 2020; Pednekar, 2020). With respect to the same, Bhukta and Nayak (2021) mentioned that India is not completely prepared for the reach of digital education in all corners of the country. Khare, Mahour, Ohary, & Kumar (2021) stated the difficulties of students such as no eye contact with teacher, disturbance during lecture because of family members, notifications on WhatsApp, inferior quality of video, mismatch with screen and writing notes, etc. Bartanwala, Malandkar, Linar, Manjrekar, & Kumavat (2021) has also presented a comprehensive study indicating the degree of difficulty faced in adapting to novel online learning. Undoubtedly, the online version has its own advantages such as flexibility and convenience for learners, resolved travelling issues, reduced time and

effort to reach institutes and quick access to multiple e-resources, etc. (Muthuprasad, Aiswarya, Aditya, & Jha, 2021; Welsh, Wanberg, Brown, & Simmering, 2003).

But the term 'Education' is applied to acquire a set of skills, techniques, values, beliefs and habits which can lead to social stability and in turn build-up a strong nation. With this regard, educational institutes play a vital role in upbringing socially responsible citizens (Little, 2016). The major drawback of online learning is lack of experience of co-learning, social interactions, cultural exchange, team work through participation in games/ competitions/ research activities, etc. These characteristics lay down the foundation for personality development which may not be completely achieved by e-learning. Another equally alarming issue is related to the impact of online classes on health. Prolonged screen hours of laptops and mobiles are a matter of concern for health of sensory organs (Borwankar, 2020). Previous studies done by Khattar, Jain, & Quadri, (2020), revealed that significant respondents from their study missed their meetings with friends personally. Various other factors like absence of physical activity, extended screen time, change in sleep patterns, inadequate diet, fear of many things like infection, financial problems, loneliness could be harmful to the young students.

Therefore, the present work was initiated with the objective to find out the effect of online education on psycho-physical aspects of college going students. It involved an extensive survey of second year and third year undergraduate students of VPM's B.N. Bandodkar Autonomous College of Science (BNB) which is affiliated to University of Mumbai, located at Thane, Maharashtra, India. This survey aimed to understand online learning induced health problems with preferred treatments. Along with it, the study intended to know the extent to which students are missing the learning environment of Offline College.

## II. MATERIAL AND METHODS

In the present research work, information about various aspects involved in the e-learning experience of BNB students has been gathered by conducting extensive survey. The highly structured questionnaire was developed on the basis of expert comments from teachers and speculative discussions with students using 'Google Form Application'. The pilot survey was carried out in August 2020 using 10 individuals including teachers and students by circulating link of form by 'WhatsApp' tool of mobile. After a pilot survey, the questionnaire was refined and the final copy was developed into a simple, short and precise questionnaire. It had subsections of personal information, health issues suffered after attending online sessions, preferred choice of treatments and extent to which students are missing different facets related to Offline College.

In order to prevent any random response from students, open ended questions were completely excluded. All the questions were framed carefully in multiple choice questions format by giving an elaborate list of options as probable answer/s. Provisions of options like 'Not Suffered', 'Never felt so' and 'Preferred Not to Say' were also incorporated to certain questions. The questions related to psycho-physical factors were designed with Likert scale options depicting the intensity of a particular issue or frequency of a treatment taken.

The survey was conducted on a total 834 admitted students of second and third-year Bachelor Degree (B.Sc.) students. It started on 5$^{th}$ September 2020 by sending a link of Google Form. The link was kept active till one week period and responses were collected from 440 students within this period. The collected data was further validated and further subjected to statistical analysis using inferential tools like 'One way ANOVA' and 'Chi-square test'. The obtained results are expressed in the form of mean, standard deviation, percent values, kurtosis, skewness, F-values and $X^2$- values (Kothari, 2002; Pozgaj, and Knezevic, 2007; Hasan, and Bao, 2020; Dewaele, Magdalena & Saito, 2019; Abdollahi, Talib, Yaacob, & Ismail, 2015).

## III. RESULTS AND DISCUSSION

**3.1** The survey of BNB students received responses from 440 undergraduates out of a total 834 admitted students. After data validation, 417 responses were considered for final data analysis. The demographic profile (as per Table No. 1) shows the prevalence of candidates with age ranging from 19-20 years. Gender-wise female candidates are more in comparison with males and more than 90% of students use android mobile for e-learning. Usage of mobile is serious concern as it is reported that mobile emits harmful electromagnetic radiations which may act as potential carcinogen (Miller et al., 2019).

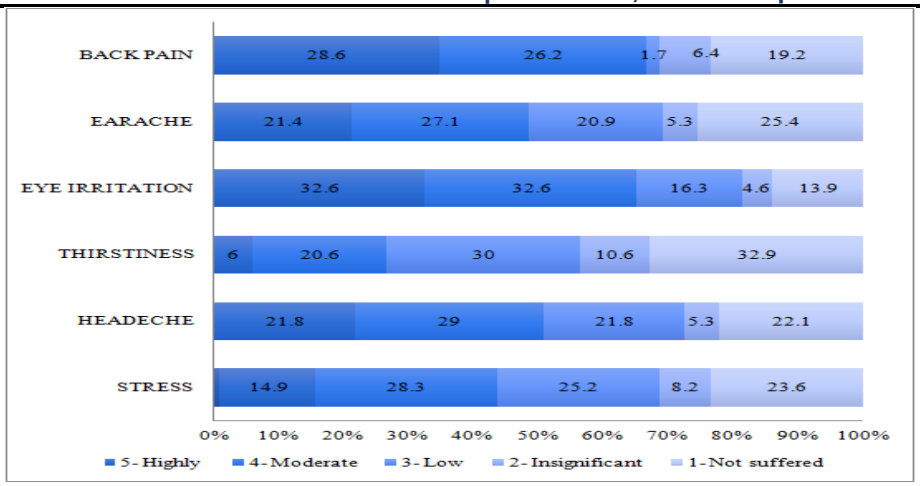
| Table No. 1 Demographic profile of College Students | | | |
|---|---|---|---|
| **Parameter** | **Groups** | **N = 417** | **Percentage** |
| AGE | 17-18 yrs | 66 | 15.83 |
| | **19-20 yrs** | **304** | **72.9** |
| | 21 yrs and above | 47 | 11.27 |
| GENDER | Male | 145 | 34.77 |
| | **Female** | **270** | **64.75** |
| | Not preferred to say | 2 | 0.48 |
| CLASS | S.Y.B.Sc. | 217 | 52.04 |
| | T.Y.B.Sc. | 200 | 47.96 |
| GADGET | **Mobile** | **388** | **93.06** |
| | Laptop and PC | 29 | 6.94 |
| BACKGROUND | Joint Family | 92 | 22.06 |
| | Nuclear Family | 325 | 77.94 |
| Key - N = Number of responses | | | |

**3.2 Analysis Of Issues Related To Health Problems Faced Due To Online Learning**

In the questionnaire, the candidates were asked about health issues faced after attending long sessions of online learning. The question was developed with a 5-point Likert scale in order to understand the intensity of probable health problems. The obtained observations are depicted in Table No. 2 with the values of maximum, minimum, mean, standard deviation, skewness and kurtosis. **The normality of data has been confirmed on the basis of skewness values (in the range of -2 to +2) and kurtosis values (in the range of -7 to + 7)** (Abdollahi et al., 2015).

| Table No. 2 Effect of Online learning on Health of Students | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **N** | **Min** | **Max** | **Mean** | **Variance** | **SD** | **Skewness** | **Kurtosis** |
| STRESS | 417 | 2 | 4 | 3.029 | 1.903 | 1.3795 | -0.2494 | 1.8184 |
| HEADACHE | 417 | 2 | 4 | 3.2326 | 2.0491 | 1.4315 | -0.4172 | 1.8702 |
| THIRSTINESS | 417 | 5 | 3 | 2.5635 | 1.6792 | 1.2959 | 0.1053 | 1.7688 |
| EYE IRRITATION | 417 | 2 | 5,4 | 3.6547 | 1.8083 | 1.3447 | -0.8437 | 2.5603 |
| EARACHE | 417 | 2 | 4 | 3.1367 | 2.1808 | 1.4767 | -0.3121 | 1.7093 |
| BACK PAIN | 417 | 2 | 5 | 3.3837 | 2.0928 | 1.4467 | -0.5016 | 1.9272 |
| Key – N- Number of Responses, Min – Minimum, Max – Maximum, SD – Standard Deviation | | | | | | | | |

The responses of Likert scale are expressed in the form of Graph No.1 which revealed that almost every health problem suffered with a considerable amount of intensity except the perception of thirstiness. **Among all eye irritation is a major concern which is followed by back pain, headache, stress (tiredness) and thirstiness. The probable reasons are long hours of screen time, sitting in one posture and constant usage of headphones.** Prior studies on self-illuminating gadgets suggest that these devices cause water loss and oxidative stress (Arjmandi, Mortazavi, Zarei, Faraz, & Mortazavi, 2018; Khare et al., 2021).




**Graph No. 1 Intensity of Health Problem suffered due to online learning**

Further for the one way analysis of data only positive responses (i.e. responses with 'Highly', 'Moderate' and 'Low' opinions) about health issues were selected while others (i.e. responses with 'Not suffered' and 'Insignificant' opinions) were omitted for analysis. **It was performed by setting the $H_0$ and $H_1$ hypotheses where the H1 Hypothesis proved to be true and shows that the intensity of occurrence of health problems differs significantly (Table No. 3).**

| **Table No. 3 Statistical analysis of data related to health problems by One Way ANOVA** | | | | | | |
|---|---|---|---|---|---|---|
| **$H_0$ - There an equal intensity of occurrence of health problems due to online learning** | | | | | | |
| **$H_1$ - There unequal intensity of occurrence of health problems due to online learning** | | | | | | |
| **Health problems suffered** | **STRESS** | **HEADACHE** | **THIRSTINESS** | **EYE IRRITATION** | **EARACHE** | **BACK PAIN** |
| **Total N** | 285 | 303 | 236 | 340 | 289 | 310 |
| **Mean** | 3.8491 | 4 | 3.5763 | 4.2 | 4.0069 | 4.1194 |
| **SD** | 0.7518 | 0.7763 | 0.6767 | 0.7494 | 0.7817 | 0.7976 |
| **F- Value** | **22.9462** | | | | | |
| **Conclusion- H1 accepted, significant difference exist in intensity of health problems caused by online learning** | | | | | | |
| Key – N- Number of Responses, SD – Standard Deviation | | | | | | |

Similarly Chi-square test was applied by sorting gender wise data by setting H0 and H1 hypotheses for cases which suffered from health issues. **It was found that health issues induced irrespective of gender with the same proportion in male and female candidates** (Table No. 4).

| **Table No. 4 Statistical analysis of Gender wise occurrence of health problems by Chi-square test** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H0 - Males and females are equally suffered by the given health problems due to online learning | | | | | | | | | | | | |
| H1 - Males and females are not equally suffered by the given health problems due to online learning | | | | | | | | | | | | |
| **Health problems suffered** | **STRESS** | | **HEADACHE** | | **THIRSTINESS** | | **EYE IRRITATION** | | **EARACHE** | | **BACK PAIN** | |
| **Gender** | M | F | M | F | M | F | M | F | M | F | M | F |
| **Total N** | 93 | 192 | 92 | 211 | 80 | 156 | 115 | 225 | 97 | 192 | 99 | 211 |
| **$X^2$ Value** | **1.282** | | | | | | | | | | | |
| **Conclusion- $H_0$ accepted, males (M) and females (F) are equally suffered by the given health problems due to online learning** | | | | | | | | | | | | |
| Key – N- Number of Responses, SD – Standard Deviation, M – Males, F - Females | | | | | | | | | | | | |

### 3.3 Analysis Of Treatments Followed For Given Health Problems

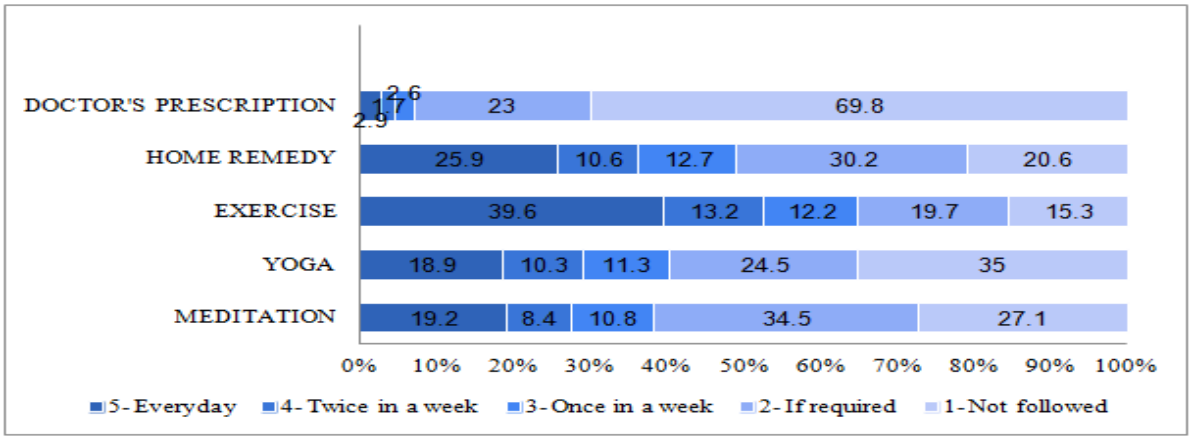
Pertaining to health factors, another question was framed in order to know treatment taken by students to overcome above mentioned health issues. The responses obtained through the 5-point Likert scale indicated variable choice of medication which is depicted in Table No. 5. It was found that data of opinions regarding the first four modes, viz., meditation, yoga, physical exercise and home remedy was normal in distribution. **However the data of medication using Doctor's prescription has high values of Skewness and Kurtosis which are indicative of presence of greater number of values at the tail region.** Therefore this parameter has been skipped for further statistical analysis of one way ANOVA and Chi-square test.

**Table No. 5 Modes of Treatments followed by UG students**

| Parameter | N | Min | Max | Mean | Variance | SD | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|
| MEDITATION | 417 | 4 | 2 | 2.5803 | 2.1095 | 1.4524 | 0.5984 | 1.9484 |
| YOGA | 417 | 4 | 2 | 2.5372 | 2.2973 | 1.5157 | 0.5339 | 1.7897 |
| EXERCISE | 417 | 3 | 5 | 3.4197 | 2.3547 | 1.5345 | -0.3214 | 1.5451 |
| HOME REMEDY | 417 | 4 | 2 | 2.9089 | 2.2657 | 1.5052 | 0.2481 | 1.5712 |
| DOCTOR'S PRESCRIPTION | 417 | 4 | 1 | 1.4484 | 0.7479 | 0.8648 | **2.5449** | **9.8418** |

Key – N- Number of Responses, Min – Minimum, Max – Maximum, SD – Standard Deviation

Graph No.2 shows that undergraduate students preferred to follow self medication on health issues induced by online learning experience. **The habit of physical exercise is very common among students with lesser extent of practices of yoga and meditation. If required, the college students preferred to take home remedies on temporary illnesses such as headache, back pain, eye irritation and stress. However it is very clear that the Doctor's prescription is not followed by the majority of students for given health issues.**




**Graph No. 2 Modes of Treatment followed by Undergraduate students**

Further to add information to the graphical data, one way ANOVA applied on the positive responses (Everyday, Twice a week, Weekly, If required) towards health treatments by setting appropriate hypotheses. **As given in Table No.6, the statistical tool proved that the preference of modes of treatments followed by students significantly vary from each other.**

| Table No. 6 Statistical analysis of data related to Modes of treatments by One Way ANOVA | | | | |
|---|---|---|---|---|
| H0 - All modes of treatments are used in equal proportion | | | | |
| H1 - All modes of treatments are used in unequal proportion | | | | |
| **Modes of treatments followed** | **MEDITATION** | **YOGA** | **EXERCISE** | **HOME REMEDY** |
| **Total N** | 304 | 271 | 353 | 331 |
| **Mean** | 3.1678 | 3.3653 | 3.8584 | 3.4048 |
| **SD** | 1.2723 | 1.2544 | 1.235 | 1.2884 |
| **F- Value** | **17.8564** | | | |
| **Conclusion - H1 accepted, preference to modes of treatment is significantly variable** | | | | |
| Key – N- Number of Responses, SD – Standard Deviation | | | | |

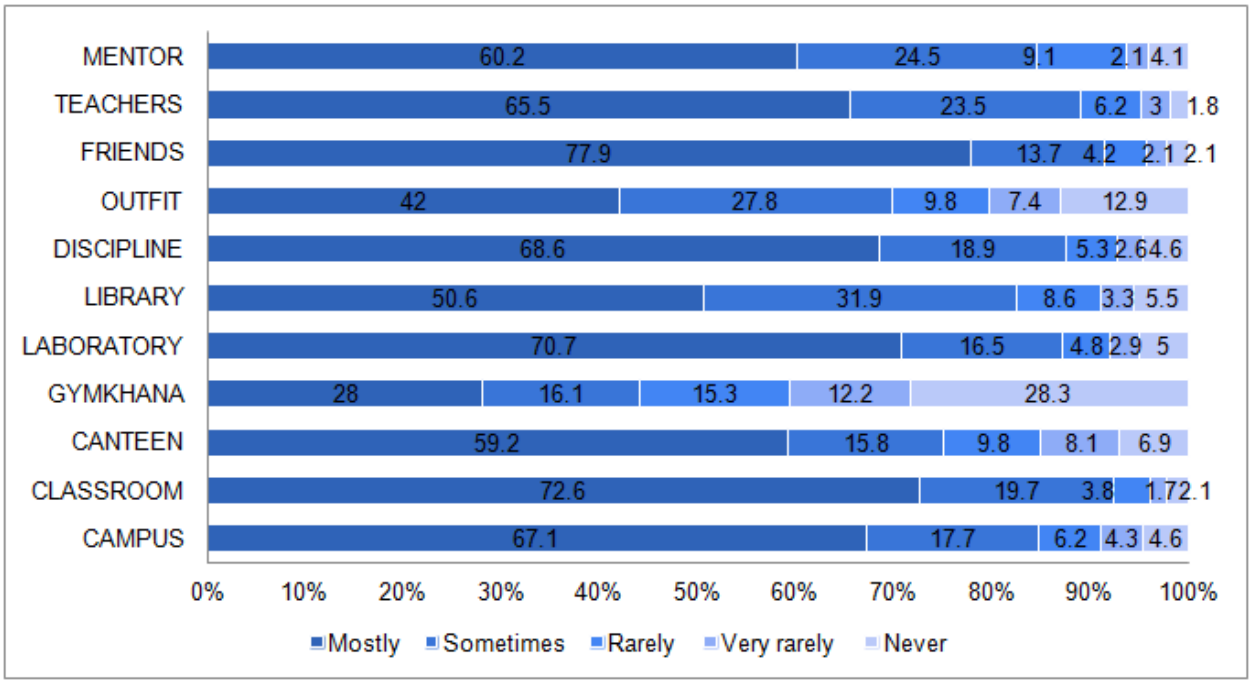
The choice of treatments was also compared by taking gender into consideration. The Chi-square test was applied on the positive responses by omitting responses of treatments 'Not followed' option. **The result indicated that the males and females significantly differ in their choice of medication (Table No. 7).**

| Table No. 7 Statistical analysis of Gender wise preference to modes of treatments by Chi-square test | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| H0 - Males and females give equal preference to given method of treatments | | | | | | | | |
| H1 - Males and females do not give equal preference to given method of treatments | | | | | | | | |
| **Modes of Treatments** | **MEDITATION** | | **YOGA** | | **EXERCISE** | | **HOME REMEDY** | |
| **Gender** | M | F | M | F | M | F | M | F |
| **Total N** | 94 | 210 | 86 | 185 | 129 | 224 | 100 | 231 |
| **$X^2$ Value** | **3.84** | | | | | | | |
| **Conclusion- $H_0$ accepted, males (M) and females (F) do not give equal preference to given method of treatments** | | | | | | | | |
| Key – N- Number of Responses, M – Males, F - Females | | | | | | | | |

### 3.4 Analysis Of The Extent To Which Students Miss Offline College

It was very difficult to gauge the emotional problems of college students undergoing online learning due to sudden imposed lockdowns. Their age is a crucial turning point where they absorb a lot of qualities through peer groups, social interactions, cultural exchange, group studies, etc. Therefore to ascertain the emotional status, 5- point based Likert Scale questions were framed in such a way that it can provide some clue towards to what extent these students missed various meeting places and the related activities of offline college. **Data of Table No. 8 exhibits that all questions received the highest response for missing all aspects of Offline College 'Mostly' in their day today life. The Graph No. 3 goes concurrent with the same.** However the Skewness and Kurtosis values of data regarding factors like activities of 'Classroom' and meeting with 'Friends' do not favour normal distribution. Hence these two factors are not considered in one way ANOVA and Chi-square tests.

| Table No. 8 The extent at which students missed places and activities related to offline college | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **N** | **Min** | **Max** | **Mean** | **Variance** | **SD** | **Skewness** | **Kurtosis** |
| CAMPUS | 417 | 2 | 5 | 4.3861 | 1.1703 | 1.0818 | -1.8815 | 5.6492 |
| CLASSROOM | 417 | 2 | 5 | 4.5899 | 0.68 | 0.8246 | **-2.5646** | **10.0361** |
| CANTEEN | 417 | 1 | 5 | 4.1223 | 1.6316 | 1.2774 | -1.2673 | 3.3025 |
| GYMKHANA | 417 | 2 | 5 | 3.0336 | 2.5421 | 1.5944 | -0.0584 | 1.4448 |
| LABORATORY | 417 | 2 | 5 | 4.4508 | 1.1232 | 1.0598 | -2.1369 | 6.7249 |
| LIBRARY | 417 | 2 | 5 | 4.1871 | 1.1909 | 1.0913 | -1.5514 | 4.8426 |
| DISCIPLINE | 417 | 2 | 5 | 4.4436 | 1.0599 | 1.0295 | -2.1154 | 6.8262 |
| OUTFIT | 417 | 2 | 5 | 3.7842 | 1.9389 | 1.3924 | -0.931 | 2.5303 |
| FRIENDS | 417 | 1,2 | 5 | 4.6307 | 0.7046 | 0.8394 | **-2.7076** | **10.3134** |
| TEACHERS | 417 | 1 | 5 | 4.4796 | 0.7646 | 0.8744 | -1.9763 | 6.8562 |
| MENTOR | 417 | 2 | 5 | 4.3453 | 1.0295 | 1.0146 | -1.7923 | 5.8367 |
| Key – N- Number of Responses, Min – Minimum, Max – Maximum, SD – Standard Deviation | | | | | | | | |




**Graph No. 3 Extent of missing various aspects of Offline College by students**

The data has been sorted for positive responses including opinions like 'Mostly', 'Sometimes', 'Rarely' and 'Very Rarely' which was further subjected to one way ANOVA. **The Table No. 9 i.e. results of ANOVA revealed that all factors related to Offline College contribute variably in mental status of students.**

**Table No. 9 Statistical analysis of data related to the extent at which students miss Offline College by One Way ANOVA**

H0 - All aspects of offline college are equally contribute to affect mental health of students

H1 - All aspects of offline college variably contribute to affect mental health of students

| Aspects of Offline College | CAMPUS | CANTEEN | GYMKHANA | OUTFIT | LABORATORY | LIBRARY | TEACHERS | DISCIPLINE | MENTOR |
|---|---|---|---|---|---|---|---|---|---|
| **Total N** | 398 | 388 | 299 | 363 | 396 | 394 | 410 | 398 | 400 |
| **Mean** | 4.5477 | 4.3557 | 3.8361 | 4.1983 | 4.6338 | 4.3731 | 4.539 | 4.608 | 4.4875 |
| **SD** | 0.8071 | 0.9843 | 1.1247 | 0.9486 | 0.7185 | 0.7946 | 0.7529 | 0.7183 | 0.7591 |
| **F- Value** | **29.4887** | | | | | | | | |

**Conclusion - H1 Accepted, therefore all aspects of offline college variably contribute to affect mental health of students**

Key – N- Number of Responses, SD – Standard Deviation

Similarly the responses obtained for positive opinions (excluding opinion of 'Never') were also categorized according to two distinct parameters, viz., family background (Joint family vs Nuclear family) and gender (Male vs. Female). The detailed statistical analysis was carried out by the 'Chi-square test'. **Table No. 10 indicates that all respondents irrespective of their family background are equally sensitive towards emotions involved in various activities/ meetings which often take place in offline college. Moreover, the male and female candidates who are from the joint family, they also expressed equal degree of sentiments towards offline college and its environment. However gender wise analysis of only nuclear family candidates show significantly high differences in the magnitude of psychological involvement in offline college aspects. The probable reason could be the absence of siblings and other elderly people who contribute in emotional support.**

**Table No. 10 Statistical analysis of Family Background and Gender wise magnitude of getting mentally affected by various aspects of Offline College by Chi-square test**

**Parameter - Family Background**
H0 - All candidates from joint family and nuclear family are equally affected with regard to various activities related to offline college

H1 - All candidates from joint family and nuclear family are not equally affected with regard to various activities related to offline college

**Parameter - Gender of Joint Family Candidates**
H0 - Males and females from Joint family background are equally sensitive towards to different emotional factors pertaining to activities of offline college

H1 - Males and females from Joint family background are not equally sensitive towards to different emotional factors pertaining to activities of offline college

**Parameter - Gender of Nuclear Family Candidates**
H0 - Males and females from Nuclear family background are equally sensitive towards to different emotional factors pertaining to activities of offline college

H1 - Males and females from Nuclear family background are not equally sensitive towards to different emotional factors pertaining to activities of offline college

| Aspects of Offline College | CAMPUS | CANTEEN | GYMKHANA | LABORATORY | LIBRARY | DISCIPLINE | OUTFIT | TEACHERS | MENTOR |
|---|---|---|---|---|---|---|---|---|---|
| **Joint Family (M)** | 32 | 32 | 29 | 31 | 33 | 32 | 33 | 32 | 32 |
| **Joint Family (F)** | 59 | 57 | 42 | 57 | 57 | 57 | 58 | 59 | 57 |
| **Joint Family** | **91** | **89** | **71** | **88** | **90** | **89** | **91** | **91** | **89** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Total N** | | | | | | | | | |
| **Nuclear Family (M)** | 107 | 100 | 86 | 104 | 200 | 105 | 90 | 109 | 104 |
| **Nuclear Family (F)** | 200 | 200 | 141 | 203 | 104 | 204 | 188 | 209 | 206 |
| **Nuclear Family Total N** | **307** | **300** | **227** | **307** | **304** | **309** | **278** | **318** | **310** |
| | **Parameter - Family Background<br>Joint Family Total N vs. Nuclear Family Total N = 1.123** | | | | | | | | |
| **X2 Values** | **Conclusion- $H_0$ accepted, all candidates from joint family and nuclear family are equally affected with regard to various activities related to offline college** | | | | | | | | |
| | **Parameter - Gender of Joint Family Candidates<br>Joint Family (M) vs. Joint Family (F) = 0.798** | | | | | | | | |
| **X2 Values** | **Conclusion- $H_0$ accepted, males and females from Joint family background are equally sensitive towards to different emotional factors pertaining to activities of offline college** | | | | | | | | |
| **X2 Values** | **Parameter - Gender of Nuclear Family Candidates<br>Nuclear Family (M) vs. Nuclear Family (F) = 116.466** | | | | | | | | |
| | **Conclusion- $H_1$ accepted, males and females from Nuclear family background are not equally sensitive towards to different emotional factors pertaining to activities of offline college** | | | | | | | | |
| Key – N- Number of Responses, M – Males, F - Females | | | | | | | | | |

## IV. CONCLUSION

In India, the offline mode of learning was prevalent prior to the COVID imposed lockdown. UGC (University Grant Commission) i.e. the authoritative body of Indian higher education accepted online mode of learning because that was the only choice available which assured continuous learning in severe crisis of COVID. Due to unpredictable periods of closure of educational centres, college students underwent sudden change in delivery of learning materials. Through current study, it is found that college students affected significantly by variable physical and emotional issues. It is observed that, majority of students use android mobiles for attending class and accessing study materials. Such prolonged exposure may prove harmful in long run of e-education. Hence students should be made aware about health impacts and advised to use personal computers or laptops if possible. In order to reduce intensity of eye irritation which frequently occurred due to long screen time, use of screen guards and spectacles with antiglare coatings can be recommended to students. They should prefer correct sitting posture, minimize use of headphones and drink sufficient quantity of water to avoid risk of chronic ailments. As the intensity of health problems occurred due to online sessions is same in both genders, these recommendations are same for male and female candidates.

It is proved that a practice of 'Yoga' is a promising option for healthy life. It does not only reduce physical pain, stress, anxiety and depression but also bring mental healing (Woodyard, 2011). In the present study, modes of treatment for problems suffered reveals that 65 % of students chose the yoga option which is quite appreciable. In future, UGC may go for blended learning approach so it is advisable for all educational institutes to insert 'Yoga' module in their curriculum, which will be ultimately helpful to the students.

Due to obligatory norms of social distancing and restricted mobility, college student are compelled to stay disconnected from friends, peer group, teachers and mentors. The e-learning method offers a solitary learning experience as there are no physical meetings among people who are involved in exchange of information (Alkhalaf, Drewa, & Alhussain, 2012). This is the additional taxing feature of online learning. The study reveals that students are emotionally connected to learning environment of Offline College irrespective of gender. The factors like campus, canteen, gymkhana, classrooms, labs and library are not mere structures for social gathering but they are platforms for personality development among students. Similarly direct contact with teachers/mentor and their body language also influence student's personality in multiple ways. The analogous observations are also reported by Khattar, Jain, & Quadri (2020). However, if teachers could design the learning modules in more interactive ways, it may minimize the emotional burden of students.

In conclusion, e-learning approach is appropriate to meet requirement of continuous education in situations of COVID crisis. But in comparison to offline learning, it demands responsible behaviour from learner's end (Zhang, Zhao, Zhou, & Nanumaker, 2004). The learners should be vigilant with regard to physical health and also should able to mingle with fellow friends and teachers at virtual front.

## V. ACKNOWLEDGEMENT

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