

Happiness Level in Medical Undergraduates: A Cross Sectional Study**Damini Singh¹, Rajesh Shetty², Ravi Nimonkar³, PMP Singh⁴**¹Resident, Dept. of Community Medicine, Armed Forces Medical Services²Assistant Professor, Dept. of Community Medicine, Armed Forces Medical Services³Professor, Dept. of Community Medicine, Armed Forces Medical Services⁴Professor, Dept. of Community Medicine, Armed Forces Medical Services

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Abstract:

Background: Understanding the factors influencing happiness among undergraduate medical students is crucial for improving their well-being and academic performance. This study aims to assess the levels of happiness and identify the determinants contributing to happiness among these students. The well-being of medical students is a crucial aspect of their academic success and future professional performance. This study investigates the levels of happiness among undergraduate medical students and identifies key factors influencing their happiness.

Methods: A cross-sectional study was conducted among 420 undergraduate medical students of a medical college in Western Maharashtra. Participants completed a structured questionnaire, including the Oxford Happiness Questionnaire and additional sections on demographic and socio-economic information. Data were analysed using descriptive statistics and multivariate regression to identify significant predictors of happiness.

Results: Among all the participants, 67.62% of the medical undergraduates were found to be happy. The mean OHQ happiness score was 4.28 ± 0.72 . Female students, young age students, and students belonging to upper socio-economic class were found to be happier. Level of physical activity, good relation with friends/family, absence of stress in past 6 months, own choice of course were significantly associated with happiness.

Conclusion: The findings of our study highlight the importance of fostering positive connections and integrating stress management techniques and physical activity into the medical curriculum which will help in alleviating stress in medical students and increase the happiness quotient.

Keywords: Happiness, Medical Students, Physical Activity.

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Introduction

Health is defined as a condition of absolute bodily, intellectual and community based welfare and not merely the absence of sickness.[1] Happiness is defined as a positive mental and emotional state ranging from contentment and intense joy. The term happiness is generally discussed under the wellbeing topic and interchangeably used with terms such as including subjective wellbeing. Feeling happy leads to meaningful, fulfilling and satisfying experiences; and is therefore essential.[2]

The mental state of happiness can be explained by positive thoughts ranging from pleasure to extreme delight. This comprises of both sentimental and perceptive components. Happiness is identified by Psychologists as an emotion. Happiness index is a broad study tool that can be used to assess happiness, Various researchers have shown that demographics, education, physical activities, diet and other factors are associated with positive feelings and level of happiness in students.[1] Happiness which is considered to be one of the ultimate goals

of life, is one of the basic psychological needs of humans. Happiness is a multidimensional entity comprising of both emotional and cognitive elements. In her book titled "The Happiness Project", Gretchen Rubin has explained that happiness varies from person to person, with approximately 40% of our happiness being determined by our own thoughts, actions, and behaviors, 50% being determined by genetics, and only 10% being determined by our circumstances. Various lifestyle habits which are essential for overall health are promoted by happiness. Being happy keeps the immune system strong; and the blood pressure under control. Besides, happiness is also associated with lower physical and mental illness, better coping ability thereby leading to a well-adjusted personality. [3]

Several researchers have demonstrated a positive association between physical activity and mental well-being. However, studies specific to the construct of happiness are conspicuous by their pauci-

ty.[4,5,6,7] Our paper draws inspiration from the fact that young people primarily the college and university students comprise an essential part of a nation's population. However, there is hardly any such study on Indian students. In our country, nearly 46% of the population is less than 24 years of age. [8]

Hence, it is imperative to study the related factors of the happiness of young Indians. In the above light, our paper tries to fill this gap by studying the factors that significantly relate to the happiness of college and university students on the basis of primary data collected through a sample survey.

Methodology

Study Design: A cross - sectional study

Place of study: Medical College in Western Maharashtra.

Study Population: All MBBS students from first year to final year were included in the study.

Period of Study: The study was carried out for a duration of 3 months from June 2023 to August 2023)

Sample size calculation (n): Sample size was calculated by assuming level of confidence of 95% & absolute error of margin of 5% taking happiness level of medical students as 70% based on review of literature (6), the sample size was calculated using the formula:

$$n = Z^2_{(1-\alpha/2)} P (1-P) / d^2$$

The minimum required sample size works out to 322. Assuming 10% nonresponse rate, final sample size was calculated to be 355, which was rounded to 360. However, all undergraduate MBBS students who were willing to participate were included in the study. Thus, a total of 420 students participated in the study, thereby greatly increasing the power of the study.

Inclusion Criteria: All the undergraduate MBBS students who were willing to participate were included in our study.

Exclusion criteria: Nil

Data collection tool: The data was collected using a semi structured validated questionnaire containing socio demographic details and questions on Happiness index. The happiness of students was measured by the Oxford Happiness Questionnaire (OHQ). Oxford OHQ is a 29-item measure of happiness. It has a rating scale ranging from 1 (strongly disagree) to 6 (strongly agree).

Out of 29 questions, 12 questions were reversely scored. The lowest score participant could get in a single question was 1 and the highest score was 6. The total score of happiness of participants was

calculated by adding the total scores for the 29 questions (considering the reverse items) and dividing it by 29. The students with a score of <4 were considered not happy whereas students with a score of ≥ 4 were considered happy. OHQ is a validated scale with high reliability (Cronbach's alpha $r = 0.90$ and above). The use of Oxford happiness quotient as a tool to assess happiness has already been validated by various researchers. [9,10]

Sociodemographic Data: Various factors like age, gender, socioeconomic status, year of MBBS, relationship with family and friends, physical activity, belief in God, addiction, presence of stress in past six months, choice of course, passed in first attempt in last exam, sufficient pocket money were studied in relation to perception of students regarding their happiness; and traumatic events in the last 6 months were studied in relation to the perception of students regarding their happiness. The traumatic events included any event or series of events, which caused extreme stress and were marked by a sense of horror, helplessness, serious injury, and the threat of serious injury. This definition of traumatic events has already been validated by previous researchers.[11]

The physical activity ranged from daily, 3-5 times a week, once/twice a week and rarely/never. Socio-economic status of the study participants was classified as per modified Kuppaswamy scale. [12]

Sampling Methods:

All undergraduate MBBS students were invited to be a part of study. The questionnaire was distributed in the form of hard copy to all the students present in the class on the day of data collection. Rapport was established with study participants by informing them the purpose and exact nature of the study. All the study participants were fully assured that the information they share will be kept under strict confidentiality. All subjects were able to understand and respond in English language.

Analysis:

Data was entered in MS Excel 2019. Microsoft Excel was used for editing, sorting, and coding. The excel file was then imported into and analyzed using SPSS version 26.0 (IBM, Armonk, NY). Two-tailed P value ≤ 0.05 was considered as statistically significant. Appropriate statistical tests were performed to analyze the data. The association between all the covariates and happiness of students, crude odds ratio (OR) and 95% confidence interval (CI) was assessed by univariate analysis.

Bivariate analysis was done for qualitative variables using chi-square test and for quantitative variables using 't' test. The multiple logistic

regression analysis was performed to evaluate the effects of variables after adjustment for the covariates. The effect was presented as adjusted odds ratio (OR) and 95% confidence interval (CI) and a p-value less than 0.05 was statistically significant.

Ethical Considerations: The study was approved by the Institutional Ethics Committee. Informed consent was obtained from all participants who were involved in the study.

Results

A total of 420 medical students participated in the study. Among all students, 284 (67.62%) were found to be happy whereas the rest of the students i.e. 136 (57.5%) were not happy. The mean OHQ happiness score of the students was 4.28 ± 0.72 . Out of 420 medical students, 196 were of age less than 21 years and 224 students were more than 21 years. The students of age less than 21 years were more happy (57%) as compared to the students of age more than 21 years (43%). There were 278 males and 142 females who participated in the study. Most of the students were from Upper middle class (51.42%) and least were from lower socio-economic class (5.24%). The students belonging to upper middle socio-economic class were the most happy however, the difference between happiness levels of students from different socioeconomic status was not significant (p value = 0.624).

The study involved students from 1st year to final year. Out of 420 students, 118 students were in 1st year whereas 106, 94, 102 students were in 2nd year, 3rd year (pre-final) and 4th year (final) respectively. The sociodemographic profile of the study participants is tabulated in Table 1. The maximum percentage of happy students was in 1st year (77.78%) whereas final year students had least % (36.27%) of happiness as shown in Figure 1. The chi square test revealed that there was a significant difference among the happiness of students of different years (p value=0.030)

The physically active students were more happy as compared to those who were not active. Among the physically active students, those who were performing physical activity daily were the happiest (88.52%), followed by 3-5 times a week (71.09%), followed by students who were performing physical activity once/twice a week (39.34%) and who rarely/never performed physical activity were the least happy (12.80%) These findings are depicted in Figure 2. There was a

statistically significant difference between happiness of daily physically active medical students and rarely/never physical active students (p value = 0.005). The association of happiness with various variables like gender, relationship with family and friends, presence of stress in the last 6 months, belief in God/higher power, choice of course, pass in first attempt in last examination; and sufficient pocket money is described in Table 2. Males (62.59%) were less happy as compared to females (77.46%). This difference was statistically significant with p = 0.04. The students who had good relations with their family members were happier (66.4%) as compared to the students who did not have good relations with their family members (26.9%). This difference was also statistically significant with p = 0.009. Students who did not have any stress in past 6 months were found to be happier (86.41%) than the students who had experienced stress (52.96%) with a statistically significant difference. (p value = 0.001). Students who had belief in higher power/God were happier (57.1% than those who did not believe in higher power or God (10.5%) but the difference was not statistically significant.

Students who had their own choice of joining the course were more happy (56.9%) than those who did not have their own choice of joining the course (10.8%) with a statistically significant difference (p value = 0.02). Students who passed their last examination in first attempt were more happy (59%) than those who did not (8.5%) but the difference was not statistically significant. Students who have believed that their pocket money was sufficient were more happy (46.6%) as compared to those who did not have sufficient pocket money (20.9%) but the difference in happiness levels was not significant.

In Table 3 multiple regression analysis results showed that there was significant positive association of happiness with relationship with family/friends (p= 0.007), with the adjusted OR (95% CI) = 1.911 (1.766-2.757) whereas there was significant negative association of the stress with happiness, with the adjusted OR (95% CI) = 1.678 (1.501-2.423). Experience of traumatic event had significant negative association with happiness, with the adjusted OR (95% CI) = 1.501 (1.229-2.092).

There was no significant association of belief in a higher power/God, choice of course, pass in first attempt in last exam, sufficient pocket money with happiness quotient of the students.

Table 1: Sociodemographic profile of study participants

Gender	Number (%)
Male	278 (66.19)
Female	142 (33.81)

Total (%)	420 (100)
Age group (yrs)	
< 21	196 (46.67)
> 21	224 (53.33)
Total (%)	420 (100)
Place of residence	
Rural	113 (26.90%)
Urban	307 (73.10)
Total (%)	420 (100)
Socioeconomic status	
Upper class	026 (06.19)
Upper Middle class	216 (51.43)
Lower Middle class	060 (14.29)
Upper Lower class	096 (22.85)
Lower class	022 (05.24)
Total (%)	420 (100)
Level of physical activity	
Performing physical activity daily	122 (29.04)
Performing physical activity 3-5 times a week	210 (50.01)
Performing physical activity once/twice a week	052 (12.38)
Rarely/never performed physical activity	036 (8.57)
Total (%)	420 (100)

Table 2: The association of different variables with happiness among medical college students

Variable	Categories	Happy N (%)	Not Happy N (%)	Total	Crude Odds Ratio (95%CI)	P value (Chi square)
Gender	Male	174(62.58)	104(37.41)	278	0.49(0.31,0.77)	0.03
	Female	110(77.46)	32(22.53)	142		
Relations with family members	Good	279(71.2%)	113(28.8%)	392	11.36 (4.21,30.61)	0.009
	Not Good	5(17.9%)	23(82.1%)	28		
Stress in past 6 months	Yes	125(53%)	111(47%)	236	0.18(0.11,0.29)	0.001
	No	159(86.4%)	25(13.6%)	184		
Belief in God/higher power	Yes	240(69.4%)	106(30.6%)	346	1.54(0.92,2.59)	0.623
	No	44(59.5%)	30(40.5%)	74		
Choice of course	Own choice	239(78.9%)	64(21.1%)	303	5.98(3.76,9.5)	0.02
	Others choice	45(38.5%)	72(61.5%)	117		
Age	<21 years	162(82.7%)	34(17.3%)	196	3.98(2.53,6.27)	0.391
	>21 years	122(54.5%)	102(45.5%)	224		
Place of residence	Urban	219(69%)	98(31%)	317	1.31(0.82,2.08)	0.752
	Rural	65(63%)	38(36.9%)	103		

Table 3: The multiple regression analysis showing adjusted Odds ratio (95%CI) of medical student happiness for various variables (n = 420).

	Adj. Odds ratio	CI		p value
		Lower	Upper	
Relationship with family/friends	1.911	1.266	2.757	0.007
Stress in past 6 months	0.678	0.401	0.823	0.018
Belief in a higher power/God	3.252	1.625	6.510	0.071
Choice of course	1.978	0.122	1.342	0.175
Passed in first attempt in previous exam	1.216	0.729	2.027	0.454
Sufficient pocket money	0.422	0.249	0.716	0.081
Experience of traumatic events	0.501	0.249	0.926	0.024

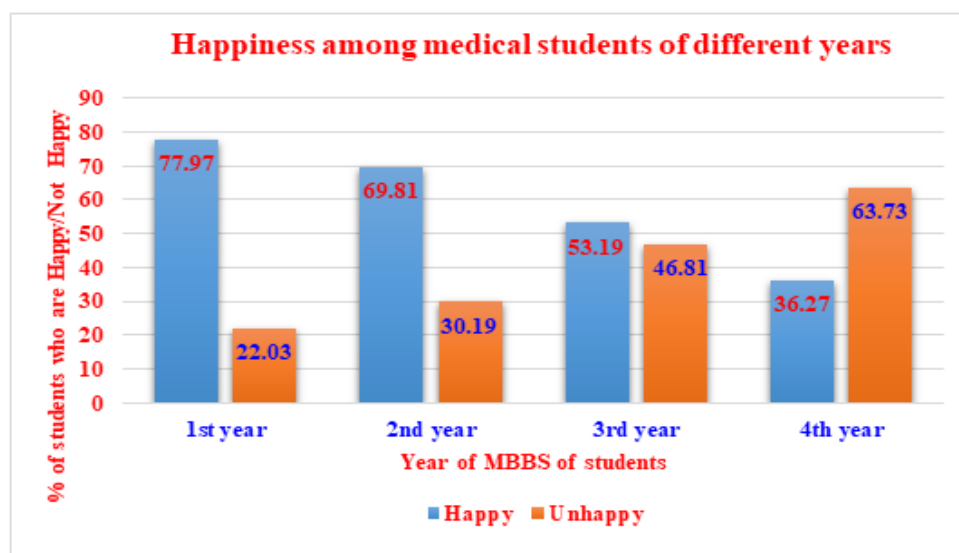


Figure 1: Happiness among medical students of different years

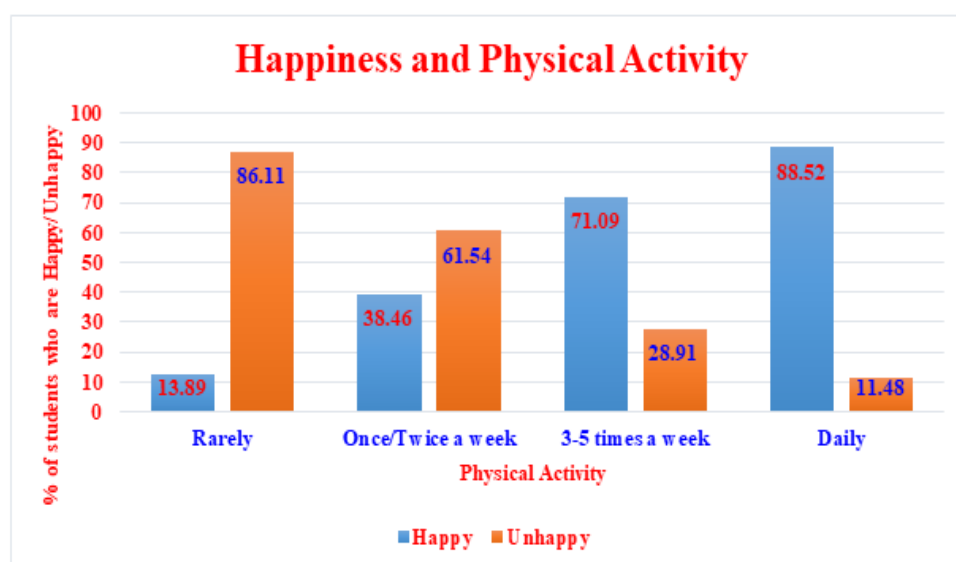


Figure 2: Association of Happiness and Physical activity

Discussion

Hatami et al., in their study on dental students, found no significant association between age and the happiness index. This finding contrasts with ours, likely due to differences in the populations studied.[13] Conversely, Jiang Y et al. observed a negative association between age and happiness among university students. [14] Similarly, Javed IZ et al. reported that as age increases, levels of unhappiness decrease while happiness levels rise among undergraduate students.[1] Furthermore, Rao R et al. identified age as an independent predictor of happiness in their study on medical students. Our present study's findings align with those of Jiang, and Rao, indicating a relationship between age and happiness. [14,15] Abdolkarimi M et al., in their study on medical students in Iran, found a significant association between happiness

scores and socioeconomic status.[16] Similarly, Rao R et al. recently reported that socioeconomic status impacts happiness. [15] On the other hand, Kumar D et al. observed no significant difference in happiness levels among students from different socioeconomic statuses.[11] The findings of our present study are consistent with the observations of Rao et al and Abdolkarimi et al, highlighting the influence of socioeconomic status on happiness. [15,16]

Hatami et al. observed a significant association between students' academic year and their happiness scores, with fourth-year students having significantly higher happiness scores than fifth-year students based on the post hoc test.[13] Jiang et al., in their study of university students, found that first- and second-year pharmacy students had higher levels of happiness compared to third- and

fourth-year students. [14] Similarly, Kumar D et al. observed a significant difference in the happiness index among students of different academic years, with 51.9% of first-year students being happy compared to 28.3% of fourth-year students.[11] Our study's findings are in consonance with all these studies.

Kulkarni et al., in their study of 399 medical students, observed that gender had no significant association with happiness.[10] Similarly, Hatami S et al., in their study of 150 dental students, found no significant relationship between happiness and gender.[13] However, Stevenson and Wolfers observed that males were, on an average, happier than females. [17] Mahmoudi A et al., in their study of 500 medical students, also found that the mean happiness quotient among males was significantly higher than that of females.[18] The findings of these studies differ from ours due to the different population groups involved.

Conversely, other researchers, such as Graham and Chattopadhyay, and Tiefenbach and Kohlbacher, found that women were happier than men in some countries.[19,20] Piqueras AJ et al., in their study of college students, observed that the mean happiness score of females was higher than that of males, though the difference was not statistically significant.[21] Yusof S et al., in their study of 161 nursing students, also found that female nursing students were happier than their male counterparts, although this difference was not statistically significant.[22] The findings of these latter studies align with those of our study.

Graham and Chattopadhyay observed that urban respondents were happier than their rural counterparts.[19] Our study's findings align with this observation. Despite an extensive search of previous literature, we found limited research on the association of this particular variable with happiness, allowing us to compare our study with only this one previous study.

Javed IZ et al., in their study of 350 university students, found that students who spent more than 3-4 hours per week in physical activities were generally happier than those who spent only 1-2 hours or less, with a p-value of 0.02. Additionally, they found a significant association between increased physical activity and better grades when cross-tabulated with happiness levels, with a p-value of 0.003.[1] Similarly, Ajesh Kumar TK et al., in their study of 342 Bachelor of Nursing students, observed that physical activity was a statistically significant predictor of happiness, with a p-value of 0.016.[3] Richards J et al. also reported a positive dose-response relationship between the volume of physical activity and happiness.[4] Kumar D et al. and Rao R et al. reported similar findings in their respective studies, noting a statistically significant

difference in the happiness quotient between physically active and inactive students.[11] The findings of all these studies are in consonance with those of our study.

Kumar D et al., in their study of 315 medical students, observed a statistically significant difference in the happiness quotient between students with good relationships with family members and friends and those without such relationships.[11] Javed IZ et al. also found a strong association between social interaction with family and friends and happiness levels, with p-values of 0.000 and 0.001, respectively.[1] Chakraborty B et al. observed that relationships with family and friends are positively and significantly related to overall happiness.[8] Similarly, Jiang Y et al. found that frequent contact with family and a harmonious relationship with parents were positively associated with happiness.[14] The findings of our study are in consonance with all these studies.

Rao R et al. identified stress as a significant and independent predictor of happiness among medical students.[15] Similarly, Kumar D et al. observed in their study of 315 medical students that those experiencing stress were significantly less happy compared to their stress-free counterparts.[11] Piqueras et al. also found a statistically significant association between stress, both in ordinary circumstances and during examination times, among college students and their happiness index.[21] Additionally, Kulkarni S et al. noted that the pressures and stress inherent in the medical field significantly impact the happiness of medical students.[10] The findings of all these researchers align closely with our own results.

Hatami et al., in their study on dental students, found a significant correlation between the spiritual health of the students and their happiness scores.[13] Abdolkarim M et al. also observed a statistically significant and positive relationship between students' spiritual health scores and happiness, noting that as the score of spiritual health increases, so does the happiness score.[16] Similarly, Kumar D et al. found in their study that students who believed in God or a higher power were significantly happier compared to those who did not.[11] Kamtham S et al., in their study on 115 second-year medical students, also found a statistically significant association between belief in a higher power or God and happiness.[9] The findings of all these studies are in line with our own results.

Ajesh Kumar TK et al., in their study of 342 nursing students, observed a statistically significant association between the choice of course and the happiness index of the participants.[3] Similarly, Isaradisaiikul SK et al. found that choosing their

own course was related to the happiness index of medical students.[23] Wongratanacheewin et al., in their study of 1122 medical students, also reported that the choice of course was related to the happiness index of medical students.[24] Our present study's findings are in consonance with all these studies.

Kulkarni S et al. found a statistically significant association between students having sufficient pocket money and their happiness quotient.[10] Our study's findings align with this observation. Despite an extensive search of the existing literature, we found limited research examining the association between this specific variable and happiness, allowing us to compare our study with only this one previous study.

Kumar D et al. observed that students who had experienced traumatic events were less happy compared to those who had not faced such events.[11] Similarly, Rao R et al. found that students without stressful situations had higher happiness scores than those who had encountered stress.[15] Our study's findings align with these observations. Despite an extensive search of the existing literature, we found limited research examining the association between this specific variable and happiness, allowing us to compare our study with only these two previous studies.

Limitations and recommendations

Akin to most studies, our present study is also not without limitations. Firstly, due to time and resource constraints bi-way causality was not taken into account. Besides the sociodemographic factors and other variables included in our study, there might be other factors that have not been accounted for such as genetics, attitude, respondent's state of mind while filling in the questionnaire, etc.

Secondly, the cross-sectional research design of our study without any longitudinal/prospective data, the fact that our survey included students from only one medical college; and our study was not multi-centric, prevents generalizing the results of our study to a larger population with different characteristics.

Keeping in view the above few limitations of our study; and the role of other psychological variables such as self-esteem, anxiety, health status, perfectionism and depression in student happiness, we recommend that further investigation into the direction of causation and the longitudinal relationship between various demographic variables, physical activity and happiness be carried out.

MBBS being a long-duration course, happiness is of utmost importance in skill development and acquisition of knowledge during this training period. Along with the training during the MBBS course,

physical activity can be incorporated to improve the happiness of students.

Conclusion

Our study observed a statistically significant association between age, level of physical activity, gender, relationship with family/friends; and happiness quotient of the medical students. We also observed a statistically significant association between stress in last six months, own choice of course, experience of traumatic events; and happiness quotient of the medical students.

Happiness plays a crucial role in the life of all students. Multiple factors/variables such as age, level of physical activity, gender, relationship with family/friends play a significant role in the happiness index of the students. Good relations with family/friends were observed to be a significant positive predictor of happiness of medical students. On the other hand, stress emerged as a significant negative predictor of happiness of medical students in our study. Since there exists a positive association of physical activity with happiness there should be promotion of sports and physical activities among students.

We also suggest that due emphasis be laid on human relationships, stress management, physical exercise or sports, and orientation to spiritual health medical curriculum for the happiness of students. We observed that female medical students are significantly more happy than male students. The association between happiness quotients of the students with their number of attempts in the previous examination was not statistically significant. Our study also revealed that level of happiness decreases marginally as the academic year progresses.

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