

**ORIGINAL RESEARCH**

# A cross sectional study to assess morningness-eveningness preferences among Medical students to carry out the daily living activities

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**ABSTRACT**

**Background & objectives:** Circadian rhythm or chronotype is a study of individual's predilection to exhibit morning or evening trait in organizing various behavioral & daily activities in a 24 hour period. Morning chronotype individuals are those who likes early morning awakening where as evening chronotype individuals prefer getting late in morning and stay awake late later at night time. Therefore, this study was designed to estimate morningness-eveningness preferences to perform the day to day activities among medical students. **Materials & Methods:** This is a cross sectional study done among 244 medical students of Chamarajanagar Institute of medical students, Karnataka. All the study participants were administered Horne-Östberg Morningness-Eveningness Questionnaire. The obtained data regarding the chronotype preferences was expressed in percentage. The association among the study variables was determined using student t test and Chi-square test. p value <0.05 considered significant. **Results:** Majority of the students (171) almost 70% belong to neither type chronotype. Almost 55.7 % (136) prefer to go to bed between 10:15 PM – 12:30 AM. 115 students find themselves fairly alert during the first half after they woke up in the morning and 57.7% students felt fairly refreshed during the first half hour after they woke up from sleep. Boys show increased dependency on alarm to get up at specific time than girls. **Conclusion:** In this study, majority of the study subjects belonged to neither type. Boys showed a higher dependency on the alarm for getting up at specific timing than girls. Girls preferred early morning hours for a physical and mental exhausting work than boys who preferred later hours.

**Key words:** Morningness-eveningness, chronotype, Circadian rhythm, daytime activities.

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**INTRODUCTION**

Sleep is controlled by a circadian rhythm, which is maintained by the neural mechanisms and the neural transmitters. It is a basic biological mechanism that will affect sleep and mental health. However, there are some external factors prevailing in the environment which can influence sleep and in-turn can alter the sleep pattern and the wakefulness. Furthermore, sleep can be altered profoundly by the presence of different medical conditions such as depression, obstructive sleep apnea, idiopathic hypersomnia, and chronic sleep deprivation.<sup>1</sup>

Chronotype or Morningness-eveningness is an individual's trait with his preference to perform specific activities throughout the day. Individual

differences in this endogenous circadian rhythm is governed by factors such as core body temperature, hormonal secretion, sleep-wakefulness, alertness, and mood.<sup>2</sup> the external factors such as usage of internet, busy on social media, dependency on personal habits etc. These chronotype patterns have gained significance in the present days because it can be a basis to explain various behavioral and psychological outcomes.

Broadly individuals can be classified in to morning, intermediate, and evening chronotypes. Morning chronotype individuals are those who likes early morning awakening & show extreme preferences for daytime activity where as evening chronotype individuals prefer getting late in morning and stay

awake late later at night time that is heightened alertness and peak performance is linked to the evening hours. Usually Individuals with mornignness have a good physical & mental health, cordial relationship, self-esteem, good academic performances, whereas those with eveningness usually experiences mental illness, infections, smoking, and poor sleep quality.<sup>3</sup>

Among medical students there could be a disturbance in the sleep-wake cycle due to various factors such as curricular load, extracurricular, activities, the influence of hospital demands, pressure for high academic achievement, and emotional stress.<sup>4</sup>Therefore this study is an attempt to find out these mornignness and eveningness preferences amongst the 1<sup>st</sup> year medical students of Chamarajanagar Institute of medical sciences and its effect on their academic performances.

### OBJECTIVES

1. To estimate the morningness-eveningness preferences among the healthy medical students to perform their daily living activities.

### METHODOLOGY

This cross-sectional study was done among the 244 medical students at Chamarajanagar Institute of Medical Sciences. Data collection was done by using a self-administered Horne-Östberg Morningness-Eveningness Questionnaire<sup>5</sup> among the study subjects after taking their consent. Ethical clearance was obtained from the Institutional ethical committee. The study period was from August to September 2023.

**Table 1: Shows the Comparison of the proportion of males and females with Morningness, Intermediate and Eveningness chronotype**

	MALE	FEMALE	P VALUE
Definite Morning Type	NIL	01	0.28
Moderate Morning Type	26	28	
Neither Type	84	87	
Moderate Evening Type	12	05	
Definite Evening Type	NIL	01	

### CHI SQUARED TEST

### DISCUSSION

Horne and Ostberg questionnaire which is used to assess morningness and eveningness as been validated in many other studies [10-12]. The questionnaire defines the individual chronotypes based on this scoring - Definite morning – 70 -86, Moderate morning – 59-69, Neither – 42-58, Moderate evening – 31-41, Definite evening – 16-30.

In our study, it was found that majority of the students n=171, (70.08%) were classified as neither type of chronotype followed by 78 students (31.9%) felt that they are of rather more a morning type than an evening type. A similar finding was obtained in a study done by Sharma A et al<sup>6</sup> among medical students wherein majority n=67 (61%) of students could be classified as intermediate or neutral type while the

### STATISTICS

The obtained data regarding the chronotype preferences was expressed in percentage. The association among the study variables was determined using student t test and Chi-square test. p value <0.05 considered significant.

### RESULTS

Out of the 244 healthy medical students with males & females in equal number, 105(43%) students preferred to get up between 6:30 AM – 7:45 AM and 136 (55.7%) students prefer to go to bed between 10:15 PM – 12:30 AM if they were entirely free to plan their day. Almost 141(57.7%) of the students felt fairly refreshed during the first half hour after they woke up in the morning. 78 students (31.9%) felt that they are of rather more a morning type than an evening type. Majority of the students (78%) felt their best between 8:00 AM – 10:00 AM. Almost 125 students (51.2%) chose timings between 11:00 AM – 1:00 PM as best for a mentally exhausting test. Boys showed increased dependency on the alarm for getting up at specific timing than girls. 121 students (49.5%) found timing between 7:00 – 8:00 AM as the best to do physical exercise. Girls felt highly refreshed during the first half hour after they wake up in the morning where as boys felt tiredness. For a mentally exhausting test and for physically exhausting work girls showed the preference to towards the early morning hours and boys towards the later hours.

two extreme topologies (morning and evening type) accounted for around two-fifth n=43 (39%) of the participants. In one more study done by Rique GLN et al<sup>7</sup> on chronotype and quality of sleep in medical students also reported that 51.6% of the students were reported as indifferent in their chronotype followed by 27.6% as morning type & 20.8% as evening type. A similar finding was obtained in a study done by katakdhondS et al<sup>8</sup> among the medical post graduates where More than half of the participants belonged to the intermediate group followed by the morning group and the least were the evening group. But in a study done by Arifuddin M k et al<sup>9</sup> found more inclination of study population towards evening type with 34.61% (45) belong to moderate evening category and 13.07% (17) belong to definite evening category. Only 9.23%

(12) belong to neither of the morning or evening categories.

In our study, no differences was found in chronotype with respect to sex, consistent finding was found in a study done by Hyder O et al<sup>10</sup> on medical students in Sudan where there were no differences in chronotype regarding age & sex.

## CONCLUSION

In this study, we found that majority of the study participants were morning type than an evening type. Boys showed increased dependency on the alarm for getting up at specific timing than girls. There was no significant difference for chronotype with respect to sex. Female study participants were more inclined to morning hours for activities such as feeling refreshed, to take up mentally exhausting test and doing hard physical work.

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