



CHRONOTYPE AND ITS RELATIONSHIP WITH EMOTIONAL REGULATION AMONG UNDERGRADUATE STUDENTS

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ABSTRACT

The current research aims to understand chronotype and its association with emotional regulation in undergraduate students. As a biological orientation towards morningness or eveningness, chronotype has been a common topic of psychological literature as a factor that can affect everyday performance and emotional state. With the current trend of abnormal sleep habits and nocturnal habits that are becoming common, especially among the youth, the role of the chronotype is particularly of concern. The study is demonstrated on 60 undergraduate students of age between 18-25 years. Standardized tools including the Morningness-Eveningness Questionnaire (MEQ), and Emotion Regulation Questionnaire (ERQ) were used for data collection. The study in general finds that the chronotype can influence sleep patterns and lifestyle habits, but not on emotional regulation using a non-clinical undergraduate sample. Among students, emotional control seems to be more important in cognitive efficiency. It is possible that further variables like the levels of stress, the quality of sleep, and even the academic workload can be studied in the future to better understand these relationships. **Keywords:** Chronotype, Emotional Regulation, Morningness-Eveningness, Circadian Rhythm, Sleep-Wake Cycle, Psychological Functioning, Emotional Adjustment.

INTRODUCTION

Biological rhythms affecting sleep-wake, alertness, secretion of hormones and psychological processes make the variability of human behavior, emotional experiences, and cognitive performance temporal and vary throughout the day. Some of the most thoroughly studied differences in the circadian rhythm research are the individual differences, one of them being the concept of chronotype where an individual has an inherent preference in terms of when to do things and when to be awake (Horne and Ostberg, 1976). People are generally categorized into morning types (larks), evening types (owls), depending on the time of the day that they are most effective. Chronotype is the reflection of biological processes in which circadian rhythms of rule and genetic inclinations play a role, but which are also influenced by environmental and social factors.

The topic of chronotype has gained growing attention in psychological research over the past few years because of its connection with emotional health and mental well-being. Experimental evidence suggests that chronotype is not just a sleeping choice but rather it is a key determinant of psychological activity. Particularly, it is relevant in case with undergraduate students, who often have to deal with irregular sleep patterns, academic load and emotional stress; thus, in this group, the chronotype could significantly influence emotional control.

Undergraduate students are one of the groups of people who are highly vulnerable to circadian misalignment. Morning activity is traditionally a favorite of academic schedules, and it can be a disadvantage to evening-type students whose optimum activity comes later in the day. This mismatch between biological

circadian rhythm and institutional time, sometimes called social jetlag, may have detrimental effects on the quality of sleep and mood stability

Chronotype and Emotional regulation

Emotional regulation refers to the procedures through which people track, analyze and adjust their emotional responses in order to have adaptive results (Gross, 1998). It includes cognitive reappraisal, expressive suppression, acceptance and problem-solving strategies. Emotional regulation is linked to excellent psychological wellbeing, decreased anxiety and depression, and enhanced social functioning. On the other hand, the reduced functioning and emotional distress are associated with maladaptive emotion-regulation strategies.

The new studies show that the chronotype can have a significant impact on the emotional mechanisms. Research has recorded that evening types have been more likely to report greater levels of emotional instability, stress, anxiety and symptoms of depression as compared to morning types. Evening types tend to be more altered to adverse emotional stimuli and can be biased towards a negative emotion. In addition, studies have indicated that chronotype also combines with emotion-regulation strategies; e.g. the application of expressive suppression is linked to problems of identifying and processing emotional information, especially in some chronotype groups.

Individuals of the morning type tend to report higher emotional stability and high positive effect. This can be explained by the fact that they may be more adjusted to the schedules of society and its rhythms, which makes their sleep quality to be higher and their



stress to be lower. Conversely, evening-type students can have a history of chronic sleep limitation and circadian disorientation, which can negatively affect emotional regulation and make them prone to mood swings. These results highlight the fact that chronotype can have a role in not only affecting the experience of emotion, but also the effectiveness of emotion-regulation strategies.

The following are a few studies that examine the relationship between Chronotype and Emotional Regulation.

Chronotype describes the preference of an individual in terms of the time of sleep-wake, which usually falls into the categories of morning-type, evening-type or intermediate-type. It is controlled by circadian rhythms that control physiological and psychological performance. Emotional regulation refers to the capacity to monitor, consider and control emotional reactions to adjust the daily need and stressors successfully.

The school-going students tend to have uneven sleep patterns because of academic pressures and the lifestyles they adopt and this can influence their mood. People of evening-type might not be able to make their biological rhythms meet with the academic schedules and properly control their emotions. According to previous studies, the differences in chronotype can modify such strategies of emotional regulation as cognitive reappraisal and expressive suppression. Therefore, the study of the chronotype and emotional control relationship in undergraduate students is crucial in the context of emotional adaptation in this group.

CHRONOTYPE AND EMOTIONAL REGULATION

Research by Van de Berg, Kivela & Antypa (2018) indicates the association between chronotype and depressive symptoms in students. According to the findings, there is seen a higher risk of depression in evening people in comparison to morning people, especially in adolescence. Sleep disturbing is seen as a major contribution to depression among evening chronotype. Evening, chronotypes are seen with short sleep duration for a sleep quality and insufficient sleep. The studies also highlight the maladaptive emotional regulation strategies such as rumination, catastrophizing, and self-blame which worsen the emotional problem. The result of the research is that evening chronotype are more prone to depressive symptoms, which is linked to poor sleep patterns and emotional regulation.

The study carried out by Bottary, Pace-Schott, Cunningham, and Spencer (2020) examined the relationship between social jetlag, chronotype, and memory performance as regards emotional learning. The article discussed the impact of circadian rhythm disorientation between social and biological patterns on cognitive and emotional processes. The results have shown that those who reported higher levels of social jetlag showed worse memory of extinguished fear responses, which implies the lack of emotion memory functioning. Evening-type persons had higher chances of having social jetlag, which had a negative impact on their capacity to control emotional reactions and adjust to the former acquired emotional data. The findings accentuate that the circadian

imbalance related to the chronotype can be a root of cognitive and emotional regulation problems.

Taylor, Bowman, Brindle, Hasler, Roecklein, Krafty, Matthews, and Hall (2020) examined how evening chronotype, severity of alcohol use disorder, and emotion regulation are related to each other in a group of college students. The research involved the relationship of circadian preference to emotional functioning in an undergraduate group. The results showed that students with evening chronotype had more problems regulating emotions than those with the morning-type did. Also, evening-oriented people proved to be more vulnerable to behavioural and emotional distress, especially when they are sleep-deprived on school days. It was proposed by the study that circadian misalignment related to eveningness could hinder the emotional control ability, hence play a role in augmenting the risk of psychological and behavioural exposure in college students.

Gorgol, Walerianczyk, Stolarski, and Cyniak-Cieciura (2021) tested the connection between the chronotype and the depressive symptoms through the Regulative Theory of Temperament framework. The research was carried out to establish the role of temperament characteristics in moderating the relationship between circadian preference and emotional functioning. The results showed that participants of evening chronotype experienced more depressive symptoms than morning types. Moreover, such temperament traits as emotional reactivity and endurance were also observed to play a crucial role in this relationship. When identified with an evening preference, people that were more emotionally reactive were susceptible to adverse emotional functioning. These results emphasize the importance of biological rhythm preference in determining emotional well being and confirm the perception that eveningness could be linked to increased emotional problems in young adults.

Nowakowska-Domagala, Stec, and Mokros (2022) used the pilot study to investigate the association between chronotype and sleep quality in young adults and explicitly determine how rumination mediates this association. It was found that those who are evening types of people indicated lower quality of sleep than their morning counterparts. Moreover, evening-oriented people had more rumination that was considered to have unfavorable effects on emotional functioning and made such individuals more susceptible to psychological distress. The article proposed that repeated negative thinking patterns can also serve as a cognitive mediator between circadian preference and sleep disorders and emotional control problems. These findings suggest that eveningness might be linked with maladaptive cognitive and emotional functions that can influence general psychological well being amongst the young adults.

RESEARCH GAP

Whereas other studies have been done to understand the correlation between chronotype and emotional disorders like depression, rumination, and psychological distress, few studies have specifically investigated the connection between chronotype



and emotional regulation strategies on undergraduate students in the non-clinical environment. A number of extant studies are more concerned with depressive symptoms, sleep quality, social jetlag, or alcohol use, and not in particular terms with the relationship between chronotype and adaptive and maladaptive methods of managing emotions, including cognitive reappraisal and expressive suppression. Moreover, the majority of the research is grounded in the Western population, and relatively fewer studies involve Western undergraduate setting, where the academic pressure, irregular working hours, and computer exposure are extremely popular. Also, there is a lack of empirical findings that will determine whether chronotype is an independent predictor of emotional regulation in the presence of other lifestyle and environmental factors. Hence, there is a necessity to examine this relation in particular among the undergraduate students to gain a better insight into emotional adjustments in growing adulthood and add to the culturally adequate psychological literature.

RATIONALE

Over the recent years, academic requirements, spending a lot of time on the screen, using social media and adjusting to new lifestyle habits have prompted undergraduate students toward irregular sleep-wake patterns. Such changes can frequently result in the incompatibility of the biological rhythm that a certain person has with the socially arranged patterns like early mornings and school assignments. Morningness or eveningness as an innate tendency to deal with the stressor daily may contribute to the abilities of students to effectively adapt to the stressor and manage their emotions in this setting. Emotional management has a crucial role in the mental health, interpersonal and academic adaptation of the students. The inability to cope with emotions can result in mood swings, decreased level of well-being, and poor psychological adjustment. Although previous studies have connected chronotype with sleep disturbance and depressive symptoms, little is known on how it is specifically related to emotional regulation strategies in undergraduate students. The reason why it is essential to understand this relationship is that there is a critical period during which the emergent adulthood is developing and emotional competence remains in the developing stage. The study of the chronotype concerning emotional regulation can be useful in identifying those students who are susceptible to emotional maladjustment because of circadian deviation leading to preventive mental health measures and healthier lifestyle habits among students.

METHODOLOGY

OBJECTIVE

To establish the association between chronotype and emotional control.

HYPOTHESIS

There is no meaningful correlation between the chronotype and emotional control in undergraduate students.

VARIABLES

Independent Variable: Chronotype (Morningness–Eveningness)
Dependent Variables: Emotional Regulation

SAMPLE

The current study sample derived was 60 undergraduate students, which was selected through the convenience sampling method. All the participants were female students aged between 18 to 25 years. All the participants provided informed consent before data collection.

INCLUSION CRITERIA

Undergraduate students must be between 18 to 25 years.
Participants must be enrolled in college or university.
Participants must give informed consent.

EXCLUSION CRITERIA

Participants outside the required age range (e.g., >25 years or <18 years).
Individuals with mental diseases.
Individuals who had any sleep disorders.

TOOLS

MorningnessEveningness Questionnaire (MEQ): The Morningness-Eveningness Questionnaire created by Horne and Ostberg (1976) was used to calculate the chronotype of the participants. This self-report questionnaire has 19 questions, which are meant to determine how one would like to schedule their activities throughout the day and the alertness that they feel at various times of the day.

Emotion Regulation Questionnaire (ERQ): The strategies of emotional regulation were assessed by the use of Emotion Regulation Questionnaire that was developed and formulated by Gross and John (2003). ERQ is composed of 10 items that measure personal disparities in applying two prominent emotion regulation, namely, cognitive reappraisal and expressive suppression.

PROCEDURE

Data collection was preceded with getting the concerned institutional authorities' permission. The participants were identified by visiting their classrooms and talked about the objective of the research. Informed consent was taken and confidentiality guaranteed. Participants that satisfied the inclusion criteria were used in the study. The Morningness-Eveningness Questionnaire (MEQ) and the Emotion Regulation Questionnaire (ERQ) were given in a classroom environment with proper instructions. The participants were requested to answer the questions honestly and would have enough time to complete the questions. The scoring of the answers was based on the standard scoring practices. The participation was free and the participants could withdraw at any point during the study.



RESEARCH DESIGN

The current research used a correlational research design to consider the connection between the chronotype and emotional regulation of undergraduate students. The study did not manipulate any variables because it was expected to estimate the naturally occurring correlation between sleep-wake preference and emotional regulation strategies.

STATISTICAL ANALYSIS

The data obtained were analysed by the use of SPSS. Calculation of the descriptive statistics was done, mean, and standard deviation. To identify the relationship between emotional regulation and chronotype, Pearson Product Moment Correlation was used to establish the relationship. The Independent Samples

t-test was implemented to test the differences in emotional regulation in chronotype groups as well.

RESULT AND INTERPRETATION

Objective for Table 1:

To evaluate and characterize the degree of chronotype and emotional regulation of undergraduate students through the analysis of the mean and standard deviation scores received with the help of the Morningness-Eveningness Questionnaire (MEQ) and the Emotion Regulation Questionnaire (ERQ) with the aim to comprehend the overall distribution and divergence of both variables in the study sample.

TABLE 1 represents Means (M), Standard Deviations (SD), and Correlation between Chronotype and Emotional Regulation (N = 60)

Table 1				
Variable	M	SD	1	2
Chronotype (MEQ)	49.83	21.460	-	.064
Emotional Regulation (ERQ)	43.47	11.897	.064	-

$r = .06$, $p = .625$ (two-tailed). The correlation is not statistically significant at $p < .05$.

Interpretation for TABLE 1:

The use of Pearson product-moment correlation was aimed at testing the correlations between chronotype and emotional regulation in undergraduate students ($N = 60$). The outcomes showed that there was a weak positive relationship between chronotype (MEQ) and emotional regulation (ERQ) though this was not found to be statistically significant, $r(58) = .06$, $p = .625$. The average mean of chronotype was $M = 49.83$, $SD = 21.46$, and emotional regulation was $M = 43.47$, $SD = 11.90$.

DISCUSSION

Chronotype is a spontaneous tendency of people in terms of when they should sleep-wake and what time of day they should be active, and is often placed on a continuum of morningness and eveningness. These biological preferences are controlled by circadian rhythms and they affect alertness, performance and psychological functionality. Among modern undergraduate students, the lifestyle choices, including exposure to screen in the late hours, academic requirements, and social interactions, usually lead to an abnormal sleeping pattern and a tendency to be evening types.

The aim of the present research was to investigate the connection between the chronotype and the emotional regulation of the undergraduate students. Emotional regulation is an aptitude to observe and control the emotional reaction within everyday life circumstances. The hypotheses based on the previous literature were that, chronotype would be found to have a significant relationship with emotional regulation strategies.

Nevertheless, the research results showed that there was a low and statistically insignificant relationship between chronotype and

emotional regulation ($r = .06$, $p = .625$). It indicates that chronotype might not have a direct effect on the emotional regulation capabilities of a non-clinical undergraduate sample. Outside influences like academic stress, coping styles and social environment could have a more significant role to play in influencing emotional regulation than biological rhythm preferences in isolation.

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