



The Impact of Circadian Rhythms on Task Completion

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Abstract

The tendency for individuals to lean toward completing tasks in accordance with their circadian rhythms is a common practice. The research was done in hopes to provide a better understanding of the interaction between circadian rhythms and task completion. The researcher hopes to use this research as a tool to aid an organization's ability to have a more productive working environment. A one-time, 15-minute study was designed to understand the interaction between self-identified time preference, the timing of a task, and task completion. A 2 x 2 independent groups factorial design with two independent variables, self-identified time preference (early bird or night owl) and time of day of the task (morning or night), was utilized. Participants were obtained through social media as well as California Lutheran Psychology classes prompted for the study through the Sona System. The study was conducted entirely online and was in accordance with IRB standards.

Introduction

The tendency for individuals to lean toward completing tasks in accordance with their circadian rhythms is a common practice. Within the literature much research has been done on the accuracy of self-identified time preferences and the validity of circadian rhythms being ingrained in physiological outputs. Many studies have emphasized the link between identifying as a morning bird or a night owl and physiological reactions, lending belief for a positive correlation between the two. A quantitative study assessed the cortisol levels of individuals with tendencies toward being a morning or evening person, and concluded that having a tendency toward morningness or eveningness affects an individual on the molecular level (Kudielka et al., 2006). Additionally, studies have further indicated a relationship between time of day in connection with circadian rhythms' effects on the resulting task. The gap that I hope to further fill with my research is that of finding a link between circadian rhythms and time of day in connection with how these might have an impact on task completion in reference to quality and time. In this I hope to better understand how an individual's ability to complete a task at the utmost quality and in a timely manner is correlated with their circadian rhythms.

Hypotheses

There will be a significant interaction for task completion time, such that participants who partake in a task in accordance with their circadian rhythms will complete the task faster than participants who preform the task in opposition to their circadian rhythms.

There will be a significant interaction for task completion quality, such that participants who partake in a task in accordance with their circadian rhythms will perform better than participants who preform the task in opposition to their circadian rhythms.

Method

Participants

- 47 adult participants
- 70.2% Cauc., 12.8% Hispanic, 2.1% African Am., 12.8% Asian, 2.1% Other
- 70.2% female, 29.8% male
- 18 – 72 years of age ($M = 28.66$, $SD = 14.14$)

Materials

- Informed Consent Form
- Background Questionnaire
- 20-question Questionnaire
- Self-assessment Questionnaire

Procedure

1. Informed consent forms signed and collected.
2. Participants were prompted with demographic questions.
3. 20-question Questionnaire completed.
 1. Participants had unlimited time to complete this
4. Self-assessment completed.
5. Time of text was recorded.
6. Thanked for their completion.

Results

- There were no significant main effects or interactions found.
- The hypothesis was not confirmed.



Discussion

Hypotheses were not supported. Possible reasons include:

- Online setting made it impossible for researcher to control over time at which participants participate.
- Task itself may have an unfair baseline on ability to preform to the utmost capacity
- Small sample size

Future research should address the above issues and could explore the relationship between task completion in relation to circadian rhythms in a more controlled setting.

References are available upon request.