

The effects of sleep quality, sleepiness, fatigue, and psychological resilience on attention performance

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Abstract

Introduction: The aim of the study was to examine the relationships between sleep quality, sleepiness, fatigue, resilience, and attention parameters in a sample consisting of university students.

Material and methods: The study involved 123 university students aged between 18 and 33 years. A socio-demographic data form, the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), Fatigue Severity Scale (FSS), Depression, Anxiety, and Stress Scale (DASS-21), and the Brief Resilience Scale (BRS) were administered to the participants. Attention assessment was conducted using the Cognitron (COG), Signal Detection (SIGNAL), Inhibition (INHIB), and Perception and Attention Functions Battery, part of the computer-based Vienna Test System (VTS).

Results: Out of all the participants, 77.2% were female, and 22.8% were male, with an average age of 21.53 (SD = 2.54) years. A positive correlation was found between COG-Corrects and PSQI scores, and COG-Incorrects and DASS-Stress. There was a negative correlation between SIGNAL-Corrects and FSS. No correlation was revealed among sleep quality, sleepiness, fatigue, resilience variables, and reaction inhibition or divided attention. Furthermore, multiple regression analysis indicated that attention scores were predicted only by sleep quality and fatigue severity.

Conclusions: Based on the study's findings, it is conceivable that situational factors such as sleep quality, sleepiness, and fatigue have a more significant impact on attention compared with constant variables such as depression, anxiety, stress, and resilience.

Key words: Vienna Test System, attention, fatigue, sleepiness, resilience.

Introduction

Attention is a primary and complex cognitive function that refers to the frontage and focus of mental resources on a stimulus. Simultaneously, it represents turning towards a stimulus while disregarding others (Posner *et al.* 2016). Attention is separated into four types: selective, sustained, executive, and divided. Selective attention refers to the capacity to focus on a particular stimulus while disregarding other distracting stimuli. Divided attention is the ability to deal with multiple stimuli simultaneously, and executive attention ensures that attention is maintained (Rueda *et al.* 2023). Sustained attention requires long-term focus on a stimulus and is regarded as a concept associated with alertness (Cohen 2013). According to contemporary theories, attention is a system that consists of

multiple brain networks with interrelated but distinct functions (Fisher 2019). Spikman and van Zomeren (2010) stated that attention has two general dimensions, selectivity and intensity; they also refer in their articles to the Vienna Test System (VTS), which is a computer-based application used in the assessment of sustained attention, focused/selective attention, and divided attention (Spikman and van Zomeren 2010).

Although attention is a parameter that multiple psychological factors can impact, there has been more focus on how specific psychological processes such as sleep, fatigue, and psychopathological processes (e.g., depression, anxiety) affect attention. Sleep has a restorative function in human life and is essential for physiologic and circadian rhythms. Quantitative and qualitative shifts in sleep influence multiple systems (Bryant

Sleep Sleepiness And Performance

Michael D. Matthews, David M. Schnyer



Sleep Sleepiness And Performance:

Sleep, Sleepiness and Performance Timothy H. Monk, 1991-12-20 Monk Timothy H Investigator Non NASA Center U Pittsburgh PA *Sleep, Sleepiness, and Performance* Timothy H. Monk, 1991 Sleep Teofilo L. Lee-Chiong, 2005-12-13 A unique resource on sleep medicine Written by contemporary experts from around the world Sleep A Comprehensive Handbook covers the entire field of sleep medicine Taking a novel approach the text features both syndrome and patient oriented coverage making it ideally suited for both clinical use and academic study Sleep A Comprehensive Handbook begins with a brief introduction to the basic science of sleep from neurobiology to physiologic processes This leads into sections offering comprehensive coverage of insomnia sleep apnea narcolepsy parasomnias movement disorders and much more Sleep and related disorders are also discussed followed by chapters on considerations for special patient groups Special materials for practitioners include a sample interview and questionnaire as well as a chapter on operating and managing a sleep center The text concludes with discussions of sleep assessment methods such as polysomnography actigraphy and video EEG monitoring With full coverage of over 100 key topics in sleep medicine Sleep A Comprehensive Handbook offers the most practical thorough yet handy resource available on adult and pediatric sleep medicine Praise from the reviews no other publication in the field can begin to compare with the breadth or depth of the Handbook I cannot imagine a functioning sleep disorders clinic without at least one copy on standby as a ready reference PscyCRITIQUES Sleep A Comprehensive Handbook is a first rate textbook with concise up to date information covering a wide range of subjects pertinent to the practice of sleep medicine DOODY S HEALTH SERVICES The Oxford Handbook of Sleep and Sleep Disorders Charles M. Morin, Colin A. Espie, 2012-03 A great deal of progress has been made in the characterization assessment and treatment of sleep disorders in recent years Detailing the functions of sleep and its effect on cognition and development this book offers a comprehensive practical approach to the evaluation and treatment of patients with sleep disorders **Sleepiness** Michael J. Thorpy, Michel Billiard, 2011-01-27 Written and edited by leading clinicians and researchers in sleep medicine this is the first book to focus on the causes consequences and treatment of disorders of excessive sleepiness Extensive coverage is provided for all known causes of sleepiness including sleep deprivation obstructive sleep apnea syndrome narcolepsy and other hypersomnias of central origin shift work and medical and psychiatric disorders Since many causes of sleepiness are difficult to differentiate from each other and treatment modalities can vary greatly from one disorder to another this book helps the clinician to formulate a differential diagnosis that will ultimately lead to the correct diagnosis Epidemiology evaluation of the sleepy patient diagnostic investigations including neuroimaging subjective and objective testing cognitive effects of sleepiness motor vehicle driving issues medico legal aspects of sleepiness and therapy are also discussed in detail This is an essential resource for neurologists psychiatrists and sleep specialists **Kryger's Principles and Practice of Sleep Medicine - E-Book** Meir H. Kryger, Thomas Roth, Cathy A Goldstein, 2021-12-16 Offering today s most authoritative

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The Handbook of Fatigue Management in Transportation Christina M. Rudin-Brown, Ashleigh J. Fildes, 2023-08-02 In the world of transportation fatigue is a silent killer that can affect us all Understanding fatigue including how to manage it to minimize safety risk is of great importance However while it is one

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The Handbook of Operator Fatigue Gerald Matthews,P.A. Hancock,2017-11-01 Fatigue is a recognized problem in many facets of the human enterprise It is not confined to any one area of activity but enters all situations in which humans have to perform for extended intervals of time Most problematic are the circumstances in which obligatory action is continuous and the results of failure are evidently serious or even catastrophic Therefore the modern media especially highlights fatigue related failures in industries such as transportation materials processing and healthcare It can be and indeed is no coincidence that most of the spectacular failures in process control that have resulted in the world s largest industrial accidents have occurred in the small hours of the morning when the circadian rhythm is lowest and operator fatigue itself peaks While there have been legislative efforts made at state federal and international levels to regulate working hours of employees the appropriate implementation of such legislation is still a long way off The Handbook of Operator Fatigue provides a comprehensive account of the subject to serve as the definitive reference work for researchers students and practitioners alike The volume features 30 chapters written by experts from around the world to address each important facet of fatigue including the scale of the fatigue problem Section I the nature of fatigue Section II how to assess fatigue Section III the impact of fatigue on health Section IV fatigue in the workplace Section V the neurological basis of fatigue VI sleep disorders VII and the design of countermeasures to fatigue VIII

Human Performance Optimization Michael D. Matthews,David M. Schnyer,2019 Human Performance Optimization The Science and Ethics of Enhancing Human Capabilities explores current and emerging strategies for enhancing individual and team performance especially in high stakes stressful settings such as the military law enforcement firefighting or competitive corporate settings Taking a cognitive neuroscience perspective scientifically grounded approaches to optimizing human performance are explored in depth

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