

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

**Meir H. Kryger, Thomas Roth, Cathy A
Goldstein**



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 comprehensive

coverage of sleep disorders Kryger's Principles and Practice of Sleep Medicine 7th Edition is a must have resource for sleep medicine specialists fellows trainees and technicians as well as pulmonologists neurologists and other clinicians who see patients with sleep related issues It provides a solid understanding of underlying basic science as well as complete coverage of emerging advances in management and treatment for a widely diverse patient population Evidence based content hundreds of full color illustrations and a wealth of additional resources online help you make well informed clinical decisions and offer your patients the best possible care Contains new chapters on sleep in intersex and transgender individuals sleep telemedicine and remote PAP adherence monitoring and sleep and the menstrual cycle as well as increased coverage of treatment and management of pediatric patients Includes expanded sections on pharmacology sleep in individuals with other medical disorders and methodology Discusses updated treatments for sleep apnea and advancements in CPAP therapy Offers access to 95 video clips online including expert interviews and sleep study footage of various sleep disorders Meets the needs of practicing clinicians as well as those preparing for the sleep medicine fellowship examination or recertification exams with more than 950 self assessment questions answers and rationales online Enhanced eBook version included with purchase Your enhanced eBook allows you to access all of the text figures and references from the book on a variety of devices

Neuroergonomics Raja Parasuraman, Matthew Rizzo, 2008-02-13 Neuroergonomics can be defined as the study of brain and behavior at work It combines two disciplines neuroscience the study of brain function and human factors the study of how to match technology with the capabilities and limitations of people so they can work effectively and safely The goal of merging these two fields is to use the startling discoveries of human brain and physiological functioning both to inform the design of technologies in the workplace and home and to provide new training methods that enhance performance expand capabilities and optimize the fit between people and technology Research in the area of neuroergonomics has blossomed in recent years with the emergence of noninvasive techniques for monitoring human brain function that can be used to study various aspects of human behavior in relation to technology and work including mental workload visual attention working memory motor control human automation interaction and adaptive automation This volume will provide the first systematic overview of this emerging area describing the theoretical background basic research major methods as well as the new and future areas of application This collection will benefit a number of readers the experienced researcher investigating related questions in human factors and cognitive neuroscience the student wishing to get a rapid but systematic overview of the field and the designer interested in novel approaches and new ideas for application Researchers in human factors and ergonomics neuroscience cognitive psychology medicine industrial engineering and computer science will find this volume most helpful

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

The Handbook of Fatigue Management in Transportation Christina M. Rudin-Brown, Ashleigh J. Filtiness, 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 thing to recognize that fatigue is a critical safety issue it is quite another to set up a successful scientifically informed fatigue risk management programme This book is here to help It has been carefully designed as a comprehensive reference point bringing together international expertise from leaders in fatigue science and showcasing valuable insights from transportation industry practitioners The 40 authored chapters are divided into six sections to better understand fatigue science the consequences of fatigue in transportation contributors to fatigue managing fatigue and promoting alertness real world case studies of fatigue management in practice and future perspectives While it is possible to read each chapter in isolation most will be gained by reading the book as a whole Each chapter starts with an abstract overview and concludes with summary bullet points creating a handy quick check for key points This accessible text is for those who are interested in supporting alert and safe transportation operations It is suitable for professionals transport managers government advisors policy makers students academics and anyone who wants to learn more All transport modes road rail maritime and aviation are considered For anyone waking up to the complex challenge of fatigue management this handbook is a must

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

Principles and Practice of Sleep Medicine E-Book Meir H. Kryger, Thomas Roth, William C. Dement, 2010-11-01 Principles and Practice of Sleep Medicine 5th Edition by Meir H Kryger

MD FRCPC Thomas Roth PhD and William C Dement MD PhD delivers the comprehensive dependable guidance you need to effectively diagnose and manage even the most challenging sleep disorders Updates to genetics and circadian rhythms occupational health sleep in older people memory and sleep physical examination of the patient comorbid insomnias and much more keep you current on the newest areas of the field A greater emphasis on evidence based approaches helps you make the most well informed clinical decisions And a new more user friendly full color format both in print and online lets you find the answers you need more quickly and easily Whether you are preparing for the new sleep medicine fellowship examination or simply want to offer your patients today s best care this is the one resource to use Make optimal use of the newest scientific discoveries and clinical approaches that are advancing the diagnosis and management of sleep disorders Stay on top of the hottest topics in sleep medicine with 56 new chapters including Postpartum Sleep Disturbances Fatigue Risk Management What does Brain Imaging Reveal about Sleep Genesis and Maintenance Physician Examination of the Sleep Patient Forensic Sleep Medicine Pathophysiology and Models of Insomnia Treatment of Insomnia Developing Treatment Guidelines Restrictive Lung Disorders Sleep Medicine in the Elderly Obstructive Obstructive Sleep Apnea Metabolic and Renal Disorders Sleep Apnea Obesity and Bariatric Surgery Sleep and Renal Disease Theories of Dreaming Why We Dream Sleep Stress and Burnout Evaluating Sleep EEG and Sleep Stage Scoring And more Master the newest areas in the field with 5 new sections covering Sleep Mechanisms and Phylogeny Genetics of Sleep Physiology in Sleep Occupational Sleep Medicine Sleep Medicine in the Elderly Access the complete contents online fully searchable and follow links to abstracts for most bibliographical references Apply evidence based approaches wherever available Find answers more easily thanks to a new user friendly full color format

Evaluation of U.S. Department of Transportation efforts in the 1990s to address operator fatigue ,1999 During the 1980s the National Transportation Safety Board investigated several aviation highway and marine accidents that involved operator fatigue Following completion of these accident investigations the Safety Board in 1989 issued three recommendations to the U S Department of Transportation DOT addressing needed research education and revisions to hours of service regulations Ten years have passed since these safety recommendations were issued In the interim the Safety Board has issued more than 70 additional recommendations to the DOT States industry and industry associations to reduce the incidence of fatigue related accidents In response to the three 1989 recommendations the DOT and the modal administrations have in general acted and responded positively to the recommendations addressing research and education little action however has occurred with respect to revising the hours of service regulations Nevertheless the Safety Board believes that support has grown in recent years to make substantive changes to these regulations This report provides an update on the activities and efforts by the DOT and the modal administrations to address operator fatigue and consequently the progress that has been made in the past 10 years to implement the actions called for in the three intermodal recommendations and other fatigue related recommendations The report also provides some background

information on current hours of service regulations fatigue and the effects of fatigue on transportation safety As a result of this safety report the National Transportation Safety Board issued new safety recommendations to the U S Department of Transportation the Federal Aviation Administration the Federal Highway Administration the Federal Railroad Administration the Research and Special Programs Administration and the United States Coast Guard **Sleep Disorders** S. R. Pandi-Perumal,Joris Verster,Jaime Monti,Salomon Langer,2008-07-23 One of the first such volumes in this field Sleep Disorders Diagnosis and Therapeutics explores sleep pharmacology and therapeutics Leading researchers in the area of experimental and clinical and psychopharmacology critically assess the progress in their specialist fields The book is suitable as an introduction for clinicians and researchers w Flight Stress Alan F. Stokes,Kirsten Kite,2017-03-02 While stress and fatigue are often dealt with in other books on aviation performance and human factors these realities of human vulnerability are now increasingly seen as central to the effective conduct of flight operations Flight Stress provides a comprehensive treatment and a better understanding of stress and fatigue as they relate to aviation It clarifies and distinguishes the concepts of stress and fatigue as they apply to flight and expounds sufficient theory to provide a principled basis for the consideration and amelioration of stress effects in aviation The authors examine what is known of the effects of stress from both laboratory and operational studies and detail the aspects of this knowledge to which aviation professionals should pay most attention They go on to discuss the implications of stress and fatigue for performance in a range of aviation contexts from air traffic control to aerial combat Physiological cognitive and medical sequel are explored The book locates aviation related work in its broader research context critically reviewing and illustrating the work with examples from accident and incident reports It is substantive but accessible since it both sets out the research base and provides plenty of real world examples to leaven and illustrate the narrative It thus provides an authoritative handbook for aviation professionals and a comprehensive source book and reference work for researchers The readership includes aviation professionals and researchers including medical personnel and registered Aviation Medical Examiners psychologists and Human Factors specialists training captains senior pilots and engineers air traffic controllers dispatchers and operations staff Elements of Human Performance Andries F. Sanders,Andries Sanders,2013-02-01 This book presents a review of research on reaction processes and attention as it has evolved over the last 40 years in the context of the information processing tradition in cognitive psychology It is argued and demonstrated that issues of reaction processes and attention are closely interconnected Their common conceptualization can be seen in terms of limited processing capacity on the one hand and stage analysis on the other This volume concludes that at present a stage analysis metaphor offers better prospects as a conceptual starting point the limited capacity metaphor was strongly tied to the digital computers of the 60s The emphasis of the book is on behavioral research but summaries of related findings on evoked potentials and other psychophysiological variables are included as well From this perspective it may be of interest to neuropsychologists who want to learn about the present state

of cognitive experimental paradigms Elements of Human Performance also addresses the question of the relationship between basic research and applications in the said areas This is particularly urgent in view of the now common notion that the results of many simplified laboratory tasks may be artifactual and of little applied value A back to back research strategy is outlined to assess the validity of basic research results for real life tasks **Elements of Human Performance** Andries Frans Sanders,1998 The book focuses on 2 aspects of human performance theory reaction processes and attention These aspects are often ignored by treatments of cognitive psychology but are central to understanding an individual s performance

Human Sleep and Cognition, Part II ,2011-05-16 There is a critical bidirectional relationship between sleep and cognition yet the literature in this area is scattered and it is surprisingly difficult to find a comprehensive overview of the basic principles latest discoveries and outstanding challenges This issue of Progress in Brain Research is split over 2 volumes bringing together cutting edge research on the topic in the basic clinical and applied sciences The 2 volumes review current knowledge and understanding provide a starting point for researchers and practitioners entering the field and build a platform for further research and discovery Leading authors review the state of the art in their field of investigation and provide their views and perspectives for future research Chapters are extensively referenced to provide readers with a comprehensive list of resources on the topics covered All chapters include comprehensive background information and are written in a clear form that is also accessible to the non specialist Understanding Doctors' Performance Jim Cox,Jenny King,Allen Hutchinson,Pauline McAvoy,2023-02-24 Understanding Doctors Performance addresses possible reasons why doctors under perform covering specific areas such as education and training physical and mental health workload personality organisational culture drug and alcohol misuse and cognitive impairment It draws together evidence and describes the factors apart from clinical competence that adversely affect performance and how they can be prevented identified assessed and addressed This practical and easy to read book is invaluable for NHS managers medical directors chief executives and board members along with directors of human resources in healthcare and healthcare professionals interested in the assessment of performance or the management of underperformance **Psychology and Policing** Neil Brewer,Carlene Wilson,2013-06-17 Psychological theory and research have much to contribute to the knowledge and skill bases underlying effective policing Much of the relevant information however is dispersed across a variety of different psychological and criminal justice policing journals and seldom integrated for those applied psychologists interested in policing issues or for police policymakers administrators and others working in the criminal justice area who are not familiar with the psychological literature Designed to accommodate the needs of these different groups this book addresses both operational policing issues and issues relevant to the improvement of organizational functioning by providing integrative reviews of psychological theory and research that deal with effective policing It illustrates how the theory and research reviewed are relevant to specific policing practices These include eyewitness testimony conflict resolution changing driver

behavior controlling criminal behavior effective interviewing and techniques of face reconstruction The volume s readable style makes it accessible to a diverse audience including undergraduate and postgraduate students in forensic organizational applied psychology criminal justice and police science programs and police administrators and policymakers It will also interest psychologists whose primary focus includes policing and criminal justice issues The book should draw attention to the often unrecognized and valuable contribution that mainstream psychology can make to the knowledge base underpinning a wide variety of policing practices

Transformational Science And Technology For The Current And Future Force (With Cd-rom) - Proceedings Of The 24th Us Army Science Conference A M Rajendran,J A Parmentola,W Bryzik,B J Walker,J W Mccauley,J Reifman,N M Nasrabadi,2006-11-08 This book provides the reader with a unique opportunity to understand the basic and applied research and technology areas that support applications to enable Transformational capabilities for US Soldiers The research papers are in line with the theme of the 24th Army Science Conference Transformational Science and Technology for the Current and Future Force emphasizing the critical role of Science and Technology in addressing the significant challenges posed by Global War On Terrorism while simultaneously developing Transformational capabilities for the Future Force

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