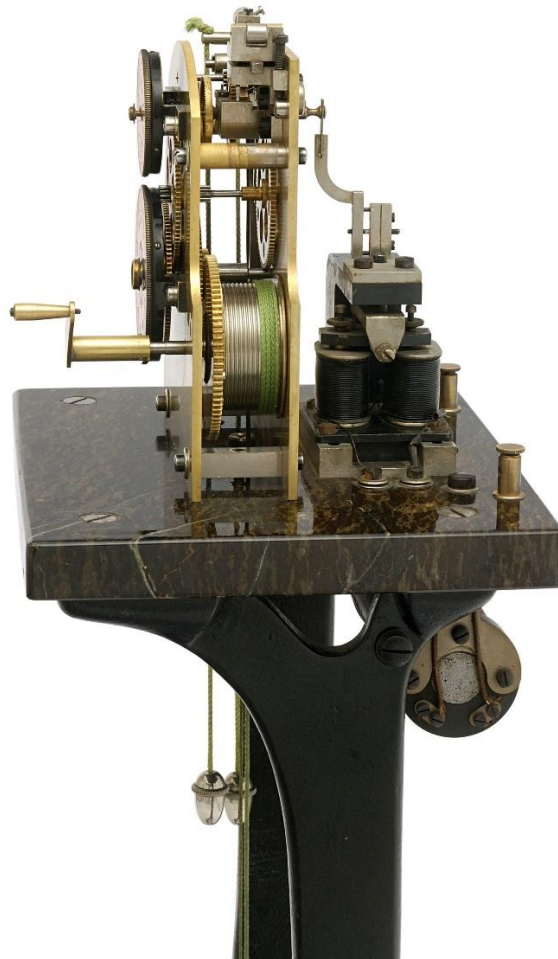XXXI INTERNATIONAL SCIENTIFIC CONFERENCE

EMPIRICAL STUDIES IN PSYCHOLOGY

MARCH 28 – 30, 2025
FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

INSTITUTE OF PSYCHOLOGY
LABORATORY FOR EXPERIMENTAL PSYCHOLOGY
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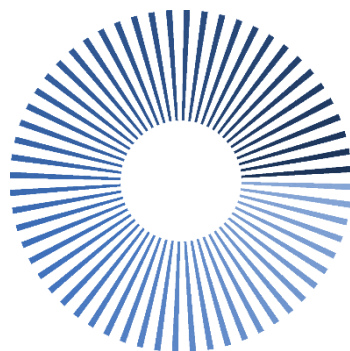XXXI INTERNATIONAL SCIENTIFIC CONFERENCE

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BELGRADE, 2025

Cover photo:
CHRONOSCOPE WITH POLARIZED MAGNET, AFTER SCHULZE
(E. Zimmermann, Leipzig – Berlin)

Precision clock mechanism with time resolution up to 1 millisecond that can be connected to a number of different instruments. The apparatus is an improved version of Hipp's chronoscope. Instead of an electromagnet, Shulze introduced a polarized magnet which makes chronoscope suitable for all time intervals, even at varied DC voltage. The chronoscope has two dials: the upper dial indicates milliseconds, and the lower indicates tenths of a second.

From the Collection of Old Scientific Instruments of the Laboratory of Experimental Psychology, Faculty of Philosophy, University of Belgrade

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KEYNOTE LECTURES

LIGHTNESS AND COLOUR PERCEPTION

Sunčica Zdravković*
Faculty of Philosophy, University of Novi Sad

Information input from the environment is the foundation of our mental representations, and the sense we rely on the most to provide us with useful and reliable information is vision. Of all the gathered information, those about colour are of special evolutionary importance and cannot be obtained with any other sense. Perceiving colour is not only a very easy mental task, but it often seems inevitable – awareness of colour imposes itself. Colours are further classified, associated with language, and memorised. However, colour perception is an intricate task, and the algorithms that the brain uses to translate the gathered information into our conscious perception are complex. In our experiments, we reduce this complexity by studying the colour dimensions separately. Lightness, one of the three colour dimensions, clearly demonstrates all important phenomena, from constancy to illusions, in tasks ranging from psychophysics to complicated visual searches, and where both broad-based theories and specific computational models have been developed. The knowledge acquired in this area informs us not only about the perception of lightness and colour, but also of the general way the visual-cognitive system generates mental representations to conceive the outside world that initially provided sensory input.

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SITUATING LANGUAGE LEARNING AND PROCESSING IN THE REAL-WORLD

Gabriella Vigliocco
Experimental Psychology, University College London

Most studies of language use investigate individuals listening to spoken words, or reading text, grounded in traditional theoretical views of language as abstract and symbolic. Listening to speech or reading, however, are only two among many communicative contexts in which we use language, they permit a high degree of experimental control, but they do not represent the communicative context in which language is learnt and very often processed in adulthood. As infants, we learn language in face-to-face interactions with caregivers and much of our language use in adulthood continues to be in face-to-face contexts. Face-to-face language is multimodal (in addition to speech, listeners also process non-linguistic information such as prosody, gestures, etc) and social (it implies interacting with individuals). In this talk, I will present work that my lab has carried out in the past 5 years that primarily asks whether and how multimodal, non-verbal information affects language (word) learning and processing. I will present results from analyses of a naturalistic corpus (ECOLANG) of caregiver-child dyadic interaction, from electrophysiological experiments using (more) naturalistic stimuli that show how so-called non-verbal behaviours support word learning and are dynamically integrated with speech during language comprehension. While most of the evidence presented in the talk will concern multimodality, I will end by discussing the importance of social interaction and present some initial results that show how learning of semantic information from language can benefit from being embedded in a dialogue.

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NENAD HAVELKA LECTURE OF HONOR:
AWARD FOR OUTSTANDING ACHIEVEMENT IN
THE EARLY STAGE OF SCIENTIFIC CAREER

REWIRING MEMORY NETWORKS: FROM COGNITIVE NEUROSCIENCE TO PRECISION BRAIN STIMULATION

Jovana Bjekić*

Institute for Medical Research, University of Belgrade

Memory is a fundamental cognitive function essential for everyday life, yet unfortunately it is highly vulnerable to age-related decline, pathological conditions, and neurodegenerative diseases. Non-invasive brain stimulation (NIBS), particularly transcranial electrical stimulation (tES), has emerged as a promising approach for memory neuromodulation. However, the efficacy of tES has been limited by a lack of precision and personalization. In this lecture, I will present a series of empirical studies on memory neuromodulation using tES, grounded in a conceptual understanding of associative memory as a cognitive function and its neural underpinnings. The first set of studies focuses on increasing spatial precision by targeting the posterior parietal cortex as a key node in the cortico-hippocampal memory network. The second line of research follows the so-called "theta-hypothesis," exploring the effectiveness of neurophysiology-inspired, function-specific tES protocols. Furthermore, I will demonstrate how neurophysiological signatures induced by associative memory tasks can serve as personalization parameters for tES and introduce novel oscillatory tES protocols. Finally, I will address key challenges in the field, including inter-individual variability in responses, the need for more precise behavioral assessments, and the translational potential of tES for mitigating memory deficits—considering safety and regulatory aspects.

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WORKSHOP

THE ROLE OF PUPIL SIZE IN VISUAL PERCEPTION

Sebastiaan Mathôt*
University of Groningen

Visual perception starts as soon as light passes through the lens of the eye, before even touching the retina. Large pupils allow more light to enter the eye, thus enhancing visual sensitivity. Small pupils allow light to be better focused, thus enhancing visual acuity. Vision scientists rarely consider this earliest level of visual processing, yet it is a crucial component of vision. Foreshadowing the pupillometry symposium on Sunday, I will review a series of studies describing how pupil size affects visual processing at different levels: retina, visual cortex, and behavior. I will also describe how higher-level cognition affects pupil size, and how this (in some cases) reflects a form sensory tuning: a subtle adjustment of pupil size to meet the demands of the current situation and the immediate future.

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SYMPOSIUMS

PSYCHOLOGICAL PERSPECTIVES ON HUMAN-ANIMAL INTERACTIONS

Marija Branković*
Institute for Philosophy and Social Theory, University of Belgrade
Faculty of Media and Communication, Singidunum University

As contemporary neuroscience demonstrates, non-human animals are sentient beings with the ability to experience pain, anxiety, attachment, and many other psychological states. In addition to highlighting the well-being of animals, scientific research shows inextricable links between the well-being of animals and the health and well-being of humans, as animal exploitation is shown to bear severe consequences for environmental pollution, the spread of zoonoses, as well as human health and longevity. Recent psychological research contributes to this more general trend, taking up the study of human-animal interactions, in particular within social, political, and clinical psychology. From a psychological perspective, our relationship with non-human animals provides an opportunity to study the fundamentals of social perception, categorization, inter-group relations, prejudice, and justifications of social inequalities. On a more positive note, human-animal interactions can also improve the quality of attachment and psychological well-being. This symposium aims to provide a glimpse into the innovative research focused on human-animal interactions that are being conducted in our country. We will present several lines of research into both positive and negative aspects of human-animal interactions. Milica Ninković and Marija Petrović will present a study that analyzed the ideological and attitudinal foundations of speciesism, the belief in human moral superiority over animals, with a particular focus on beliefs that support social hierarchy. Anastasija Budžak and Zoran Pavlović examined how the perceptions of similarity between animals and humans affect attitudes toward animals and ethnic outgroups. Marija Branković, Janko Međedović, and Anastasija Budžak delved into the individual differences that predict attitudes toward non-human animals, examining the intricate relationships between Dark Tetrad traits, empathy, basic ideological attitudes (social dominance orientation and right-wing authoritarianism) and speciesism. Vesna Mikulić and Marija Branković examined perceptions of people who care about abandoned animals along the basic dimensions of warmth and competence, as well as whether speciesism predicts the positivity of these perceptions. Finally, Tamara Džamonja Ignjatović and Anastasija Budžak will present a review of therapeutic interventions based on the interactions between humans and non-human animals in an effort to improve both physical and psychological well-being among humans of different ages.

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THEY'RE NOT LIKE US: COMPETITIVE JUNGLE BELIEFS PREDICT SPECIESISM

Milica Ninković* & Marija Petrović
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LIRA Lab

The sentiment that humans should be treated as superior to animals (i.e., speciesism) is often used to justify their exploitation. As it entails a strong belief in a hierarchy of importance among living beings, it might be embedded in a particular worldview. For example, unfair treatment of animals might be a manifestation of the naive Darwinian beliefs that the world is a competitive jungle in which we must fight over scarce resources to survive. It can also stem from a general perception of the world as a perilous place with constant threats to our well-being. On a more fundamental level, speciesism may result from a strong desire for societal order and support for hierarchy and authority that extends beyond human outgroups to non-human animals. To examine the sociopolitical footprint of speciesism, we recruited 655 participants (66% women) aged 18-80 ($M = 45.4$, $SD = 12.2$). Alongside speciesism ($\alpha = .84$), they filled in measures of Authoritarianism ($\alpha = .74$), Social Dominance Orientation ($\alpha = .89$), Competitive jungle ($\alpha = .86$), and Dangerous world beliefs ($\alpha = .86$), as well as two single-item measures of economic and social ideological self-placement. The results indicate that speciesism is related to higher SDO ($r = .27$), Authoritarianism ($r = .18$), and both social ($r = .17$) and economic ($r = .12$) right-wing ideology. Conversely, regarding worldview beliefs, speciesism was related only to the competitive jungle ($r = .28$) but not dangerous worldview beliefs. To examine the relative contribution of these predictors, we ran a hierarchical linear regression predicting speciesism. In the first step, authoritarianism, SDO, and ideology explained 8% of the variance ($F(5, 650) = 15.56$, $p < .001$), with SDO ($\beta = .21$, $p < .001$) and economic ideology ($\beta = .09$, $p = .013$) as significant predictors. Adding Competitive jungle and Dangerous world beliefs in the second step improved the predictive power of the model ($\Delta R^2 = .05$, $\Delta F (2,648) = 18.46$, $p < .001$), with two worldview beliefs contributing in opposite directions. Individuals who endorsed competitive jungle beliefs were more likely to endorse speciesism ($\beta = .22$, $p < .001$), while those higher in dangerous world beliefs were less likely to endorse it ($\beta = -.15$, $p < .001$). Our results indicate that speciesism is rooted in support for societal hierarchy and that it can be viewed as a manifestation of naive social Darwinism.

Keywords: Speciesism, Competitive Jungle Beliefs; Social Dominance Orientation

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ISN'T IT WONDERFUL THAT WE'RE ALIKE?
THE EFFECTS OF EMPHASIZING HUMAN-ANIMAL SIMILARITIES ON RELATIONS TOWARDS ANIMALS AND ETHNIC MINORITY GROUPS

Anastasija Budžak*,[1] & Zoran Pavlović[2]
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The idea of generalized prejudice is empirically confirmed through the existence of the common basis of prejudice against different human groups and animals. Research shows that the ways we think about animals and our willingness to exploit them also reflect our beliefs about marginalized social groups. The way we make social comparisons is of great importance for the formation of attitudes towards members of outgroups. If comparisons are based on perceiving similarities, attitudes towards outgroups will be more positive, even regarding animals. Studies confirmed more positive feelings toward animals, which are perceived to be phylogenetically, behaviorally, and cognitively more similar to humans. We designed an intervention that highlighted similarities between animals and humans with the aim of reducing speciesism and perceptions of animal nature threat and increasing greater identity inclusion about ethnic groups and positive attitudes towards ethnic groups in our country. More positive attitudes towards minority groups included reduced dehumanization and social distance. Participants ($N = 265$) were randomly assigned to an experimental group that read a text about similarities between animals and humans or to a control group that read a text about tulips. The results showed that the two groups of respondents differed significantly in terms of speciesism ($Me = 2.42$ $SDe = .95$; $Mc = 2.71$ $SDc = .91$), $t (262.94) = -2.55$, $p = .01$, $\eta^2 = .02$) ($\alpha = .76$), animal nature threat ($Me = 1.6$ $SDe = 1.35$; $Mc = 1.96$ $SDc = 1.50$), $t (258.68) = -1.99$, $p = .01$, $\eta^2 = .01$), identity inclusion ($Me = 3.83$ $SDe = 1.79$; $Mc = 3.27$ $SDc = 1.50$), $p (256.87) = 2.74$, $p = .01$, $\eta^2 = .03$) and dehumanization ($Me = 85.09$ $SDe = 16.85$; $Mc = 72.98$ $SDc = 19.14$, $t (257.28) = 5.47$, $p = .00$, $\eta^2 = .10$) ($\alpha = .94$) . Induction of human-animal similarity did not lead to significant differences in terms of social distance towards ethnic groups ($Me = 58.69$ $SDe = 24.08$; $Mc = 61.47$ $SDc = 21.87$), $t (261.60) = -.98$, $p = .33$, $\eta^2 = .00$) ($\alpha = .92$). Encouraging the perception of similarities between humans and animals leads to improved attitudes towards both animals and human out-groups. Therefore, public communications should highlight that animals also have the capacity for thinking and for various emotions such as joy, fear, pride, shame, and empathy, and, through it, contribute to more positive and humane intergroup relations in society.

Keywords: human-animal similarity; human-animal relations; speciesism; dehumanization; identity inclusion

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ON BEING DARK AND SPECIESIST: HOW DARK TETRAD TRAITS, EMPATHY, AND BASIC IDEOLOGICAL DIMENSIONS PREDICT ATTITUDES TOWARD ANIMALS

Marija Branković*,[1,2], Janko Međedović[3] & Anastasija Budžak[2]
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[2]Faculty of Media and Communication, Singidunum University
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Speciesism designates a belief that humans should be treated as morally superior to other animals, disregarding non-human animals' ability to suffer. In a previous study, we showed that speciesism is predicted by two of the Dark Tetrad traits: psychopathy and sadism. This study aimed to examine the mechanisms through which Dark Tetrad traits (psychopathy and sadism) predict speciesism. We explored several mediators, including empathy toward non-human animals: cognitive, affective, and empathic concern, as well as the general social attitude dimensions of authoritarianism and social dominance orientation. In this study, we recruited 234 students (86.3% women). We asked participants to indicate their endorsement of speciesism ($\alpha = .78$), along with psychopathy ($\alpha = .68$), sadism ($\alpha = .76$), three aspects of empathy: affective ($\alpha = .94$), cognitive ($\alpha = .95$), and motivational ($\alpha = .80$) and general social attitudes: social dominance orientation ($\alpha = .90$) and right-wing authoritarianism ($\alpha = .80$). We conducted a path analysis to examine the mediational models, controlling for gender, age and educational level. The overall model had acceptable fit, $\chi^2 (8) = 2.14$; $p = .013$; *NFI* = .93; *CFI* = .96; *RMSEA* = .08. p = .13, and explained 41% of the variance in speciesism. We observed significant direct paths between speciesism and gender ($\beta = .14$; $p < .001$), social dominance orientation ($\beta = .18$; $p < .001$), affective empathy ($\beta = -.24$; $p = .037$), cognitive empathy ($\beta = -.11$; $p < .01$), and motivational concern ($\beta = -.38$; $p < .001$). Social dominance orientation fully mediated the link between psychopathy and speciesism ($\beta = .06$; $p = .01$) and partly mediated the effects of affective empathy ($\beta = .03$; $p = .04$); motivational empathy ($\beta = -.03$; $p = .045$); and cognitive empathy ($\beta = -.03$; $p = .02$). The findings reveal that the Dark Tetrad of personality has systematic ties to attitudes toward animals. However, the basic social/ideological attitudes are the more proximal predictors. These findings are also relevant to the literature on the link between violence toward animals and violence toward humans.

Keywords: Dark Tetrad; sadism; psychopathy; speciesism; empathy; human-animal relations

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PERCEIVED WARMTH AND COMPETENCE OF PEOPLE WHO CARE FOR ABANDONED ANIMALS

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Caring for abandoned animals—such as feeding or adopting them—often evokes mixed social responses. This study explores stereotypes toward people who care for and rescue abandoned animals („rescuers"), with a focus on perceptions of their warmth and competence. We also examined the potential influence of speciesism, the belief in the moral superiority of humans over other animals, on these perceptions. We hypothesized that people who score higher on speciesist attitudes are more likely to view caregivers as warm but less competent. Using a correlational-regression design, a convenience sample of 157 participants (121 women, 35 men, average age 37) was recruited online in Serbia and Croatia. Participants indicated their perceived warmth ($\alpha = 0.69$) and competence ($\alpha = 0.77$) of people who care for abandoned animals, and the Speciesism Scale ($\alpha = 0.79$), adapted from Branković (2021). Results indicated a statistically significant difference between warmth and competence perceptions, with rescuers viewed as significantly warmer ($M = 19.86$, $SD = 3.33$) than competent ($M = 14.44$, $SD = 3.58$) ($t(155) = 15.97$, $p < .01$). Speciesism correlated negatively with perceptions of competence of the rescuers ($r = -0.183$, $p < .01$). However, we did not observe a positive correlation between speciesism and the perception of warmth of people who help abandoned animals ($r = 0.017$, $p > .01$). This research suggests that societal stereotypes about rescuers emphasize warmth over competence, potentially due to perceptions that their activities reflect compassion but lack practicality. The findings highlight the influence of speciesist attitudes on these stereotypes, suggesting that stereotypes about people who care for abandoned animals reflect the attitude toward animals. This study contributes to understanding social attitudes toward animal caregivers and has implications for improving societal views and support systems for such initiatives.

Keywords: speciesism; warmth and competence; stereotypes; abandoned animal caregivers

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ANIMALS AS SUCCESSFUL "THERAPISTS" - RELATION MATTERS: A LITERATURE REVIEW OF EFFECTIVE TREATMENT PROGRAMS IN MENTAL HEALTH

Tamara Džamonja Ignjatović*,[1] & Anastasija Budžak[2]
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The well-being that children and adults get through the development of relationships with animals has been recognized in people's everyday experiences, and it has also been empirically proven. The benefits of human-animal interaction include cognitive, emotional, and behavioral segments. Animal support programs represent a targeted intervention in which the central part of the treatment involves the interaction of people and animals. They are designed to encourage improvement in terms of the physical, emotional, cognitive, and social functioning of people. We present a brief review of treatment programs in which different animals assist in improving mental health in children, adults, and older people. In this paper, we systematize different types of support programs depending on the context of application and the aspect of mental health and analyze in more detail some of the successful programs implemented in Serbia (e.g., autistic children and therapeutic horses, prisoners and dogs in Sremska Mitrovica), as well as some of the programs in the world (dolphins and children with developmental difficulties, dogs in an educational context). Animal support programs are effective in therapeutic work, in educational and academic contexts, in nursing homes and healthcare facilities, to help soldiers with PTSD, the testimony of traumatized children in court, in rehabilitation programs, improving physical health, etc. Effects on stress, anxiety, and depression reduction, development of self-confidence, prosocial behavior, responsibility, empathy, and facilitated socialization in children were also recorded. Summarizing the positive effects of the support program with animals, we also suggest how the observed methodological shortcomings should be repaired (better methodological control, with more precise objectives and more measurable data through longitudinal studies, more adequate and precise conducting of the studies based on pre-test and post-test design) and recommend implementation of such programs in our country.

Keywords: animal-assisted therapy; human-animal relations; therapeutic animals; mental health and animals

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SYMPOSIUM II

THE ROLE OF THE PUPIL IN VISUAL PERCEPTION

The pupil plays a crucial role in vision by regulating the amount of light that reaches the retina, consequently influencing visual processing at multiple levels of the visual system. While traditionally viewed as a reflexive response to changes in ambient light, recent research demonstrates that pupil size is closely tied to cognitive processes, including attention, and subjective perception. This symposium brings together research that explores the multifaceted role of the pupil in visual perception, highlighting its optical and neural contributions and its modulation by cognitive factors. Through a series of talks, the speakers will demonstrate how pupillometry can be leveraged as a tool for understanding diverse phenomena, from shaping retinal and EEG responses to tracking attentional dynamics and quantifying the costs of eye movements. The talks will address the following questions: How do changes in pupil size affect responses at different stages of the visual pathway? How does this in turn influence behavioral performance across visual and cognitive tasks? Can pupil size reveal the effort associated with saccadic eye movements? Lastly, are there functional benefits of pupil size fluctuations, including those driven by cognitive factors? By integrating findings from pupillometry, eye movements, retinal activity, and EEG measurements, this symposium provides a comprehensive understanding of the role of the pupil in visual perception.

SPONTANEOUS FLUCTUATIONS IN PUPIL SIZE SHAPE RETINAL RESPONSES TO VISUAL STIMULI

Sebastiaan Mathôt*, Daria Weiden, & Olaf Dimigen
University of Groningen, The Netherlands

Visual perception is shaped at the earliest stage by the size of the eye's pupil, which determines how much light enters the eye and how well this light is focused. However, the exact role of pupil size in visual perception is still poorly understood. We recorded pupil size and electrical activity from the retina and brain while healthy human participants viewed full-screen flashes. We found that early retinal responses, which peaked ±25 ms after stimulus onset and predicted subsequent activity over the visual cortex, were strongly affected by stimulus intensity. Importantly, pupil size, at least within the range of naturally occurring fluctuations, did not affect the amplitude of these early retinal responses, despite resulting in substantial changes in retinal light exposure. However, the direction of pupil-size change at the moment of stimulus presentation did modulate the amplitude of early retinal responses, which were enhanced during phases of dilation as compared to constriction. Based on these results, we suggest that fast-acting adaptation processes may normalize early retinal responses with respect to changes in retinal light exposure that result from spontaneous changes in pupil size: an initial form of brightness constancy. These results shed new light on and raise important and previously unasked questions about the role of pupil size in visual perception.

Keywords: pupil; visual perception; retinal activity

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THE EFFECT OF COVERT VISUAL ATTENTION ON PUPIL SIZE DURING PERCEPTUAL FADING

Ana Vilotijević* & Sebastiaan Mathôt
University of Groningen, The Netherlands

Pupil size is modulated by various cognitive factors such as attention, working memory, mental imagery, and subjective perception. Previous studies examining cognitive effects on pupil size mainly focused on inducing or enhancing a subjective experience of brightness or darkness (for example by asking participants to attend to/ memorize a bright or dark stimulus), and then showing that this affects pupil size. Surprisingly, the inverse has never been done; that is, it is still unknown what happens when a subjective experience of brightness or darkness is eliminated or strongly reduced even though bright or dark stimuli are physically present. Here, we aim to answer this question by using perceptual fading, a phenomenon where a visual stimulus gradually fades from visual awareness despite its continuous presentation. The study contains two blocks: Fading and Non-Fading. In the Fading block, participants were presented with black and white patches with a fuzzy outline that were presented at the same location throughout the block, thus inducing strong perceptual fading. In contrast, in the Non-Fading block, the patches switched sides on each trial, thus preventing perceptual fading. Participants covertly attended to one of the two patches, indicated by a cue, and reported the offset of one of a set of circles that are displayed on top. We hypothesized that pupil size will be modulated by covert visual attention in the Non-Fading block, but that this effect will not (or to a lesser extent) arise in the Fading block. We found that covert visual attention to bright/ dark does modulate pupil size even during perceptual fading (Fading block), but to a lesser extent than when the perceptual experience of brightness/ darkness is preserved (Non-Fading block). This implies that pupil size is always modulated by covert attention, but that the effect decreases as subjective experience of brightness or darkness decreases. In broader terms, this suggests that cognitive modulations of pupil size reflect a mixture of high-level and lower-level visual processing.

Keywords: pupil; attention; visual perception

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SACCADE SELECTION IS DRIVEN BY PHYSIOLOGICALLY MEASURABLE COSTS

Christoph Strauch*,[1], Damian Koevoet[1], Sebastiaan Mathôt[2], Laura Van Zantwijk[1,3], Stefan Van der Stigchel[1], & Marnix Naber[1]

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[3] Humboldt University Berlin, Germany

Selecting the next saccade target is one of the most frequent human decisions, shaping perception and by extension much of cognition. State-of-the-art models of saccade selection suggest it to be driven by the observer's goals, selection history, and by the physical salience of stimuli. Recent models suggest that another factor is needed to understand attentional selection: the cost of shifting the eyes. However elegant and powerful as a predictor in models, these costs were hard to establish in the past. I here present our recent works demonstrating that eye movement costs can be measured physiologically using pupil size as a marker of effort. After establishing costs, we assessed saccade preferences across the same saccade targets using a free-choice paradigm. We found participants to consistently preferring affordable over costly directions. Furthermore, pupil-inferred cost predicted preferences also when manipulating saliency of potential saccade targets. Here, both saliency and cost affected saccade selection. Lastly, we found this link to be robust during a visual search task in natural scenes, suggesting a substantial and generalizable influence of cost on saccade selection.

Keywords: saccades; pupil; visual perception

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THE INTERPLAY OF SPONTANEOUS PUPIL-SIZE FLUCTUATIONS AND EEG ACTIVITY IN NEAR-THRESHOLD DETECTION

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Larger pupils are associated with improved performance in visual detection tasks. This is often attributed to changes in level of arousal as indexed by pupil size. However, changes in pupil size also affect the amount and focus of light on the retina, potentially influencing detection independently of arousal. Such optical effects of pupil size on detection are rarely studied and poorly understood. The goal of this project was to gain a better understanding of how pupil size and arousal (as measured with EEG) are related to each other and to performance in a visual detection task. We collected EEG and pupil data while participants performed a task consisting of detecting faint luminance patches briefly flashed in peripheral vision. Stimulus parameters were adjusted with a staircase procedure to fix performance at approximately 65% accuracy. We performed a mediation analysis within a structural equation modeling framework to investigate the direct and indirect effects present in the data. The results show that larger pupils and theta suppression are both linked to better performance and more stimulus-present responses. Pupil size is also positively correlated with power in the alpha and beta bands, with the latter being a stronger relationship. Importantly, while there was also a mediation effect present, whereby theta power partly mediated the relationship between pupil size and accuracy, the pupil effect could not be completely explained by power in EEG. This suggests that pupil size affects detection in a way that is partly distinct from power in the EEG, and potentially, arousal.

Keywords: pupil; arousal; EEG; near-threshold detection

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SYMPOSIUM III

WHAT IS UNDERMINING INCLUSIVE EDUCATION? LOOKING BEYOND VISIBLE PATTERNS

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Inclusive education is widely promoted as a means of ensuring equitable access to quality education for all learners, particularly those who face barriers due to dominant societal beliefs about diversity (e.g., race, disability, or other marginalized identities). However, in practice, inclusive education often falls short of its goals. This is reflected in the increasing placement of students in segregated settings, the overrepresentation of racial and ethnic minority students in special education, exclusionary practices, and persistent discrimination against marginalized learners. A systems thinking approach encourages us to look beyond these surface-level issues and examine the underlying structures and beliefs that sustain them, in order to advance inclusive education. With this approach, this symposium seeks to investigate the systemic structures and mental models that undermine the promise of inclusive education, drawing on diverse country contexts and disciplinary perspectives. Merl will present findings from an ethnographic study of three self-proclaimed inclusive schools in Germany, highlighting how implicit norms shape what is considered acceptable practice in inclusive education. Pesonen and colleagues will explore how the language used in inclusive education shapes our understanding of it, proposing a new approach that emphasizes collaboration in supporting students. Jovanović and co-authors will share findings from a narrative inquiry examining how educational participants in Armenia, Kazakhstan, and Serbia narrate their motivation for engaging in practices that contradict inclusive education principles. Together, these presentations will challenge us to reflect on two key questions: *What underlying beliefs and structures shape inclusive education?* and *How can we change them to better support inclusive education?* We invite researchers and practitioners to join us in this critical discussion on reimagining inclusive education.

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WHAT IS UNDERMINING INCLUSIVE EDUCATION? LOOKING BEYOND VISIBLE PATTERNS

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Inclusive education is widely advocated as a means to ensure equitable access to quality education for all learners, particularly those facing barriers stemming from dominant beliefs about learner diversity (e.g. race, disability, or other marginalized identities). However, in practice, inclusive education often fails to meet its intended goals. This is evident in trends such as the growing number of students placed in segregated educational settings, the persistent overrepresentation of students from racial or ethnic minority groups in these settings, ongoing exclusionary practices, and the widespread discrimination experienced by students from marginalized communities in so-called inclusive schools and other educational contexts (e.g., Morgan, 2020; Selfe & Richmond, 2020; Webster, 2022). Viewed through a systems thinking perspective (Senge, 1990), these trends could be considered as visible patterns. However, based on the same perspective, to truly transform systems, we must look beyond visible patterns to examine the deeper structures and mental models that sustain and perpetuate them. According to Senge (1990), understanding underlying structures—such as the arrangements of people, procedures, resources, and policies—is crucial, as these elements shape individual actions and create the conditions under which certain patterns emerge. However, understanding structures alone is insufficient. To address the root causes of these persistent issues, we must also interrogate the mental models—those deeply ingrained assumptions and generalized beliefs—that not only sustain structures but also influence how we understand inclusive education and, ultimately, how we act upon it. This symposium aims to go beyond the visible patterns of inclusive education to investigate the systemic structures and mental models that undermine its promise, drawing on diverse country contexts and disciplinary perspectives. The first contribution investigates implicit norms within three self-proclaimed inclusive schools in Germany. Drawing on insights from an ethnographic study, it unpacks how these norms shape what is considered acceptable practice in the context of inclusive education. The second contribution focuses on the role of language in shaping educational practices. By analyzing the term 'demanding special support children' in the Finnish context, it interrogates how such terminology reflects and reinforces specific conceptions of inclusion. It goes further to propose an alternative conception—one that emphasizes collaborative approach to supporting students. The third contribution draws on a narrative inquiry conducted in Armenia, Kazakhstan, and Serbia. Through the stories of participants, it explores practices which contradict the principles of inclusive education, and how participants narrate the motivations which drive such practices within their specific professional context. This contribution highlights how structural incentives and systemic constraints create opportunities for such problematic practices to emerge and persist. Together, these contributions encourage us to critically address a question: What are the mental models and (structural) mechanisms shaping inclusive education? How might they influence the participants' values, beliefs, and behaviors within this system? By examining these deeper layers, the symposium aims to open pathways for reimagining mental models and structures that can better support inclusive education.

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ON THE LEGITIMIZING POWER OF SPECIAL EDUCATION AND ITS UNDERMINING OF INCLUSION

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Inclusion in the school system has experienced a significant rise and was once understood as a means to overcome the exclusionary aspects of special education. However, the growing number of students identified as having special educational needs and attending segregated schools indicates a resurgence of special education. This suggests that special education serves a function within the school system that inclusive education does not, ultimately undermining the latter. A central function of special education—whether welcomed or not—is to provide knowledge about differences: norms and deviations, categories of difference, and pathologies. This knowledge serves a critical function that inclusive education does not fulfill: it authorizes teachers to differentiate. The presented research is based on an ethnographic study of teaching practices in inclusive schools in Germany. The study focuses on how teachers balance equal treatment with differentiation, a practice that often leads to accusations of favoritism and challenges to the teachers' authority. Data was collected through participant observation conducted two days a week for one year across four classes in three secondary schools, and was analysed using Situational Analysis (Clarke, 2005). Based on the findings, I argue that it is within this context that special education serves a legitimizing function: By providing knowledge about relational differences (i.e. norm/deviation, dis/abled, etc.), special education offers the necessary authorizations for pedagogical differentiation. Inclusive education, with its emphasis on universalism and singularity, lacks this specialized relational knowledge and, consequently, the associated authorizations. Thus, the prevailing notion of equal treatment as inherently legitimate is the deeper layer that leads to special education undermininig inclusive education.

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FROM LABELLING CHILDREN AS DEMANDING TO COLLABORATIVE SUPPORT: WHY DO WE NEED A SHIFT IN CONCEPTS?

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In this presentation, I will focus on our research and expertise in the problematic concept of 'demanding special support children' in Finnish early childhood and basic education, and the limited international research in this field, to propose a concept regarding multidisciplinary and collaborative support for children. Our conceptualization is based on the review of all our publications (e.g., articles, technical reports, student theses, etc.) focusing on various forms of support (e.g., multi-agency) and inclusive education produced within our projects since 2012. We applied the principles of educational design research in which we had cycles of designing a model depicting collaborative support approaches across different disciplines (e.g., education, health care, social work, etc.) including focus group discussions with various actors (e.g., professionals from different fields). The focus group and conceptualization discussions, which included an analytical framework for creating theoretical models and concepts led to proposing a concept and theoretical model of "Significant Interprofessional Support (SISU)". The model and proposed tools include dimensions of the student, family/guardians, school or early childhood education setting, legislation, and interprofessional and multidisciplinary actors, among others. Our conceptualization shifts the focus away from children's deficits to effective collaborative practices surrounding the child. This approach can facilitate comprehensive support practices without labeling children as 'demanding' based on their disabilities. This type of model and its tools have the potential to lead to the development of inclusive school systems.

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HOW DID WE END UP WITH INTEGRATION? INSIGHTS FROM CHARACTER MAPPING

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In this presentation, I will focus on our research and expertise in the problematic concept of 'demanding special support children' in Finnish early childhood and basic education, and the limited international research in this field, to propose a concept regarding multidisciplinary and collaborative support for children. Our conceptualization is based on the review of all our publications (e.g., articles, technical reports, student theses, etc.) focusing on various forms of support (e.g., multi-agency) and inclusive education produced within our projects since 2012. We applied the principles of educational design research in which we had cycles of designing a model depicting collaborative support approaches across different disciplines (e.g., education, health care, social work, etc.) including focus group discussions with various actors (e.g., professionals from different fields). The focus group and conceptualization discussions, which included an analytical framework for creating theoretical models and concepts led to proposing a concept and theoretical model of "Significant Interprofessional Support (SISU)". The model and proposed tools include dimensions of the student, family/guardians, school or early childhood education setting, legislation, and interprofessional and multidisciplinary actors, among others. Our conceptualization shifts the focus away from children's deficits to effective collaborative practices surrounding the child. This approach can facilitate comprehensive support practices without labeling children as 'demanding' based on their disabilities. This type of model and its tools have the potential to lead to the development of inclusive school systems.

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ROUND TABLE

OPPORTUNITIES FOR PSYCHOLOGY STUDENTS TO ACQUIRE INTERNATIONAL RESEARCH EXPERIENCE: FIFTEEN YEARS OF FOUNDATION "PROFESSOR BORISLAV LORENC"

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The round table is devoted to marking an anniversary of the Foundation "Professor Borislav Lorenc". The Foundation was established in 2010 in order to encourage and support outstanding students of psychology and cognitive sciences from state-owned universities from Serbia by providing them travel and subsistence grants for scholarly visits to renowned, international academic institutions. The Foundation is devoted to keeping alive the memory of Borislav Lorenc (1883-1975), philosopher and professor of the Faculty of Theology, University of Belgrade, famous for his books "Psychology" (1926), "Thought and Action" (1930), and "Psychology and Philosophy of Religion" (1939). The grants are aimed for students at every level of study in order to provide them with means for spending several months at a foreign, renewed university, or research center, obtaining international research experience. After fifteen years more than twenty psychology students received grants and gained invaluable research experience that helped them notably in shaping their PhD and master thesis, encouraged them in developing their professional careers, and supported them in networking with colleagues from abroad. Moreover, the grants enabled further scientific connection and collaboration of academic institutions from Serbia with distinguished academic institutions from all around the world. During these fifteen years, apart from supporting students' international exchange experience, Fondation recorded some valuable insights about different possibilities, potentials, and challenges in organizing and supporting psychology students' exchange visits. Together with former grantees, the participants of the round table will discuss and share important experiences in order to help further development, enriching, and sustaining the mission of the Fondation. At the very end of the round table, different possibilities for gaining research exchange experience for psychology students, in a panorama of similar grants and calls, will be brought up.

Keywords: fifteen anniversary of the Foundation "Professor Borislav Lorenc"; scholarly visits; grants; psychology students; Serbia

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PERCEPTION AND PSYCHOLOGY OF ART

THE EFFECTS OF OBJECTS DIMENSIONALITY AND MODE OF PRESENTATION ON LIGHTNESS OF MULTI LIT OBJECTS

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Even though our visual reality is predominantly filled with three-dimensional (3D) objects, lightness studies were traditionally conducted with two-dimensional (2D) stimuli. The only study (Pessoa et al., 1996) that indirectly tested the effect of Object Dimensionality (OD) indicated that 3D objects have better lightness constancy. Similarly, there have been only a few studies that tested the effect of Mode of Presentation (MoP; real and virtual) by applying various methodologies. The obtained results were inconclusive: some studies indicated that real objects produce better constancy (Agostini & Bruno, 1996), while others suggested the opposite (Patel et al., 2018). We tested both factors, OD and MoP, together and our results have shown that both systematically influence lightness perception. 3D and virtual objects were perceived as having slightly lower lightness than 2D and real objects. The goal of the current study was to extend such findings to the objects covered with more than one illumination level, making the stimuli even more ecologically valid. We examined the effect of MoP by presenting paper-made objects in Experiment 1 and rendered objects in Experiment 2. In both experiments, the scene contained (real in E1 and virtual in E2) shadow that split the presented stimuli into 2 differently illuminated parts. Stimuli were 2D and 3D objects, testing OD in parallel. Half of the participants in each experiment produced Munsell matches (Ms) for the whole object and another half only for differently illuminated parts (task type). The task type modulated the other two effects: The effect of OD was smaller when judging the lightness of parts in shadow (.2 Ms) than when judging the lightness of parts in room illumination or whole object (.4 Ms). The effect of MoP was smaller when judging the lightness of the whole object (.3 Ms) than when judging parts in room illumination (.6 Ms) and parts in shadow (1 Ms). The main effects show that OD (F (1,35) = 52.058, $p < .001$, $\eta_p^2 = .598$) and MoP (F (1,115) = 9.052, $p = .003$, $\eta_p^2 = .073$) influence lightness perception as 3D and virtual objects were perceived having lower lightness. The obtained results confirm our previous findings that both OD and MoP systematically influence lightness perception. We can conclude that in the homogeneous illumination conditions, the 3D and virtual objects will appear on average 0.3 Ms darker than 2D and real objects. In the multiple illumination conditions, those differences can be as high as 1 Ms. 3D and virtual mode lead to better lightness constancy.

Keywords: lightness; object dimensionality; mode of presentation; objects under different illumination levels

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HOW COLOR LABEL SPECIFICITY AFFECTS COLOR MEMORY

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According to the CATMET Model (Bae et al., 2014), colors are remembered through two types of representations: metric, based on color appearance, and categorical, based on category membership (e.g., red). Categorical representation influences color memory by shifting responses in memory tasks toward the category prototype (Bae et al., 2015). Consistent with findings that categorical representation is associated with color naming (Hardman et al., 2017; Lupyan, 2012), our previous study showed that representational shift in a color memory task depends on label specificity. The largest shift occurs with categorical labels (e.g., "red"), promoting categorical representation, while specific labels (e.g., "ruby red") lead to higher accuracy, suggesting reliance on metric representation (Damjanović & Jakovljev, 2024). This study aimed to further test how color labels affect color working memory by introducing verbal and visual interference in a memory task. We hypothesized that verbal interference would reduce the representational shift for categorically labeled colors, whereas visual interference would intensify this shift for specifically labeled colors by disrupting metric representation. Participants (70; 3m) memorized a color labeled categorically or specifically, then recognized it from a set of stimuli: the target, two distractors closer to the prototype, and two closer to the category boundary. During the 1.5s interstimulus interval, participants performed a verbal task (reading labels for colors that were not used as stimuli), a visual task (tracking an achromatic line of dots), or no task (looking at a blank screen). The results confirmed our previous findings: a stronger representational shift with categorical labels and higher accuracy with specific labels ($F_{(8, 552)} = 8.54$, $p = .00$, $\eta^2 = .11$). As expected, visual interference led to a greater representational shift; however, this effect was observed for both label types ($F_{(8, 552)} = 8.90$, $p = .00$, $\eta^2 = .11$). Finally, no effect of verbal interference was found. Our results align with previous research suggesting language influence on color memory (Lupyan, 2012). Considering the interference effects, it is plausible that categorical representation requires fewer working memory resources, and disrupting it requires a more difficult verbal task, while the pervasive effect of metric representation is easily disrupted by visual tasks.

Keywords: representational shift; color memory; color labels; categorical color representation; metric color representation

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HEAVY VISION – ANISOTROPY OF PERCEIVED DISTANCE AND EFFORT

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Distances towards the zenith are perceived longer than physically the same distances towards the horizon. We argued that this perceived distance anisotropy is a function of action. Namely, if one tends to reach something upwards, opposite to the direction of gravity, more effort is needed. If the visual system overestimates distance, reaching for something further away would demand more effort, and action opposite to gravity direction would be easily done. We tested this hypothesis in four experiments. In three experiments participants had a task to equalize the distances of two stimuli positioned in horizontal and vertical direction on various standard distances from the observer, ranging from 0.4m up to 1m. In experiment one, distances were matched visually (by guiding the experimenter to move the stimuli), in experiment two they were matched by hand (participants moved the stimuli themselves), and in experiment tree, we used a combination of the previous two, on one direction participants would see the stimuli and on the other, they would move the stimuli by hand and vice versa. In a fourth experiment, participants matched efforts of 2kg, 4kg, and 6kg by stretching the dynamometer, in horizontal and vertical directions. The number of participants per experiment varied from 12 to 19, having 63 participants in total. We calculated a ratio of matched distances by dividing the vertical estimates with horizontal ones, to compare results from different experiments. In the same manner, we divided effort estimates. This ratio is a measure of anisotropy, indicating larger anisotropy if it is lower than 1 and closer to 0. One-way ANOVA did not reveal any significant differences between anisotropy gained in various experiments, on either of the standard distances from the observer ($F (4, 77) = 2.02$, $p > .05$; $F (4, 77) = 1.58$, $p > .05$; $F (4, 77) = 0.96$, $p > .05$). These results show that perceived distance anisotropy is the same in both, proprioceptive and visual space, and it reflects perceived effort anisotropy. Combined results from all four experiments are in line with the hypothesis that anisotropy is a function of action.

Keywords: perception and action; depth; multisensory processing; effort; anisotropy

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"WHERE WORDS LEAVE OFF, MUSIC BEGINS": MUSIC ANALYSIS OF SAD SONGS FROM THE ADOLESCENT REPERTOIRE

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Adolescence is a special developmental stage since major changes occur at several levels – affective, biological, cognitive, social and identity (Baltazar, 2019; Chen, 2023). Music plays an important role in the lives of adolescents, participating, among other things, in their emotional regulation and self-understanding (Lundquist & Korašec, 2023; Saarikallio & Erkkilä, 2007). Previous research has typically focused on musical parameters in general (Berg & Wingstedt, 2006; Fernández-Caballero & Latorre, 2016), while this study is primarily focused on the analysis of the vocal part in its interaction with the lyrics and musical accompaniment. Built on such findings, our goal is to understand how music communicates topics relevant to adolescents' life through the experience of sadness. This research is derived from a larger study conducted through an online survey targeting adolescents aged 15 to 18 years ($N = 164$, 69.1% female participants). Respondents were invited to list one or more songs they personally associate with sadness. For this initial analysis, we focused on the first 100 entries in the dataset, which included 72 songs proposed by girls and 28 by boys. After the pilot study, based on discussion with non-musicians, we derived the analytical parameters (tempo, range, expressiveness, syllabic-melismatic relationship and the congruence of text and music) and specific songs that represent each value for every of mentioned parameters, which served as our reference system. A hierarchical cluster analysis was conducted using Ward's method with squared Euclidean distance as the measure of similarity. The analysis identified three distinct clusters of sad songs: first cluster was defined by greater narrativity and a more intense rhythmic parameter, with music playing primarily a supporting role; the second contains sad songs where the semantic dimension of the lyrics and musical expressiveness are equally important, while the third encompasses highly melismatic and expressive songs where music takes precedence, including the vocal part, with a slower tempo. Most songs are moderately or a bit more expressive, while the vocal range and number of notes per syllable do not undermine the idea of the primacy of the lyrics, These findings provide a deeper understanding of how musical and vocal parameters can influence the communication of themes relevant to adolescence, particularly through emotional experiences such as sadness, considering the previously mentioned functions of music in this life period.

Keywords: adolescents; vocal analysis; sadness; sad songs; music-text relationship

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ALGORITHMIC BRUSHSTROKES: EXPLORING AESTHETIC BIASES TOWARD AI-LABELED ART

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Perceptions of AI-generated artworks are influenced by skepticism regarding AI's creative agency and emotional depth, as creativity is often associated with human intent and experience (Grassini & Koivisto, 2024). Despite advancements in AI, biases persist, with human-labeled artworks perceived as more authentic and meaningful (Chamberlain et al., 2018; Gangadharbatla, 2022). This study explores how attributing art to humans or AI influences aesthetic preferences. The sample included 258 participants (146 females, M = 31.3 years, SD = 13.86) from the general population. A 2 (Arousal Level: High vs. Low) x 2 (Author: Human vs. AI) x 2 (Style: Realistic Portrait vs. Abstract) repeated measures design was used. Participants evaluated 16 paintings on four aesthetic scales (Likable, Pleasant, Exciting, Creative) in a balanced manner. All artworks were human-created, and authorship (Human vs. AI) was manipulated via captions. Artworks were selected from the VAPS database, emphasizing non-familiarity and extreme scores on the "Arousal" variable. Results showed a significant main effect of authorship, with human-labeled artworks rated higher than AI-labeled ones (F (1, 257) = 44.69, $p < .001$, $\eta p^2 = .15$). Realistic portraits were rated significantly higher than abstract artworks (F (1, 257) = 124.01, $p < .001$, $\eta p^2 = .33$). An interaction between authorship and style indicated that differences in ratings between human- and AI-labeled artworks were more pronounced for abstract artworks (F (1, 257) = 35.18, $p < .001$, $\eta p^2 = .12$). The difference between abstract and portraits was larger for low-arousal than for high-arousal artworks (F (1, 257) = 156.17, $p < .001$, $\eta p^2 = .38$). A significant three-way interaction (Arousal Level x Author x Style) showed no difference between abstract and portraits for high-arousal human-labeled artworks, while AI-labeled realistic portraits were rated significantly higher than abstract artworks (F (1, 257) = 46.97, $p = .001$, $\eta p^2 = .16$). This study underscores the role of authorship in shaping aesthetic preferences, highlighting persistent biases toward human creativity. These findings align with theoretical perspectives that highlight the strong connection between creativity, emotional authenticity, and human agency, indicating deeply ingrained cultural and psychological patterns that favor human creativity over artificial intelligence.

Keywords: Aesthetic Preferences; AI-Generated Artworks; Human vs AI Attribution; Art Style; Human Creativity Bias

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THE ROLE OF SCARS IN FACIAL RECOGNITION

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Research suggests that scars impair facial recognition, either because they act as distractors that hinder holistic face processing or due to the influence of the other-group bias on scarred faces (Kavanagh, 2024). This study aimed to explore the role of scars in facial recognition. In Experiment 1 (E1), we tested whether scars act as distractors by varying their size, opacity and saliency, creating low- and high-salient conditions, expecting the latter to impair recognition to a higher degree. We added scars to faces from the Chicago Database (Ma et al., 2015), controlling for the facial side of the scar (left/right). In E2, we used avatar faces, influenced by other-group bias (Oosterhof & Todorov, 2008), to explore whether this bias affects the processing of scarred faces, assuming similar treatment of scarred human faces and scar-free avatars would confirm its presence. We modified avatar stimuli in the same way as in E1 with the exclusion of the low-salient condition. Both experiments involved a study phase (48 faces: 24 male, 24 scarred) with 3,000ms exposure and a YES/NO recognition test phase with 48 new faces. For E1, results showed that no-scar human faces were recognized faster (F (2, 78) = 18.48, p = .00, η_p^2 = .03) and more accurately than scarred faces (F (2, 78) = 3.66, p =.03, η_p^2 = .08), but post-hoc tests for both measures didn't yield significant differences for the two saliency conditions. The additional analysis showed that accuracy decreased when the scar was on the right facial side (F (1, 39) = 6.18, p = .01, η_p^2 = .13) with RTs differing only for this side based on scar saliency, in the expected direction (F (1, 39) = 10.97, p =.00, η_p^2 = .22). In the joint analysis of E1 and E2, we found a significant interaction between stimuli type and scar - accuracy was impacted by scar presence for human faces but not for avatars (F (1, 78) = 9.80, p = .00, η_p^2 = .11). Also, participants were more accurate in recognizing human faces across all conditions (F (1, 78) = 27.86, p = .00, η_p^2 = .26). Our findings confirm that scars impair facial recognition (Kavanagh, 2024) but reveal a specific effect: scar saliency impacts recognition only when on the right side—a less crucial side for facial processing (Butler et al., 2005). The observed difference in the impact of scars between the two stimuli categories rules out explanations like other-group bias, emphasizing that facial markers should be understood within the complexities of facial processing.

Keywords: Facial recognition; scars; distractors; virtual avatars;

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IMPLICIT RATINGS OF SATURATION APPEARANCE: ASYMMETRIC MATCHING BETWEEN CHROMA AND LIGHTNESS

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Saturation can be defined as a ratio between the lightness and chroma intensity of the stimulus, with higher lightness and lower chroma characteristic of lower saturation, and lower lightness and higher chroma of higher saturation. Such approximations are used to equate stimuli of different colours, chroma, and lightness levels in saturation. The extent to which asymmetric approximations accurately characterize appearance has not been established. We compared matching performance of observers completing an asymmetric matching task on a screen, or using printed stimuli. Matching was performed for four colours taken from the axes of a physiological colour space (bluish, yellowish, reddish and greenish). We generated 5 standard stimuli for each colour, matched in chroma in LCH colour space (C = 20), and varying in lightness. This was either same as the background (L = 55), or appeared as one of the two darker, or lighter values (L = 52.8, L = 53.9, L = 56.1 or L = 57.2). The response stimulus scale consisted of 9 matching stimuli that were set to background lightness (L = 55) but differed in chroma, in 9 equal steps between C = 12 and C = 28 (i.e., in steps of C = 2). For the standard stimulus with L = 55 and C = 20, the response stimulus could be perfectly matched. In all other conditions, the matching was asymmetric: observers had to use other strategies, as standard stimuli differed in lightness but response stimuli were scaled in chroma alone. If the models of saturation fully predict appearance, we would expect lower lightness standards to be matched with higher chroma response stimuli, and vice versa. The study was completed by 20 observers completing 160 matches (8 for each condition combination) on the screen, and 80 completing 40 matches (2 for each condition combination) using printed stimuli. Latent profile analysis of the screen data revealed four profiles of observers that applied different strategies (1) low L values matched with high C values and high L vales with average C values; (2) matching all L values with average C values; (3) matching lower L values with lower C values and higher L values with higher C values; (4) matching lower L values with higher C values and higher L values with lower C values. The same analysis on paper data showed two profiles with no consistent strategy. Our findings demonstrate that expressing saturation as a ratio of chroma to lightness is not an intuitive strategy for all observers.

Keywords: saturation appearance; asymmetric matching

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SERBIAN REPLICATION OF THE FACE-NAME MATCHING EFFECT

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Dorian Gray effect is a phenomenon that demonstrates how long-term internal factors, such as personality traits or emotional states, can influence our physical appearance and, therefore, change how we are perceived (Zebrowitz & Collins, 1997). Names can also be considered a long-term characteristic given that they are assigned to us at birth. It was shown that the face-name matching effect is a subtype of the Dorian Gray effect, in which a person's name influences their facial characteristics (Zwebner et al., 2017). The demonstrated effect is not part of the well-known sound symbolism phenomena (Köhler, 1929). Previous research (Zwebner et al., 2017) on Israeli and French populations demonstrated that, although the face-name matching effect exists in different cultures, it is not a cross-cultural effect. Our study aimed to replicate the effect in the Serbian population. Participants in this online study were 159 first-year psychology students (15 male, $M = 19.38$ years, $SD = 1.31$ years). Stimuli were 20 black and white photographs (from the database developed in our laboratory), each depicting a classic headshot portrait of one of the 20 different Serbian people. Each photograph was presented above four Serbian names, the true name of the shown individual, and the three flankers. The position of the true name was randomized within the list of presented names, while the frequencies of the flanker names were equated with the true name. The task was to choose from the list of the presented names one name the participant believed belonged to the person in the photograph. Also, it was ensured that participants did not know the photographed people. The results of the one-sample t-test revealed that the true name was chosen in 31.86% of cases, indicating that the success rate of face-name matching was significantly above the chance level ($t (158) = 7.39$, $p < .001$, $d = .59$). We used the true name position in the list as a control factor and the participants did not exhibit a statistically significant tendency to favor any of the positions. We can conclude that the facial characteristics of the stimuli allow participants to identify the correct names with greater accuracy. Furthermore, the face-name matching effect was successfully replicated in the Serbian population. In comparison, the results for the French population were 40.52% and for Israeli 29.91%. Our results fit within this range.

Keywords: face perception; Dorian Gray effect; face-name matching effect

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THE INFLUENCE OF MENTAL REPRESENTATION NETWORK CONFIGURATION ON THE AESTHETIC EVALUATION OF AVANT-GARDE COMPOSITIONS

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Previous research has proposed a network substrate as the fundamental framework underlying the musical listening experience (Schubert et al., 2014). This study aims to explore the relationship between familiarity, musical competence, gender, and the complexity of the mental representation network underlying the experience of listening to avant-garde music. We investigated how these factors influence the affective evaluation of meanings central to the formation of the aesthetic experience. The sample consisted of 41 first-year psychology students (80.5% women), categorized by their musical competence (no musical training, primary and secondary musical education) and their familiarity with avant-garde genres (19.5% had previous experience). Participants assessed their affective experience while listening to selected music examples at three experimental levels: listening to the audio, watching the video and reading the theoretical explanation. The assessments were obtained via CD-15, version 3.0 (Janković, 2001a) conative differential scale measuring valence, arousal and cognitive evaluation. We hypothesized that the complexity of the network configuration is determinantal to the aesthetic experience, measured through additional multimodal stimulation (audio-visual) and theoretical explanation, adding new cognitive and perceptive components to the network. Results show statistically significant differences across all three experimental levels (F (2,80) = 4.224, $p < .05$). Furthermore, the interaction between musical competence and complexity of the network (F (4,80) = 2.634, $p < .05$) and the three-way interaction between complexity, gender and musical competence (F (4,80) = 3.190, p < .05) were registered. Previous body of work suggested that familiarity is a determinant of musical aesthetic experience. The findings do not affirm this hypothesis. Results suggest that participants with primary musical education rely more on provided theoretical explanations than non-trained participants, whereas non-trained participants rely more on visual cues in aesthetic processing than participants with primary education. Findings support the hypothesis proposed by a network approach to the Reciprocal-Feedback Model of response to music (Hargreaves, 2012), grounded in spreading activation theory, that network complexity determines aesthetic experience, suggesting that musical competence, further modified by gender, determines network components critical to aesthetic processing.

Keywords: aesthetic judgment; mental representation network; affective experience; avant-garde music; familiarity

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COGNITIVE PSYCHOLOGY

QUANTIFYING THE SEMANTIC SIMILARITY OF AMBIGUOUS WORDS AS THE SIMILARITY OF THE AFFECTIVE DIMENSION OF SENSORIMOTOR EXPERIENCES

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Some ambiguous words have multiple related senses (chicken – animal or meat of that animal) and some have multiple unrelated meanings (bank – institution or beach). The semantic similarity of word senses/meanings facilitates processing (Klepousniotou & Baum, 2007). According to distributed processing models, the representation of a word is distributed in the pattern of activation of basic units representing features. The more similar word senses/meanings, the more basic units they share, which leads to faster activation and recognition. In parallel, embodied cognition models see prior sensorimotor experience with an object as the basis of a representation (Barsalou, 1999). However, these models do not account for the fact that the vast majority of words are ambiguous and that different meanings/senses can have different sensorimotor (SM) representations (e.g., chicken [animal] can be heard, while chicken [meat] cannot). Previously, we observed a positive correlation between the SM similarity of word senses/meanings of one word and their mutual semantic similarity (Anđelić & Filipović Đurđević, 2023). These findings suggested that SM information was relevant for the representation of polysemy. In the current study, we aim to further elaborate on the SM representation by taking into account the emotional valence of SM experience with objects denoted by ambiguous words across separate modalities. Namely, we aimed to take into account that not every SM experience, although equally possible, is the same (e.g., touching a computer mouse and a living mouse). We based our predictions on previous insights on the role of emotional valence and arousal in processing (Zajonc, 1968). We collected affective SM norms for meanings/senses ($N = 162$) and calculated the similarity of valence and similarity of arousal of SM experience for 184 meanings/senses pairs. Using the 80 pairs that passed the filtering criteria, we observed that the similarity of affective dimensions of SM experience was not related to semantic similarity (valence: $r(78) = -.17$, $p > .05$; arousal: $r(78) = .15$, $p > .05$), contrary to our hypotheses. Although this finding suggested that valence and arousal were uninformative, we perceived the observed tendency toward positive correlation as an incentive to continue this pioneering line of research. The need for a larger number of measures will be discussed, as well as the alternative way of assessing the valence of SM experience using corpus-based measures.

Keywords: word ambiguity; embodied cognition; sensorimotor norms; emotional valence; arousal

DISTRIBUTED APPROACH TO MODELLING POLYSEMY ADVANTAGE IN ERROR-DRIVEN LEARNING MODELS

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Polysemy advantage (Rodd, 2020) is a processing advantage found in words with multiple related senses (e.g. head – body part or leader). We rely on error-driven learning to gain a functional understanding of how the effect arises (NDL; Baayen et al., 2011). NDL utilises word form elements as cues and maps them to localist representations of the meaning as outcomes. However, single localist representation does not account for the multiple semantic representations of polysemous words, much less the relatedness among senses. An attempt to resolve this Filipović Đurđević and Kostić (2023) successfully employed the distributional approach and extended outcomes of each learning event (a single word) with words from the immediate context of each occurrence of the word in the corpus. Representational similarity among occurrences was captured by overlap in context words. A question remains whether this variation in senses drives learning only at the outcome level, or learning of multiple word senses can also benefit from the co-occuring words (i.e. their constituting trigrams) as cues predicting a localist outcome. Thus, we ran two learning simulations, one replicating Filipović Đurđević & Kostić (2023; sim A) and another where disambiguated senses are at the cue level (sim B). We compare the predictivity of the numeric measures derived from the network connection weights which should reflect variations in the number of senses between polysemous words. Predictivity of the NDL-based measures was tested against lexical decision task performance collected for nouns, verbs and adjectives. Regression analyses were conducted separately for each part of speech due to variations in word samples that affected both simulations and task performance. We tested whether NDL measures improve fit over and above standard lexical predictors. Sim A offered a better improvement in fit, albeit modest for nouns (ΔML = 1.5) and verbs (ΔML = 1.9), but more significant for adjectives (ΔML = 7.4). Improvements were also observed in sim B for adjectives, but similar to sim A (ΔML = 7.4). Overall, results reveal that polysemy can be captured by the cue competition within the context at the input level. Still, additional benefit comes from the disambiguation of senses at the outcome level.

Keywords: error-driven learning; polysemy; sense disambiguation; lexical decision task

METONYMY AND METAPHOR WITHIN WORDS – VALIDATION OF A NEW SENSE DERIVATION MEASURE AND TEST OF THE METONYMY-METAPHOR EFFECT

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Polysemous words have multiple related meanings (i.e. senses), which are not derived by the same mechanism. Nonetheless, in current literature polysemous words tend to be classified as either metonyms (fried chicken, loud chicken) or metaphors (head on the shoulders, head of the department) based solely on the relationship between the dominant and the first subordinate sense. This distinction has been supported by the difference in their processing (metonymy facilitation vs metaphor inhibition; Klepousniotou & Baum, 2007). The opposing effects are attributed to the differences in representation, metonymy implying more similarity among word senses. However, both mechanisms can be at play within a single word (fried chicken, loud chicken, be brave - do not be a chicken). In order to test the interplay of two mechanisms within a word, we created and tested a continuous, more ecologically valid measure - metaphor-to-metonymy ratio that accounts for the derivation mechanism of every individual sense within a word. This study aimed to examine the characteristics of the new measure and test whether it can predict word recognition time after controlling for standard psycholinguistic variables. To examine the replicability of the results pertaining to the new continuous measure we divided our sample, differentiating between completely naïve participants (presented only with a visual lexical decision task) and those that generated senses used in measure creation. For each sense , we coded the presence of the metonymy and metaphor, and based on them, for each polysemous word, we derived the measure by dividing the number of metaphoric senses by the number of the metonymic senses. The processing latencies were taken from Filipović Đurđević & Kostić (2023) study which presented 150 polysemous nouns in a visual lexical decision task to a total of 183 participants (70.49% naïve). We registered the metaphor-to-metonymy effect within the non-naïve subsample ($b = .013$, $SE = .005$, $t = 2.515$, $p = .013$), after controlling for other standard predictors. As predicted, the observed effect suggested that increased metaphor and decreased metonymy presence were related to increased processing latencies. This provides additional evidence for the difference in processing rates between metonymies and metaphors and suggests that they might be represented differently in the mental lexicon. However, the effect was not significant within the subsample of the naïve participants, suggesting that the measure was not robust enough to generalize over the speakers whose semantic intuitions did not contribute to the measure estimation. Therefore, additional improvements of the metaphor-to-metonymy ratio measure are still needed for its further validation.

Keywords: metonymy; metaphor; polysemy; continuous measure; visual lexical decision task

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THE EFFICACY OF INHIBITION TRAINING ON EXECUTIVE FUNCTIONING IN MIDDLE ADULTHOOD

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Inhibition is an executive function (EF) that typically starts to decline in middle adulthood. Some cognitive aging theories suggest that this decline affects a range of other cognitive abilities; thus interventions aimed at slowing this decline could be particularly beneficial. This study aims to determine if cognitive training focused on inhibition can enhance performance in middle-aged adults across various inhibition tasks and other EFs. A total of N = 70 middle-aged adults ($M = 55.04$; $SD = 4.20$; age range 47-65) participated in this study. They were divided into two groups: an inhibition training group ($N = 33$) and a communication skills training group (active control group; $N = 37$). Participants attended 26 sessions, consisting of 20 online training sessions (twice a week for 20 minutes) and 6 assessment sessions. During the inhibition training, participants engaged in an adaptive Face-Word task. Cognitive abilities were assessed at pretest, posttest, and at the 6-months follow-up. The assessment included inhibition tasks (Face-Word, Object-Word, and Stroop task), updating tasks (n-back faces, n-back letters, and Memory Updating task), and shifting tasks (Category Switch Faces, Category Switch Objects, and Local-Global task). The results showed a significant improvement in reaction time (RT) to congruent ($F (2,134) = 12.5$, $p < .01$, $\eta^2_p = .16$) and incongruent stimuli ($F (2,136) = 10.7$, $p < .01$, $\eta^2_p = .14$) on the trained task for training participants compared to control group, but no improvement in their RT difference (cost). There was no significant group x session interaction neither on other inhibition, nor updating measures. In shifting tasks, the training group improved their RT in the Local-Global task ($F (2,130) = 5.1$, $p = .01$, $\eta^2_p = .07$), while the control group enhanced performance in the Category Switch Faces task ($F (2,136) = 4.3$, $p =.02$, $\eta^2_p = .06$). No significant group x session interaction was found for the Category Switch Objects task. In conclusion, the findings of this study reveal that the inhibition construct consists of several subprocesses and confirm that the effects of training are very specific, making it challenging to generalize trained skills to different tasks.

Keywords: inhibition; cognitive training; middle-aged adults; executive functions

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NEW KID ON THE BLOCK-SWITCHING PARADIGM: PAE SIZE AS AN INDICATOR OF LANGUAGE CONTROL

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The effects of sustained and transient language control have been registered during switching between different languages, and mostly using tasks of language production. The effects are typically interpreted in light of the Inhibitory Control model (Green, 1998). However, the structure of the Serbian scripts (Cyrillic and Roman) allows us to test cognitive control effects within a language by using alphabet switching in the population of frequent switchers highly fluent in both scripts. Such effects of cognitive control in comprehension tasks have been previously demonstrated (Filipović Đurđević & Feldman, 2024). However, the research in question applied a novel design, thus preventing a direct comparison with a vast body of literature on language switching. Therefore, the goal of this study was to test if comparable effects would be captured in a standard experimental design used in bilingualism studies. The design consisted of two single alphabet blocks (Cyrillic or Roman stimuli only), and one mixed block (stimuli in both alphabets). Participants were engaged in two visual lexical decision tasks. In Experiment 1, stimuli were words that could be read in only one of the alphabets (e.g. "MAČKA"), and in Experiment 2, stimuli were phonologically ambiguous (could be read in both alphabets, but had meaning only in one, e.g. "CAJAM" means "fair", but it can be read as /tsajam/ which has no meaning). Based on the hypothesis that conflict triggers control, we predicted the effects of language control only in Experiment 2. We observed only the mixing cost in Experiment 2 (slower reaction time for repeated-alphabet trials in mixed-alphabet blocks than in single-alphabet blocks; $\beta = .02$, $t(8068) = 3.223$, $p < .01$) and no switching cost (slower reaction time when the preceding stimulus in a mixed block was in a different script, than when it was in the same script). The results indicated that this task only engaged sustained control. This finding was further corroborated by analyzing the phonological ambiguity effect (PAE; slower reaction to ambiguous variants of words; CAJAM vs. SAJAM), which further elaborated the interference of the scripts during code-switching. We thus propose the PAE size, as a convenient measure for capturing language control effects even in traditional code-switching design.

Keywords: language control; alphabet switching; phonological ambiguity effect

FURTHER EXAMINATION OF THE EVEN/ODD TASK: A THINKING-ALOUD STUDY

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The Even/Odd task has been developed in order to study the dynamics, as well as the instantiation of new automated reasoning processes within dual-process approach to reasoning. The task requires participants to indicate the parity of the sum of two presented numbers. Depending on condition, the correct process (summation) can be congruent (two even summands), incongruent (two odd summands) or neutral (even and odd summand) with respect to the matching heuristic (matching summand parity to indicate sum parity). Performance and metacognitive confidence have been shown to be dependent on condition and difficulty (number of digits of the summands; the need to carry the one when summing them). The aim of this study was to determine which strategies participants spontaneously use when solving the task. We were specifically interested in the prevalence of the parity strategy (e.g. two odd summands give an even sum) as this is a potential third process which could be trained towards instantiation to fully automated status. A 3(condition)x2(number of digits)x2(need to carry the one) experiment was conducted. Participants (N = 58) were instructed to think aloud and then type up their thoughts immediately after solving each of the 12 tasks. Their verbal protocols were categorised depending on which strategy could be ascribed to them (summation, parity strategy and "other"). The vast majority of protocols included summation (75.1% of participants on average across tasks) and there was no significant difference in this proportion depending on task (Q (11) = 9.59, p = .568). Only 16 participants (27.6%) reported using the parity strategy at least once, and 7 of them reported using it in half or more of the tasks. Further, 40 (69%) participants simplified the three-digit tasks (ignoring all but the last digit of the summands). Half of those participants did so in all of the tasks. There was no significant relationship between task type and frequency of simplifying (Q (5) = 5.12, p = .402). These results reveal that simple summation of single-digit numbers (after simplification in the three-digit tasks) was the most prevalent strategy. The parity strategy did occur, was not very prevalent and, when it was used, it was not used consistently. We can conclude that this makes the task an excellent candidate for studying the development of a spontaneously occurring but not prevalent, easy to train strategy from novel to fully instantiated. In the context of modern dual-process theories, the adopted strategy has the potential to become a new mindvare and thus initiate new dynamic with the existing type 1 intuitions, representing a new approach to the study of dual processes.

Keywords: reasoning; thinking aloud; Even/Odd task; dual-process theory; logical intuitions

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OUTCOME BIAS IN MERITOCRATIC DECISION-MAKING

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Meritocratic decision-making is based on standards of abilities and merit, ensuring opportunities for progress without discrimination, including gender-based. These standards deviate in favor of men – women suffer greater consequences from poor and have less benefit after good outcomes at work than men of the same abilities and merit. Outcome bias (OB) refers to the difference in judgment of a decision's quality depending on its positive or negative outcome. This research aimed to test the predictive value of the perception of meritocracy for judging the quality of the decision to assign a job to a woman or a man, with positive and negative outcomes. Participants ($N = 113$, 88 female) were presented with scales of prescriptive (MESP) and descriptive (MESD) perception of meritocracy and 16 OB tasks in the business domain. The gender of the person assigned to the job (protagonist gender: male, female) and the outcome (positive, negative) were varied. Crossing these two within-subjects factors, four versions of each of the four tasks were obtained, while the gender of the respondents (2: male, female) was a between-subjects factor. The dependent variables were the mean evaluations of the quality of decisions to hire women/men with positive/negative outcomes on a 10-point scale. OB was registered ($F (1, 111) = 146.941$, $p <.001$, $\eta_p^2 = .570$) – decisions with positive outcomes were rated higher by 2.331. The interaction between the outcome and protagonist gender was not significant, nor was the interaction between these factors and participant gender. Male and female participants were equal in terms of descriptive ($F (1, 111) = 0.334$, $p =.565$) and prescriptive ($F (1, 111) = 0.019$, $p = .890$) perception of meritocracy. Regression analyses showed that women higher in MESP are more biased towards good outcomes of decisions to hire either a man ($R^2 = .067$, $\beta = .283$, $F (1, 86) = 6.177$, $p = .015$) or a woman ($R^2 = .079$, $\beta = .289$, $F(1, 86) = 7.382$, $p = .008$). Conversely, men higher in MESD are more biased towards bad outcomes of decisions to hire a woman ($R^2 = .141$, $\beta = -.875$, $F (1, 23) = 3.776$, $p = .064$), although this model was borderline significant. In sum, our results indicate gender differences in the perception of meritocracy that can potentially explain differences in bias towards different outcomes of a decision to hire a man or a woman for a job and confirm that women suffer greater consequences from poor outcomes when judged by men, which could be a symptom of the paradox of meritocracy.

Keywords: Gender bias; outcome bias; descriptive meritocracy; prescriptive meritocracy; decision-making

INFLUENCE OF INFORMATION FORMAT ON THE EXTENT OF BASE RATE NEGLECT

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The base rate neglect is a phenomenon in which participants ignore presented numerical information crucial for solving Bayesian tasks. One possible way to present probability information in these tasks is the frequency format, which involves presenting probabilities as absolute frequencies. The second way is to use the standard probability format, which contains the same information presented as the percentage of a specific event. According to the ecological rationality approach, human cognition evolved in a natural environment, therefore cognitive algorithms operate with mental representations based on a series of events, rather than probabilities of a single event. Within this approach, Gigerenzer hypothesized that people are more successful in solving Bayesian tasks when the information is presented in the frequency format. Our research aimed to examine whether there is a difference in the success rate of solving Bayesian tasks depending on the information format. We hypothesized that participants will exhibit higher bias and accuracy in their responses when information is presented in the frequency format. Exploratory analysis included the level of education, knowledge of statistics and Bayes' Theorem as factors. The sample consisted of 130 participants, mean age was 23 and 73% were females. The online experiment included randomised 14 Bayesian tasks, half presented in the frequency format and the other half in the standard probability format. The participants' task was to determine the probability or the frequency of a specific event, depending on the task format, based on the percentages or the frequencies of other events described in the task. The accuracy of the response was measured as a sum of normative correct responses on the tasks. The extent of base rate neglect was measured as a deviation between participants' response and normative correct response. The results indicate that participants were more successful in solving the tasks (F (1, 129) = 61.89, $p < .01$, $\eta^2 = 0.32$), and they exhibited higher base rate neglect (F (1, 129) = 7.54, $p < .01$, $\eta^2 = 0.06$) when presented with the frequency format than with probability format. The level of knowledge in statistics and Bayes' Theorem were found to interact with information format to enhance analytical thinking. To conclude, the frequency format enhances the accuracy of responses, which follows Gigerenzer's hypothesis, that the frequency format enhances adaptive heuristic thinking.

Keywords: heuristics; base rate neglect; Bayes' Theorem; information format; statistics knowledge; frequency hypothesis

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THE INFLUENCE OF WORD COLOR ON LEXICAL DECISION LATENCY

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Embodiment theories suggest that conceptual representations are grounded in sensorimotor experiences (Barsalou, 1999), yet the representation of abstract words remains a challenge. While some argue for emotional experiences (Wang et al., 2019), others emphasise reliance on concrete experiences (Günther et al., 2020). Building on previous research (Luburić et al., 2024), which identified abstract Serbian words consistently associated with specific colours, this study examined whether congruent colour-word pairings (e.g. exit-green) facilitate faster processing in a lexical decision task (LDT) compared to incongruent pairings (e.g. blood-yellow). Participants ($N = 142$) performed the LDT, responding to words with a left click and non-words with a right click. The stimuli included 40 abstract and 40 concrete Serbian nouns, alongside 80 pseudowords. Words were categorised into four groups (10 per group) based on their predominant colour association (Luburić et al., 2024): blue, red, green, and black. Groups were averaged on frequency, length, familiarity, context availability, emotional valence, and age of acquisition. Two experimental versions were created - in one, half the participants saw 40 words in congruent and the rest in incongruent colours, while the second version reversed this setup for the remaining words. We ran linear mixed-effects models, with congruency, concreteness, and colour dominance included as fixed effects, and participants and stimuli as random effects. The model with the best-fit indices included the interaction of congruency and the dominant colour (Marginal $R^2 = .005$, Conditional $R^2 = .40$). We found a significant interaction between congruency and the colour ($F (3, 10297.2) = 6.53$, $p < 0.00$). Post Hoc comparison with Bonferroni correction revealed that the blue colour facilitated LD in the congruent situation for 13.59 ms ($t (10286) = -2.56$, $p = .042$) and that the red inhibited LD for 13.18 ms ($t (10286) = 2.49$, $p = .051$). Our results indicate that the associations participants make between colours and concepts are not readily apparent during the early stages of language processing in LDT. However, we observed specific effects of these associations: while congruent colour-word pairings facilitated processing in the case of blue colour as expected, the opposite effect was found in the red condition. These findings highlight the need for further investigation into colour-concept associations, particularly in more complex tasks requiring deeper semantic processing.

Keywords: embodied cognition; lexical decision task; colours; abstract and concrete words

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TO DO OR NOT TO DO? EXPLORING THE RELATIONSHIP BETWEEN QUESTIONNAIRES AND COGNITIVE MEASURES OF PROSPECTIVE AND WORKING MEMORY

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Conventional assessment of cognitive functions can be complex and time-consuming, therefore questionnaires represent an economical alternative (Clark & Maguire, 2020). However, test measures do not strongly correlate with the typical cognitive assessment measures (e.g. Sunderland et al., 1983). Our study examined the relationship between prospective and working memory questionnaire measures and naturalistic prospective memory tasks (NMT). Prospective memory is remembering to act in the future (McDaniel & Einstein, 2007) while working memory refers to the processes that allow us to store and manipulate temporary data and perform complex cognitive activities (Baddeley & Hitch, 1974). We hypothesised that the Prospective Memory Concern Questionnaire (PMCQ; Croford et al., 2003) would predict NMT scores, while the Working Memory Questionnaire (WMQ; Vallat-Azouvi, 2012 would predict both working and prospective memory achievement, obtained by OSPAN task and NMT.The study involved 129 psychology students (88% women, median = 21 years). Two questionnaires were used: PMCQ and WMQ. Lower scores denoted better memory performance. The working memory capacity was tested via the OSPAN task (Conway et al., 2005), and prospective memory performance was tested via NMT. The NMT resembled a list of everyday activities given at the start of testing, which participants later recalled during the assessment. Additionally, we statistically controlled for participants' mood and quality of sleep. We tested two regression models with the same predictors: the scores on PMCQ and WMQ. The first model, where the criterion was the NMT score, was statistically significant ($F(2, 126) = 3.08$, $p = .049$, $R^2 = .047$), where the lower WMQ score predicted a higher NMT achievement ($\beta = -.049$, $p = .041$). Contrary to predictions, PMCQ did not correlate with the NMT scores. In the second model, the criterion was the OSPAN score ($F(2, 119) = 5.52$, $p = .005$, $R^2 = .085$). As hypothesised, WMQ was the only significant predictor ($\beta = -.054$, $p = .007$). Our findings suggest that memory domains may be interconnected in complex ways (Ball et al., 2022), and caution is necessary when assessing them. The results point out the problem of measuring prospective memory. On the other hand, the fact that WMQ predicts performance on the OSPAN task paves the way for using the questionnaire as an alternative to the conventional method of testing working memory, particularly for sensitive populations.

Keywords: Working memory; prospective memory; questionnaires; naturalistic memory tasks; OSPAN

TREES BEFORE THE FOREST - ANXIETY FOSTERS LOCAL AND STRESS GLOBAL PROCESSING BIAS

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Although humans prefer processing the overall structure of a visual scene (global precedence; Navon, 1977), some previous studies have shown that mood modulates attention. Fredrickson and Branigan (2005) found that induced anxiety caused a preference for local processing, while positive emotions led to a preference for global processing. Recently, a meta-analytic study suggested a positive association between internet addiction (IA) and attention deficit disorder (Wang et al., 2017). Considering this, we aimed to explore how mood variables affect global/local precedence and whether screen time (ST) and IA affect attention by applying a Navon task. Forty-six students (M=20.62±2.49; 15.2% males) completed the Navon task, consisting of 16 stimuli (256 trials in total), that were either compatible (big letter "S" composed of small letters "S") or incompatible (big "S" built of small "H"). In the first block (128 trials), participants had to identify a small letter and in the second a large letter. Then, the DASS-21 (measures depression, anxiety and stress during the last seven days; Lovibond & Lovibond, 1995) and the IAT (Internet Addiction Test; Young, 1998) were administered. Finally, the participants reported the average phone ST in the past seven days. We conducted a multiple regression analysis using the Backward method which excludes the variables that do not contribute to the criterion explanation. The predictors were DASS subscale scores, IAT scores, and ST. The criterion was global processing bias (GPB) - the difference between reaction time on incongruent trials in the global and local conditions in the Navon task (a greater difference denotes a stronger GPB). Although anxiety and stress scores predicted GBP, the model with all predictors was non-significant: $F(1,40) = 1.75$, $p = .145$. The model that reached significance consisted of stress and anxiety scores only: $R^2_{adj} = .132$, $F(2,43) = 4.43$, $p = .018$, where anxiety reduces the GPB ($ß = -.58$, $t = -2.95$, $p = .01$), and stress increases it ($ß = .46$, $t = 2.35$, $p = .02$). Our study did not reveal a relationship between screen addiction, ST and attention processes defined through GPB. However, we confirmed that mood can modify attention toward detailed or global visual settings; anxiety leads to local, while stress leads to global processing bias. Our research provides a solid foundation for improvement in future studies (i.e. a larger sample, examining the impact of other attentional variables).

Keywords: Global Processing Bias; NAVON task; Attention; Internet Addiction; Mood

MODIFYING A RECREATIONAL TOY INTO A LOW-COST ELECTROENCEPHALOGRAM FOR EDUCATIONAL APPLICATIONS

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This work proposes an ultra-low-cost, single-electrode EEG device constructed from readily available, off-the-shelf components. The proposal involves modifying an existing Mattel Corporation Mindflex headset, which is based on the NeuroSky TGAM1 chip. According to the manufacturer's datasheets, the device can track various brainwaves, including delta, theta, alpha, and beta waves. It measures activity using a single dry electrode and employs an ear clip electrode as both the ground and reference. The novelty of this work lies in the relatively simple modification of an existing hardware device to expand its communication capabilities. A 3.5 mm jack is introduced, and the device is paired with a serial board to enable communication via a serial connection with a computer. Another contribution is the development of portable, open-source software for data collection, visualization, and processing, which will be made available on GitHub. Designed specifically for educational use, the system aims to introduce students and early-career researchers to the intricate procedures and techniques involved in EEG data acquisition and analysis. By providing a low-risk, affordable alternative to expensive medical-grade equipment, this approach fosters hands-on learning and accessibility in neuroscience and biomedical engineering. Furthermore, it promotes a deeper understanding of the principles behind EEG technology, encouraging innovation and skill development in regions where access to advanced medical devices is limited.

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PSYCHOLOGY OF PERSONALITY AND INDIVIDUAL DIFFERENCES

AGE AND GENDER DIFFERENCES IN SENSORY PROCESSING SENSITIVITY TRAIT FROM CHILDHOOD THROUGH ADOLESCENCE

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Sensory Processing Sensitivity (SPS) is a temperamental trait characterized by deeper cognitive processing of stimuli, and many other attributes that are directly or indirectly related to this characteristic. Approximately 20% to 30% of the general population has an SPS trait, and these people are also referred to as highly sensitive individuals. The majority of the population has medium sensitivity and a substantial minority is characterized by low sensitivity. The main goals of our research were to investigate gender differences in sensitivity between boys and girls and to examine age differences in this trait from childhood through adolescence. A total of 793 children and adolescents (55.5% female) aged 7 to 19 years (M = 12.61; SD = 3.32) participated in the study. The participants were divided into three age groups: elementary school (7 to 10 years; N = 296), middle school (11 to 14 years; N = 253), and high school (15 to 19 years; N = 244). The participants' SPS trait was assessed using the Highly Sensitive Child scale (the HSC scale) (Pluess et al., 2018). Considering gender differences, a statistically significant discriminant function was determined (λ w = .98; χ^2 = 19.29; df = 1; $p \leq$ .001). It was found that girls had higher mean scores (M = 45.12; SD = 6.96) on the general sensitivity factor, indicating a higher SPS compared to boys (M = 42.83; SD = 7.61). With regard to age differences, a discriminant analysis also revealed a statistically significant function (λ w = .98; χ^2 = 13.74; df = 1; $p \leq$ .001). Elementary school students showed the highest SPS values (M = 45.27; SD = 7.17), while high school students showed the lowest sensitivity compared to the other two groups (M = 42.98; SD = 7.76). This suggests that younger children have higher sensitivity than older adolescents, indicating possible developmental differences in the SPS trait across age groups. Although our results are statistically significant and suggest a difference between groups, the strength of the relationship between gender and SPS (canonical correlation coefficient is .16), as well as age and SPS (canonical correlation coefficient is .13) is not strong. In other words, gender and age contribute to the variation in SPS scores, but their effects are limited, and other factors could also influence participants' sensitivity.

Keywords: sensory processing sensitivity; gender differences; age differences; canonical discriminant analysis

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INTEROCEPTIVE AWARENESS OF HIGHLY SENSITIVE PERSONS

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Sensory processing sensitivity (SPS) is a common, heritable, and evolutionarily conserved trait that explains individual differences in sensitivity to both negative and positive environments (Greven et al., 2019). Highly sensitive persons (HSP) are more likely to develop psychological symptoms in negative environments but tend to thrive in positive ones. While SPS primarily relates to environmental sensitivity, it is also expected to link to interoceptive awareness; however, empirical evidence remains scarce. In this research, we explored the relationship between SPS and interoceptive awareness, as defined by the Multidimensional Assessment of Interoceptive Awareness (MAIA) model, which conceptualizes it as the perception, interpretation, and integration of bodily signals (Mehling et al., 2012). Additionally, we included subjective happiness to control for the generally positive or negative subjective experience of the environment. We conducted a pilot study on a sample of psychology students ($N = 229$, 79% females, $M_{age} = 20.2$). Participants completed: HSP scale (27 items, Aron & Aron, 1997), MAIA-2 (37 items, Mehling et al., 2018), and the Subjective Happiness Scale (SHS, 4 items, Lyubomirsky & Lepper, 1999). Items were rated on 6-point Likert scales for MAIA and 7-point scales for HSP and SHS. Results showed positive correlations between HSP and MAIA dimensions Noticing ($r = .19$) and Emotional Awareness ($r = .23$). Negative correlations were found between HSP and MAIA dimensions Not-Worrying ($r = -.34$) and Trusting ($r = -.18$). Controlling for SHS, partial correlations remained similar, with even stronger correlations for Noticing ($r = .25$) and Emotional Awareness ($r = .29$). Notably, the correlation between HSP and Trusting was no longer significant, but a significant correlation emerged with Body Listening ($r = .17$). These findings suggest that SPS involves sensitivity to both external stimuli and interoceptive signals. HSP show greater awareness of interoceptive signals and emotions, along with heightened worry about unpleasant sensations. These patterns persist even after controlling for subjective happiness, suggesting that the associations are stable regardless of whether individuals perceive their environment as predominantly positive or negative. Future research should use nuanced measures of environmental perception and psychopathological symptoms to better understand the interplay between high sensitivity, environment, and interoceptive awareness.

Keywords: sensory processing sensitivity; highly sensitive person; interoceptive awareness; environmental sensitivity

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RELATIONSHIP BETWEEN PERSONALITY TESTS RESULTS AND PHYSIOLOGICAL SIGNS OF DECEPTION

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This explorative research attempted to determine physiological correlates of personality characteristics and social desirability in psychological testing. When it comes to examination of candidates in professional selection, they often try to adjust their answers in a way that may increase probability for them to successfully apply for a job. So, problem of research was relationship between candidates responding in both test situation and polygraph examination of their sincerity regarding professional selection. Personality data was obtained from the entrance exam when 82 candidates at University of Criminal Investigation and Police Studies in Belgrade filled out the HEDONICA personality test battery, which was created in the Ministry of Interior of the RS for the purpose of professional selection. HEDONICA includes dimensions of personality from the "Big 5" model and scales of Impulsivity, Amorality and Psychoticism and 2 control scales of social desirability. Reactions on polygraph were defined by maximum values for breathing channels, electrodermal reaction and heart rate when responding to three control polygraph questions - whether the respondent: 1) lied in psychological testing in the entrance exam 2) ever stole something from a close person and 3) ever wanted to steal something expensive. A correlation analysis was performed. From the scales of social desirability, Self-deception correlated negatively with heart rate on the first question (-0.261, $p < 0.05$), and Impression management with thoracic breathing, also on the first question (-0.240, $p < 0.05$). Of the personality scales, low but statistically significant negative correlations were recorded in the case of Openness (-0.241 and -0.248, $p < 0.05$), Cooperation (-0.232, -0.225, -0.259, -0.270 and -0.240, $p < 0, 05$) and Conscientiousness (-0.216, -0.238 and -0.278, $p < 0.05$) with certain physiological indicators on all three questions, while positive statistically significant correlations were registered with Neuroticism (0.264, 0.443, 0.340 and 0.340, $p < 0.05$), Impulsivity (0.274, 0.329, 0.217 and 0.227, $p < 0.05$), Amorality (0.381, 0.264 and 0.283, $p < 0.05$) and Psychoticism (0.345, 0.208, 0.436, 0.224, 0.293, 0.221 and 0.328, $p < 0.05$), also with individual indicators on all three questions. The results indicate that during deception, certain personality traits and physiological manifestations are activated with a small influence of social desirability. Since basic polygraph assumption is that certain physiological arousal is activated during deception, it can be concluded that there is certain personality and social desirability influence in professional selection which demands further research.

Keywords: big five; social desirability; polygraph; control questions

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PERSONALITY TRAITS, DEMOGRAPHIC VARIABLES AND POLITICAL ORIENTATION AS PREDICTORS OF ATTITUDES TOWARD CLIMATE CHANGE

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The rapid pace of current climate changes may overwhelm adaptive capacity, leading to destructive patterns in the climate and biosphere (Dietz, Shwom, & Whitley, 2020). Attitudes toward climate change are crucial for addressing these issues, as they directly impact support for mitigation and adaptation policies (Gifford, 2011). Personality traits also influence climate-related attitudes and behaviors, making it important to explore their relationship with climate change attitudes. Previous research showed that predictors of attitudes toward climate change and the environment, such as education, age, gender, income and political affiliation, vary across studies and samples (Liu, Shryane, & Elliot, 2022). The aim of this study is to further investigate how attitudes toward climate change can be predicted by personality traits from the Big Five model (BFI-2), as well as by demographic variables and political orientation. This study, conducted by second-year psychology students at the Faculty of Philosophy, University of Novi Sad, in 2024, involved 871 participants (404 male, 461 female). They completed the Big Five Inventory (BFI-2), Social Attitudes Questionnaire (UDS) and Global Social Norms (GSN) instrument to assess the impact of personality traits, demographic variables, and political orientation on climate-related beliefs. Participants' ages ranged from 15 to 78 (M = 35.14, SD = 15.04). The BFI-2 measured personality traits, while the UDS, created for this study, assessed various social attitudes, including climate change attitudes. Political orientation and sociodemographic variables were measured using the GSN instrument. Political orientation was assessed on a six-point Likert scale: 0-1 for left-leaning (183 participants), 2-3 for centrist (462 participants), and 4-5 for right-leaning (226 participants). This variable was later categorized into three groups for easier interpretation. Regression analyses revealed that personality traits predicted three attitudes toward climate change. The results showed that personality traits explained 4.8% of the variance in the attitude Climate Change as a Phase of the Planet (R^2 = .048), 2.9% in Climate Change as a Consequence of Arrogance (R^2 = .029), and 9.9% in Responsibility toward Climate Change (R^2 = .099). Negative Emotionality and Agreeableness were significant predictors for all three attitudes: Phase (Negative Emotionality, β = -0.119, $p < .01$; Agreeableness, β = -0.077, $p < .05$), Arrogance (Negative Emotionality, β = 0.129, $p < .01$; Agreeableness, β = 0.094, $p < .05$), and Responsibility (Negative Emotionality, β = 0.111, $p < .01$; Agreeableness, β = 0.137, $p < .01$). In contrast, Openness and Conscientiousness showed mixed results, and Extraversion was not significantly associated with any climate attitudes. Moreover, ANOVA results revealed significant gender-based differences across all attitudes: Phase (F (1, 86) = 24.51, $p<.01$, η^2 = .338), Arrogance (F (1, 86) = 16.36, $p <.01$, η^2 = .276), and Responsibility (F (1, 86) = 7.29, $p <.01$, η^2 = .184). Age differences were prominent for Phase (F(5, 86) = 5.42, $p <.01$, η^2 = .030) and Arrogance (F (5, 86) = 3.65, $p <.01$, η^2 = .021), though not for Responsibility. No significant variation emerged concerning education or settlement type. However, political orientation significantly influenced both Phase (F (5, 86) = 4.08, $p <.01$, η^2 = .018) and Arrogance (F (5, 86) = 2.80, $p <.05$, η^2 = .014), but had no effect on Responsibility. These findings highlight not only the significant relationship between personality traits and attitudes toward climate change but also the importance of political orientation and sociodemographic variables in shaping these attitudes. This research enhances our understanding of the psychological and social factors that influence perceptions of climate change.

Keywords: Big Five Inventory; Personality Traits; Sociodemographic factors; Climate Change Attitudes; Political Orientation

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PREDICTION OF ATTITUDES TOWARD GENDER EQUALITY AND LEADERSHIP BASED ON BIG FIVE PERSONALITY DIMENSIONS, GENDER, POLITICAL ORIENTATION, AND RELIGIOSITY

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Understanding complex phenomena such as stereotypes and prejudices requires an examination of foundational elements like attitudes. This study investigates how individual differences in the Big Five personality dimensions, gender, political orientation, and religiosity predict attitudes toward gender equality and women in leadership roles. The sample consisted of 871 participants from Serbia ($M = 35.14$, $SD = 15.04$; 52.9% female). Data were collected using the The Big Five Inventory-2, Questionnaire of Social Attitudes, and Global Social Norms questionnaire, and hierarchical regression analyses were conducted with two predictor blocks for each criterion variable. For attitudes toward gender equality, the second predictor block significantly improved the model ($R^2 = .062$, $\Delta R^2 = .070$, $F (8,843) = 16.01$, $p < .001$, $d = 0.15$). Similarly, attitudes toward women in leadership were significantly explained by the model ($R^2 = .32$, $\Delta R^2 = .09$, $F (8,843) = 25.47$, $p < .001$, $d = 0.24$). Agreeableness ($\beta = .16$, $p < .001$), Openness to Experience ($\beta = .09$, $p < .05$), Negative Emotionality ($\beta = .09$, $p < .05$), religiosity ($\beta = -.23$, $p < .001$), and political orientation ($\beta = -.10$, $p < .01$) emerged as significant predictors of gender equality attitudes. In contrast, attitudes toward women in leadership were negatively predicted by Agreeableness ($\beta = -.08$, $p < .05$), Conscientiousness ($\beta = -.08$, $p < .05$), Negative Emotionality ($\beta = -.10$, $p < .01$), and Openness to Experience ($\beta = -.16$, $p < .001$). Additionally, female participants demonstrated more favorable attitudes toward women in leadership ($\beta = -.23$, $p < .001$), while left-wing political orientation ($\beta = .11$, $p < .01$) and higher religiosity ($\beta = .18$, $p < .001$) were also significant contributors. These findings offer valuable insights into the psychological and socio-political factors shaping attitudes toward gender roles, providing a foundation for future research and interventions aimed at addressing entrenched transgenerational patterns of inequality.

Keywords: BFI-2; attitudes; regression analysis; gender; political orientation; religiosity

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THE RELATIONSHIP BETWEEN BASIC PERSONALITY DIMENSIONS AND PSYCHOPATHIC TENDENCIES IN HIGH SCHOOL STUDENTS

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The theoretical foundation of the work consists of the Big Five Plus Two personality model and Hare's model of psychopathy. The research aimed to examine the predictive power of basic personality dimensions (neuroticism, extraversion, conscientiousness, openness to experience, aggressiveness, positive valence, and negative valence) in predicting psychopathic tendencies (psychopathic lifestyle, antisocial behaviour, affective psychopathic traits, and interpersonal relationships) in high school students. The study was conducted on 101 high school students (33 male and 68 female), with an average age of 17.6. The instruments used were: The Big Five Plus Two (VP+2-70) short version, and the Psychopathy Assessment Questionnaire (PAQ). The results of the regression analysis show that personality traits explain 46.8% of the variance in antisocial behavior ($F_{(7,73)} = 13.55$, $p < .01$), with significant predictors being aggressiveness ($\beta = .20$, $p < .05$) and negative valence ($\beta = .61$, $p < .01$). Personality traits also predict 17.6% of the variance in psychopathic lifestyle ($F_{(7, 73)} = 4.03$, $p < .01$), with significant predictor variables being neuroticism with a negative β coefficient ($\beta = -.37$, $p < .05$) and negative valence ($\beta = .47$, $p < .01$). Additionally, personality traits explain 21.8% of the variance in affective psychopathic traits ($F_{(7, 73)} = 4.97$, $p < .01$), with predictor variables being aggressiveness ($\beta = .46$, $p < .01$) and positive valence ($\beta = .44$, $p < .01$). Finally, personality traits explain 45.3% of the variance in psychopathic interpersonal relationships ($F_{(7,73)} = 12.83$, $p < .01$), with significant predictor variables being low conscientiousness ($\beta = -.29$, $p < .01$), openness with a negative β coefficient ($\beta = -.18$, $p < .05$), aggressiveness ($\beta = .25$, $p < .05$), positive valence ($\beta = .29$, $p < .01$), and negative valence ($\beta = .33$, $p < .01$). Aggressiveness and negative valence have a significant connection with higher levels of antisocial behavior. Higher levels of neuroticism and negative valence contribute to a more pronounced psychopathic lifestyle. Lower levels of conscientiousness and openness, along with higher aggressiveness and emotional attitudes, play an important role in the formation of psychopathic interpersonal relationships. Higher levels of aggressiveness and positive valence, along with lower levels of negative valence, contribute to more pronounced affective psychopathic traits. It can be concluded that personality plays a significant role in the formation of psychopathic tendencies. In addition to the significance of the results, this study utilized two models that had not been researched together before. The introduction of the Big Five plus two model revealed a significant contribution of self-evaluation dimensions in the emergence of psychopathic tendencies.

Keywords: personality; psychopathic tendencies; high school students.

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PSYCHOPATHY AND MAJOR EVOLUTIONARY TRADEOFFS: HIGHER FERTILITY WITH LOWER PARENTAL INVESTMENT, BUT ELEVATED LONGEVITY AS WELL

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Evolutionary theories of psychopathy often assume that psychopathy is a behavioral phenotype associated with fast pace-of-life; in regard to major evolutionary tradeoffs, this hypothesis predicts positive links between psychopathy and fertility and negative with parental investment and longevity. We used the rating measure of psychopathy (Short Psychopathy Rating Scale) which assesses psychopathic Deceitfulness, Emotional coldness, and Recklessness to examine the links between psychopathy and evolutionary fitness indicators: fertility (number of children and grandchildren), parental investment, and longevity (if the target individual was still alive in the time of assessment, and if was not - the age of death). Raters were the individuals from community sample who rated their parents ($N = 1322$; 54.7% of female participants; Mean age of birth = 1944 [$SD = 9.68$]; 45.6% of deceased individuals; Mean age of death = 69.22 [$SD = 13.21$]) on psychopathy traits and provided information about the outcomes relevant to evolutionary fitness. We fitted multiple regression models for all criterion variables. Deceitfulness positively predicted both fertility measures: number of children ($F (6, 1316) = 10.25$; $p < .001$; $R^2 = .05$; $\beta = .09$; $p < .01$), number of grandchildren ($F (6, 1316) = 9.84$; $p < .001$; $R^2 = .04$; $\beta = .15$; $p < .05$). Parental investment ($F (6, 1316) = 127.20$; $p < .001$; $R^2 = .40$) was positively predicted by Deceitfulness ($\beta = .11$; $p < .001$) with negative contributions of Emotional coldness ($\beta = -.65$; $p < .001$) and Recklessness ($\beta = -.14$; $p < .001$). Deceitfulness ($B = .27$; $p < .01$) and Emotional coldness ($B = .21$; $p < .05$) positively predicted the chance that the target individual was still alive ($\chi^2 (6) = 463.48$; $p < .001$; $R^2 = .31$); if the person was deceased the same two psychopathy traits ($\beta = .21$; $p < .01$ for Deceitfulness and $\beta = .19$; $p < .01$ for Emotional coldness) positively predicted the age of death ($F (6, 1316) = 25.22$; $p < .001$; $R^2 = .27$). Hence, our data are in sharp discrepancy with the fast pace-of-life assumption on psychopathy. In fact, the findings suggest that Deceitfulness may be adaptive via all components of evolutionary fitness, thus implying positive directional selection on this trait. Emotional coldness has adaptive features associated with longevity but also detriments expressed in lower investment. Recklessness showed only the decreases in fitness via lower investment. Despite the research limitations, this is the first study that shows increased potential for the evolution of psychopathy not only via fertility but longevity as well.

Keywords: psychopathy; evolution; fertility; longevity; parental investment

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PERSONALITY TRAITS (HEXACO-60), POLITICAL ORIENTATION, RELIGIOSITY AND GENDER AS PREDICTORS OF ATTITUDES TOWARD ABORTION AND THE DEATH PENALTY

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This study aims to examine the predictive power of HEXACO-60 personality traits, political orientation, religiosity, and gender on attitudes toward abortion and the death penalty. The sample comprised 871 participants (406 males; M_{age} = 35.14, SD_{age} = 15.04). Data were collected using the HEXACO-60 questionnaire and a set of items measuring attitudes toward abortion (e.g., legal prohibition, a woman's right to choose) and the death penalty (e.g., justifiability, perceptions of barbarity, financial burden justification). Religiosity was measured by asking, "How strongly do you believe in God from 1 to 100?", while political orientation was assessed on a scale from 1 to 5, where 1 is far-left, 3 is center, and 5 is far-right political orientation. Hierarchical regression analyses were conducted for both, attitudes towards death penalty and attitudes towards abortion in three blocks. The first level included gender, psychological variables were set on the second level, and the third level involved religion and political orientation. The addition of the third block significantly improved the models for attitudes toward abortion (R^2 = .217, ΔR^2 = .108, $F_{(9,851)}$ = 25.94 , f^2 =.28) and the death penalty (R^2 = .133, ΔR^2 = .035, $F_{(9,851)}$ = 14.32, f^2 = .15). Significant predictors of positive attitudes toward abortion included Openness (β = .09, $p < .05$), Conscientiousness (β = .072, $p < .05$), and gender, with women showing more favorable attitudes (β = .250, $p < .001$). Negative attitudes were predicted by Agreeableness (β = -.066, $p < .05$), Honesty (β = -.133, $p < .001$), and religiosity (β = -.337, $p < .001$). For attitudes toward the death penalty, Conscientiousness (β = .083, $p < .05$), religiosity (β = .164, $p < .001$), and rightwing political orientation (β = .074, $p < .05$) were significant predictors of positive attitudes. Conversely, Openness (β = -.204, $p < .001$), Agreeableness (β = -.130, $p < .001$), Emotionality (β = -.081, $p < .05$), and Honesty (β = -.146, $p < .001$) were significant predictors of negative attitudes. Gender was not a significant predictor (β = -.045, $p > .05$). These findings highlight the critical role of personality traits, particularly Conscientiousness, Openness, Agreeableness, and Honesty, in shaping attitudes toward both abortion and death penalty. Emotionality was relevant exclusively for the death penalty. Furthermore, gender and religiosity significantly influenced abortion attitudes, whereas political orientation emerged as one of key factors for death penalty attitudes.

Keywords: attitudes towards abortion; attitudes towards death penalty; personality traits; religiosity; political orientation

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DARK PERSONALITY TRAITS AS PREDICTORS OF AUTHORITARIANISM AND SOCIAL DOMINANCE ORIENTATION

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The aim of this study was to examine the relationship between dark personality traits (Machiavellianism, Narcissism, Psychopathy, and Sadism) and social attitudes of authoritarianism and social dominance orientation (SDO). The main hypotheses speculated that all dark personality traits would positively predict SDO, while Machiavellianism and Narcissism would positively predict authoritarianism, with Psychopathy being a negatively directed predictor. The study utilized a non-random sample ($N = 438$), The average age of the participants was 29.97 years ($SD = 13.8$), with the majority being female (74.9%) psychology students. To measure SDO, the SDO scale was used; the Short Dark Tetrad Scale (SD4) was employed for dark traits, and the ACT-C scale was used for authoritarianism. The results of linear regression models analyzing the prediction of SDO and ACT based on dark personality traits partially yielded expected outcomes. The dark traits explained 17.5% of the variance in SDO ($F = 14.25$, $p < 0.01$) and 8.21% of the variance in ACT ($F = 6.59$, $p < 0.01$). In both models, Machiavellianism emerged as the most significant predictor ($\beta = 0.08$, $p < 0.05$ for SDO and with $\beta = 0.23$, $p < 0.01$ for ACT). Sadism also played a significant role in SDO ($\beta = 0.20$, $p < 0.01$). Moderation analysis was conducted to explore interactions between personality traits and gender when predicting social attitudes. Significant interactions were found between gender and Psychopathy and Sadism when predicting both SDO and ACT, with the addition of Machiavellianism for ACT. Men with pronounced tendencies towards these personality traits also have tendencies towards SDO and ACT. The only significant connection for women is that women with less pronounced Psychopathy tend to have higher scores on ACT. The hypotheses about the relationships between the variables were not fully confirmed, but the regression models indicated that dark personality traits, particularly Machiavellianism and Sadism, have a moderately significant role in predicting attitudes toward authoritarianism and social dominance. It was observed that men and women exhibited differences in relationships between certain personality traits and social attitudes.

Keywords: dark tetrad; authoritarianism; social domination orientation; social attitudes; gender

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RELATIONSHIP BETWEEN RELIGIOSITY AND IRRATIONAL BELIEFS –JOINT EFFECT OF THINKING STYLES AND DISINTEGRATION

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Previous research has identified associations between religiosity and irrational beliefs—paranormal beliefs, conspiracy beliefs, and anti-scientific attitudes. However, these studies often fail to systematically examine the dimensions of religiosity. Additionally, thinking styles and phenomena resembling psychosis are known predictors of both religiosity and irrational beliefs, but their role in explaining the relationship between these constructs remains unclear. This study sought to explore the relationship between four dimensions of religiosity—beliefs, experiences, identity, and practices — and irrational beliefs, and determine how much of their shared variance can be explained by thinking styles and disintegration. Data were collected via an online questionnaire from a convenience sample of $N = 417$ participants (80.1% female, $M_{age} = 38.31$, $SD_{age} = 14.80$). Confirmatory factor analysis showed that a bifactor model with four specific and one general religiosity factor best fit the data (χ^2/df = 3.09, *CFI* = .982, *RMSEA* = .071, *SRMR* = .050). All aspects of religiosity positively correlated with irrational beliefs ($r = .31$ to $r = .69$, $p < .001$). A model including religious beliefs as part of irrational beliefs fit better than a model where this loading was fixed to zero (χ^2/df = 4.17, *CFI* = .951, *RMSEA* = .087; *SRMR* = .074). Structural equation modeling revealed that experiential thinking style was a significant predictor of both religiosity ($\beta = .35$, $p < .001$) and irrational beliefs ($\beta = .47$, $p < .001$). Rational thinking style negatively predicted irrational beliefs ($\beta = -.11$, $p < .001$), but did not predict religiosity ($\beta = -.09$, $p = .051$). Disintegration positively predicted irrational beliefs ($\beta = .20$, $p < .001$), but not religiosity ($r = .05$, $p = .334$). After controlling for thinking styles and disintegration, the correlation of religiosity and irrational beliefs dropped from $r = .65$, to $r = .58$ (both $p < .001$). Our results point to several conclusions. First, religiosity can be justifiably viewed both as a unified and a complex construct. Second, irrational beliefs cluster into a general factor that religious beliefs should be considered a part of . Third, thinking styles and disintegration account for a portion of variance in both religiosity and irrational beliefs, as well as a portion of their shared variance.

Keywords: religiosity; religious beliefs; irrational beliefs; thinking styles; disintegration

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STRUCTURING THE PARANORMAL: DEVELOPMENT OF THE BELGRADE PARANORMAL BELIEF SCALE

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Paranormal beliefs span a wide range of subdomains, including fortune-telling, precognition, spirits, extraterrestrial life, and beyond. This study aimed to contribute to the ongoing debate regarding the structure of paranormal beliefs by combining conceptual and empirical analyses. A literature review identified 29 scales measuring paranormal beliefs across 12 subdomains. From these scales, 489 items were extracted and classified by subdomains. After removing duplicates, negatively worded statements, overlapping items, and those unrelated to paranormal beliefs, 53 items were retained. Fourteen new items were developed to supplement the scale - six reflecting local cultural beliefs and eight expanding underrepresented subdomains. The final scale consisting of 67 five-point Likert scale items, representing the full scope of the paranormal beliefs, was administered to a sample of 287 first-year university students (74.2% females, M_{age} = 19.38, SD_{age} = 0.55). Exploratory factor analysis using the minimum residuals extraction method with Promax rotation identified five factors accounting for 45.2% of the variance. These factors, along with the items that had the highest loadings on them were as follows: Psychic Powers ("I believe certain people have a special talent that enables them to sense future events"), Superstition ("A black cat crossing the road brings bad luck"), Supernatural beings ("There is evidence that aliens have abducted humans"), Material Divination ("People who can read tarot can tell me something about my future"), and Traditional Religious Beliefs ("Religious miracles really do happen"). Correlations among factors ranged from .33 to .61. To further explore the hierarchical organization of the five underlying factors, we conducted a confirmatory factor analysis using DWLS estimator to compare three alternative models. Results indicated that the bifactorial five-factor model provided the best fit (χ^2 (2077) = 3765.51, *CFI* = .99, *TLI* = .99, *RMSEA* = .053 [.051-.056], *SRMR* = .08), i.e., it outperformed a five-factor model assuming independent but correlated factors ($\Delta\chi^2$ (57) = 601.20, *p* < .001) and the one assuming an overarching second-order factor ($\Delta\chi^2$ (62) = 894.23, *p* < .001). These findings are consistent with previous research within the field that indicates a multidimensional structure of the paranormal domain (Tobacyk & Milford, 1983) while also highlighting the importance of both general and content-specific latent factors (Rizeq et al., 2021).

Keywords: paranormal beliefs; superstition; psi; traditional religious belief; factor analysis

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RELATIONS BETWEEN LIGHT TRIAD AND LIFE SATISFACTION IN CHRONICALLY ILL PEOPLE: THE ROLE OF SPIRITUALITY

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The Light Triad encompasses three positive personality traits: Faith in Humanity (belief in people's inherent goodness), Humanism (valuing individual dignity and worth) and Kantianism (treating others as ends, not means). Numerous studies showed their strong associations with positive psychological outcomes, such as life satisfaction. However, not many studies have explored this relationship in chronically ill people. Light Triad traits are also positively related to spirituality or faith which is shown to be an important component of health-related quality of life and can be vital in the well-being of people dealing with chronic illness. To our knowledge, these relations together were not examined in the context of life satisfaction so far. Our study aimed to explore the relation between the Light Triad and life satisfaction in chronically ill people, focusing on the mediating role of faith. Researchers shared information and a link to the study in Facebook groups for people with various types of illnesses. Respondents accessed the questionnaires after providing informed consent to anonymously participate in the research. The sample comprised 225 participants (87.9% female), aged 18 - 78 years ($M = 39.28$, $SD = .30$). Participants had one or more of the following chronic conditions: gastrointestinal, cardiovascular, respiratory, neurological, endocrine, immunological, skin and/or gynecological conditions. A series (3) of mediation analyses was conducted. In each analysis, one Light Triad trait was set as a predictor, life satisfaction as a criteria, and faith as a mediator. Our results revealed that Humanism obtains a significant direct effect on life satisfaction ($\beta = 0.15$, $SE = .07$, $t = 2.18$, $p = .03$) but also indirect ($\beta = 0.06$, $SE = .03$, 95% CI [0.01, 0.11]) through its positive effect on faith, suggesting that faith partially mediates this relation. Faith in Humanity exerts only an indirect effect ($\beta = 0.07$, $SE = .03$, 95% CI [0.02- 0.13]), through faith, indicating full mediation. Other tested relations weren't significant. These findings suggest that humanism, with its respectful and compassionate view of others, contributes to higher life satisfaction directly, but also through spirituality, helping chronically ill people deal with adversity, maintain hope and preserving life satisfaction. Faith in Humanity promotes an optimistic view of others but is linked to higher life satisfaction only through faith, which acts as a psychological bridge between them.

Keywords: Light Triad; life satisfaction; faith; chronic illness

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IMPLICIT THEORY LIGHT TRIAD (ITLT): DEVELOPMENT OF A NEW SCALE FOR MEASUREMENT OF LIGHT TRAITS

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With the growing popularity of the Dark Triad, Kaufman et al. (2019) proposed the Light Triad as it's opposite, reflecting the positive, growth-oriented side of human beings. They suggested its operationalization through the Light Triad Scale - LTS, consisting of 12 items capturing the traits of Faith in Humanity, Humanism, and Kantianism. However, research has shown low correlations with dark traits, an unstable factor structure, and low reliability (Gerymski & Krok, 2019; Kaufman et al., 2019; Lukić & Živanović, 2021). Furthermore, the current conception of the Light Triad and selection of LTS items are atheoretical, complicating its interpretation. Therefore, the aim of this study was to develop a new instrument for measuring light traits, grounded in a clear theoretical framework and ensuring good psychometric properties. Based on implicit theories of personality, in a pilot study 104 psychology students were asked to list the characteristics of good people. From a total of 901 terms, only those mentioned at least five times were retained, resulting in 37 terms. In the second study ($N = 356$, 77.5% female), 37 items derived from the terms identified in the pilot study were administered, along with the LTS and the Short Dark Triad (SD3). The initial item pool was reduced to 12 using several indicators (factor loadings, scale reliability if an item was removed, item difficulty…), with the goal of producing a short scale with a simple factorial structure. The final structure comprises three correlated factors: Interpersonal Warmth (friendliness, cordiality), Responsibility Toward Others (reliability, has a conscience), and Tolerance for Others (patience with others, tolerance), which constitute the Implicit Theory of Light Triad (ITLT). The factor correlations ranged from .42 to .44, while the Cronbach's alpha reliability coefficients for the scales were .77, .78, and .77, respectively. Correlations with the SD3 were predictably low, ranging from -.29 to .01, while correlations with the LTS ranged from .18 to .43. The content of the ITLT and LTS differs due to the distinct theoretical frameworks from which they originate. Given its stronger theoretical foundation and better psychometric properties, the ITLT is recommended for assessing light traits, though further validation of the scale is certainly needed.

Keywords: Light traits; Light Triad; ITLT; Implicit theories

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JOINT FACTOR STRUCTURE OF ONLINE SELF-PRESENTATION STRATEGIES AND THEIR CORRELATES

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Self-presentation strategies typically distinguish between the real, ideal, and false self. However, in various instruments, the false self is defined in different ways (e.g., self-deception or self-comparison/impression), as well as the real self (consistent or authentic). This study explored the joint latent structure of major instruments measuring online self-presentation tactics (Self-Presentation on Facebook Questionnaire, Presentation of Online Self Scale, Perfectionistic Online Self-Presentation Scale, and Self-Presentation Upward Social Comparison Inclination Scale). Moreover, the construct validity of the extracted factors was explored via associations with self-esteem, fear of negative evaluation, generalized anxiety disorder, loneliness, Dark Tetrad traits, and social media addiction, as well as through gender differences. The sample consisted of 361 adults (M_{age} = 22.71, SD_{age} = 6.77, 39% men), primarily students (70%). Five factors were identified: Ideal self, Compensatory self, Consistent self, Fake self, and Online true self. Correlations among factors were small, except between Compensatory and Fake self ($r = .51$). The ideal self was positively related to fear of negative evaluation ($r = .38$), dark traits (Machiavellianism $r = .24$, narcissism $r = .17$), and social media addiction ($r = .40$). Compensatory self showed positive correlations with fear of negative evaluation ($r = .32$), generalized anxiety disorder ($r = .17$), dark traits (Machiavellianism $r = .16$, psychopathy $r = .13$, sadism $r = .18$), and social media addiction ($r = .40$), but negative correlations with self-esteem ($r = -.22$) and loneliness ($r = -.19$). Consistent self and Online true self were negatively associated with fear of negative evaluation ($r = -.12$ and $r = -.18$, respectively) and positively associated with loneliness ($r = .12$ and $r = .16$, respectively). Fake self was positively related to all Dark Tetrad traits except narcissism (with correlations ranging from .11 to .22) and social media addiction ($r = .18$). All reported correlations were significant at $p < .05$. In addition, women scored higher on Ideal self ($t(358) = -2.24, p = .026, d = 0.24$) and Consistent self ($t(358) = -2.78, p = .006, d = 0.29$), while men scored higher on Fake self ($t(358) = 3.06, p = .002, d = 0.32$). In conclusion, Consistent self and Online true self showed a similar pattern of validity correlations and were associated with certain benefits, such as lower anxiety, but also some costs, such as increased loneliness. Ideal self and Fake self were associated with risks such as social media addiction and antagonistic traits, reflecting maladaptive strategies, while Compensatory self was additionally linked to mental health issues. Results support the distinction between extracted online self-presentation strategies and their use in future research. Future studies should explore the flexibility and consistency of these strategies, varying across platforms, occasions, and time.

Keywords: online self-presentation; ideal self; fake self; real self; factor analysis

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WHO IS REAL ON BEREAL?: PREDICTORS FOR SELF-PRESENTATION ON BEREAL

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Research finds that self-presentation on social networks, which can be authentic (presenting the real self) or idealized (presenting the ideal self), is determined by the personality traits, age, gender and self-esteem of the user. BeReal is a social network that promises authenticity, and therefore the goal of this research was to determine whether predictors of self-presentation relevant to other networks will be relevant on this one. Data were collected through an online questionnaire, which was completely filled out by 400 participants (N_{female} = 329; M_{age} = 19.7; SD_{age} = 2.01). The questionnaire contained the Croatian translation of Rosenberg's self-esteem scale (Rosenberg, 1965), the Croatian translation of the Mini-IPIP personality questionnaire (Donnellan et al., 2006; Mlačić and Goldberg, 2007) and the newly designed BeReal Self-Presentation Scale, the validity of which was confirmed by an exploratory factorial analysis. Hierarchical regression analysis in 3 steps was conducted: first group of predictors being gender and age, second group Big Five personality traits and third being number of friends on BeReal and self-esteem. Results showed that the strongest predictors of the expression of the ideal self on BeReal are the number of friends (β = .12, t (383) = 2.56, p = .01) and lower self-esteem (β = -.21, t (383) = -3.22, p < .001), while the strongest predictors of the actual self were extraversion (β = .14, t (383) = 2.64, p = .01) and higher self-esteem (β = .16, t (383) = 2.34, p = .02). In the aforementioned analyses, the amount of explained variance of the criteria is significant, but low both for the presentation of the ideal self (F (9,381) = 6.15, p < .001, R^2 = .14) and for the presentation the actual self (F(9,381) = 4.22, p < .001, R^2 = .09), which indicates the importance of the selected predictors for predicting self-presentation on BeReal, but also that there is a need for further research into this construct. Constructs such as life satisfaction and basic psychological needs may be taken into account as potential predictors regarding future research.

Keywords: BeReal; actual self; ideal self; self-presentation; personality traits

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The research was supervised by dr Margareta Jelić.

DEVELOPMENTAL PSYCHOLOGY

„THERE'LL BE SAD SONGS (TO MAKE YOU CRY)": THEMES IN LYRICS OF ADOLESCENTS' SAD SONGS

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Adolescence marks a critical phase of emotional and cognitive growth, with increased reliance on autonomous emotional regulation. Music plays a central role in this process, acting as a key tool for mood management and emotional expression. Specifically, sad music provides a unique aesthetic context for engaging with negative emotions, allowing adolescents to process feelings of sadness without the distress typically associated with real-life experiences. Built on such findings, our aim is to examine which specific themes adolescents associate with the feeling of sadness through the thematic analysis of song lyrics they link with this emotion. This study is part of a broader study conducted as an online survey. Adolescents aged 15 to 18 ($N = 164$, 69.1% females) were asked to name one or more songs they associate with the feeling of sadness. For this preliminary analysis, first 100 songs in the database were selected: 72 suggested by girls and 28 by boys. A thematic analysis (Braun & Clarke, 2006) was conducted on the lyrics to identify recurring sadness-related themes. The analysis identified five dominant themes in the lyrics of songs adolescents associate with sadness. The "Bundle" of Sadness (Emotion) theme captures deep emotional pain, loneliness, and nostalgia. Romantic Love = Suffering (Heartbreak) focuses on unrequited love, heartbreak, and toxic relationships. In contrast, Love That Doesn't Hurt emphasizes positive and tender feelings in romantic experiences. The Hardships & (Un)Freedom theme explores loss, family struggles, and the longing for freedom. Finally, Comfort, Consolation, Optimism & Encouragement highlights moments of hope, resilience, and emotional renewal in the context of sadness. Although love-themed songs might seem predominant, the highest number of codes stemmed from the emotion of sadness itself and its related experiences. This suggests that adolescents could be more drawn to the emotional connection they feel with the music – shared feelings of sadness – rather than the specific storylines within the lyrics. Interestingly, and consistent with the previous observations, moments of optimism and emotional renewal often emerge at the end of songs. This highlights the role of music as an emotional companion, offering a sense of understanding and solidarity, regardless of the narrative specifics.

Keywords: adolescents; sadness; sad songs; music lyrics; thematic analysis

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MY BETTER IS BETTER FOR ME: EXPLORING PERSONAL AND PRESCRIBED IDEAL SELF IN EMERGING ADULTHOOD

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This work was part of a broader study focusing on exploring emerging adults' (EAs') experience of self. Emerging adulthood (EA, 18-30 years) is a unique life period that includes identity exploration, instability, self-focus, and feeling in-between. Although EAs reach for independence more confidently and maintain intimate relationships, they still rely on parental emotional support. Relationships with family members improve while resistances decrease. So, the main aim of this work was to explore EAs' idealistic self-expectations compared to the ideal features EAs' presumed their significant others would expect from them. Participants completed the Self-Discrepancies Scale, listing features of desired and prescribed "self-guides" and answering who they considered significant. They estimated (Likert, 1-7) how big they find the discrepancies between their desired (ideal) self and current self, how much distress this causes, and how confident they feel to reach the ideal. The sample comprised 364 emerging adults (81.3% female) aged 18-30 ($M = 21.44$, $SD = 2.36$). The Paired-Samples T-test showed no significant differences in perceived discrepancies between personal ideal and current self, compared to the prescribed ideal and current self. However, participants expressed slightly higher distress with discrepancies ($t(363) = 4.006$, $p = .000$), as well as more confidence in change ($t(363) = 2.360$, $p = .019$) when it came to personal ideal features. This analysis led to another exploratory question: Which ideal personal characteristics were listed, and which were presumably expected by the significant others? Fifty participants were randomly chosen for qualitative analysis. Using MAXQDA, features were coded and categorized into higher order codes (well-being, amiability, curiosity, discipline, accomplishment), resembling relevant aspects for studying EA. The results showed that participants highly valued those features important for well-being (41 cs out of 150 cs), amiability (37 cs), and curiosity (33 cs). Nonetheless, the most prominent features listed for significant others were amiability (39 cs out of 150), discipline (36 cs), and well-being (33 cs). These results complied with studies and hypotheses about the EA period, showing EAs' steady progress towards independence by relying on personal self-evaluation and judgement. However, the effect of significant others' authority was still recognizable in participants' inclinations to ascribe discipline to their expectations.

Keywords: emerging adults; ideal self; significant others; current self; independence

"BITTERSWEET SYMPHONY": THE INTERPLAY BETWEEN MUSIC REGULATION STRATEGIES, NEGATIVE AFFECT AND WELL-BEING IN ADOLESCENCE

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Music plays a vital role in adolescents' emotional regulation, influencing their subjective well-being (SWB). This study investigates how two music-based mood regulation strategies – Discharge and Mental work – influence adolescents' SWB through the mediating role of their tendency to experience negative affect (NA). The convenience sample consisted of 164 adolescents (69.1% female; age: 15–18 years, $M = 16.5$, $SD = 0.9$), recruited through agreements with two Serbian high schools. Data were collected using three validated scales: Music in Mood Regulation (MMR) (Saarikallio, 2008); The Scale of Positive and Negative Experience (SPANE), with its Positive and Negative Affect subscales (Jovanović et al., 2019); and The Mental Health Continuum–Short Form (MHC-SF), measuring SWB (Jovanović, 2015). Mediation analyses were conducted using PROCESS Model 4 to test the indirect effects of music regulation strategies on SWB via NA. The first model showed that Discharge significantly predicted NA ($R^2 = 0.050$, $F (1,163) = 8.49$, $p = .004$, $\beta = .223$). When both Discharge and NA were included in the model predicting SWB, Discharge had no direct effect ($B = -.005$, $p = .932$), while NA exhibited a strong negative effect ($B = -.528$, $p < .001$, $\beta = -.448$). The total effect of Discharge on SWB was not significant ($B = -.094$, $p = .176$), but the indirect effect through NA was significant ($B = -0.088$, 95% CI [-0.165, -.024]). The second model showed that Mental work positively predicted NA ($B = 0.188$, $p = .006$, $\beta = .214$). While the total effect of Mental work on SWB was not significant ($B = .090$, $p = .269$), its direct effect became significant when controlling for NA ($B = .198$, $p = .007$). NA again negatively influenced SWB ($B = -.578$, $p < .001$, $\beta = -.490$). The indirect effect of Mental work on SWB via NA was significant ($B = -.109$, 95% CI [-.220, -.022]). These findings give us valuable insights into how adolescents use music to navigate complex emotional experiences and maintain well-being. Discharge appears to provide temporary emotional relief but indirectly diminishes SWB by increasing NA. Conversely, Mental work promotes self-awareness and has a dual nature: while it negatively impacts SWB through heightened NA, its direct effect is positive, suggesting potential adaptive outcomes. Future research could explore the longitudinal effects of these strategies on adolescents' well-being, addressing the limitations of the current study's sample size and offering answers to many of the currently unresolved questions in this field.

Keywords: music regulation; adolescents; venting; reflection; subjective well-being

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ANALYSIS OF (MAL)ADAPTIVE FORMS OF YOUTH IDENTITY DEVELOPMENT USING THE AGONISTIC SELF MODEL

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Today, the most influential in identity research is the two-cycle model, as an elaboration of Erikson's initial model that includes the processes of exploration and commitment. The identified dimensions were used to derive more or less adaptive identity statuses. The goal of our research was to examine similarities and differences in the processes of identity construction between those who belong to adaptive and maladaptive statuses. In order to achieve this, we used the Model of Agonistic Self, according to which the sense of self is understood as the result of an order of voices, some of which represent important ideological stances and personal values, while some have the function of evaluators. Some ideologues are dominant, while others are suppressed as voices of resistance. Based on the application of the Dimensions of Identity Development Scale on a sample of 823 high school and college students ($M_{age} = 18.34$), those who achieved extreme values on at least three dimensions were selected for participation in the qualitative study ($N = 13$). We applied a deductive analysis to the data collected by the Interview for the Agonistic Self using a theoretical model of the agonistic self. Then we created individual reports based on it. A second interview was conducted, aimed at ensuring participant validation and supplementing individual reports. Finally, a cross-case analysis was conducted to observe the similarities and differences in the dynamics of the agonistic self of the participants. We found that in the majority of participants with adaptive forms of identity development, there is a stable dominance of the main ideologue and his coalition of voices. In some of them, there are many conflicts between powerful ideologues, and the main ideologist often respects opposing perspectives. In others, there is no conflict, while numerous opponents are permanently suppressed. In most of those with maladaptive profiles, there is a dominance of undermining evaluators and a conflict between evaluators and ideologues over influence on the main ideologue. Successful identity development requires the predominance of beliefs and values on which life goals are based over self-criticism and self-evaluation. The existence of a "non-democratic" adaptive profile suggests that a diversity of values and a democratic relationship between them are desirable, but do not appear to be necessary for a healthy sense of self.

Keywords: agonistic self; methodology of the agonistic self; youth identity; dimensions of identity development

EMERGING ADULTHOOD: NAVIGATING LONELINESS AND STRESS IN YOUNG ADULTS

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Emerging adulthood, the transitional period between adolescence and young adulthood (18-29 years) is often seen as a highly turbulent period due to the large number of developmental tasks that an individual needs to solve on his way to adulthood, such as identity exploration, as well as the exploration of interpersonal relationships. Due to the social expectations and demands of the family of origin and individual needs, experiences of intense stress and loneliness can occur. Therefore, this research aims to examine the relationship between the experience of emerging adulthood, loneliness and stress in young people in Serbia aged 18 to 28 years (M_{age} = 22.38, SD = 2.26). Respondents completed online a newly constructed questionnaire for this research The Emerging Adulthood (The Age of Possibility, the Age of Instability and Questioning of Identity, the Age of Focusing on Self, the Age of Feeling in Between), the Perceived Stress Scale (PSS, Cohen et al., 1983), the UCLA Loneliness Scale (Russell et al., 1980, according to Lackovic Grgin et al., 2002). The results of the regression analysis show that the predictive model consisting of 4 subscales of the emerging adulthood is statistically significant (F (4,261) = 47,807, p = .001) and explains 42.7% of variance of the loneliness. The subscales The Age of Instability and Identity Questioning (β = .367, p = .001), the Age of Possibility (β = -.315, p = .001), and the Age of Self-Focus (β = -.192, p = .001) stood out as individual significant predictors. When it comes to perceived stress, this predictive model proved to be statistically significant (F (4,261) = 55,966, p = .001) and explains 46.6% of the variance of perceived stress. The Age of Instability and the Questioning of Identity (β = .588, p = .001), the Age of Possibility (β = -.187, p = .001) stood out as significant individual predictors. These findings suggest that perceiving emerging adulthood as a period of insecurity increases loneliness and stress, while seeing this period as an opportunity to focus on oneself, explore available possibilities, and maintain a positive orientation towards the future, lowers the risk of feeling lonely and stressed. These results emphasize the need for workshops and support groups to improve mental health during this transitional period. Future research could assess the impact of these interventions and explore how cultural and individual factors influence the experiences of emerging adulthood, stress, and loneliness.

Keywords: emerging adulthood; loneliness; stress; identity

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SOCIAL COGNITION OF PHOBIA CAUSATION AND INTERVENTION: A DEVELOPMENTAL STUDY

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Phobias—irrational and excessive fears of phenomena or objects that are rarely dangerous—have been extensively studied in psychology. However, in the field of social cognition, implicit theories of others' phobias have received little attention from researchers. This study examines how phobias are interpreted across different age groups (5, 7, 9, 12–13, 16–17 years, psychology students, and other students). A total of 140 participants (20 per group) were presented with three stories describing encounters between individuals with phobias and the objects of their fears (elevator, high place, crowded place). Afterward, they were asked to identify what the character feared, how the phobia originated, and how it could be alleviated. Two assessors categorized responses with 96.88% inter-rater agreement, using categories aligned with psychological theories (e.g., "behavioristic", "psychoanalytic" etc.). Results show that participants across all ages predominantly attributed phobias to objectively possible events (e.g., getting stuck in the elevator) rather than nearly improbable ones (e.g., suffocating in the elevator). Most participants (51.7%) aged 5 could not interpret the origin of the phobia, while older groups (51.7% – 93.3%) favored "behavioristic" explanations, linking phobias to negative past experiences without referencing mental states. Similarly, most five-year-olds (61.2%) offered no suggestions for overcoming phobias, while older participants (53.3% – 95%) proposed "behavioristic" methods, such as exposure to the feared object (e.g., standing on a high place) until fear diminished, again without mentioning mentalistic concepts. These findings challenge the common developmental trajectory from external to internal (mentalistic) explanations observed in emotional understanding research. They suggest this shift may not be universal and that certain emotions, particularly complex ones, may follow distinct developmental patterns. Another intriguing finding is that psychology students predominantly rely on "behavioristic" explanations in their interpretations (76.7% in responses about the origins and treatment of phobias), without mentioning mentalistic concepts. This could reflect either theoretical preferences or the persistence of an implicit theory similar to lay perspectives, despite their exposure to diverse theoretical knowledge. Considering current trends in psychology, the latter explanation appears more plausible.

Keywords: social cognition; phobias; understanding emotions; implicit theories

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COLLABORATIVE PROBLEM SOLVING GONE WRONG: A CASE STUDY OF SECONDARY SCHOOL STUDENTS

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This case study examines the quality of dialogue and regulation in social interactions during collaborative problem solving in a small group of secondary school students. Previous research highlights several dimensions of interaction and collaboration—sociocognitive, socioemotional, group regulation, and task regulation—that distinguish productive from unproductive group dynamics. The primary goal of this analysis was to identify specific patterns of convergence and relationships among these dimensions that contributed to the failure of this group to achieve productive outcomes. The study analysed video-recorded interactions of a group of three male secondary school students as they worked collaboratively on two problem-solving tasks: a scientific task (ecology) and a civic task (sustainability). Their collaborative efforts on these tasks lasted approximately 2.5 hours. To explore their interaction, we used 5-minute episodes for moment-by-moment observations, coding multiple aspects of their engagement, including joint participation, dialogue quality, socioemotional exchanges, and group regulation processes. The coding scheme was developed using a deductive-inductive approach, informed by prior research on small-group interaction quality and insights from observing the students' collaborative work. Four researchers participated in developing the coding scheme and independently evaluated the students' interactions. The agreement between the pairs of evaluators ranged from 85% to 87%, indicating good inter-rater reliability. Differences in scores during the initial evaluation phase were further discussed, and resolved to produce final assessments of the presence, frequency, and sequence of observed indicators. The results reveal that the emergence of an informal leader, combined with a lack of adequate support for collaborative processes, led to repeated unproductive interactions. Disagreement and debates over differing perspectives did not result in shared solutions unless they were accompanied by warm and supportive emotional exchanges. This paper will discuss why knowledge of collaboration principles alone was insufficient for the group's success. It will also emphasise the critical role of socioemotional dynamics in collaborative problem solving and their influence on fostering effective and productive teamwork.

Keywords: collaborative problem solving; productive collaboration; socioemotional interaction; group regulation; joint participation

TIK-TAK: ARE YOUNG PEOPLE LIVING IN LINE WITH "SOCIAL CLOCK" IN SERBIA?

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The social clock refers to a person's perception of the ideal age for life events, shaped by societal and cultural expectations. Compliance with the social clock can have positive effects on mental health and identity development, and deviating from it or not perceiving it as an authentic developmental path may lead to increased stress and feelings of unfulfillment. This research explores whether young people in Serbia feel aligned with the social clock and how this influences their experiences of loneliness and stress. The study used a series of questions measuring key life events, such as "I think I graduated from university on time, had a romantic relationship, got a job, etc." Participants also completed the Perceived Stress Scale (PSS, Cohen et al., 1983) and the UCLA Loneliness Scale (Russell et al., 1980, as cited in Lackovic Grgin et al., 2002). The sample consisted of 266 participants (70% female), aged 18 to 28 years ($M = 22.38$, $SD = 2.26$). The percentage of respondents who have completed higher education is 31.7%. Among the 41.3% of respondents who reported being in a romantic relationship, 3.1% are married. Most respondents (96.9%) estimated graduating from high school on time, 85.9% from university, 71% had their first kiss on time, and 61.8% entered a romantic relationship. Half of the respondents (51.9%) reported having their first sexual intercourse on time, while 29% had not experienced it, and 19.1% did so later than expected. Only 9.5% believed they started living with a partner on time, while 85.5% had not had this experience. ANOVA results show statistically significant differences in loneliness regarding: university graduation ($F (2,261) = 4.691$, $p = .010$), moving out from the family home ($F (2,261) = 6.184$, $p = .002$), employment ($F(2,261) = 3.730$, $p = .025$), first kiss ($F (2,261) = 12.689$, $p = .001$), entering into a romantic relationship ($F (2,261) = 18.434$, $p = .001$), and first sexual intercourse ($F(2,261) = 11.895$, $p = .001$). Differences in perceived stress were also found regarding: university graduation ($F (2,261) = 5.045$, $p = .007$), first kiss ($F (2,261) = 3.708$, $p = .026$), and entering into a romantic relationship ($F (2,261) = 6.457$, $p = .002$). Young people who feel they have met developmental tasks on time report lower loneliness and stress compared to those who feel they have not or lack such experiences. However, these results are preliminary due to sample heterogeneity and inequalities in social clock compliance.

Keywords: social clock; loneliness; stress; emerging adulthood

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THE ROLE OF PARENTAL ATTITUDES AND PRACTICES IN SHAPING CHILDREN'S MOTIVATION AND ACHIEVEMENT IN MATHEMATICS

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Parental involvement in children's education has been consistently associated with improved academic performance and enhanced intrinsic motivation for learning. However, the impact of parental involvement depends largely on the specific practices parents adopt, as not all approaches are equally beneficial. This study is part of a longitudinal project investigating children's motivation to learn mathematics. It aims to explore the relationships between parental attitudes and practices regarding children's motivation for learning math and students' math motivation, identity and achievement. Furthermore, the study examines whether these relationships differ between students in Grades 4 and 5 and between boys and girls. The sample comprised 1,591 students (53.8% in Grade 4; 49.1% female) and 1,167 parents. Students completed a questionnaire measuring their motivation to learn mathematics (28 items on a 4-point Likert scale, based on Expectancy-Value Theory), and math identity (6 items, e.g. I think I am a math person), and knowledge test (14 tasks based on TIMSS 2011 cycle). Parents completed a questionnaire assessing parenting practices (5 dimensions, 18 items, e.g. I tell my child to make time for learning math), attitudes toward mathematics (3 dimensions, 9 items, e.g. Math is applicable to real life), and mindset (2 dimensions, 8 items e.g. Every child can progress in math.), all rated on a 4-point scale. Regression analyses revealed that positive parental attitudes and practices aimed at fostering intrinsic motivation and the value had the strongest effects on student outcomes. Parental attitudes and practices were found to have the most significant effect on math achievement, followed by student motivation. Interestingly, the results reveal distinct patterns in the relationships between parental predictors, and the motivation and achievement of boys and girls. Overall, parental practices play a more significant role in influencing the motivation and achievement of girls, while parental attitudes have a stronger effect on boys' achievement. Additionally, differences were observed between students in Grades 4 and 5, with parental attitudes and practices having a greater impact on the older students. These findings are discussed in the context of supporting parents to provide unbiased, non-stereotypical support to their children, helping to sustain and enhance their motivation to learn mathematics.

Keywords: parental involvement; mathematics motivation; academic achievement; parental attitudes and practices; gender and grade differences

EXPERIENCES OF TRANSITION TO PARENTHOOD AND CHANGES IN THE PARTNER RELATIONSHIP

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The pregnancy period and transition to parenthood bring about a wide range of changes in terms of adapting to the new role as a parent and also the relationship between partners. Previous research tended to either focus only on the perspective of one partner or on exploring gender differences. This study aimed to understand the lived experiences of both expectant parents during pregnancy and to explore how they perceive the changes in their relationship. Five heterosexual couples expecting their first child took part in in-depth semi-structured interviews. We relied on interpretative phenomenological thematic analysis, and developed the coding scheme inductively. Two clusters of themes emerged. The first one, concerned with the perception of relationship changes, includes a closely knit cluster of three themes: Strengthened partner relationship, Baby as the center of the world - becoming a family, and Overly optimistic view of the future. The partners emphasized that during pregnancy, they felt closer to each other, had more mutual understanding, and perceived each other as a crucial support in life. The parents-to-be stressed the importance of the baby as the source of a new purpose and meaning, transforming the relationship from a mere partner relationship to a "real family". The couples were characterized by an overly optimistic vision of the future, which included the expectation of further strengthening of the relationship after the birth, without any obstacles or challenges. The second cluster of themes concerns the partners' experience of pregnancy as a transitory period that poses various challenges and requires adjustments and includes the following themes: Sexual challenges associated with differences in perceptions of women's attractiveness, The importance of teamwork, and Different attitudes towards worry. Body changes are perceived as more difficult by women than by men, but they generally do not affect intimacy. Teamwork and mutual support are perceived as especially important both during pregnancy and when raising a child, although patriarchal gender norms are still visible to a certain extent. Anxiety regarding childbirth and child rearing is significantly more pronounced in women, while men represent an important source of support. Our findings expand the scope of knowledge regarding the early transition to parenthood and partner dynamics during pregnancy, implying an egalitarian, supportive and highly optimistic image of a growing family.

Keywords: pregnancy; partner relationship; transition to parenthood; qualitative research

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WHAT ARE THE MAIN TOPICS RELATED TO #MATHEMATICS? COMPARATIVE INSIGHT FROM TWITTER DATA OF THREE EX-YU COUNTRIES

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Previous studies that dealt with the analysis of tweets from the Twitter platform suggested that sentence context, in which the key words can be obtained, provide significant information about the sentiment, opinion and/or attitudes that people have on specific topic. The opinion about mathematics, as one of the key subjects that accompanies us throughout schooling, is no exception. The aim of this research was to examine the context in which tweets about mathematics appeared in Serbian, Croatian and Slovenian Twitter data. These three languages, as part of the South Slavic linguistic group, share historical, cultural, and linguistic connections but exhibit significant differences in vocabulary, grammar, and usage, making them ideal for comparative analysis in natural language processing. The data were taken from three corpora of Tweets (Tweet-sr, Tweet-hr and Tweet-sl), of the three mentioned languages from the CLARIN platform (https://www.clarin.si/ske/#open). Total set of tweets were the word #mathematics appears were selected from three corpus, which consisted of 21 500 Serbian tweets 935 Croatian tweets and 256 Slovenian tweets. Before applying the topic modeling technique Latent Dirichlet allocation (LDA) in the Python programming language, the raw tweets were preprocessed and cleaned of punctuation marks, specific symbols, conjunctions, adverbs, prepositions, profanity etc. After that, we started to detect the number of different topics (contexts) in which the word #mathematics appears in tweets and compare the results between the three languages. The results suggest that in all three languages it is most optimal to extract three different dimensions (thematic units) within which #mathematics is mentioned. In the Serbian language, #mathematics is most often mentioned: i) as a school obligation, ii) in context of sentiment (e.g. love, hate etc.) and iii) as parenting topics related to comments about professors, books, school and children. Almost identical results were obtained in the Croatian and Slovenian languages, with the difference that in these two languages all three topics were focused more on sentiment and school obligations, while parental attitudes toward #mathematics do not appear as often as in the Serbian language.

Keywords: mathematics,; Twitter; ex-YU languages; natural language processing; topic modeling

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HOW IMPORTANT IS GENDER AND ROMANTIC STATUS IN THE EXPERIENCE OF THE EMERGING ADULTHOOD?

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For the past twenty years, researchers have been considering the introduction of a new developmental period between adolescence and young adulthood (Arnett, 2000), called "emerging adulthood". This developmental stage, occurring between the ages of 18 and 29, bears specific developmental intrapersonal tasks, that may be perceived differently depending on gender. Additionally, this period is characterized by interpersonal developmental tasks aimed at forming and rethinking romantic relationships. This study aims to examine gender differences in the experience of the emerging adulthood, as well as differences in experience relating to romantic status ($N_{relationship}$ = 108, N_{single} = 154), on a sample of 266 respondents (70% female), aged 18 to 28 years (M_{age} = 22.38, SD = 2.26). For the purposes of the research, a questionnaire was constructed to assess the experience of the Emerging Adulthood, which consists of four subscales that measure how young people experience this period: Age of Opportunity, Age of Instability and Questioning of Identity, the Age of Focusing on Self, and the Age of Feelings in Between. Respondents filled out the questionnaire online between April and August 2024. The results of the t-test for independent samples show that there is a statistically significant gender difference in the perception of Emerging Adulthood only when it comes to the subscales Age of Opportunity (t (260) = 2.26, p =.012) and Age of Instability and Identity Questioning (t (260) = 2.38, p =.018) in favor of women. These results should be taken with caution as the effect of the obtained gender differences is small (d = .02). When it comes to romantic status, the t-test for independent samples shows that there are statistically significant differences in the subscale Age of Instability and Identity Questioning (t (260) = 2.25, p = .025), Age of Feeling between (t (260) = 2.37, p = .019) in favor of single persons, and in Age of Possibility (t (260) = -3.41, p =.001) in favor of persons in a relationship. The results indicate the connection between an accomplished developmental task – the formation of an intimate relationship – and the perception of the emerging adulthood as a time of opportunity and research. Women experience this age as a period of possibility, but also as a period of questioning themselves and their attitudes, which contributes to the experience of instability. Given the society's gender expectations of women, described ambivalence is not surprising.

Keywords: emerging adulthood; romantic relationships; gender differences; adulthood

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FACE-TO-FACE VS. ONLINE COMMUNICATION FROM THE PERSPECTIVE OF "DIGITAL YOUTH": INSIGHTS FROM SERBIAN YOUNG ADOLESCENTS

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Research into young people's use of social network sites reveals that social interaction is the primary motivator, as they rely on these platforms to stay connected and communicate with others. A study on Serbian high school students suggests that online communication, primarily texting, can enhance social interaction and connectivity more effectively than face-to-face communication, especially in sustaining existing relationships. Nevertheless, communicating face-to-face remains the primary mode for establishing new social connections. This research aims to contribute to understanding how young people compare online and face-to-face communication in the context of social interactions, emphasizing their perceived advantages and disadvantages. A key objective is to contribute to this field by specifically including younger adolescents as participants in the study. Data was collected through four focus group interviews, each consisting of 5 to 7 seventh-grade students from four elementary schools in Belgrade (a total of 24 participants). Every group comprised both boys and girls, and sessions were held in person, lasting between 50 and 86 minutes. The collected data were analyzed using thematic analysis, where codes were derived through a combined approach: inductively, from participants' responses, and deductively, based on previous research on Serbian high school students. We identified three themes highlighting the advantages of face-to-face communication: (1) better understanding, (2) honesty and trust, and (3) nonverbal cues important for the expression and recognition of emotions. In line with findings from research with high school students, participants emphasized the effectiveness of online texting via social network sites in staying connected with friends they rarely see in person. Another significant theme that emerged is the observation of inconsistencies in a person's behavior and even personality, depending on whether they are communicating in person or texting online. To conclude, the young adolescents who participated in our research emphasize the importance of clear and honest communication that allows them to understand how their conversation partners feel, and they choose face-to-face conversation as the best way to accomplish that. An illustrative example of compromising between these "two worlds" is their preference for voice messages when they wish to discuss important topics but cannot meet their conversation partner in person.

Keywords: face-to-face communication; online communication; adolescents; focus group interviews

THE INFLUENCE OF INFLUENCERS: INSIGHTS FROM SERBIAN YOUNG ADOLESCENTS

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With the rise of social media, an increasing number of young people regard "influencers" as figures they look up to. Influencers are generally defined as content creators who engage large audiences on social media by leveraging their authenticity and broad reach. Previous research have predominantly employed frequency-based designs and closed-ended questionnaires constructed by researchers to track trends in influencer impacts on youth behavior. While valuable, such studies have certain limitations, including inconsistencies in defining the term "influencer" and predefined categories of risks and concerns that reflect researchers' perspectives rather than the participants'. Our main goal was to provide young people with a more participatory role, discussing their understanding of the term "influencer" and their perception of influencers' behavior. To achieve this, we conducted four focus group interviews (FGIs) with seventh-grade students from elementary schools in Belgrade. The research included 24 boys and girls, where each FGI consisted of 5-7 participants. The data were analyzed using inductive thematic analysis. Our participants defined influencers as individuals who earn their living by creating social media content to promote their lifestyle. One of the inducted themes is the impact of influencers on young people's interests and preferences, including admiration for their successes or skills and a desire to emulate influencers. Another theme illustrates comparisons with influencers, seen as praising (motivation to excel, e.g., in sports/gaming) or adverse (negative body image or disappointment in parents' financial situation). A final theme centered on concerns about influencers' authenticity and real lives, as participants acknowledged that influencers are often paid to advertise specific products, which may not necessarily reflect their genuine preferences or usage. Our study's findings support the notion that adolescents can critically evaluate the content they encounter on social media. They perceive influencers as "workers" and recognize their potential harmful influences, especially when promoting "harmful things" (e.g., gambling platforms). While our study does not provide a basis for generalizability, we argue that further qualitative research is needed to deepen our understanding of young people's perspectives on social media influences and potentially harmful content before conducting broader quantitative studies on representative samples.

Keywords: social media; influencers; young adolescents; focus group interviews

SOCIAL PSYCHOLOGY

SOCIAL SUPPORT TO PARENTING MAY ALLEVIATE QUANTITY-QUALITY TRADEOFF, ESPECIALLY IN FATHERS

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Quantity-quality tradeoff is one of major evolutionary tradeoffs and it is based on resources in parental investment: the number of offspring is expected to be inversely related with parental investment, potentially leading to lower offspring quality. Social support to parental investment may alleviate resource burden to parents and allow for higher investment even in high parity families; however, the empirical data on this topic is still scarce. In the present research we explored the associations between social support and parental investment by assessing the childbearing support of partners, parents, partner's parents, other biological relatives, and friends. We were particularly interested in a three-way interaction between fertility, parental sex, and support because we wanted to analyze the effects of support especially in high parity families; furthermore, parental sex may be additional important moderator because sexual selection theory predicts that fathers have lower investment than mothers. The research is conducted on a community sample of parents which youngest child is three-years old or less ($N = 651$; 81% of female participants); this is done because our measure of parental investment (Parenting Support Measure - PSM) captures different behaviors that indicate parental care relative to child's age, but its applicable only to children with maximum age of three. We fitted a regression model where parental care, sex, age, education, socio-economic status, fertility (number of children) and examined aspects of social support were analyzed as predictors while parental investment was set as the criterion variable ($F (10, 641) = 6.66$; $p < 0.001$; $R^2 = .09$). The results showed that fertility negatively predicted investment ($\beta = 0.09$; $p < 0.01$), thus confirming the existence of quantity-quality tradeoff in this sample. The support of friends was the only type of support that significantly positively predicted the criterion variable ($\beta = 0.08$; $p < 0.05$); furthermore, the parental care was lower in males as expected ($\beta = -0.30$; $p < .01$). The three-way interaction ($\beta = 0.21$; $p < 0.01$) was found as well: support of partner's parents facilitated parental investment in both sexes but especially in males in families with more children. Our data showed that social support in childbearing may facilitate parental investment, which is congruent to our hypothesis. Therefore, our data (accounting for the study's limitations, especially the low percentage of male participants) confirm the evolutionary importance of social support to childbearing by alleviating quantity-quality tradeoff.

Keywords: parental investment; social support to childbearing; quantity-quality tradeoff; sex differences; fertility

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SOCIO-DEMOGRAPHIC DETERMINANTS OF ATTITUDES TOWARD SEXUALITY AMONG YOUTH IN BOSNIA AND HERZEGOVINA

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Culture, tradition, laws, religion, family, and peers play a significant role in shaping young people's attitudes toward various aspects of sexuality, as evidenced by studies conducted both locally and globally. The aim of this research was to determine whether young people in Bosnia and Herzegovina (BiH) exhibit significant differences in these attitudes based on demographic variables such as gender and sexual orientation, as well as their relationships with age, education, parental education, and religious beliefs. The study was conducted at the end of 2023 on a sample of 1,070 participants aged 15 to 30 years. Data collection employed a paper-and-pencil survey method, with respondents completing the questionnaire independently in the presence of interviewers. Findings reveal that men scored higher than women in areas of conservative sexuality ($t = 3.410$; $df = 1055$; $p < .001$), moralizing about sexuality ($t = 4.096$; $df = 1055$; $p < .000$), and religiously influenced views on sexuality ($t = 2.600$; $df = 1055$; $p < .009$). Similarly, heterosexual respondents scored higher on conservative sexuality ($t = 5.629$; $df = 1060$; $p < .000$) and religiously influenced sexuality ($t = 6.373$; $df = 1060$; $p < .000$) compared to their non-heterosexual counterparts. Conservative attitudes toward sexuality negatively correlated with respondents' age ($r = -.10$; $p = .01$), education level ($r = -.13$; $p = .01$), and their parents' education (father: $r = -.10$; $p = .01$; mother: $r = -.07$; $p = .05$). However, a positive correlation was observed with religiosity ($r = .31$; $p = .01$). Similarly, moralizing about sexuality showed a positive correlation with religiosity ($r = .07$; $p = .01$). Religiously influenced sexuality negatively correlated with age ($r = -.12$; $p = .01$), education ($r = -.14$; $p = .01$), and maternal education ($r = -.07$; $p = .05$), but positively correlated with religiosity ($r = .45$; $p = .01$). The results suggest that patriarchal and traditional values remain dominant in BiH, where gender roles are rigidly and precisely defined. Consequently, young men and heterosexual individuals tend to exhibit more rigid attitudes toward various aspects of sexuality compared to women and non-heterosexual individuals. Religion remains a significant influence in BiH society, and it is unsurprising that religious individuals display more conservative attitudes toward sexuality. Consistent with other studies, this research found that more educated individuals tend to hold more open and tolerant views compared to those with less education.

Keywords: attitudes toward sexuality; youth; Bosnia and Herzegovina

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THE INTERPLAY OF TRUST IN CIVIC INSTITUTIONS AND POLITICAL SELF-EFFICACY IN PSYCHOLOGICAL COPING WITH GLOBAL CHALLENGES

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Societies around the world face a seemingly endless barrage of disruptions and challenges, while trust in civic institutions (TCI) is dwindling. Although these institutions should provide organisation and stability to combat various issues at both societal and individual levels, research shows that TCI leads to both better or worse psychological (worries, risk perception) and behavioural outcomes in different societies (i.e., trust paradox). Another way to combat crisis is through political participation, which is strongly dependent on political self-efficacy. Combining these constructs, we explored the role of political self-efficacy in the relationship between TCI, worry (related to the war in Ukraine), and psychological well-being in Slovenia. We used a representative sample from Slovenian public opinion survey 2022/2 ($N = 1,040$, $M_{age} = 49.2$, $SD = 16.7$, 59% female), and hypothesised that higher TCI will contribute to less worry, which, in turn, would lead to higher positive and lower negative affect. Moreover, we expected political self-efficacy to moderate the relationship between TCI and worry. The moderated mediation model revealed that higher TCI contributed to higher worries about the war in Ukraine ($\beta = .20$, $p < .001$), perhaps because participants with higher TCI are more likely to delegate solving of global and political issues to institutions and thus feel more uncertainty. Indeed, for those high in political self-efficacy, the relationship between TCI and worry was weakened ($\beta = .06$, $p < .001$) compared to those low on this belief ($\beta = .35$, $p < .001$). Aligned with our expectations, participants with higher TCI also report of more positive ($\beta = .18$, $p < .001$) and less negative affect ($\beta = -.18$, $p < .001$), but this relationship was not mediated by worries (a*b positive $= -0.02$, $p = .08$, a*b negative $= .02$, $p = .07$). Finally, worries were predictive of affective outcomes when controlling for TCI (β positive $= -.08$, $p = .025$, β negative $= .07$, $p = .018$). While it seems that mere encouragement of TCI does not seem to decrease worries of Slovenian citizens faced with global threats, it leads to better psychological well-being. Instead, it might be the strengthening of political self-efficacy and spurring of participation that empowers people and explains the evident relationship between TCI and better psychological coping – a proposition awaiting empirical support using more nuanced measures.

Keywords: trust in civic institutions; political self-efficacy; worries; well-being; global issues

A CASE OF AND FOR THE (RE)PRODUCTIVITY OF THE DEMOCRATIC FORM: A DISCURSIVE STUDY OF PARLIAMENTARY ACTIVITY IN SERBIA

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In contemporary liberal democracies, the significance of parliament as a democratic institution is increasingly questioned. It is often considered that democracy in certain parts of the world is defective, where parliaments serve as a facade for authoritarianism. The function of parliamentary form (the normative, procedural, architectural aspects of parliament) in such instances is deemed pro forma in practice and thus inessential to democracy. However, there is little empirical work on those formal aspects that are actually reproductive for parliamentary practice. The aim of this study was to understand the (re)productivity of democratic form in Serbia, both for the political agency of parliamentary subjects and the overall parliamentary outcomes. We conducted a discursive analysis of the recording of the current convocation of The Serbian parliament's constitutive session. The material used was the official video of the first day of the session, broadcasted on national television and YouTube. Key findings point to a differential use of parliamentary and non-parliamentary resources, both symbolic (e.g. procedure, banners) and material ones (noise, the number of representatives, access to the security service and to different parts of the space) by the opposition and the position representatives. The opposition predominantly relies on non-parliamentary resources both to obstruct the constitutive session and to maintain a distinct political identity. While symbolic means serve to compensate for the lack of parliamentary power in the case of the opposition, they are used to highlight the power of the position. The position predominantly uses parliamentary resources (law, procedure, security service). Legal procedure is operationally used by the ruling majority owing to its material capacity (number of MPs, access to the security service) to contain minority obstruction efforts. The space of the parliament is mobilized in ways that are both representative of the relative positions and constitutive of them. The tactics used by the opposition and the position are determined by their relative positions in the parliament, established by the allocation of mandates. Both sides realistically assess available parliamentary resources to maximize particular political goals. Despite an apparent crisis, the parliamentary representatives' rootedness in the formally determined positions of power in the parliament is what makes parliamentary relations paradoxically stable.

Keywords: parliamentary democracy; normativity; political agency; discourse analysis

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GENERALIZED TRUST AS A PROTECTIVE FACTOR FOR DEPRESSIVE SYMPTOMS: EVIDENCE FROM THE EUROPEAN SOCIAL SURVEY

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Although the determinants of depressive symptoms have been extensively studied across various groups, generalized trust has largely been neglected in this context, particularly in nationally representative samples. Previous research has shown that many forms of social capital – such as personal relationships, social support, and community engagement – can act as protective factors against the development of depression. Therefore, it is reasonable to expect that this dimension of social capital would also be positively associated with lower levels of depressive symptoms. We analyzed nationally representative data from 24 European countries, collected as part of the eleventh round of the European Social Survey in 2023 and 2024, which included a total of 40,156 respondents. Depressive symptoms were measured using the CES-D 8 scale, with scores ranging from 0 to 24, where higher scores indicate more severe depressive symptoms. Generalized trust was assessed using the 11-point Social Trust Scale of the European Social Survey, consisting of three items. Additionally, 13 control variables identified as potentially relevant according to previous research were included in the regression model: gender, age, education, household income, social connections, subjective health, exposure to financial difficulties during childhood, exposure to household conflict during childhood, being discriminated, being unemployed, being divorced, being widowed, and average satisfaction with the economy in the country. The results of the two-level HLM analysis reveal a significant negative association between generalized trust and depressive symptoms ($b = -.200$, $SE = .011$, $p < .001$), confirming our hypothesis. Specifically, for each one-unit increase in generalized trust, the expected value of depressive symptoms decreases by 0.2 units. Finally, the low intraclass correlation coefficient (ICC = .022) indicates that most of the variation in depressive symptoms is attributable to differences within countries, rather than between them. Our analysis supports previous findings regarding the protective role of social capital against the development of depression, which is particularly important given the scale of its global rise in recent times.

Keywords: generalized trust; depressive symptoms; European Social Survey

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CAN A DEBIASING TRAINING INTERVENTION LOWER THE ENDORSEMENT OF PSEUDOSCIENTIFIC BELIEFS?

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The widespread nature of irrational beliefs (i.e. beliefs about the world that defy the postulates of normative logic, such as conspiratorial or pseudoscientific beliefs), coupled with their detrimental consequences, call for urgent development of interventions that could reduce them. As all types of irrational beliefs are related to a more intuitive and less analytical thinking style, interventions have been focused on enhancing analytical thinking. One promising candidate is the debiasing training, where participants receive correct answers on common biases and explanations for how they work. Evidence of debiasing lowering irrational beliefs is however, scarce, and has not been demonstrated for most irrational beliefs yet. The current study thus aimed to explore whether pseudoscientific beliefs could be reduced through debiasing training. To test this, we conducted a study on a sample of $N = 336$ participants, using a between-subject design - participants in the experimental group went through the debiasing training by first completing three common bias tasks: (1) semantic illusion, (2) a base-rate neglect task, and (3) a task related to availability heuristic. For each task, after they provided their response, the participants received the correct answer, alongside with an explanation of the respective cognitive bias. The control group did not undergo such training. We employed the CRT as a manipulation check, and endorsement of pseudoscientific beliefs as the outcome. The results indicated a significant effect of debiasing training on correct CRT scores ($F (1) = 9.347$, $p = .002$, $\eta^2 = .027$), however, the effect was in the unexpected direction - the experimental group demonstrated lower CRT scores compared to the control group, suggesting a decrease in analytical thinking following the intervention. This effect did not generalize to pseudoscientific beliefs ($F (1) = .111$, $p = .739$). The unexpected decrease in correct CRT scores following debiasing training calls into question the effectiveness of this strategy for analytical thinking enhancement and highlights the need for further refinement of intervention techniques aimed at promoting analytical thinking if they are to lead to the reduction of irrational beliefs.

Keywords: debiasing training; analytical thinking; pseudoscientific beliefs; reduction of irrational beliefs; irrational beliefs

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NATIONAL VICTIM CONSCIOUSNESS AND ATTITUDES TOWARDS REFUGEES IN BOSNIA AND HERZEGOVINA

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This study focuses on victim consciousness related to the conflicts in former Yugoslavia of the 1990s—events deeply embedded in the public narratives of Bosnia and Herzegovina (BiH) — and examines how this consciousness correlates with perceptions, emotions, and attitudes toward refugees and migrants originating from the Middle East. The present study serves as a partial replication of research conducted by Szabó, Vollhardt, and Mészáros (2020) on a Hungarian sample. Data were collected in 2023 from a sample of 391 adult citizens (f = 41%, m = 59%, M_{age} = 28) of BiH, encompassing individuals of Bosniak (47%) and Serb (53%) ethnicities. The measures were obtained from the original study and included 7-point scales of regional exclusive victim consciousness (REVC), regional inclusive victim consciousness (RIVC), event-specific inclusive victim consciousness (EIVC), support for increased border protection to prevent refugees from entering, support of detention of refugees, and the willingness for personal involvement in helping refugees. Affect toward refugees was measured using a 10-point feeling thermometer. Consistent with the original study, REVC was found to predict support for anti-refugee policies (e.g., border protection: r (389) = .50, p < .001; refugee detention: r (389) = .44, p < .001). In contrast, RIVC predicted support for pro-refugee policies (e.g., positive feelings: r (389) = .46, p < .001; supporting policies: r (389) = .46, p < .001; personal involvement: r (389) = .20, p < .001). By introducing a novel measure of EIVC—based on historical analogies between the two refugee situations—it was demonstrated that EIVC mediates the relationship between regional victim consciousness and support for both anti-refugee and pro-refugee policies. The indirect effect of REVC through EIVC on support for increased border protection was significant (b = .20, SE = .03, p < .001), and the indirect effect of RIVC via EIVC on feelings toward refugees was significant as well (b = .33, SE = .05, p < .001). The findings highlight how beliefs about a group's historical victimization influence its members' reactions to contemporary refugees. This is especially important in contexts where the country's political leaders use historical analogies to convey their interpretations of current events (e.g. Turjačanin, 2011). The findings from the BiH sample largely align with those obtained in the original study, providing further evidence for the robustness of the observed patterns.

Keywords: exclusive victim consciousness; inclusive victim consciousness; refugees, attitudes; Bosnia and Herzegovina

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DIALOGUE ABOUT HISTORICAL NARRATIVES: SERB HIGH SCHOOLERS TALKING ABOUT CONFLICTING INGROUP AND OUTGROUP PERSPECTIVES.

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In post-conflict societies, such as former Yugoslavia, opposing narratives about the conflict's history are often fostered by the ethnic groups involved, maintaining ethnic tensions. Thus, understanding the way young members of those societies discuss those narratives is crucial for reconciliation. In this study, we aimed to identify the semantic barriers and promoters that young people use when negotiating their positions towards conflicting historical narratives. Semantic promoters and barriers are discursive strategies that preclude or enable dialogue with an alternative representation by, for example, negating / obscuring or acknowledging / highlighting its meaning. The sample comprised two pairs of ethnic Serb high school students, which we analyzed in detail as case studies. Students read two opposing (Bosniak and Serbian) texts describing the same event from the history of Yugoslavia in WWII. Each pair carefully read the texts, discussed them and worked together to compose their own narrative about the event. The discussions were recorded and analyzed along with the texts they produced. Using dialogical analysis, we identified different I-positions of speakers, focusing on positions relating to the ingroup and outgroup narrative. We then examined the interactions between speakers' positions in order to describe the dynamic use of semantic barriers and promoters. The unit of analysis was the minimal fragment of dialogue involving communicative relation between positions towards the two narratives. In Pair 1, both speakers predominantly used semantic promoters, such as recognizing in-group bias, regulating consensus between opposing perspectives or appealing to universal moral norms. In Pair 2, one of the speakers was mainly trying to reconcile the narratives by using similar promoters as Pair 1, while the other speaker tended to maintain the dominant Serbian narrative using semantic barriers such as shifting focus by counter-accusations or idealizing the ingroup, and rationalizing by creating excuses. Pair 1 successfully coordinated the different perspectives, while the use of barriers by one speaker in Pair 2 hindered the creation of a shared narrative. As this was a case study, further research is needed to explore the diversity of discursive strategies and their interactions. Combining such spontaneously used promotive strategies with teacher scaffolding could be a way to facilitate multiperspectivity in the history education of post-conflict societies.

Keywords: multiperspectivity; dialogical analysis; semantic barriers; semantic promoters; historical narratives

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THE PREVALENCE OF GENDER-BASED VIOLENCE AMONG STUDENTS AT THE UNIVERSITY OF BELGRADE: INSIGHTS FROM THE UNISAFE INTERNATIONAL STUDY

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Certain characteristics of higher education institutions, such as power asymmetry between students and academics, hierarchical structures among academic staff and high concentration of young people, increase the risk of gender-based violence (GBV). Despite the significance of this issue, there is limited number of research on GBV among university students, both in our country and globally. GBV refers to any harm perpetrated against an individual or group due to their factual or perceived sex, gender, sexual orientation and/or gender identity. It includes physical, sexual, psychological, economic, and online forms of violence. The aim of this study was to examine the prevalence of different forms of GBV among university students, considering gender and sexual orientation. The survey is part of the international UniSafe project which investigates GBV prevalence across universities in 15 European countries, including Serbia. Quantitative data were collected through an online survey, with sample of 2,175 students from the University of Belgrade: 76% female, 24% male, 87% heterosexual, and 13% LGBT+ (lesbian, gay, bisexual, queer, or asexual). More than half (57%) of students had experienced at least one form of GBV within their institution. Women ($t\,(853.464) = 5.370$, $p = .000$) and students who identified as LGBT+ ($t\,(354.414) = 3.135$, $p = .002$) were significantly more likely to have experienced at least one form of GBV. Even 93% of students who experienced GBV did not report it. The most common reasons for not reporting included: uncertainty about whether the behavior was serious enough (39%), not recognizing the behavior as violence (27%), and the belief that reporting would lead to no action (25%). The most prevalent form of GBV was psychological violence (53%), followed by physical (6%), online (5%), economic (5%), and sexual violence (2%). Psychological violence was experienced by 56% of female and 41% of male students, as well as 60% of LGBT+ and 52% of heterosexual students. The results have important practical implications: it is essential to establish institutional mechanisms for the prevention and intervention of all forms of GBV in the academic context, with a particular focus on psychological violence. Additionally, it is essential to educate students and staff on recognizing GBV and improving reporting mechanisms. Practical solutions, such as toolkits developed within the UniSAFE project, can serve as valuable resources to address these challenges.

Keywords: gender-based violence; university students; gender; sexual orientation; UniSafe study

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PARENTING STYLES AND SOCIAL COMPETENCES IN PREDICTION OF CONFLICT MANAGEMENT STRATEGIES OF YOUTHS IN SERBIA

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Conflicts are inevitable aspects of human behavior, but the lack of skills for constructively dealing with them contributes to many individual and social problems. Therefore, it is important to understand the factors that may contribute to a different approach to conflict situations. The study aimed to explore how the perception of parental styles and personal social competencies predict the conflict management strategies of young adults in Serbia. We have included parental styles based on the assumption that the parental model of communication could have impact on modeling social behavior of youths. Method: The sample included 288 participants (69% females), aged 18 to 30 years ($M = 21.54$, $SD = 2.80$). The applied inventories were The Dutch Test of Conflict Handling –DUTCH, reduced on three factors: Cooperative ($\alpha = .88$), Competitive ($\alpha = .72$), and Defensive conflict management strategy ($\alpha = .72$); Multidimensional Social Competence Scale which included empathy ($\alpha = .87$), emotional regulation ($\alpha = .81$), verbal conversation skills ($\alpha = .78$) and non-verbal skills ($\alpha = .87$), and EMBU scale for parenting style - authoritarian ($\alpha = .87$), permissive ($\alpha=.80$), and democratic styles ($\alpha = .82$). The hierarchical multiple regression analyses were applied with gender, age, and parental styles (first step) and social competencies (second step) as predictors and conflict management strategies as criterion variables. Results: The first model was the significant predictor of Cooperative strategy [$F (5,277) = 3.955$, $p < .01$, $R^2 = .07$], but no individual variables (gender, age, or parental style) reached the significance. The social competencies had stronger predictive power ($F (10,272) = 16.416$, $p < .001$, $R^2 = .38$) where each of them were significant: empathy ($\beta = 0.20$, $p < .01$), verbal communication ($\beta = 0.21$, $p < .01$), nonverbal communication ($\beta = 0.22$, $p < .01$) and emotional regulation ($\beta = 0.25$, $p < .001$). Parental styles didn't predict the Defensive strategies [$F (5,277) = 0.145$, $p = .981$, $R^2 = .00$]. At the same time, social competencies, although significantly contributing, explained just 7% of the variance [$F(10,272) = 2.214$, $p < .05$, $R^2 = .07$], where only empathy had some predictive power ($\beta = 0.20$, $p < .05$). Competitiveness was significantly predicted in the first model [$F(5,277)= 4.267$, p<.01, $R^2 = .07$], with gender ($\beta = 0.13$, $p < .05$), age ($\beta = -0.157$, $p < .05$), and democratic parenting style ($\beta = 0.19$, $p < .01$) as significant predictors .The second model had stronger predictive power [$F(10,272) = 5.650$, p < .001, $R^2 = .17$], with verbal communication skills ($\beta = -0.21$, $p < .01$) and emotional regulation ($\beta = -0.15$, $p < .05$) as negative predictors. Conclusion: All social communication competencies predict Cooperativeness, but they are not strong predictors of Defensiveness, while low verbal and emotional regulation skills predict Competitiveness. Parental styles explained the lower level of variance in predicting all conflict management strategies which could result from the subjective perception of the parental style of their children.

Keywords: conflict management strategies; parenting styles; social competences

THE PROTOTYPE OF AN IDEAL WOMAN IN TITLES OF PORNOGRAPHIC FILMS

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The online porn industry is among the highest growing, with around 100 million people visiting online sites (e.g. Pornhub). Most of the visitors are men (27% aged 18-24). The portrayal of women in this content has great importance, as it establishes men's standards for women and shapes their beliefs about them in general. The aim of this research was to examine how women are represented in the titles of pornographic films. Our hypotheses were based on results of prior research, primarily using video material or synopsis. Since their focus was mostly not on the video titles, which also influence people to click on the videos, we decided to make this the focal point of our research. The prototype of an ideal woman was viewed through four concepts: objectification, agency, role and physical attractiveness. All of these concepts were operationalized with one variable, except physical attractiveness, for which we used two variables (age and attributes related to sexual body parts). We expected women to be objectified (visible in frequent references to body parts), presented with low agency (as an object rather than as a subject), described as physically attractive (young and with oversized sexual body parts) and in numerous and specific roles (the part played). The method used in this research was quantitative content analysis. Our sample contained 180 video titles taken from the category Most popular in Serbia on Pornhub, coded by independent coders ($\kappa = 0.673\text{-}0.722$). Contrary to our expectations, the analysis showed that in the majority of titles women were not objectified, $\chi^2(1) = 9.14$, they were more frequently shown with higher than lower agency, $\chi^2(1) = 6.92$, and more mature than young, $\chi^2(1) = 8.05$, (all $p < .01$); the differences in references to oversized sexual body parts were inconclusive. In line with our fourth hypothesis, women were assigned roles more often than not, $\chi^2(1) = 8.00$, $p < .01$. The most popular roles that women appeared in were "family" roles. The identified prototype of an "ideal woman" in the titles of pornographic movies significantly deviated from those pictured in earlier research. This could suggest that language descriptions serve specific functions, such as communicating certain narratives about women (like different roles, e.g. a stepmom). Objectification tendencies could be more salient in visual cues offered on pornographic sites, such as thumbnails, warranting simultaneous analysis in further research.

Keywords: pornography; content analysis; objectification; ideal woman; agency

UNDERSTANDING HAPPINESS IN NORTH MACEDONIA: A PSYCHOLOGICAL PERSPECTIVE

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Happiness, a core component of subjective well-being, is influenced by individual, social, and economic factors. Research on these influences in North Macedonia remains scarce, highlighting the need for further investigation. This study examines the psychological predictors of happiness, focusing on self-esteem, social connectedness, and economic status, and explores the moderating role of individual-level cultural attitudes toward individualism and collectivism. A quantitative approach was adopted, surveying a representative sample of 400 adults in North Macedonia (55% women, 45% men; mean age = 35.7 years, SD = 11.4). Participants completed validated scales, including the Oxford Happiness Questionnaire (happiness), Rosenberg Self-Esteem Scale (self-esteem), and Multidimensional Scale of Perceived Social Support (social support). Economic status was self-reported, while cultural attitudes were assessed using the Cultural Orientation Scale. Hierarchical regression analyses were conducted to determine predictors of happiness and test interaction effects. Simple slopes analyses were used to explore the nature of significant interactions. Self-esteem emerged as the strongest predictor of happiness, accounting for 34% of the variance (β = 0.58, t (398) = 12.41, p < .001, d = 0.76). Social support also significantly predicted happiness (β = 0.41, t (398) = 9.32, p < .01, d = 0.54), while economic status had a modest contribution (β = 0.22, t (398) = 2.96, p = .03, d = 0.30). Individual-level cultural attitudes significantly moderated these relationships, particularly for social support, with collectivist orientations amplifying its effect on happiness (interaction effect: β = 0.15, t (397) = 3.21, p = .01). Simple slopes analysis revealed that the effect of social support on happiness was stronger for individuals with high collectivist orientations (β = 0.54, p < .001) compared to those with low collectivist orientations (β = 0.18, p < .05). The findings underscore the role of self-esteem and social support in shaping happiness in North Macedonia. Moreover, individual-level collectivist orientations enhance the value of social connectedness, offering culturally sensitive insights for interventions aimed at promoting well-being. Future research should explore longitudinal changes and systemic factors influencing happiness in this context.

Keywords: happiness; self-esteem; social connectedness; collectivism

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ARE LEFT-WING AUTHORITARIANS EVEN AUTHORITARIAN: LATENT PROFILE ANALYSIS OF IDEOLOGY AND AUTHORITARIANISM

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Despite a long tradition of authoritarianism studies, there is still an ongoing debate about its relation to ideology. Some claim that it is a distinctive characteristic of right-wing-oriented individuals, whilst others advocate for the ideological neutrality of authoritarianism. These discussions lead to the establishment of two distinct authoritarianism traits: left-wing and right-wing authoritarianism (LWA and RWA), that supposedly share the same authoritarian core (i.e. a strong support of ingroup norms and authority), but are imbued with either right or left-wing values. If authoritarianism is present across the political spectrum, we should be able to detect it on either side of it. To better understand the relationship between ideology and authoritarianism, we registered participants' ($N = 655$) social and economic ideology (single items), general authoritarianism (ASC scale $\alpha = .74$), RWA (ACT scale $\alpha = .85$), and LWA (LWA index scale, $\alpha = .78$). Latent profile analysis of ideology and general authoritarianism showed four profiles: 1) centrists ($n = 299$) - moderately authoritarian and centrist in their social and economic ideology; 2) libertarians ($n = 156$) non-authoritarian, left-wing socially oriented, and right-wing economically oriented; 3) conservatives ($n = 127$) - relatively high in authoritarianism and right-wing on both ideological axes, and 4) socialists ($n = 73$) - low on authoritarianism and left-wing on both ideological axes. Two one-way ANOVAs with latent profile as an independent variable, and RWA and LWA as outcomes showed that the four groups significantly differed on RWA ($F = 149.96$, p $< .001$, $\eta^2 = .41$). In a post-hoc analysis, socialists and libertarians had the lowest levels of RWA ($M = 2.83$ and $M = 2.85$, respectively) and did not differ significantly ($\Delta M = -.02$, $p = .999$). Centrists' mean score of RWA was significantly higher ($M = 3.88$), whilst conservatives had the highest RWA score of all ($M = 5.03$). As for LWA, we also found significant differences between the four groups ($F = 33.48$, p $< .001$, $\eta^2 = .13$). Socialists scored highest on LWA ($M = 4.51$), followed by libertarians ($M = 4.13$), moderates ($M = 3.46$), and conservatives ($M = 3.32$). As LWA was the highest in groups that were the lowest on authoritarianism, our results question the idea that what is labelled as LWA is actually authoritarianism. Moreover, left-wing authoritarianism did not emerge as a distinct profile, which calls into question the existence of LWA as a trait.

Keywords: Authoritarianism; Ideology; Left-wing authoritarianism; Right-wing authoritarianism

BEST OF BOTH WORLD(VIEW)S: ENDORSEMENT OF CONTRADICTORY BELIEFS PREDICTS CONSERVATIVE IDEOLOGY

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While there are implicit assumptions that ideology is embedded in a particular information processing style, the evidence base is not so solid - some findings suggest that left-leaning individuals are more inclined towards more analytical, open-minded thinking, while others show no relations between information processing style and ideological positioning. One of the reasons for the inconclusive nature of this relationship might be that potentially important aspects of the information processing style are overlooked. For example, the rigid, dogmatic nature of conservative beliefs might be in particular reflected in the endorsement of contradictory beliefs (i.e. doublethink), since beliefs are indiscriminately adopted and then propagated, as long as they are endorsed by relevant authorities. To examine the ideological correlates of doublethink, we conducted a study with a total of $N = 655$ participants, who filled out alongside doublethink, measures of authoritarianism (both neutral and right-wing leaning), political orientation (social and economic), social dominance orientation, dangerous world and competitive jungle beliefs, political cynicism and dogmatism. The results firstly show that doublethink is most strongly related to dangerous world beliefs ($r = .44$, $p < .001$) and authoritarianism (rs ranging from .34 for general authoritarianism to .40 for right-wing authoritarianism; all $ps < .001$). It was also moderately related to political cynicism ($r = .30$, $p < .001$) and weakly to dogmatism ($r = .18$, $p < .001$). Finally, it also showed significant relations to competitive jungle beliefs ($r = .22$, $p < .001$) and social dominance orientation ($r = .13$ and $r = .16$, $ps < .001$). Not only that, but doublethink had an additional contribution (ΔF ranging from 0.38 to 56.59; ps ranging from $p = .556$ to $p < .001$), on top of both social and economic political orientation, for all ideological variables except social dominance orientation (percent of additional explained variance varied from 2% for dogmatism to 13% for dangerous world beliefs). Thus, endorsement of contradictory beliefs seems to be a footprint of a certain set of ideological beliefs - doublethink seems to be most closely related to authoritarianism and the dangerous world beliefs that are often considered to be a precursor of the authoritarian worldview. Our findings thus highlight the need to examine how doublethink contributes to the formation of a conservative worldview and all the ways it manifests in it - for example in different standards or expectations for more privileged versus minority groups.

Keywords: doublethink; ideology; authoritarianism; political orientation; contradictory beliefs

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GENERAL COGNITIVE ABILITY AND EPISTEMIC STYLE SHOW DIFFERENTIAL ASSOCIATIONS WITH MULTIDIMENSIONAL RELIGIOSITY

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Several meta-analyses have confirmed a low negative association between general cognitive ability (GCA) and religiosity, with one (Zuckerman et al., 2020) presenting evidence for individual differences in epistemic styles as a mediator. Although studies used different measures of religious beliefs and behaviors, none systematically encompassed different dimensions of religiosity through a comprehensive instrument. We aimed to determine the relationship between different dimensions of religiosity with GCA and epistemic style (ES; default/automatic vs. recursive/intellective). The sample included 274 high school and university students from the Republic of Srpska, aged 17-29 years ($M = 19.9$, $SD = 2.2$), 75.8% female. GCA was assessed using 15 items from the ICAR Progressive Matrices test ($\alpha = .82$). ES was assessed using three self-report items regarding instinctive decision-making, valuing belief stability, and epistemic absolutism ($\alpha = .65$; unidimensional structure, 55.3% variance accounted for by the first component). Besides general religiosity measured by a single item, multidimensional religiosity was assessed through 36 items and 10 subscales (αs = .66-.94) covering different aspects: ontological, intrinsic, institutional, dogmatic, affiliative, anxious-obsessive, universalistic, fundamentalist, critical, and transcendental experiences. Most participants identified as moderately religious (45.0%), with over a third being very or extremely religious (39.0%). We observed expected correlations between general religiosity and cognitive variables (-.13 with GCA; .15 with automatic ES), but also significant differential effects of religious dimensions. Correlations with GCA ranged from negligible ($r \approx .00$ for critical and universalistic religiosity) to moderate ($r > -.30$ for fundamentalist, dogmatic, and anxious-obsessive religiosity). Similar correlations were observed with automatized ES ($r \approx .00$ for universal and critical religiosity; $r > .30$ for affiliative, fundamentalist, dogmatic, and anxious-obsessive religiosity). Finally, we obtained statistical evidence for hypothesized partial mediation for six religiosity scales (fundamentalist, dogmatic, anxious-obsessive, ontological, institutional, and affiliative). We discuss our results in the context of dual-process models of religious cognition.

Keywords: religiosity; general cognitive ability; epistemic style; cognitive style; multidimensional religiosity

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NO MATTER WHO WINS, ONLY THAT THEY LOSE: EMPATHY, SCHADENFREUDE AND GLUCKSCHMERZ IN FOOTBALL FANS

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Schadenfreude, pleasure in others' misfortune, is a counter-empathic response common in competitive intergroup contexts like sports and politics. Schadenfreude research aligns with intergroup empathy bias findings showing reduced empathy toward outgroups' distress compared to ingroups'. Its counterpart, Gluckschmerz, displeasure in others' fortune, remains understudied. We examined empathic and counter-empathic (Schadenfreude and Gluckschmerz) responses to emotional displays of ingroups, rival outgroups, and neutral outgroups in sports, and their relationship to dispositional empathy, social dominance orientation (SDO) and social identification. Red Star and Partizan fans ($N = 134$) rated 60 real-game photographs of ingroup, rival outgroup and neutral outgroup players displaying positive and negative complex emotions indicating success/failure (e.g. disappointment after missing), and completed fan identification and dispositional measures. Images were rated on emotion intensity and participants' positive and negative emotional responses on a 7-point Likert scale. Emotion ratings were recoded as situation-congruent ("empathic") or incongruent (positive to negative events – Schadenfreude; negative for positive events – Gluckschmerz) and then analysed concerning event valence and player identity. Ratings were significantly higher, $Fs > .42$, $ps < .01$, and group differences more pronounced, $Fs > 14.20$, $ps < .01$, for positive emotions. Ingroups' emotional displays were rated as most intense, followed by rival and neutral outgroups, $F (1.65, 262) = 99.39$, $p < .01$, $\eta^2 p = .43$. Ingroup emotions elicited the strongest congruent response, followed by neutral and rival outgroups, $F(1.27, 262) = 192.48$, $p < .01$, $\eta^2 p = .60$. In contrast, incongruent responses were strongest for rivals, but lower for neutral outgroup and lowest for ingroups, $F (1.19, 262) = 71.49$, $p < .01$, $\eta^2 p = .35$. Group biases correlated positively with fan identity but not with dispositional empathy or SDO. Our study shows Gluckschmerz and Schadenfreude manifest similarly in intergroup dynamics. Ingroups being most influential in stirring congruent, and rivals incongruent emotions, follow intergroup emotions theory predictions that in relevant group situations, distinct and differentiated emotions are felt on behalf of the group, depending on group goals and group identification. Stronger group effects for positive emotions and group effects on emotion intensity suggest mechanisms requiring further study.

Keywords: Schadenfreude; Gluckschmerz; empathy; bias; sport fans

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THE CONSEQUENCES OF CONFRONTING PEOPLE WHO BELIEVE IN CONSPIRACY THEORIES WITH THE IMPERFECTION OF CONSPIRATORIAL EXPLANATIONS

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In this research we investigated what people actually endorse when they agree with statements about conspiracy theory (CT). We were interested in the extent to which mental representations of CT are elaborate, what the dimensions of that elaboration are, and whether elaboration is related to the level of a particular CT endorsement. In the experimental portion of the research, we assessed the effectiveness of an intervention designed to reduce belief in CTs (pre-post measures via 5-point scale). Total of 67 respondents were individually interviewed about a CT they previously endorsed and described. The interviewer asked the respondent to more thoroughly explain the way conspiracy unfolded (successive "how" questions). The intention was to demonstrate to the respondent how implausible it is that numerous conditions necessary for a conspiracy to be executed/remain secret are simultaneously met. Results show that elaboration of a CT, derived from coded CT descriptions, was not related to the level of (pre-intervention) CT endorsement ($r = .21$, $p = .09$), i.e. that CTs participants particularly subscribe to are not represented in more detail, nor better argued. In addition, the designed intervention did not decrease the endorsement of targeted CTs ($F (1, 65) = 2.184$, $p = .144$). Considering that the respondents scored below theoretical average ($M = 1.99$, $SD = 1.05$) on elaboration and the results of thematic analysis of CTs descriptions revealed a conspiratorial worldview (malevolent actors joining in secret) along with a general distrust in the official epistemic authorities (they are lying to us), it seems that belief in CT does not draw from elaborate knowledge, but rather from a higher-order belief. To better understand why the interview had no effect, i.e. why the respondents did not revise their endorsement of a particular CT when faced with the lack of knowledge about the CT plot, we analyzed the strategies our respondents resorted to. They articulated three types of general explanations: endorsing CT despite the lack of knowledge, relativizing the official knowledge and pointing to general mechanisms of how the world functions. In other words, confrontation with the implausibility of CT did not occur because participants did not have specific information with which to confront, but instead relied on a general distrust. Analysis suggests that "conspiracy without a theory" is an adequate model for understanding the general population's views on CTs.

Keywords: conspiratorial mentality; implausibility; elaboration; conspiracy without theory; distrust in the official epistemic authorities

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TO BE OR NOT TO BE A FEMINIST: THE EFFECTS OF A FEMINIST LABEL AND MESSENGER'S GENDER ON THE WOMEN'S RECEPTIVITY OF FEMINIST IDEAS

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To identify psychological underpinnings of rejecting or supporting feminist ideas, we tested whether receptivity of a message about existing gender inequalities varies depending on who sends the message - woman/man who does or doesn't declare her/himself as a feminist. Apart from testing whether common negative associations with a feminist label affect women's perceptions of pro-feminist messages, we raised a question of male allyship in reaching equality. Due to the potential internalization of stereotypes about feminists, we expected benevolent sexism and feminist self-identification to moderate hypothesized relationships so that participants prominent on benevolent sexism and not identifying as feminists would be more hesitant to support feminist ideas. A total of 210 women (M_{age} = 33.11, SD_{age} = 13.83) took part in the 2x2 parallel group online experiment. We manipulated the characteristics of the person advocating feminist ideas (gender and feminist label) through four vignettes. Each participant saw one of the following scenarios – 1) a woman claiming to be a feminist 2) a man claiming to be a feminist 3) a woman denying being a feminist or 4) a man denying being a feminist; all shared the same message about gender inequality. Via 5-point Likert scales, participants assessed the person showcased in the text, the message itself, and their willingness to participate in future events with a similar agenda. While there was no label effect on any of the dependent variables, we found that women were assessed to be more competent speakers compared to men (F (1, 206) = 12.01, p < .001, η^2 = .055). Participants feminist identity moderated the relationship between the speakers' gender and the willingness to take part in pro-feminist events (F (3, 206) = 27.62, p < .001, R^2 = .287). Those with more pronounced feminist identity were more likely to contribute to the movement actively, but only if the call for action came from a female. This readiness to protest/sign a petition may stem from the perception of belonging to the same group with the one calling for action. No effect of message framing diverges from previous research results. This could be due to the young and educated participants, who supported feminist ideas regardless of who communicates them. Despite observed messenger's gender effects, this study still leaves room for male-female allyship and collective action towards gender equality, since male messengers were perceived positively, thus as allies.

Keywords: gender inequality; attitudes towards feminism; feminist label framing effects; male allyship

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The research was supervised by dr Iris Žeželj.

THE RELATIONSHIP BETWEEN WOMEN'S EXPERIENCE OF DISCRIMINATION AND THEIR POLITICAL ACTIVISM

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The main goal of our research was to determine the nature of the relationship between the experience of discrimination and women's political activism, as well as to identify preferred activism strategies among women experiencing discrimination. Although women have historically faced restrictions in their social and political engagement, recent decades have seen an increase in women's political activism (Kolin & Čičkarić, 2010). Based on Bankert's (2020) findings, we hypothesized that women exposed to higher levels of discrimination would be more likely to engage in political activism and would prefer strategies such as voting and contacting politicians over other forms of activism. Our study utilized secondary data from the European Social Survey Round 10 (ESS10), including a sample of 1,504 participants ($M = 53.38$, $SD = 17.61$) from Serbia, focusing on 605 female participants ($M = 51.4$, $SD = 17.9$). The study was conducted using a correlational-regression design. Two self-made scales were used: a discrimination scale and a political activism scale. Tests of normality indicated no significant deviation from normality, although the scales showed lower reliability. Women with a score of 10 or higher (out of 22) on the discrimination scale were classified as experiencing discrimination. Regression analysis indicated that the experience of discrimination significantly predicted political activism ($R^2 = .05$, $F(1, 603) = 33.95$, $p < .001$), with discrimination showing as a significant predictor ($\beta = -.23$, $t(603) = -5.83$, $p < .001$). However, no additional control variables were included in the analysis, which limits the study's scope. Future research should incorporate variables such as education and socioeconomic status, as well as primary data and more reliable scales to enhance the quality of findings. Additionally, research in other countries could provide a broader perspective on this issue. This study marks an essential step in understanding the dynamics between these two significant phenomena and the inclusion of women in political activism to promote greater inclusivity and equality in society.

Keywords: political activism; discrimination; women in politics; activism strategies

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The research was supervised by Anja Simonović.

SEXUAL SATISFACTION OF YOUNG PEOPLE IN BOSNIA AND HERZEGOVINA CONSIDERING DEMOGRAPHIC AND SOCIO-PSYCHOLOGICAL VARIABLES

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Sprecher and Cate (2004) define sexual satisfaction as the degree of satisfaction an individual feels with the sexual aspect of their relationship. Numerous studies show that sexual satisfaction is influenced by many factors, including socio-demographic ones. The aim of our research is to explore whether sexual satisfaction among young people in Bosnia and Herzegovina differs based on gender, sexual orientation, age, education, place of residence, parents' education, religious beliefs, as well as variables such as sexual openness, sexual harassment, conservatism, and knowledge about contraception and sexually transmitted diseases. The study was conducted at the end of 2023, with a sample of 1,070 respondents aged 15 to 30. However, 740 respondents who reported having experience with vaginal or anal sex were included in the analysis. We asked young people in Bosnia and Herzegovina to rate their overall sexual satisfaction on a scale from 1 (very dissatisfied) to 10 (very satisfied). The survey was conducted using a paper-pencil method. The results show that men are more satisfied with their sexual lives than women ($t = 2.091$; $df = 717$; $p < .037$), as are heterosexual individuals compared to those who do not identify as such ($t = 2.816$; $df = 720$; $p < .005$). The highest level of sexual satisfaction is found among religious individuals who accept everything their faith teaches, followed by those who are unsure about their religious beliefs, and then by religious individuals who do not fully accept all teachings of their faith. The least satisfied with their sexual lives are young non-believers ($F = 4.548$; $df = 3$; $p < .004$). Regarding other demographic variables such as age, education, place of residence, and parental education, no significant differences were found. The relationship between sexual satisfaction and sexual harassment among young people is very weak and negative ($r = -.128$; $p < .00$). Research shows that personal satisfaction with sex depends on many factors, but our results highlight three key variables. Men report higher satisfaction with their sexual lives than women (Laumann et al., 2006; Carpenter et al., 2009).It is difficult to explain why heterosexual individuals are more satisfied with their sexual lives than non-heterosexual individuals, but minority stress could pay a role (Kamenov, Huić, Jelić, 2015), although some studies suggest that non-heterosexual individuals may be more satisfied with their sexual lives (Štulhofer, Štulhofer Buzina & Gregurović, 2003). It is also challenging to explain why individuals who describe themselves as religious are more satisfied with their sexual lives than those who are less religious. Studies show that religious individuals are generally more satisfied with their lives (Kim-Prieto et al.; Miller, 2018; Ramsay et al., 2019), so this satisfaction could extend to various aspects of life, including sex.

Keywords: sexual satisfaction; youth; gender; sexual orientation; Bosnia and Herzegovina

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IS COVID-19 VACCINATION LINKED TO TRUST IN THE NATIONAL PARLIAMENT?

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Our research focuses on two main areas: the first is trust in the parliament, which includes the belief that institutions will act in the interest and welfare of the entire community (Falkenbach & Willison, 2022), and the second is the willingness to get vaccinated against the coronavirus. This topic was inspired by previous research indicating that trust in the state system directly predicts an individual's decision to get vaccinated against COVID-19 (Van Oost et al., 2022). Additionally, people who believe that the state is taking adequate measures to protect citizens' health may be more likely to accept vaccines (Bajos, 2022). Based on this, we wondered whether higher levels of trust in the parliament correlate with a greater willingness to get vaccinated against COVID-19 in the Republic of Serbia. We used secondary data from the ESS database collected in Serbia in 2020, with a sample of 1,505 respondents (43.7% women, 52% men and 4.3% did not respond). The variables consisted of individual items from the database, operationalized as trust in parliament, a continuous variable (0-10); and willingness to vaccinate, a categorical variable (Yes, I will; Yes, I already have; No). We used the ANOVA test for homogeneity and variance to examine whether trust in parliament (the predictor) is related to the willingness to get vaccinated (the criterion), and in what way. We have confirmed our hypothesis, which is consistent with the research by Van Oost and colleagues from 2022. The results show that those who have already been vaccinated ($n = 820$), as well as those planning to get vaccinated against COVID-19 ($n = 152$), have higher levels of trust in the national parliament ($M = 2.3669$) compared to those who are unwilling to vaccinate ($n = 339$). This is supported by statistical data $F(2,1308) = 19.90$, $p < .001$, $\eta^2 = 0.029$. Also, a significant difference between the groups "Yes, I will" and "No" is expressed with statistics sig = .001; mean difference = 1.311*, and a significant difference between the groups "Yes, I already have" and "No" with sig = .000; mean difference = 1.410*, in the scores on trust in parliament. Therefore, this study emphasizes the role of trust in the parliament as a significant factor for the success of vaccination campaigns and mass immunization. Given that we only investigated vaccination decisions related to COVID-19, we believe it could be useful to explore whether this pattern applies to vaccination against other diseases as well.

Keywords: trust in the national parliament; vaccination; COVID-19

GENDER (NON)CONFORMITY AND HELPING BEHAVIOR

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Numerous studies have addressed the relationship between gender and helping behavior, but there is a lack of research considering whether conformity to gender norms may be associated with helping behavior. Gender nonconformity is related to an absence of conformity to gender-based societal proscriptions regarding appearance, feelings, or behaviors. This study examined whether perceived gender (non)conformity is related to helping behavior and the pleasantness of social interaction. We hypothesized that women would be more ready to help, but that there would generally be less helping behavior towards gender nonconforming people and that social interaction would be less pleasant in comparison to gender conforming people. Naturalistic observation design research was conducted. The physical appearances of the two actors-collaborators who were part of the research team (feminine and masculine woman) and two who were volunteers (feminine and masculine man) were modeled to fit our pre-tested profiles of feminine and masculine women and men, achieving variation in gender (non)conformity. In a naturalistic setting (public space) they approached bystanders, asking them for low-risk assistance. Their gender, helping behavior, and pleasantness of social interaction were coded by two out of five independent observers at all times (ICC .873-.982). Our sample comprised 76 participants (53% women and 47% men), after excluding four cases in which helping behavior was coded as inconclusive. The results indicated no significant difference in helping behavior depending on the gender of the helper. However, there was a significant difference between providing help to gender conforming versus gender nonconforming actors-collaborators $\chi^2 = 5.330$ (1, $N = 76$), $p = .021$, that is gender conforming people received more help. The significant interaction between (non)conformity of the actors-collaborators and the gender of the actors-collaborators in terms of helping behavior was registered as well. The interaction indicates that the frequency of helping behavior is higher towards female actresses-collaborators than among males, but only if the female actress-collaborator is a feminine one. Regarding the pleasantness of the social interaction, there were no significant differences either depending on the gender of the actors-collaborators or their (non)conformity. Overall, our findings indicate the existence of discrimination against gender non-conforming people. Its existence in the situation of low demand is worrisome, as it calls into question how it is in other situations or, for example, helping professions.

Keywords: gender; gender nonconformity; helping behavior; naturalistic observation

BELIEF IN CLIMATE CHANGE CONSPIRACY: THE CONCEPT AND ITS' DIFFERENCE FROM CONSPIRACY MENTALITY

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The modern world is, among many others, facing a variety of ecological challenges. The aim of this study was to determine if belief in climate change conspiracy and conspiracy mentality (CM) are distinct constructs and to explore its predictors among sociodemographic factors and CM. Conspiracy theories about climate change imply that the public consensus about the reasoning behind climate change are manufactured and untrue, and that groups with malicious intent are behind it (Uscinski et al., 2017). Conspiracy mentality is a predisposition to explain events as conspiracies; a general tendency to believe in conspiracy theories (Imhoff & Bruder, 2014). Imhoff et al. (2022) argue how, although related, conspiracy mentality and beliefs in specific conspiracy theories differ. Data were collected face-to-face by the Institute of political studies in 2019. The sample included 1181 respondents from Serbia, 608 men (52%) and 573 women (48%) (average age $M = 45.03$, $SD = 16.45$; years spent in education $M = 12.81$, $SD = 2.68$). Conspiracy Mentality was operationalized through six questions using a five-point Likert-type scale (Brotherton et al., 2013) (Cronbach Alpha .88); Climate Change Conspiracy through four questions using same scale (van Proojen et al., 2015) (Cronbach Alpha .83). Conspiracy mentality ($M = 3.67$, $SD = .88$) and climate change conspiracy ($M = 3.27$, $SD = .98$) were shown as distinct constructs since two factors were extracted using exploratory Factor Analysis (EFA) with Principal Component Extraction and Varimax rotation, Eigenvalue > 1 Kaiser criterion. The results of hierarchical regression revealed a model using only sociodemographic variables (age, gender, education, financial situation) not to be statistically significant ($F = .54$, $p > .05$). However, when conspiracy mentality was included in the second block, the model became statistically significant, indicating that conspiracy mentality is a predictor of such beliefs and accounts for a significant portion of the variance ($R^2 = .34$, $F = 87.44$, $\beta = .58$, $t(855) = 20.83$, $p < .001$). Individual characteristics like conspiracy mentality significantly influence belief in specific climate conspiracy theories and no sociodemographic groups are notably predisposed. These results help to better understand specifics and differences in beliefs about climate change in relation to a conspiratorial mindset, adjusting and planning actions to raise general awareness about climate change challenges and conspiracy beliefs surrounding them.

Keywords: conspiracy theories about climate change; conspiracy mentality

LEARNING VIA CONFLICTING HISTORIES: IMPACT OF MULTI-PERSPECTIVE INTERVENTION ON INTERGROUP ATTITUDES AND HISTORICAL THINKING OF YOUTH IN SERBIA

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Conventional methods of teaching history in post-conflict settings often deepen existing intergroup divisions. In contrast, there is some evidence indicating that a multi-perspective approach, i.e. learning via coordinating different versions of history could foster more nuanced historical thinking and lead to better intergroup relations. Therefore, we recruited young people (aged 16 to 19) living in Serbia and tested whether an intervention based on a multi-perspective approach to learning history will: 1) decrease the tendency to uncritically stand for ingroup historical narrative measured by Firmly Entrenched Narrative Closure Scale; 2) increase an integrated, so-called "criterialist" epistemic belief about history most often observed in expert historians, in which objective and subjective aspects of history are coordinated. We employed a pretest-intervention-posttest design with experimental and two control groups. In the experimental ($N = 58$) and control group 1 ($N = 58$), participants worked in pairs, reading both the ingroup and outgroup narratives (Serb or Bosniak) about the same event from the history of Yugoslavia in Second World War while trying to create a joint narrative. Participants from the experimental group underwent a brief training in the constructive use of multiple perspectives in history teaching and collaborated with an outgroup peer (majority Serb or minority Bosniak); while in the control group 1, they collaborated with an ingroup peer on the same task but without any training. Control group 2 ($N = 36$) resembled traditional mono-perspective history teaching, i.e. participants read only the majority ingroup narrative and individually answered multiple-choice questions. ANCOVA ($F (2, 148) = 8.61$, $p < .001$) showed that participants in the experimental group were less uncritically defensive regarding the ingroup narrative than participants in the control group 1 (t = 2.80, p=.02, d = .52) and control group 2 ($t = 3.96$, $p < .001$, $d = .84$) when controlled for pretest measurement. At the same time, ANCOVA showed no difference between conditions on "criterialist" epistemic belief ($F (2, 147) = .17$, $p = .84$). Yet, mixed ANOVA indicated that only participants in the experimental group showed an increase in "criterialist" epistemic belief between pretest and posttest measurement (mean difference = -.25, *se* = .09, *p* =.01, CI 95% [-.43, -.06]), even though interaction between condition and time of measurement was insignificant ($F (2, 148) = 1.21$, $p = .30$). Our study showed that even simple one-time multi-perspective intervention could facilitate intergroup attitudes and epistemic beliefs, making it a potentially useful educational tool that could be further upscaled.

Keywords: multi-perspectivity; history teaching; former Yugoslavia; Firmly Entrenched Narrative Closure Scale; epistemic beliefs

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SOCIO-POLITICALLY CONSCIOUS INDIVIDUALS' UNDERSTANDING OF THE INTERPLAY BETWEEN IDEOLOGY AND OBSTETRIC VIOLENCE

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Obstetric violence is a prominent form of violence in Serbian healthcare settings, exemplifying the politicization of the body, where ideology and traumatic experiences intertwine. The Möbius strip model was used by psychoanalysts and feminist scholars to conceptualize the interdependence of inner processes and ideological structures in various subjective phenomena. We applied this framework to explore how socio-politically conscious individuals understand the interplay of ideology, practice, and victims' experience in the context of obstetric violence. We purposely sampled 11 young adults (7 male; aged 26-34) based on the following criteria: they were either members of a political organization or had an academic interest in politics; they were familiar with obstetric violence but had no personal experience with it. We conducted semi-structured, in-depth interviews and analyzed their responses using thematic analysis. Results are organized into three broad themes, presented here and illustrated with one subtheme. The first and most extensive theme is "Dominance of Ideology." Here, participants identified various ideological narratives that govern tangible practices, for example, how capitalism fosters inhumane birth practices by viewing women as mere means of producing a workforce. In the second theme, "Paradoxes of Ideology," they address conflicting ideological narratives and their effects, e.g., the coexistence of narratives that romanticize motherhood alongside ones that dehumanize women during childbirth. The least prevalent theme, "Rupture of Ideology," recognizes the discontinuation of ideological reasoning in isolated moments of extreme violence, e.g. emotional flooding during traumatic experiences and retroactive rationalization. From our analysis, we infer that socio-politically conscious participants, in line with their epistemological positions of high political awareness, predominantly focus on one aspect of the Möbius strip by identifying different narratives that perpetuate obstetric violence. However, they find it challenging to reflect on how these narratives interact with women's subjective experiences. While their perspective is valuable, we plan to gain a more comprehensive insight into the body-ideology interaction by exploring the victims' understandings and lived experiences. We will discuss the socio-political implications as well as the limitations of our findings regarding the sample structure.

Keywords: obstetric violence; ideology; Möbius strip; socio-political consciousness

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EDUCATIONAL PSYCHOLOGY

THE IMPORTANCE OF PRIDE WHEN LEARNING MATH: THE INFLUENCE OF ACADEMIC EMOTIONS AND MOTIVATION ON MATHEMATICS ACHIEVEMENT

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The academic emotions (AE), grounded in control-value theory (Pekrun, 2006), is a well-known construct whose importance for students' motivation, learning strategies, and performance has been confirmed in numerous studies. Not all AE received equal attention, with negative emotions, especially anxiety, being the main focus of the mathematics achievement research. Findings about the intertwined influence of AE and related constructs such as motivation on academic outcomes have yet to be fully elucidated. The aims of the study were to examine the impact of academic emotions on mathematics academic achievement, after taking into account demographic variables (age, gender, type of school); determine whether the predictive power of academic emotions changes when the motivation for learning mathematics (intrinsic motivation, perceived utility, and perceived competence) is included; examine which tested emotions (enjoyment, pride, anger, anxiety, shame, hopelessness, boredom) will have the greatest significance for math achievement. The convenience sample of 457 students (70% female; $M_{age} = 16.35$), from grammar and vocational schools, completed the AEQ-M (Pekrun et al., 2011) and EVS (Wigfield & Eccles, 2000) instrument in the school or online format. Hierarchical regression analysis was conducted, with demographic variables entered in the first step of the model, positive emotions (enjoyment and pride) entered in the second step, negative emotions (shame, anger, anxiety, boredom, helplessness) entered in the third step, and motivation (utility, intrinsic and perceived competence) entered in the fourth step of the model. Results revealed that positive emotions significantly predicted achievement, even after accounting for demographic variables, and remained significant across all models (Model 2: $R^2 = .377$, $p < .001$). Their influence slightly diminished as additional variables were introduced. Negative emotions contributed minimally in Model 3 ($\Delta R^2 = .023$, $p < .001$) but became nonsignificant in later models. Motivation, driven primarily by perceived competence, added to the predictive power in Model 4 ($\Delta R^2 = .027$, $p < .001$). The final model explained 42.7% of the variance in math grades ($F (2, 626) = 61.723$, $p < .001$), with pride emerging as the most influential positive emotion. These findings indicate the importance of nurturing positive activating emotions in the classroom but also call for more research studies on positive emotions in everyday school contexts.

Keywords: academic emotions; motivation; math academic achievement; high school students

TEACHERS' MINDSET AND PRACTICES IN SUPPORTING STUDENTS' MOTIVATION FOR LEARNING MATHEMATICS

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The concept of mindset, particularly teacher mindset, has gained considerable attention over the past two decades from both researchers and practitioners. It refers to (teachers') beliefs about whether (students') abilities are fixed and unchangeable (fixed mindset) or can be developed and improved (growth mindset). Teachers' beliefs can greatly shape their classroom practices—how they support students, motivate them to learn, create the classroom atmosphere, and set expectations for their students. Research indicates that a teacher's growth mindset has benefits for students and is associated with better academic outcomes, including higher motivation, persistence, self-efficacy, and success. Findings also show that students' motivation to learn mathematics declines significantly during elementary school, especially during the transition from classroom to subject teaching. In this context, we were interested in exploring how classroom and subject teachers' beliefs regarding learning mathematics are related to their practices in motivating students to learn mathematics. Findings draw on semi-structured interviews with teachers exploring teachers' beliefs, attitudes and practices related to fostering students' motivation to learn mathematics. As part of a broader study, we selected teachers based on the average scores of students in their classes, which were characterized by high intrinsic motivation, perceived competence, and enjoyment of learning mathematics. Six classroom teachers and six mathematics teachers from primary schools participated in the interviews lasting around 30 minutes. With the participants' consent, the interviews were recorded and transcribed. Data from the interviews were analyzed using an inductive-deductive thematic approach, with some codes informed by motivational theory and others derived from the data. In the analysis we explored teachers' mindset, their beliefs about the nature of mathematics, as well as their strategies for supporting diverse students. Results indicate that nearly half of teachers exhibit a fixed mindset, and more than a half lack well-developed, explicit and differentiated strategies for supporting motivation of different types of students. For classroom teachers, their personality, enthusiasm, and classroom atmosphere are seen as fundamental for fostering student motivation. On the other hand, subject teachers most commonly use strategies focused on the importance of grades for academic success and the practical utility of mathematics in everyday life.

Keywords: mindset; teaching; motivational practices; mathematics; primary school teachers

THE WORDS THAT DISCOURAGE: DISCOURSES DETERING GIRLS FROM PURSUING ICT EDUCATION

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Despite significant efforts to tackle gender inequality in digital technologies, the issue remains prevalent. In Serbia, it is evident in the underrepresentation of girls and women in ICT-related education at secondary and higher levels, resulting in a disproportionate gender balance in ICT workplaces. This disparity affects women's employment prospects, earning potential, and their ability to contribute to the technological innovations that shape society and the future. Sociocultural theories argue that access to a social domain is granted or denied through discursive positioning. This study was conducted to identify societal obstacles to greater participation of women in ICT by examining the discourses about the ICT sector and their connection to the gender of both the speaker and the person considered in the ICT context. The study employed the Three Steps Participative Generalization and Reflection method. First, 326 secondary-school students wrote a message advising an imaginary peer (whose gender was randomly assigned to respondent) on whether to enroll in an ICT-related university program. A reflexive thematic coding led to four themes encompassing 16. We used a Chi-square test to explore distributions of codes in relation to gender of the sender and recipient of the message. The findings were discussed in two focus groups, exploring the communication channels conveying the discourses. In the final phase, we presented the findings in two schools for validation and to stimulate students' reflection on the issue. Students highlighted themes related to employability, benefits of working in the ICT, as well as its drawbacks and necessary prerequisites. Girls emphasized more than boys the need for a talent for ICT ($\chi = 5.238$, $p = .022$) and an interest in the field ($\chi = 7.031$, $p = .008$). Boys emphasized the possibility of career advancement ($\chi = 4.139$, $p = .042$) and flexibility of the job ($\chi = 3.712$, $p = .054$). When the message was directed at girls there was a greater emphasis on the need for effort in an ICT career ($\chi = 4.264$, $p = .039$), the fear that ICT is a saturated field ($\chi = 6.651$, $p = .010$), as well as the possibility that ICT is overly demanding ($\chi = 4.832$, $p = .028$). Promoting ICT among girls requires addressing misinformation and myths while showcasing the diversity of roles in the field. It is also essential to raise awareness of discouraging messages and the channels through which they are transmitted, helping to counter their impact and empower girls in ICT.

Keywords: gender; secondary education; higher education; ICT; sociocultural theory

DEVELOPMENT AND EVALUATION OF STEAM EDUCATIONAL PACKAGES: THE EFFECTS ON SERBIAN STUDENTS

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This paper explores the development and evaluation of STEAM educational packages (EP) for the first cycle of primary education within the proSTEAM project, involving four countries (Portugal, Italy, Lithuania, Serbia). Despite the growing interest in STEAM education, challenges persist in meaningfully integrating the five disciplines, particularly with younger students, who are still developing their capacities for experimentation and reflection (Bassachs et al., 2020; Silva-Hormazábal & Alsina, 2023). To address these challenges, the project aimed to develop and test STEAM EP, including teaching materials, science kits, and implementation guidelines, applicable across Europe. First, common themes were identified in the national curricula of the four countries. Subsequently, 12 STEAM EPs were developed, with three packages from each country. The evaluation of these EPs included three phases: (1) assessment against quality criteria, (2) teachers' impressions after piloting the EPs, and (3) teachers' assessment of the extent to which students achieved the intended educational objectives, as well as students' motivation and emotions after engaging with the EPs. The following instruments were used: five groups of quality criteria (theme adequacy, clear phases of package implementation, operationalization of activities and tasks, opportunities for student reflection, and ethics and sustainability), 5-point Likert scales for assessing students' motivation and emotions, and a three-level scale for teachers' assessment of students' attainment of educational goals. The results showed that one EP did not meet the quality criteria. Teachers' impressions were generally positive, and their feedback contributed to further improvement of the EPs. In the third phase, three EP, two developed in Italy and one in Serbia, were tested by 29 Serbian teachers with 608 students aged 7-10. These EP focused on themes such as symmetry, developing instruments for collecting and measuring rainfall, and the human body. Results revealed that the average scores for student motivation were above 3.7, and for emotions, above 4.1. Teachers' assessments of students' attainment of educational goals were mostly at the second level (understanding of phenomena) or third level (analytical skills and knowledge transfer). These results suggest that the tested EPs had positive effects on Serbian students' motivation, emotions, and their achievement of the intended educational goals.

Keywords: STEAM; educational packages; evaluation; primary school

BULLYING VICTIMIZATION AND LIFE SATISFACTION AMONG HIGH SCHOOL STUDENTS

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Bullying reflects repetitive and intentional acts of aggression that aim at harming a peer who is weaker or in a more vulnerable social position than the bullying perpetrator. Experiences related to bullying victimization are associated with short- and long-term negative outcomes for students, and there is some evidence that bullying victimization may be associated with low life satisfaction in adolescents. To investigate the relationship between bullying victimization and life satisfaction among adolescents, 243 students from two high schools in Belgrade (76.5% female) aged 14–19 years (M = 16.5; SD = 1.1) completed paper questionnaires. Bullying victimization was assessed using the Delaware Bullying Victimization Scale, a six-point Likert scale with a total 16 items (α = .92) grouped into four subscales: Verbal, Physical, Social/Relational and Cyberbullying. The total score is the sum of the three subscales - Verbal, Physical and Social/Relational (it is recommended that the score for Cyberbullying is not included in the total score), while separate scores were calculated for each subscale. Adolescents' life satisfaction was assessed using the Brief Multidimensional Students' Life Satisfaction Scale, a five-point Likert scale with 6 items (α = .77). The results indicate a weak negative correlation between the experience of bullying victimization and life satisfaction, meaning that high school students who are exposed to less bullying tend to have higher life satisfaction (r (241) = -.15, p < .05). An examination of the forms of bullying shows that exposure to social/relational (r (241) = -.18, p < .01) and physical bullying (r (241) = -.15, p < .05) is negatively associated with life satisfaction, while no statistically significant correlation was found between verbal (r (241) = -.08, p = .17) or cyberbullying (r (241) = -.08, p = .21) and students' life satisfaction. The obtained results emphasize the need for further research to clarify the relationship between bullying victimization and adolescents' life satisfaction by including potential moderating or mediating variables. Additionally, they highlight the importance of implementing appropriate interventions for students who are, or are at risk of being, victimized to minimize negative effects such as life dissatisfaction.

Keywords: bullying; victimization; life satisfaction; high school students

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RELATIONSHIP BETWEEN EMOTIONAL REGULATION AND PROCRASTINATION AMONG UNIVERSITY STUDENTS: THE MEDIATING ROLE OF ACADEMIC SELF-EFFICACY

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Procrastination is a widespread phenomenon that adversely affects various life domains, including academic achievement. Although existing theories propose that emotion regulation plays a crucial role in both the onset and persistence of procrastination, research examining the relationship between these factors remains scarce. Moreover, prior studies highlight how adaptive emotion regulation strategies promote learning and enhance memory, thereby supporting academic efficacy. In an academic context, self-efficacy serves as a self-regulatory mechanism with a significant influence on students' academic behavior. Students with high levels of self-efficacy perceive academic tasks as a challenge that they face confidently, equipped with their knowledge and skills. This results in a more responsible and efficient attitude towards academic responsibilities. In this regard, the current study aims to investigate the relationship between emotion regulation and procrastination among university students, focusing on the mediating role of academic self-efficacy. The non-randomized sample consisted of 239 female and 39 male university students from the first to fourth year of undergraduate studies, aged 18 to 28 years. Students completed the General Procrastination Scale (GPS), the Emotion Regulation Questionnaire (ERQ), with Reappraisal and Suppression subscales, and the Academic Self-efficacy Scale, with Self-efficacy in Achieving Desired Learning Goals and Self-efficacy in the Learning Process subscales. To address the study's aim, we employed mediation analysis using Hayes's PROCESS macro (Model 4). Results indicates that Reappraisal do not exert a direct effect on procrastination but do exhibit a positive direct effect on Self-efficacy in the Learning Process. In contrast, Suppression do not exert a direct effect on procrastination or academic self-efficacy. Self-efficacy in the Learning Process, in turn, exert a negative direct effect on procrastination. Additionally, Self-efficacy in the Learning Process fully mediates the relationship between Reappraisal and procrastination (indirect effect = -.14, 95% CI = [-.241, -.057], $p < .01$). Results suggest that students with stronger self-efficacy beliefs in the learning process are better able to manage emotional challenges and avoid procrastination, underscoring the importance of fostering emotional regulation skills and enhancing academic self-efficacy in higher education settings to mitigate procrastination.

Keywords: emotional regulation; procrastination; self-efficacy; mediation

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RELATIONSHIP BETWEEN CONSCIENTIOUSNESS FACETS AND ACADEMIC ACHIEVEMENT: THE MEDIATING ROLE OF PROCRASTINATION

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Extensive research has established a relationship between the personality trait of conscientiousness and academic achievement among high school and university students. However, the specific mediating factors underlying this relationship are only beginning to be explored. Procrastination, involving the deliberate delay of intended actions despite recognizing potential adverse outcomes, remains a prevalent challenge that significantly impacts academic performance. Given that procrastination is strongly related to conscientiousness and poor academic outcomes, the current study seeks to extend prior research by employing a mediation analysis model to explore procrastination as a factor that may mediate the relationship between facets of conscientiousness and academic achievement. The non-randomized sample consisted of 24 male and 164 female university students (second to fourth year of undergraduate studies), aged 19 to 28 years ($M = 21.18$; $SD = 1.57$). Midway through the first semester, we administered the Conscientiousness Scale from the Big Five Inventory-2 (BFI-2), which encompasses facets such as Organization, Productiveness, and Responsibility, alongside the General Procrastination Scale (GPS), through both online and in-person methods. Academic achievement was assessed using students' GPA from the previous academic year. To address the study's aim, we employed mediation analysis using Hayes's PROCESS macro (Model 4). Results indicate that Productiveness has a positive direct effect on academic achievement and a negative direct effect on procrastination. In contrast, Organization and Responsibility do not have a direct effect on academic achievement but do exhibit a negative direct effect on procrastination. Procrastination, in turn, has a negative direct effect on academic achievement. Procrastination fully mediates the relationship between Organization (indirect effect = .051, 95% CI = [.029, .076], $p < .01$) and Responsibility (indirect effect = .054, 95% CI = [.032, .082], $p < .01$) with academic achievement, and partially mediates the relationship between Productiveness and academic achievement (indirect effect = .038, 95% CI = [.007, .071], $p < .01$). The findings align with and extend prior research on the relationship between conscientiousness, procrastination, and academic achievement. They suggest that facets of conscientiousness exert distal effects on academic achievement through more proximal characteristics, such as procrastination.

Keywords: conscientiousness; academic achievement; procrastination; mediation analysis

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PREDICTION OF INTERNET ADDICTION AMONG YOUTH: THE ROLE OF ACADEMIC EMOTIONS

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Internet addiction significantly impacts emotional well-being, academic performance, and social relationships. Previous research has found that time spent online is correlated with problematic behaviors in youth. However, other factors may influence this connection. Academic emotions are particularly relevant, as they affect academic engagement and technology-related behaviors. This study aimed to investigate how time spent online is correlated with internet addiction, and whether academic emotions provide additional explanatory value. It was hypothesized that academic emotions account for unique variance, potentially altering the impact of time online. The sample included 218 high school and university students ($M_{age} = 21.07$, $SD = 2.50$). Instruments used were (1) the Internet Addiction Test to assess two dimensions of internet addiction: Withdrawal and Social Problems (WSP) and Time Management and Performance (TMP), and (2) the short version of the Academic Emotion Questionnaire measuring academic emotions (including: Anxiety, Shame, Helplessness, Boredom, Enjoyment, Hope, Pride, and Anger). Participants also reported daily time spent online. Two hierarchical regressions were conducted. The results showed that in the second step there was a significant change in prediction in both cases: WSP ($R^2 = .31$, $\Delta F (8, 207) = 9.83$, $p < .01$), and TMP ($R^2 = .22$, $\Delta F (8, 207) = 5.95$, $p < .01$). Time spent online was significantly associated with both WSP ($\beta = .22$, $p < .01$) and TMP ($\beta = .21$, $p < .01$) in the first step, but its effect decreased in the second step, remaining significant only for WSP ($\beta = .14$, $p < .05$). In the second step significant predictors for WSP included: Shame ($\beta = .26$, $p < .01$), Boredom ($\beta = .22$, $p < .05$), Enjoyment ($\beta = .21$, $p < .01$), and Anger ($\beta = .29$, $< .01$). Significant predictors for TMP included: Anxiety ($\beta = .18$, $p < .05$), Shame ($\beta = .21$, $p < .01$), Boredom ($\beta = .21$, $p < .05$), and Pride ($\beta = .16$, $p < .05$). These findings highlight that shame and boredom predict both dimensions of internet addiction, but other emotions vary across WSP and TMP. It seems that using the Internet could be seen as a coping mechanism for unpleasant emotions, but also as a prolonged stimulation for pleasant emotions related to achievement. Future research should focus on interventions for reducing internet addiction, focusing on emotional regulation and executive functions as mediating variables.

Keywords: internet addiction; academic emotions; time spent online

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STATISTICS ANXIETY IN STUDENTS: MAIN EFFECTS OF GENDER AND SPECIFIC LEARNING DIFFICULTIES AND THEIR INTERACTION

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The results of previous research consistently suggest that women are more vulnerable for anxiety states and that the presence of SpLD contributes to more pronounced test anxiety. The purpose of this study is to investigate whether gender and the presence of specific learning disabilities (SpLD) have an interactive effect on the manifestation of statistical anxiety among students. The study seeks to determine if female students with SpLD are at an elevated risk of experiencing anxiety compared to their counterparts. Data were open and were collected as part of a large cross-cultural study on the topic of statistical and mathematical anxiety. The sample consisted of 9600 students from 18 years to older (most students were between 18 and 21), of which 7757 were female, and 719 students had at least one diagnosed disorder which contributes to learning difficulties (dyscalculia, dysgraphia, dyslexia, dyspraxia, and/or ADHD/ADD). The STARS questionnaire with three subscales was used to measure statistical anxiety: Test and class anxiety, Interpretation anxiety and Fear of asking for help. Results of MANOVA confirm previous findings that gender ($\lambda = .99$, $F = 45.81$, $p < .01$) and SpLD ($\lambda = .99$, $F = 6.76$, $p < .01$) are significant factors that contribute to the expression of statistical anxiety, but there is no significant interaction effect ($\lambda = 1.00$, $F = .80$, $p = .49$). Based on the analyses of the group differences, the results show that female students are significantly more anxious than male students on all three subscales of STARS: Test and class anxiety ($M_{diff} = 3.80$, $p < .01$), Interpretation anxiety ($M_{diff} = 4.20$, $p < .01$) and Fear of asking for help ($M_{diff} = 1.67$, $p < .01$). Furthermore, students diagnosed with SpLD achieve higher scores on the dimensions Test and class anxiety ($M_{diff} = 0.99$, $p < .01$), Interpretation Anxiety ($M_{diff} = 2.03$, $p < .01$) and Fear of asking for help ($M_{diff} = 0.57$, $p < .01$). In conclusion, the lack of interaction between gender and specific learning difficulties (SpLD) can be explained by the different dynamics underlying statistical anxiety. Social stereotypes associating with weaker mathematical ability in women may contribute to reduced self-confidence and mathematical self-concept when coping with statistical material. The cognitive difficulties inherent in SpLD may lead to less effective coping strategies with stress and worse mathematical achievement, which are central to the development of statistical anxiety, regardless of gender.

Keywords: Statistical anxiety; gender; specific learning difficulties; gender stereotypes; cognitive abilities

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INTERNET ADDICTION TEST: PILOT VALIDATION ON SERBIAN YOUTH SAMPLE

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The Internet Addiction Test (IAT), developed by Young (1998), remains widely used for assessing internet addiction despite criticism due to evolving internet use patterns. The IAT conceptualizes internet addiction as a multidimensional construct characterized by excessive use, withdrawal symptoms, neglect of responsibilities, and social dysfunction. While its psychometric properties have been evaluated in various cultural contexts, limited research has explored its validity within the Serbian youth population. This gap is significant, given the increasing prevalence of problematic internet use among youth, which has been linked to distress and academic challenges. The aim of this study is to validate the IAT in a Serbian cultural context, examining its basic psychometric properties. The test consists of 20 self-rated items on a 5-point Likert scale, and it was translated into Serbian language. The study sample included 218 participants ($M_{age} = 21.07$, $SD = 2.5$), mostly high school and university students, with 83.1% female, recruited via an online survey link. Exploratory factor analysis (EFA) was conducted using principal components extraction. The KMO coefficient measure of sampling adequacy was found to be 0.89, ($p < .01$), indicating a very good fit for factor analysis. Internal consistency found to be $\alpha = .89$. Parallel analysis suggested a two-factor solution explaining 44.59% of the variance. The identified factors were Withdrawal and Social Problems (WSC, $\alpha = .86$) and Time Management and Performance (TMP, $\alpha = .86$). A significant positive correlation was found between WSC scores and time spent online ($r = .22$, $p < .01$), as well as between TMP scores and time spent online ($r = .21$, $p < .01$), suggesting its convergent validity. No significant gender differences were observed at WSC ($t(217) = .97$, $p = .33$, $d = .18$), as well as at TMP ($t(217) = .66$, $p = .51$, $d = .12$). The results did not reveal significant correlations between WSC and age ($r = -.04$, $p = .51$), nor between TMP and age ($r = -.03$, $p = .61$), suggesting that internet addiction is a universal issue across demographic categories in this sample. The findings support the IAT's reliability and validity for assessing internet addiction in Serbian youth. However, the original three-factor structure was not replicated, with two factors identified instead, emphasizing the need for further exploration of its dimensionality with larger, more diverse samples.

Keywords: internet addiction test (IAT); psychometric properties; exploratory factor analysis; adolescent population

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WORK AND ORGANIZATIONAL PSYCHOLOGY

WORK – LIFE CONFLICT AND WORK ENGAGEMENT: THE ROLE OF SOCIAL SUPPORT

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The main problem of this research was the relationship between social support and two important aspects of individual's work environment, reflected in the work – life conflict on the one hand, and work engagement on the other. This research aimed to investigate the relationship between social support (supervisory social support and organizational social support), work-life conflict and work engagement. A total of 168 employees working in the public or private sector in Belgrade participated in the study. Questionnaire included modified Work - Family Conflict Scale, Family Supportive Supervisor Behaviors - Short Form, Perception of Family-supportive Organizational Culture and Utrecht Work Engagement Scale. The results indicated that supervisory social support was not related to work-life conflict ($r = .005$, $p = .95$), but a supportive organizational culture was positively correlated with work-life conflict ($r = .159$, $p = .04$). Additionally, a supportive organizational culture had a significant negative impact on the relationship between supervisory social support and work engagement ($b = -.132$, $t = -2.539$, $p = .012$, 95% CI [-.024, -.030]. However, this effect was moderated by the level of supportive organizational culture. The relationship between supervisory social support and work engagement was stronger at lower levels of organizational support ($b = .397$, $t = 4.809$, $p < .001$, 95% CI [.23, .56] and was not statistically significant at higher levels (b = .115, $t = 1.441$, $p = .15$, 95% CI [-.043, .273]. While supervisory social support was not related to perceived work-family conflict, a more supportive organizational culture was associated with lower levels of work-life conflict. In conclusion, the study found that a supportive organizational culture had a significant negative impact on the relationship between supervisory support and work engagement, but this effect was moderated by the level of organizational support. In the case of weaker organizational culture supportive supervisor behavior is important for work engagement, whereas if there is stronger supportive organizational culture, supervisor support is of no importance for the employees' work engagement.

Keywords: work – life conflict; organizational social support; supervisory social support; work engagement

EXTERNAL PRESSURE TO ACT UNETHICALLY AT WORK IN PUBLIC AND PRIVATE SECTORS

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The main objective of this research was to determine the contribution of different types of external pressure to act unethically in the workplace (state of ethical dissonance at work) in organizations from the public and private sectors. External ethical dissonance at work is defined as a condition stemming from a discrepancy between demanded employee actions and ethical standards adopted by the organization. A sample of 311 employees of both genders, with different tenures, and employed in the private and public sector responded to frequency measures of external ethical dissonance at work in the past year, as well as to the demographic profile questionnaire. Results show that 116 respondents were in a state of external ethical dissonance more than averaged number of times in the past year, so we conducted further analyses on data gathered from these employees. It was revealed that the most frequent forms of unethical pressure on employees in both sectors were 'To support people who do not deserve it', 'To spread gossips', 'To hide information about our business', and 'To avoid some colleagues at work'. We found that the incidence of a general ethical dissonance is significantly higher in the private than in the public sector (t (114) = 1.98, p < .05, d = .38), especially in terms of savings on services (t (75.92) = 2.74, p < .01, d = .54), pricing higher *(t (65.27) = 3.07, p < .01, d = .60)*, and giving false information about products and services (i.e., lying for the benefit of the organization) (t (69.29) = 3.67, p < .01, d = .72). Employees with the tenure up to five years report an incidence of pressure to hide information about business significantly higher than two other groups of more experienced colleagues (F (2,113) = 5.37, p =.01, etasq = .09). Furthermore, female employees report significantly more pressure to gossip (t (114) = 3.59, p < .01, d = .89) and to price products and services higher than males (t (24.91) = 2.23, p < .05, d = .58). It is concluded that the external pressure to act unethically (causing employees' corrupt behavior) stems probably from the market business culture of private companies and utilitarian ethics they develop.

Keywords: ethical dissonance; public and private sector; tenure; gender differences; employees

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WHICH EMOTIONS TO FOSTER? HIGH- AND LOW-AROUSAL POSITIVE EMOTIONS AS MEDIATORS BETWEEN PSYCHOLOGICAL SAFETY AND WORK ENGAGEMENT AND SATISFACTION

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Psychological safety fosters an environment where employees feel secure in taking interpersonal risks, enhancing engagement and job satisfaction through trust and open expression of positive emotions. According to the broaden-and-build theory, positive emotions can broaden cognitive resources and resilience over time. High-arousal emotions, such as excitement, often focus attention toward goal-driven behavior, while low-arousal emotions, like contentment, expand cognitive flexibility, potentially influencing job satisfaction and engagement in distinct ways. This study examines how psychological safety predicts these work outcomes, with high- and low-arousal positive emotions as mediators, to clarify differential mediation effects aligned with broaden-and-build theory. The sample consisted of 279 participants (61.3% female, aged 20-52, $M = 35.28$, $SD = 7.66$) with at least one year of work experience ($M = 7.47$ years), primarily highly educated and employed in private organizations (61.3%). Instruments included the Psychological Safety Scale, Job-Related Affective Well-being Scale Utrecht Work Engagement Scale, and Job Satisfaction Scale. The results indicated that psychological safety significantly influenced both work engagement and job satisfaction, with high- and low-arousal positive emotions acting as partial mediators. For engagement, high-arousal emotions had a stronger mediating effect (effect = .35, $SE = .04$, 95% CI [.26, .43]) than low-arousal emotions (effect = .18, $SE = .03$, 95% CI [.13, .24]). Conversely, for job satisfaction, low-arousal emotions were the more prominent mediator (effect = .36, $SE = .07$, 95% CI [.23, .52]), exceeding the effect of high-arousal emotions (effect = .13, $SE = .05$, 95% CI [.03, .22]). The findings highlight that psychological safety contributes differently to engagement and job satisfaction through distinct positive emotions, supporting theories on the unique role of emotional arousal in work outcomes. High-arousal positive emotions are more strongly linked to engagement, as they drive motivation and persistence toward tasks, aligning with broaden-and-build theory. In contrast, low-arousal emotions relate more to job satisfaction, fostering a stable and fulfilling work experience. These results highlight the importance of cultivating varied positive emotional experiences to enhance specific work outcomes.

Keywords: psychological safety; work engagement; job satisfaction; positive emotions; emotional arousal

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I CAN DO IT MYSELF! THE INTERPLAY BETWEEN FEMALE MANAGERS' SELF-EFFICACY, FAMILY SUPPORT AND WORK ENGAGEMENT

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The twenty-first century was a major turning point when it came to increasing the number of women in managerial positions. Nevertheless, research shows that women in managerial positions experience reduced engagement at work, as a consequence of numerous negative organizational practices, along with keeping the dominant role of housewives. The aim of this mixed-method research was to scrutinize how self-efficacy, as a substantial psychological resource, relates with family support, and female managers' work engagement. The sample for quantitative study consisted of 97 women in managerial positions, mean age 45.04 (SD = 8.53), average years of experience 20.18 (SD = 7.78). Work engagement was measured by using The Utrecht Work Engagement Scale, UWES-9, Petrović et al.; 2017; Schaufeli et al., 2004; Cronbach's alpha = .90; self-efficacy was measured by using self-efficacy scale from International Personality Item Pool, Cronbach's alpha = .92; and family support was measured with three items derived from The Family Support Inventory for Workers, King et al.,1995, Cronbach's alpha = .79. The qualitative study included 10 face to face, semi-structured interviews with female managers (mean age of 44) with the aim to explore the role of family responsibilities and family support on female managers' work efficiency in general. The results of the quantitative study have shown that family support (r = .35, p < .01) was positively related to work engagement. Apart from that, self-efficacy was positively related with family support (r = .44, p < .01), and work engagement (r = .50, p < .01). The mediation analysis has shown that self-efficacy mediates the relationship between family support and work engagement, b = .60, p = .00, CI [.22, 1.15]. The qualitative study findings revealed that feelings of self-efficacy and female managers' work engagement were highly related with care and emotional support from family, rather than their tangible help. Understanding how positive family attitudes toward work could essentially contribute to female managers' work engagement could be a caution light for work psychologists, HR managers, and policy makers in crafting the interventions for encouraging female leaders' career sustainability and success. Even though women are less represented in managerial roles, especially in Serbia, and difficult to sample, future research might involve a larger sample and longitudinal design.

Keywords: family support; self-efficacy; work engagement; female managers; Serbia

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WORK STRESS IN MANUFACTURING INDUSTRY - FACTORS AND THE EFFECTS OF ORGANIZATIONAL ANTI-STRESS PROGRAMS

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The aim of this work was to describe the level of perceived work stress and psycho-physical health among employees in the manufacturing sector, as well as to determine the potential effects of anti-stress educational and organizational prevention programs on the level of stress at work. Work stress is defined as a psycho-physical state resulting from the response to the work conditions, organization of work, and employees' quality of life. Therefore, we started from the model according to which the stress response depends on four factors: the level of control the employee has on the work process, conflicts at work, individual aspirations and commitment to work, and the level of harmony between work and free time. On an at-hand sample of 285 employees from production companies, both state-owned and private in the Republic of Serbia, different in gender, age, and work role, the psycho-physical health questionnaire (SPFZ-1, Majstorović, 2017), the perceived work stress questionnaire (The Work Stress Questionnaire, Holmgren, 2008), as well as a demographic characteristics questionnaire were applied. The general status of employees on health and stress measures is described, and then the effect of participating in educational and organizational stress-prevention programs is tested. The results showed that women are more exposed to stress (t (283) = 3.88, $p < .01$, $d = .47$), that managers are under more stress due to personal ambitions and dedication to work than their subordinates (t (275) = 2.45, $p < .05$, $d = .32$), but also that subordinates, compared to their managers, report more stress due to weaker control of the work process (t (283) = 5.85, $p < .01$, $d = .75$). It was also found that employee participation in educational programs (t (109) = 4.61, $p < .01$, $d = .89$) as well as in preventive anti-stress programs (t (109) = 3.18, $p < .01$, $d = .69$) significantly reduces both the general level of stress and all four specific types of work stress measured in this research. It was concluded that factors affect the stress level in managers and subordinates differently, and that participation in stress-prevention programs does make a difference. These and findings on employees' health were discussed with a specific reference to their application in the planning and implementation of anti-stress programs for employees in the production sector.

Keywords: work stress; employees; manufacturing sector; organizational anti-stress programs

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I CAN HANDLE IT! PSYCHOLOGICAL SUPPORT SEEKING AMONG PRISON OFFICERS IN CROATIA: PRELIMINARY FINDINGS

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Previous findings indicate that prison officers face a higher risk of work-related stress compared to most other jobs. However, there are some indications that there is a certain resistance among prison officers in Croatia towards seeking psychological support within the institution they work. Thus, this study aimed to investigate some habits regarding seeking psychological support among prison officers in Croatia. Data were collected within a larger ongoing project and preliminary findings on a total of 328 correctional officers (87% male; $M_{age} = 42.72$, $SD_{age} = 9.61$) employed in Croatian prisons will be presented here. Questionnaire designed for the needs of this project was handed to employees in envelopes to ensure their anonymity. Generally, correctional officers in our sample assess their job as somewhat stressful. A total of 46% of them report not being on sick leave during the past year; however, only 22% reported they did not work if they were sick, and 52% report they never felt a need for psychological support. Among those who did report having a need for psychological support 34% sought psychological support outside the prison system, and 15% within the prison system. Only two fifths (42%) of correctional officers in our sample reported they know how and where to seek psychological support within the system. Although preliminary and on a relatively small sample, these results point to the need of raising awareness on psychological support among correctional officers in Croatian prisons. Moreover, these findings could be used for developing some programs aimed at strengthening the knowledge of and encouraging the utilization of psychological support in prison system in Croatia.

Keywords: psychological support; prison officers; prison system

"YOU CAN NEVER BREAK ME": THE ROLE OF EMOTIONAL SELF-REGULATION IN RELATIONSHIP BETWEEN EMOTIONAL JOB DEMANDS AND TEACHER BURNOUT

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In the turbulent social and economic contexts, teachers are expected to fulfill numerous roles simultaneously while maintaining their mental health. The aim of this research was to examine the relationship between emotional job demands and teacher burnout in Serbia, and to investigate the moderating role of emotional self-regulation in the context of The Job Demands-Resources model (JD-R; Bakker & Demerouti). The data were collected from 151 primary and secondary school teachers in Serbia, (age, $M = 46.73$; 86.8% women). The data were collected using The Burnout Assessment Tool (BAT; Schaufeli et al; Vukelić et al; Cronbach's alpha =. 84); the questionnaire about emotionally demanding situations adapted from van Veldhoven et al., and Taris & Schreurs (Cronbach's alpha =. 76), The Emotional Labour Scale (ELS; Brotheridge & Lee; subscales, surface acting, Cronbach's alpha =. 84, and deep acting, Cronbach's alpha =.82); The intensive emotional work inventory (The Intensive Emotion Work Inventory; Strazdin; Cronbach's alpha = .91); and The Emotion Regulation Questionnaire (ERQ; Gross & John; subscales cognitive reappraisal, Cronbach's alpha = .79, and expressive suppression, Cronbach's alpha = .73). The results showed that emotionally demanding situations are significantly associated with burnout ($r = .66$, $p < .01$), as well as 'deep acting' ($r = .23$, $p < .01$), and 'surface acting' ($r = .59$, $p < .01$) strategies, while there was no significant correlation between intensive emotional labour and teacher burnout. Contrary to prior empirical expectations, the cognitive reappraisal strategy of emotional self-regulation has shown a positive correlation with teacher burnout ($r = .24$, $p < .01$). Expressive suppression, a dimension of the emotional self-regulation scale, has shown a small but significant moderating effect on the relationship between 'deep acting' and burnout (beta = - 0.27, $t = - 2.01$, $SE = .14$, $p = .04$). This research provides further insights into the relationship between teacher burnout, emotional job demands, and emotional self-regulation, and offers possibilities for developing support strategies for preventing teacher burnout that could be embedded in the educational system practices.

Keywords: emotional job demands; teacher burnout; emotional self-regulation; Job Demands-Resources (JD-R) model; Serbia

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CLINICAL PSYCHOLOGY

COMBINING IDIOGRAPHIC AND DIMENSIONAL APPROACHES TO NARRATIVE IDENTITY TO ENHANCE CHANGE IN PSYCHOTHERAPY: A CASE STUDY

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There is an increasing evidence that the quality of narrative identity (NI) – people's internalized and evolving life story - is associated with well-being and predicts change in psychotherapy, but few therapeutic interventions draw on the rich findings of the NI research to specifically address NI in therapy with people with psychological problems. The goal of our case study was to illustrate the effectiveness of addressing NI to achieve symptomatic, behavioral and NI change in mid-term online psychotherapy (27 hour-long weekly individual sessions) with an anxious middle-aged client recovering from alcohol addiction. Method. Therapy integrated techniques from transactional analysis, cognitive therapy and NI tasks. The client signed an informed consent for use of his data for study and publication purposes. Screening for psychological symptoms (Symptom Checklist-90) and temporal orientation was held at Session 1, and after Session 27. NI assessment before Session 1 included the Cultural Life Script, Lifeline, Self-Defining Memories (SDMs) and Future Projections tasks (SDFPs). SDMs and Lifeline were reassessed after Session 27. Spontaneous SDMs and SDFPs were extracted from session transcripts when meeting the adopted narrative complexity criteria. The preliminary data was analyzed before Session 3 to inform further treatment. The analysis evolved in 2 directions: 1) Dimensional (Motivational and Affective themes; Specificity & Coherence; Meaning making); 2) Idiographic (extracting narrative scripts; metaphorical formulation of the client's NI). The narratives were coded using valid autobiographical narrative manuals. The findings were used for case conceptualization and treatment planning, and communicated to the client as specific interventions were introduced. Findings: We observed changes along three groups of outcome criteria: Reduction in perceived anxiety symptoms and achieving a more balanced time perspective; meeting specific behavioral goals (e.g. passing a qualification exam); and a qualitative change in NI dimensions (e.g. specificity; meaning integration; narrative complexity and coherence). Conclusion. The preliminary findings indicate benefits of addressing NI in psychotherapy for achieving symptomatic and behavioral change and enhancing NI components in people with psychological disorders. Further controlled and large-scale trials are needed to provide more compelling evidence for effectiveness of NI-focused interventions.

Keywords: Narrative Identity; Psychotherapy; Case Study; Big 3 of Narrative Identity; Idiographic approaches

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NO ONE'S CHILD – ADVERSE CHILDHOOD EXPERIENCES IN INFORMAL SETTLEMENTS

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Adverse childhood experiences (ACE) are traumatic events occurring before the age of 18 that can have lasting effects on health and well-being. Given the substandard living conditions in informal settlements (IS), characterized by inadequate housing, poverty, and limited access to basic rights, we hypothesized that the prevalence of ACEs would be higher in these communities compared to the general population. This study aimed to assess the prevalence and correlates of ACEs among residents of IS in Belgrade and its surroundings, comparing them with the general population in Serbia. We sampled 505 individuals aged 18-65 from IS using quota sampling. The data was collected by Center for integration of youth interviewers, and it was financed by Church World Services. Additionally we used a representative sample of 2792 individuals from the general Serbian population from the previous study which is organized by UNICEF. The research employed the ACE International Questionnaire, Trauma Symptom Checklist, Benevolent Childhood Experience scale, HEXACO personality inventory, DELTA9, and Non-Suicidal Self-Injury (NSSI) questionnaire. ACEs were recorded as binary outcomes. The results indicated significant differences between the two groups. Residents of IS have experienced a higher rate of nearly all ACE types. Among the IS group, 68.5% reported four or more ACEs, in contrast to 41% in the general population, and only 3% of IS residents had no ACEs compared to 13% in the general population. Additionally, suicide attempts were reported by 8.9% of IS residents, as opposed to 2% in the general population. The most common ACEs in IS were community violence (70.1%), parental separation (64.6%), physical neglect (59.4%), and psychological abuse (48.1%). Multiple regression analysis revealed ($R^2 = .23$; $F = 25.01$; df = 6; 488; $p = .000$) that ACE's in IS are mostly related to higher trauma related symptoms, as like depression ($\beta = 0.287$, $p = .000$) and indicator trauma of sexual abuse ($\beta = .205$, $p < .05$). Correlations between ACEs and use of alcohol ($r_{pbis} = .30$; $p = .000$) and substance use ($r_{pbis} = .37$; $p = .000$) were more pronounced in IS. Although benevolent experiences in childhood did not mitigate the impact of ACEs on trauma symptoms. These findings underline the urgent need for multidisciplinary approaches to prevent ACEs in informal settlements. Further research on risk and protective factors specific to IS is essential to inform effective intervention strategies.

Keywords: adverse childhood experiences; informal settlements; prevalence; suicide prediction; socio-demographic correlates

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CAN BENEVOLENCE CANCEL ADVERSITY? DIRECT AND CONDITIONAL EFFECTS OF BENEVOLENT CHILDHOOD EXPERIENCES ON MOOD DISORDERS IN ADULTHOOD

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Adverse childhood experiences (ACEs) predict poorer mental health, although individuals with high ACEs can function with no issues, perhaps due to high protective, i.e., Benevolent Childhood Experiences (BCEs). However, it remains unclear to what extent BCEs can offset the ACEs. Some studies have shown that BCEs moderate the relationship between ACEs and mental health, while others suggest that BCEs affect mental health similarly to ACEs, but in the opposite way. Some authors view BCEs as a part of a dynamic resilience system, while others view it as a resilience precursor, with more narrowly defined trait resilience (i.e., an intrinsic capacity to overcome adversity) being a mediator between both ACEs and BCEs and mental health outcomes. In this study, we wanted to clarify the role of BCEs in a nomological network of childhood experiences and adult-age resilience and mood disorders: depression and anxiety. We used a convenience general sample of 838 young adults from B&H (age: $M = 23.12$, $SD = 3.82$ years; 65% women). Participants self-reported their childhood BCEs (BCE-10 inventory; $M = 8.19$, $SD = 1.93$) and ACEs (ACE-14 inventory; $M = 1.68$, $SD = 2.15$), their current trait resilience (BRS), and state depression (PHQ-9) and anxiety (GAD-7). We tested a PLS model assuming direct effects of ACEs and BCEs on mood disorders, and BCEs moderating the ACEs' effects. Both ACEs and BCEs had significant direct effects on mood disorders (all $p < .001$), stronger for ACEs (depression: $\beta = .353$, anxiety: $\beta = .270$) than BCEs ($\beta = -.157$ and $\beta = -.141$). BCEs did not significantly moderate the ACEs' effects. When trait resilience was added as a mediator between ACEs/BCEs and mood disorders, BCEs showed a borderline moderation of ACEs on depression ($\beta = .070$, $p = .052$), implying smaller depression increases when BCEs are higher, but only if ACEs are low/absent. Furthermore, BCEs and ACEs had equal, but opposite effects on resilience ($\beta = .109$ v. $\beta = -.109$, $p = .002$), exhibiting small (but significant) shares of their effects on mood disorders indirectly, by influencing resilience (which itself was a significant predictor of lower anxiety and depression). In conclusion, BCEs can support mental health directly, and also indirectly through resilience. BCEs act similarly to ACEs, subtracting from ACEs' negative effects, although they probably cannot neutralize them, as BCEs' net effects are smaller, with no evidence of higher BCEs being able to additionally buffer (i.e., moderate) the higher ACEs' effects.

Keywords: Benevolent Childhood Experiences (BCEs); Adverse childhood experiences (ACEs); Resilience; Depression; Anxiety

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IS IT ALL OK? HEDONIC AND EUDAIMONIC PERSPECTIVES ON SUBJECTIVE WELL-BEING IN WOMEN WITH AND WITHOUT FERTILITY ISSUES

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Research on the subjective well-being (SWB) of women experiencing fertility challenges and undergoing medical treatments, most commonly in vitro fertilisation (IVF), yields inconsistent findings. Some studies report no differences in SWB between these women and those without fertility issues (fewer studies), while others identify significant disparities (more studies). Additionally, most research focuses predominantly on indicators aligned with the hedonic approach. To gain a comprehensive understanding of SWB in women facing infertility, it is essential to include eudaimonic indicators as well. This study examined SWB through a range of hedonic and eudaimonic indicators in women with and without fertility issues. The first group consisted of women with IVF experience or preparing for their first IVF cycle who had not yet become mothers ($N = 205$, $M_{age} = 38.62$, $SD = 5.29$). The second group included women without difficulties conceiving and with at least one child ($N = 222$, $M_{age} = 38.00$, $SD = 4.92$). Measures included: the Satisfaction with Life Scale (SWLS), single-item assessments of satisfaction with partner relationships, professional roles, and physical health; the Generalised Anxiety Disorder Questionnaire (GAD-7); the Scale of Positive and Negative Experience (SPANE); the Perceived Stress Scale (PSS); the Subjective Vitality Scale (SVS); and the Presence of Meaning subscale from the Meaning in Life Questionnaire (MLQ). Results revealed lower overall life satisfaction in women with fertility issues (t (393.19) = 2.77, p = .006, d = .3). Among specific domains, only satisfaction with partner relationships differed significantly, being higher in women with fertility issues (t (354) = -3.72, $p < .001$, d = .4). No differences were found in anxiety or affective experiences, but perceived stress was higher in women facing infertility (t (425) = -2.25, p = .025, d = .2). While vitality levels were comparable, the presence of meaning was lower (t (425) = 2.47, p = .014, d = .2). These findings offer a nuanced understanding of SWB in women with fertility issues. From a hedonic perspective, elevated stress poses a challenge, while from a eudaimonic perspective, the reduced presence of meaning is key. These results have significant practical implications for designing effective preventive and intervention programmes. Addressing both hedonic and eudaimonic aspects of well-being is crucial for developing holistic support strategies that enhance the quality of life for women facing fertility challenges.

Keywords: subjective well-being; infertility; in vitro fertilization; perceived stress; meaning in life

FUTURE-THINKING FACILITATION INTERVIEW TO IMPROVE REMISSION AND BATTLE SELF-DESTRUCTIVE TENDENCIES IN RECOVERING STIMULANT USERS

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Substance users are a vulnerable group in terms of self-destructive behaviors as using leads to a significant increase in the suicide risk. Substance use and self-destructive behaviors are associated with specific deficits in Future Thinking (FT), such as an impaired ability to envision oneself in the future and greater availability of intrusive future imagery. They contribute to development and maintenance of these conditions impeding recovery. Enhancing FT in recovering stimulant users might improve their treatment outcome and decrease self-destructiveness. Method. A study (2022-2023) included 112 in-patient recovering stimulant users (F15.2), randomized in two matched groups: an FT group (aged $M = 24.1$, $SD = 4.1$; 30.4% males) receiving a semi-structured FT facilitation interview (FTFI) based on the Impact of Future Events Scale; and controls (aged $M = 23.9$, $SD = 3.3$; 39.3% males) receiving Treatment-as-Usual (TAU). Outcome criteria were: months of remission; positive (enrolment in further treatment etc.) and negative (early dropout etc.) treatment outcomes. FT was assessed using Future Fluency Task (FFT) and Zimbardo Time Perspective Inventory. Markers of self-destructiveness were tested by Beck Hopelessness Scale; Barratt Impulsiveness Scale; Interpersonal Needs Questionnaire, Prosuicidal Intensity Quotient (PIQ). Tests were performed at admission (T1) and before discharge (T2). Follow-up data was gathered in 6 months. Results. FT group had longer remissions: 3.3 v 0.5 months in TAU, $U = 766$, $p = .02$, $\eta^2 = 0.19$, and achieved positive treatment outcome (79%) more frequently ($OR = 12.12$; 95% CI [4.9, 29.5], $p < .001$) than in TAU (23%). FT group reduced hopelessness as compared to TAU ($U = 457$, $p = .001$; $\eta^2 = 0.37$). The multiple regression model for the remission duration embracing the number of future events on FFT, PIQ, non-planning impulsiveness and T2 hopelessness showed that patients achieved longer remissions when they had more representations of their future available, whereas higher hopelessness and non-planning impulsiveness could interfere with sobriety: $R^2 = .59$; $F (3, 52) = 24.8$; $p < .001$. Conclusions. FTFI proved effective in improving treatment adherence and remission duration among stimulant users, as well as reducing hopelessness. The links between FT variables and remission duration indicate the need of further research into clinical use of interventions targeting FT in stimulant users.

Keywords: Future Thinking; Stimulant Dependence; Self-Destructiveness; Treatment Adherence; Outcome

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THE RELATIONSHIP BETWEEN FEAR OF MISSING OUT AND LONELINESS IN STUDENTS

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The fear of missing out is defined as an individual's concern that there is a possibility that others may have fulfilling experiences, outside of that person's presence, and it is characterized by a desire to be constantly on top of what others are doing. Loneliness is usually defined as an uncomfortable and emotionally distressing subjective experience that occurs in response to a discrepancy between desired and achieved levels of social contact. Some studies suggest that women have a higher level of fear of missing out and higher level of loneliness than men, while there is a significantly higher level of loneliness in smokers than in non-smokers, and the theory of self-medication has been used to explain the positive association between loneliness and smoking. The main goal of this research paper was to determine the relationship between the fear of missing out and loneliness. The specific objectives were to determine whether there were statistically significant differences in the level of expression of fear of missing out and loneliness with regard to gender. Also to determine whether there are statistically significant differences in the level of expression of fear of missing out and loneliness with regard to whether the respondents are smokers. The research was conducted on a convenience sample of 206 students (male: 46; female: 160). The following instruments were used: Fear of Missing Out Scale and Short - form of the UCLA Loneliness Scale. The results showed that there is a statistically significant correlation between the fear of missing out and loneliness ($r = .228$; $p = .001$). There are no statistically significant differences in the level of fear of missing out with respect to gender ($p = .063$; $t = - 1.867$). There are no statistically significant differences in the level of expression of loneliness respect to gender ($p = .208$; $t = 1.264$). There are statistically significant differences in the level of fear of missing out on whether respondents are smokers ($p = .001$; $t = 3.371$). Respondents who are smokers have a more expressed fear of missing out ($AS = 2.72$), compared to those who are non-smokers ($AS = 2.26$). The findings, which are aimed at a higher level of fear of missing out in smokers, can be explained by the higher fear people not to miss the desired sensations that smoking brings with it. There are no statistically significant differences in the level of loneliness in smokers and non-smokers ($p = .071$; $t = 1.817$). The disadvantage of this research paper is the uneven subsample of respondents with regard to gender and with regard to whether the respondents are smokers or not. The practical implication of this research paper is the use of the findings for the purpose of designing and implementing workshops on the student population, where we will focus on preventive action with the aim of lowering the level of fear of missing out and providing techniques on how to provide students with a form of self-help in a situation of such fear. By acting on the fear of missing out, we can also affect loneliness.

Keywords: fear of missing out; loneliness

SOCIAL DETERMINANTS OF MENTAL HEALTH: THE ROLE OF IMMEDIATE ENVIRONMENT AND BROADER SOCIETAL FACTORS

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A body of evidence indicates that mental health is influenced by social factors. This study aims to explore the social determinants of a broad range of mental disorders by applying a conceptual framework for the social determinants of mental disorders which includes proximal (immediate environment) and distal (broader societal) factors. The study was conducted on a representative sample of the Serbian population (N = 1000, age range, 18-65 years). Recruitment of participants and data collection was carried out by a market research agency from December 2021 to January 2022. A wide spectrum of mental disorders were assessed by: Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder Screener (GAD-7), Suicidal Ideation Attributes Scale (SIDAS), the Obsessive-Compulsive Inventory-4 (OCI-4), the somatic symptom module of the Patient Health Questionnaire (PHQ-15), short form of the Eating Disorder Examination Questionnaire (EDE-QS), Posttraumatic Stress Disorder Checklist (PCL-5), the Brief Dissociative Experiences Scale (DES-B – Modified) and the Prodromal Questionnaire – Brief Version (PQ-B). Five domains - demographic, economic, neighborhood, environmental, and social/cultural - of proximal and distal social determinants of mental health were assessed by: socio-demographic questionnaire and five items assessing stressful experiences related to the COVID-19 pandemic developed for this study, Life Events Checklist for DSM-5 (LEC-5), and the Multidimensional Scale of Perceived Social Support (MSPSS). Data on distal factors were extracted from publicly available sources (e.g. Statistical Office of the Republic of Serbia). Distal variables significantly predicted symptom severity across all disorders and were predictive of clinically significant symptom levels of all disorders except anxiety and dissociation. However, distal variables showed little consistency across different mental disorders and outcome measures. Proximal variables predicted symptom severity of all disorders as well as clinically significant symptom levels over and above distal predictors. Taken together, they showed the highest predictive value for depression, anxiety, suicidality, somatization, and PTSD. Traumatic experiences and low social support emerged as the most consistent proximal predictors, alongside female gender, younger age, lower SES, and COVID-19-related impact on family and friends. Even though distal predictors demonstrated weaker relationships with mental health outcomes, our study highlights the importance of a wide range of social determinants that contribute to mental health.

Keywords: social determinants of mental health; mental disorders; proximal factors; distal factors; COVID-19

TESTING THE EFFECTIVENESS OF THE PSYCHOSOCIAL SUPPORT PROGRAM FOR YOUTH

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Youths are a group at risk of developing mental health difficulties and there is a need for evidence-based psychosocial programs. The aim of this study is to test the effectiveness of the Psychosocial support program for youth. It consisted of six group workshops and individual sessions, held by psychologists, and covering the topics of mental health such as help-seeking, social support, and stigma. One-group pretest-posttest design was used with inclusion criteria being between 13-24 years of age and not undertaking any other form of psychosocial/psychiatric treatment. A total of 78 youth (M_{age} = 16.34, SD_{age} = 2.01, 16.9% males) who participated in the Program agreed to take part in the study. The participants were from the general population, recruited conveniently by the service providers. Inventories measuring well-being (WHO5), quality of life (MANSA), mental health literacy consisting of knowledge and attitudes towards mental health difficulties (School Mental Health), depression (PHQ9), and anxiety (GAD7) were administered at three time points: before the Program implementation (pre-test), immediately after the implementation (post-test) and one month after (follow-up). By using the Bonferroni correction we adjusted the statistical significance level based on the number of tests performed. The Bonferroni correction was applied to the results of the paired-samples T-test, with 0.004 set as a Bonferroni-corrected p-value. The results showed that there is a significant decrease in post-test measures of depression (t (54) = 3.536, p = .001, Cohen's d = 0.48), and an increase in positive attitudes (t (53) = -3.625, p = .001, Cohen's d = -0.49) and knowledge (t (54) = -5.794, p = .000, Cohen's d = -.78). The analysis of follow-up measures revealed significant decreases in measures of depression (t (19) = 4.880, p = .000, Cohen's d = 1.09) and anxiety (t (19) = 6.047, p = .000, Cohen's d = 1.35), with increases in attitudes (t (19) = -5.494, p = .000, Cohen's d = -1.26) and knowledge (t (19) = -9.308, p = .000, Cohen's d = -2.08). Although the results support the effectiveness of the Program, they should be interpreted with caution due to the high rate of sample attrition, and the absence of a control group resulting from resource constraints.

Keywords: psychosocial support; effectiveness; mental health; youth

SCHIZOTYPY TRAITS AND EMOTIONAL REGULATION AS FACTORS IN THE OCCURRENCE OF AUDITORY HALLUCINATIONS IN THE GENERAL POPULATION

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It is widely recognized that voice-hearing is neither a rare phenomenon experienced only by individuals diagnosed with psychosis, nor a meaningless symptom of mental disorder. Research grounded in Eysenck's concept of the continuum of (ab)normal behavior (1958) and Strauss's concept of psychotic experiences as points on continua of function (1969) suggests that auditory hallucinations occur along a spectrum of normal experiences, affecting more individuals than those who meet the criteria for psychosis. This research examined whether schizotypy and maladaptive emotional regulation strategies—thought suppression, expressive suppression, and rumination—contribute to auditory hallucinations in the general population, and explored emotional regulation strategies as mediators between schizotypy dimensions and auditory hallucinations. The study involved 261 participants from the general population who completed questionnaires measuring predisposition to hallucinations, schizotypy, and maladaptive emotional regulation strategies. Hierarchical regression was used to analyse if emotion regulation strategies predict hallucinations over and above schizotypy dimensions, while the serial mediation analysis was used to determine if cognitive-perceptual, interpersonal, and disorganized schizotypy predicted auditory hallucinations via thought suppression and ruminations respectively. Results revealed that cognitive-perceptual ($\beta = .29$, $p < .01$) and disorganized schizotypy ($\beta = .13$, $p < .05$) significantly predicted auditory hallucinations ($\Delta R^2 = .31$, $p < .01$). Emotional regulation strategies, specifically rumination ($\beta = .30$, $p < .01$) and marginally thought suppression ($\beta = .12$, $p = .09$), explained additional variance beyond schizotypy dimensions ($\Delta R^2 = .07$, $p < .01$). In the serial mediation model, thought suppression emerged as a significant mediator, linking cognitive-perceptual ($\beta = .048$, $p < .01$, $SE = .013$, CI [.02, .069]), interpersonal ($\beta = .032$, $p < .01$, $SE = .015$, CI [.016, .074]), and disorganized ($\beta = .021$, $p < .05$, $SE = .01$, CI [.003, .044]) schizotypy to auditory hallucinations through its influence on rumination. The findings from the general population offer a theoretically grounded deepening of the idea of a continuum of psychotic experiences, such as auditory hallucinations. The clinical relevance of the findings lies in the suggestion that increased emotional dysregulation may contribute to the onset or worsening of this type of psychotic symptoms.

Keywords: auditory hallucinations; general population; emotional regulation; rumination; schizotypy

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The research was supervised by Zdenka Novović.

UNDERSTANDING THE IMPACT OF MALADAPTIVE SCHEMAS ON THE DYNAMICS OF FRIENDS WITH BENEFITS RELATIONSHIPS

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When analyzing the process of development, it is crucial to include the dimension of sexual development. Friends with benefits (FWB) are characterized by differing frequencies and intensities of both non-genital and genital behaviors. FWB are defined as friendships that incorporate a sexual element without the commitment (Lehmiller et al., 2011). Maladaptive schemas are deep-rooted patterns formed in early childhood that influence an individual's self-perception and interactions (Young et al. 2003). This research aims to determine whether schemas predict engagement in FWB, and and how this relationship varies across genders. A convenient sample of 514 respondents (40 males) was utilized. Age ranged from 17 to 25 ($M = 22.01$, $SD = 2.06$). Respondents reported sexual orientation, (88.9% heterosexual). Data were collected on experience/current status in FWB. The Young Schema Questionnaire - Short Form ($\alpha = .53$ to $.98$) (Slepecky et al., 2019) assessed schemas, comprising 90 items across 18 schemas and 5 domains. Results indicate that 4.3% of respondents have never had sexual intercourse. The age of first sexual intercourse ranges from 13 to 26. 20.2% have been in an FWB in the past 12 months or are currently in one, and 41.1% have experienced an FWB at least once. The T-test comparing men and women reveals significant differences in two schemas: insufficient self-control ($t(512) = -2.29$, $p = .02$) and approval-seeking ($t(54.28) = -3.28$, $p = .002$). In both cases, women scored higher. The T-test on sexual orientation indicate that significant differences emerged in half of the schemas, across four out of five domains, and in the overall score, so further analyses were conducted on the heterosexuals. A binary logistic regression examined the relationship between involvement in an FWB and schemas. Only the Mistrust/Abuse schema was significant ($\chi^2(1) = 8.27$, $N = 512$, $p = .004$). The odds ratio (Exp(B)) was 1.090, indicating that higher scores on the schema are significantly associated with an increased likelihood of being involved in an FWB. These findings suggest that schemas related to mistrust play a crucial role in shaping the dynamics of FWB. Psychologists might consider challenging these schemas to promote healthier relationship patterns and incorporating schema-focused interventions into relationship education programs to help individuals better understand and manage their expectations and behaviors in relationships.

Keywords: friends with benefits; maladaptive schemas; sexual behaviour; partner relationships; mental health; emerging adults

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THE ROLE OF DEMANDINGNESS VERSUS DERIVATIVES IN CLINICAL AND NONCLINICAL LEVELS OF DEPRESSION

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Depression is a pervasive and debilitating mental health disorder, predicted by distorted interpretations of aversive experiences. In cognitive-behavioral therapies, there is no consensus on the core beliefs that contribute to the development of depression - demandingness according to REBT, versus negative beliefs about the self, others and world in Beck's model. To further explore the cognitive factors that underlie depression, the present study aims to identify the irrational beliefs most strongly associated with major depressive disorder, as well as to explore how these beliefs relate to higher levels of anhedonia and depressive distress in a nonclinical sample. The study involved a sample of 356 participants, 20.2% of whom were inpatients experiencing their first depressive episode. The clinical group (M_{age} = 40.9, SD_{age} = 14.4; 70.8% women) was recruited from the Institute of Mental Health during inpatient treatment, while the nonclinical group (M_{age} = 20.1, SD_{age} = 6.5; 65.1% women) was matched for sex and recruited via convenience sampling. Data collection is ongoing. Participants completed the GABS-37, assessing irrational beliefs in REBT, and the MASQ-34, measuring anhedonic depression and distress. Hierarchical linear regression analyses were conducted, with irrational beliefs (i.e., demands, awfulizing, self-downing, and frustration intolerance) as predictors and anhedonia and depressive distress as criteria, separately for clinical and nonclinical samples. Preliminary results reveal that frustration intolerance is the only significant predictor of both anhedonia (β = .468, p = .004) and depressive distress (β = .396, p = .007) in the clinically depressed sample. In contrast, the nonclinical group exhibited significant associations between higher levels of both anhedonia and distress and the irrational beliefs of awfulizing (β = .338, p <; .001 for anhedonia, β = .354, p < .001 for distress) and self-downing (β = .182, p = .011 for anhedonia, β = .191, p = .006 for distress). These findings suggest that awfulizing and self-downing appear to be significant predictors of depressive symptoms in nonclinical group. For those with clinical depression, low frustration tolerance emerged as the sole predictor of both anhedonia and distress, highlighting the role of derivative beliefs in the onset of depression. However, these findings must be interpreted with caution due to unequal sample sizes and the convenience sampling method employed.

Keywords: depression; irrational beliefs; demands; derivatives; cbt; rebt

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THE ROLE OF PERFECTIONISM IN THE INFORMATION-MOTIVATION-BEHAVIORAL SKILLS (IMB) MODEL OF SELFCARE IN DIABETES

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The global epidemic of diabetes is one of the biggest public health problems of the 21st century. In recent years worldwide, including the Serbia, there has been a significant increase in the prevalence of diabetes. Previous studies had shown a positive effect of educational and psychosocial interventions on diabetes self-management and health outcomes, but their effectiveness in most cases has been shown to be short-term and the theories based on incomplete. One of the theoretical frameworks in the field of health behavior, originally developed to prevent HIV risk behavior- the Informational-Motivational-Behavioral (IMB) model, was shown to be effective in explaining the health behavior of people with diabetes. This study aimed to examine the role of the IMB model in the health behavior of people with diabetes in Serbia and the role of perfectionism as a personality trait in explaining health behavior within the model. The sample consisted of 285 respondents (female: 81.8%; age: M = 43.35) and was collected via Facebook groups designed for people with diabetes using GoogleForms. Besides Sociodemographic Questionnaire constructed for the study, data was collected using Frost Multidimensional Perfectionism Scale, Diabetes Knowledge Questionnaire (DKQ), MOS Social Support Survey, Attitude Toward Treatment Adherence Questionnaire (ATAQ) and the Stanford Self-efficacy Diabetes Scale as measures of perfectionism, informational, social and individual motivation and behavioral dimension within IMB model, while Summary of Diabetes Self-Care Activities (SDSCA) scale was used a measure of health behavior and last reported HbA1c level as the health outcome. Results of the SEM analysis confirmed the assumptions of the IMB model (χ^2 (4, N=285) = 1.41, p = .842, CFI = 1.00, RMSEA = .000 (90% CI: 0.00- 0.051), BIC = 97.502), precisely, information and motivation were shown to have both direct and indirect effects (through the self-efficacy) on the health behavior in diabetes. When added to the model, dimensions of perfectionism also showed a significant effect on health behavior through the influence on behavioral skills (r = .23, < .01; r = -.28, p < .01, for adaptive and maladaptive perfectionism, respectively), precisely self-efficacy, within the model. Results of this research suggest that when planning and addressing health behavior programs for patients with diabetes, besides using IMB model, addressing some personality traits could be proven to be beneficial.

Keywords: diabetes; perfectionism; health behavior; self-care

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PANAS FACTOR STRUCTURE MODIFICATION: THE STUDENT AFFECT SCHEDULE (SAS)

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With the increasing number of studies examining the nature and correlates of mental health in youth, the need to examine structures of questionnaires applied to this population arises. With this in mind, we reexamined the factor structure and assessed the construct validity of the Positive and Negative Affect Schedule (PANAS) using a student sample which comprised 690 participants (79% female), aged 18 to 38 years ($M = 20.96$, $SD = 2.58$), split into two random subsamples to explore the factor structure of the scale and shorten it using the first one. The obtained structure was then assessed on the second subsample using confirmatory factor analysis (CFA), and validity correlations (with: Satisfaction with Life Scale, Perceived Stress Scale, Brief Resilience Scale, Global Health Questionnaire as a psychosomatic symptoms measure, and age) were examined on the whole sample. All criteria used to determine the number of factors to extract (parallel analysis, MAP test, and the Empirical Kaiser Criterion) indicated that the optimal number was three. Examining the loadings on the three factors obtained using unweighted least squares as the extraction method and direct oblimin rotation, patterns emerged suggesting that the contents of the factors reflected Feeling Energized (FE), Reactions to Uncertainty (RU), and Reactive Hostility (RH). To achieve a brief scale with a simple structure, we excluded items based on cross-loadings, their highest factor loadings, squared multiple correlation (SMC), and item means. The resulting scale comprised nine items – three per factor – and was tested on the second subsample through CFA. The fit indices were: $\chi^2(24) = 53.98$, $p < .01$; CFI = .967; TLI = .950; RMSEA [90% CI] = .060 [.039–.082]; SRMR=.045, indicating a good fit. The alpha reliabilities of the scales ranged from .86 (FE), to .67 (RH). Validity correlations were tested, showing that FE correlated between -.59, $p < .01$ (psychosomatic symptoms) and -.02, $p > .05$ (resilience). RU correlations ranged from .27, $p < .01$ (psychosomatic symptoms) to .02, $p > .05$ (age). RH correlations ranged from .42, $p < .01$ (stress) to -.04, $p > .05$ (age). Since the resulting structure was not consistent with the theoretical assumption of two factors of positive and negative affect, future research should focus on further validation of the presented scale and comparisons with the original PANAS to better understand the reasons behind the unexpected factor structure.

Keywords: PANAS; scale modification; student mental health; factorial structure

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ADVERSE CHILDHOOD EXPERIENCES AND GENERAL ANXIETY: AN INDIVIDUAL ACE CATEGORY-BASED APPROACH

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Adverse childhood experiences (ACEs) are risk factors for anxiety, likely because distressful early life predisposes individuals to perceive subsequent life events as beyond their control. Traditionally, researchers assessed ACEs-related risks using cumulative ACEs (i.e., a summary score). Recently, it has been suggested that risks should be evaluated based on individual ACEs or specific ACEs clusters. In this study, we wanted to examine how individual ACEs and various a priori theoretical ACE category aggregations predict current anxiety levels. A large, aggregated convenience sample of mostly young adults ($N = 4834$; $M = 24.92$, $SD = 7.99$ years; 68.76% women) was used to assess lifetime ACEs (ACE-14 inventory) and current anxiety levels (GAD-7). At the bivariate level, all individual ACEs positively and significantly correlated with anxiety scores (all $ps < .001$), ranging from r=.05 (parental separation/divorce) to r = .38 (peer isolation/rejection). Of the eight predictive regression models tested, the one using a singular ACE summary score as an anxiety predictor (AIC = 28474.07, RMSE = 4.599, adj. var. = 10.5%) was outperformed by all others, including models incorporating individual ACE categories and a priori category aggregations. The best model (AIC = 28175.08, RMSE = 4.456, adj. var. = 16.0%) comprised seven individual Bayesian-selected ACE categories. Individual neglect categories, particularly peer isolation/rejection, and neglect category aggregate, predicted anxiety better than abuse, socioeconomic issues, or family dysfunctions. However, parental separation/divorce showed a coefficient sign reversal in the presence of other ACEs (e.g., $\beta = -.032$, $p = .017$), suggesting that, all else being equal, separation/divorce might actually alleviate a child's anxiety. This raises doubts about the inclusion of this category in any of the models and highlights the need to cross-check regression coefficients for ACE categories with their bivariate counterparts. In conclusion, we recommend that researchers use either (selected) individual ACE categories (e.g., emotional neglect, physical neglect, parental separation/divorce, having a family member with mental health issues, peer victimization, peer isolation/rejection, and community violence exposure) or a priori ACE category aggregates (e.g., Abuse, Neglect, Parental Conflicts & Separation, and Psychopathology & Social Pathology) instead of ACE summary scores when studying ACE-anxiety links.

Keywords: Adverse Childhood Experiences (ACEs); Individual ACE Categories; Cumulative ACEs; Theoretical ACE Category Aggregations; General Anxiety

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DIFFERENCES IN PSYCHOPATHOLOGY SYMPTOMS AMONG HIGH SCHOOL STUDENTS DURING (2020) AND AFTER (2023) THE COVID-19 PANDEMIC

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Adolescence, as a critical developmental period, saw increased risks and prevalence of subclinical psychopathology during the COVID-19 pandemic. In this study, we conducted two comparative transversal assessments of DSM-5-TR psychopathology symptoms among high school students in Bosnia and Herzegovina (B&H) in: a) 2020, i.e., during the first wave of the pandemic ($N = 540$; 73% girls; $M = 17.21$, $SD = 1.13$ years), and b) 2023, i.e., post-pandemic ($N = 227$; 79% girls; $M = 17.41$, $SD = 1.05$ years). Relevant correlates of psychopathology were also examined, namely: adverse childhood experiences (ACEs), peer victimization, and family functioning. The results indicate that, compared to average frequencies from international prevalence studies, B&H students in 2020 showed elevated internalizing problems: depression (30%), anxiety (22.9%), and somatic symptoms (22.6%). Other issues, such as aggressive behavior, irritability, insomnia, and mania, were also elevated to varying degrees. OCD symptoms ($d = .22$, $p = .01$), hygiene compulsions ($d = .33$, $p = .00007$), and compulsive exercise behaviors ($d = .66$, $p < .001$) were significantly higher in 2020 than in 2023. Conversely, substance use ($d = -.19$, $p = .01$) and school-related hyperactivity ($d = -.34$, $p < .001$) increased in 2023, while levels of depression (24.7%), anxiety (20.7%), and somatic symptoms (20.3%) decreased, albeit not significantly. Girls scored higher than boys on most symptoms both in 2020 (e.g. somatic symptoms: d = .57, p < .001) and 2023 (e.g. compulsive eating: $d = .43$, $p < .001$). Boys had higher compulsive exercise scores than girls in 2020 ($d = .43$, $p < .001$). Psychopathology symptoms positively correlated (in .15 to .48 range) with family conflicts, peer victimization, and ACEs, in both time periods. However, post-pandemic, family conflicts correlated higher with ADHD ($z = 2.21$; $p = .01$) and alcohol consumption ($z = 1.9$; $p = .03$), and peer victimization correlated higher with OCD ($z = 3.20$, $p < .001$). In general, findings suggest higher context-specific psychopathology (e.g., infection fears, eating/exercise-related issues) during the pandemic than post-pandemic. The extent to which symptomatology increased as a result of the pandemic remains unclear, but symptom frequency only slightly declined post-pandemic, while 'outside the home' behaviors (e.g., substance use, school issues) increased.

Keywords: Adolescent Mental Health; Subclinical Psychopathology; COVID-19 Mental Health Impact; Pandemic and Post-Pandemic Trends; High School Students

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EXPLORING THE EFFECTS OF MINDFULNESS AND METACOGNITION ON MENTAL HEALTH AMONG UNIVERSITY STUDENTS

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Mindfulness involves maintaining focused attention on the present moment, characterized by openness, curiosity, and acceptance. Metacognition represents a core feature of human cognition, enabling individuals to reflect on and regulate their own thoughts and mental states. These two constructs are closely linked to mental health, particularly in relation to depression, anxiety, and stress (DAS). While higher levels of trait mindfulness and mindfulness practices are associated with reduced DAS, maladaptive metacognitive beliefs are linked to heightened DAS. This complex relationship underscores the importance of exploring both constructs within the context of mental health interventions. The aim of this study is to examine the effects of a brief interventions on DAS, while controlling for the effects of mindfulness and metacognition. A quasi-experimental design was used, with 220 participants (164 female, M_{age} = 19.41, SD = 0.89) randomly assigned to one of three 7-day interventions: mindfulness meditation (MI; 10 minutes daily), breathing exercises (BI; 10 minutes daily), or a control group (CG; 10 minutes of educational videos). Participants completed the Five Facet Mindfulness Questionnaire – Short Form (FFMQ-SF), Metacognitions Questionnaire – 30 (MCQ-30), and Depression, Anxiety, and Stress Scale (DASS) before and after the intervention. ANCOVA was used to analyze group differences in DAS, with changes in mindfulness and metacognition included as covariates. Results revealed significant group differences for depression ($F_{(2,204)} = 3.02$, $p < .05$, $\eta^2 = 0.03$), with the MI group showing the greatest reduction in depression scores ($M = -1.64$), followed by the BI group ($M = -1.52$), both significantly lower than the CG ($M = 0.02$; $p < .05$ for MI and BI). Changes in mindfulness ($F_{(1,204)} = 5.70$, $p < .05$, $\eta^2 = 0.03$) and metacognition ($F_{(1,204)} = 10.22$, $p < .01$, $\eta^2 = 0.05$) were significant covariates. For anxiety, the omnibus test was not significant. No significant group differences were found for stress. These findings suggest that both mindfulness and breathing interventions significantly reduced depression compared to the control group. Changes in mindfulness and metacognition emerged as significant covariates, reflecting their association with DAS outcomes. No significant effects were observed for anxiety or stress.

Keywords: mindfulness intervention; metacognition; depression; anxiety; stress

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KATARINA MARIĆ FOUNDATION

I KAKO SE SVE TO ZAISTA DEŠAVA? POSLEDICE SUOČAVANJA LJUDI SA NESAVRŠENOŠĆU ZAVERENIČKIH OBJAŠNJENJA DOGAĐAJA U KOJA VERUJU

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U ovom istraživanju nas je zanimalo šta ljudi zapravo prihvataju kada kažu da su tvrdnje (kao one u psihološkim upitnicima) koje govore o teorijama zavere (TZ) istinite. Ispitivale smo u kojoj meri su mentalne predstave o TZ razrađene, šta su dimenzije te razrađenosti, a onda i da li je razrađenost povezana sa stepenom uverenosti u TZ. U eksperimentalnom delu istraživanja, proveravale smo uspešnost intervencije koja je osmišljena da smanji verovanje u teorije zavere, a koja je inspirisana intervencijama usmerenim ka smanjenju iluzije eksplanatorne dubine. Individualno smo intervjuisale 67 ispitanika o TZ koju su prethodno naznačili da prihvataju. Istraživačica je postavljala ispitanicima uzastopna "kako pitanja" o tome kako bi objasnili način na koji se određeni deo zavere odvija. Namera ovakvog intervjua je bila da pokaže ispitaniku da nije plauzibilno da istovremeno bude ispunjen veliki broj povezanih uslova neophodnih da bi se neka zavera desila/održala tajnom. Rezultati pokazuju da, suprotno od naših očekivanja, razrađenost predstava o TZ nije povezana sa stepenom uverenosti u TZ ($r = .21$, $p = .09$). TZ koje ispitanici sa većom uverenošću prihvataju nisu mentalno reprezentovane sa više detalja niti su opširnije (odnosno, TZ koje su manje razrađene jednako su prihvaćene od strane ispitanika), iako je slaba povezanost koju smo registrovale u očekivanom smeru. Pored toga, ni osmišljena intervencija nije bila uspešna u promeni stepena uverenja u TZ o kojima je u intervjuu bilo reči ($F (1, 65) = 2.184$, $p = .144$). Uzimajući u obzir prosečni skor na razrađenosti koji je niži od teorijskog proseka ($M = 1.99$, $SD = 1.05$), kao i tematsku analizu opisa TZ u koje ispitanici veruju, čini se da uverenost u TZ ne potiče od razrađenog i detaljnog znanja, već od uverenja višeg reda. Ovo opštije uverenje predstavljaja tipičan zaverenički pogled na svet (zlonamerni akteri se tajno udružuju) koji je praćen nepoverenjem u zvanične epistemičke autoritete (autoriteti nas lažu; zvanične verzije istine nisu tačne). Kako bismo bolje razumele zašto intervju nije imao efekta, odnosno zašto ispitanici nisu reevaluirali svoju uverenost u konkretnu TZ kada su bili suočeni sa nedostatkom znanja o zavereničkom zapletu i uslovima koje treba ispuniti da bi se zavera desila, analizirale smo strategije odgovaranja za kojima su ispitanici posezali. Koristili su tri tipa opštih objašnjenja: verovanje uprkos neznanju, relativizaciju znanja i pozivanje na opštije mehanizme funkcionisanja sveta, odnosno opšte poglede na svet. Drugim rečima, do suočavanja sa neplauzibilnošću TZ nije ni došlo jer ispitanici nisu imali konkretne informacije ili dokaze sa kojima bi se suočili, već su se oslanjali na opšte nepoverenje. Ovaj deo analiza upućuje na to da je "zavera bez teorije" adekvatan model za razumevanje predstava opšte populacije o teorijama zavere.

Ključne reči: teorije zavere; neplauzibilnost; razrađenost; zavera bez teorije; zaverenički mentalitet; nepoverenje prema zvaničnim epistemičkim autoritetima

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NAMERA ZA UZBUNJIVANJEM: EFEKAT RADNOG LOKUSA KONTROLE, STRAHA OD ODMAZDE I ORGANIZACIJSKE PRIVRŽENOSTI

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Uzbunjivanje predstavlja proces u kom (bivši) zaposleni u nekoj organizaciji otkriva nezakonita ili neetična ponašanja koja su pod kontrolom poslodavca, osobama ili organizacijama koje bi na takva ponašanja mogle da utiču (Near & Miceli, 1985). Otkrivanje može biti usmereno ka nadležnim osobama u organizaciji (unutrašnje uzbunjivanje) ili izvan nje, uključujući i informisanje javnosti (spoljašnje) (Dhamija & Rai, 2018). Koje osobine poseduju oni koji odluče da preduzmu ovakav korak? Kakve su karakteristike organizacija u kojima su oni zaposleni? Kako je sâmo uzbunjivanje teško ispitati, često se umesto njega ispituje namera za uzbunjivanjem (Chen, 2019). Istraživači su prepoznali povezanost namere za uzbunjivanjem sa različitim demografskim, ličnosnim, organizacijskim i društvenim činiocima, kao i karakteristikama počinjene neregularnosti. Domaćih psiholoških istraživanja na temu uzbunjivanja, nažalost, nedostaje. Glavni cilj ovog rada, bio je ispitivanje da li strah od odmazde i organizacijska privrženost značajno doprinose predviđanju namere za unutrašnjim i namere za spoljašnjim uzbunjivanjem povrh unutrašnjeg i spoljašnjeg radnog LK. Uzorak je činilo 220 zaposlenih od 19 do 66 godina (M = 40.77, SD = 12.87). Većinu su činile žene (65.9%), zaposleni duže od 10 godina (62.3%) i oni sa završenim osnovnim/master studijama (55%). Instrumenti koji su korišćeni u istraživanju su: skala za merenje namere za uzbunjivanjem (Park & Blenkinsopp, 2009), skala za merenje straha od odmazde (Park et al., 2005), Skala radnog lokusa kontrole (WLCS; Spector, 1988) i skraćena verzija Skale privrženosti organizaciji (OCS-AN; Meyer & Allen, 1991). Za obradu prikupljenih podataka, korišćene su dve hijerarhijske regresione analize. Rezultati su pokazali da strah od odmazde i organizacijska privrženost značajno doprinose objašnjenju varijanse namere za unutrašnjim uzbunjivanjem povrh unutrašnjeg i spoljašnjeg radnog LK. Model sa sva četiri prediktora objašnjava oko 27% varijanse kriterijuma. Sa druge strane, strah od odmazde i organizacijska privrženost ne doprinose značajno objašnjenju varijanse namere za spoljašnjim uzbunjivanjem. Model sa sva četiri prediktora objašnjava samo oko 5% varijanse kriterijuma. Rezultati ukazuju na to da poslodavci i država mogu dodatno podstaći nameru za unutrašnjim uzbunjivanjem, pored toga što zaposleni ima unutrašnji radni LK. Međutim, nameru za spoljašnjim uzbunjivanjem nije moguće objasniti činiocima koji su bili predmet ovog istraživanja.

Ključne reči: namera za uzbunjivanjem; radni lokus kontrole; strah od odmazde; organizacijska privrženost

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UTICAJ NAZIVA NA REPREZENTACIONI POMERAJ PRI PAMĆENJU BOJA

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Prema CATMET modelu radne memorije (Bae et al., 2015), boje se pamte na osnovu dve reprezentacije: metričke, koja se zasniva na izgledu boje, i kategoričke, koja se odnosi na pripadnost boje određenoj kategoriji (npr. crveno, zeleno itd). Uticaj kategoričke reprezentacije ogleda se u tome što se odgovori ispitanika u zadatku pamćenja boje pomeraju ka mestu prototipa njene kategorije i ovaj efekat je poznat pod nazivom reprezentacioni pomeraj ka prototipu (Bae et al., 2014). Pojedini autori iz oblasti sugerisali su da bi priroda kategoričke reprezentacije mogla biti verbalna, odnosno da u njenoj osnovi stoji automatsko imenovanje boja tokom njihovog opažanja i pamćenja (Donkin et al., 2015; Hardman et al., 2017; Lupyan, 2012). Pored toga, studije su pokazale da prikazivanje naziva kategorije zajedno sa obojenim stimulusom dodatno podstiče njegovu kategoričku obradu (Forder & Lupyan, 2019). Cilj ovog rada bio je ispitati na koji način nazivi koji variraju po tome u kom stepenu ukazuju na kategoriju boje utiču na pristrasnosti u njenom pamćenju. Stimuluse su predstavljale boje iz osam osnovnih kategorija (crvena, žuta, plava, zelena, ljubičasta, narandžasta, roze, braon), uparene sa različitim nazivima. Korišćeno je četiri vrste naziva: specifični (označavaju konkretnu nijansu boje, npr. rubin crvena), kategorički (označavaju kategoriju boje, npr. crvena), nisko dvosmisleni (označavaju kategoriju, ali ne daju jasnu odrednicu nijanse, npr. magično crvena) i visoko dvosmisleni (ne ukazuju ni na specifičnu nijansu, ni na kategoriju, npr. obećani smeh). U prvom eksperimentu, zadatak ispitanika je bio da zapamte boju, a zatim da je prepoznaju u skupu ponuđenih odgovora: mete, dva distraktora bližih prototipu i dva bližih granici kategorije u odnosu na metu. Rezultati su pokazali da se pristrasnost odgovora ispitanika značajno menjala u zavisnosti od naziva koji joj je pripisan (F (12, 464) = 5.31, p = .00, η^2 = .12). Najveći reprezentacioni pomeraj ka prototipu je zabeležen u slučaju kategoričkih naziva ukazujući da oni podstiču kategoričku reprezentaciju pri pamćenju. Specifični i nisko dvosmisleni nazivi su doveli do značajno češćeg izbora tačnog odgovora, sugerišući da su se u ovom uslovu ispitanici više oslanjali na metričku reprezentaciju, odnosno izgled mete. S druge strane, potpuno neinformativni nazivi (npr. obećani smeh) doveli su do gotovo nasumičnog odgovaranja ispitanika. U drugom eksperimentu su ispitani mehanizmi uticaja naziva za boje na njenu kategoričku, odnosno metričku reprezentaciju time što je paradigmom dvostrukog zadatka dodatno opterećena verbalna, odnosno vizuelna komponenta radne memorije. Nalazi su pokazali da je dodatno vizuelno opterećenje, u odnosu na verbalno, u većoj meri menjalo obrazac odgovora ispitanika u zadatku pamćenja (F (8, 552) = 8.90, p = .00, η^2 = .11). Međutim, nisu zabeleženi očekivani efekti ometanja različitih kanala radne memorije u odnosu na vrstu naziva za boje koji je bio pripisan meti. Zaključno, rezultati ovog rada potvrđuju važnost kategoričke reprezentacije pri pamćenju boja koja je definisana novijim modelima radne memorije (Bae et al., 2015) i ukazuju na to da je ona verovatno verbalne prirode, kao što sugerišu neke od prethodnih studija (Donkin et al., 2015; Hardman et al., 2017). Iako rezultati ove studije nisu jednoznačno ukazali na mehanizam kojim nazivi za boje utiču na njenu reprezentaciju, u radu su diskutovana potencijalna objašnjenja za izostanak očekivanih efekata.

Ključne reči: radna memorija; boje; reprezentacioni pomeraj; nazivi za boje

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SHIZOTIPALNE CRTE I EMOCIONALNA REGULACIJA KAO ČINIOCI JAVLJANJA AUDITIVNIH HALUCINACIJA U OPŠTOJ POPULACIJI

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Čuti glasove više se ne smatra retkom pojavom koja pogađa isključivo osobe sa dijagnozom psihoze, niti besmislenim simptomom "mentalnog poremećaja". Sve je veći broj istraživanja koja ukazuju na to da auditivne halucinacije postoje na kontinuumu sa normalnim iskustvima, zahvatajući širi obim populacije od one koja ispunjava dijagnostičke kriterijume za psihotični poremećaj. Ipak, uprkos brojnim istraživanjima, svi mehanizmi i faktori koji doprinose njihovom nastanku ostaju slabo razumljivi. Aktuelno istraživanje ispitivalo je da li shizotipalne crte ličnosti i maladaptivne strategije emocionalne regulacije – supresija misli, supresija ekspresije i ruminacije – doprinose pojavi auditivnih halucinacija u opštoj populaciji, kao i da li te strategije emocionalne regulacije potencijalno posreduju između dimenzija shizotipije i auditivnih halucinacija. Uzorak se sastojao od 261 ispitanika iz opšte populacije, koji su popunili upitnike za merenje sklonosti ka halucinacijama, shizotipije i odabranih maladaptivnih strategija emocionalne regulacije. Hijerarhijska regresiona analiza sprovedena je kako bi se otkrilo da li strategije emocionalne regulacije predviđaju auditivne halucinacije nezavisno od dimenzija shizotipije, nakon čega su sprovedene dve analize medijacije. Prvi medijacioni model ispitivao je strategije emocionalne regulacije kao medijatore između, sa jedne strane, kognitivno-perceptivne, interpersonalne i dezorganizovane dimenzije shizotipije i sa druge strane, auditivnih halucinacija. Drugi model serijalne medijacije služio je da utvrdi da li dimenzije shizotipije predviđaju auditivne halucinacije preko sekvencijalnog uticaja supresije misli na ruminaciju. Rezultati regresione analize pokazali su da kognitivno-perceptivna (β = .29, p < .01) i dezorganizovana shizotipija (β = .13, p < .05) značajno predviđaju auditivne halucinacije (ΔR^2 = .31, p < .01). Strategije emocionalne regulacije, pogotovo ruminacija (β = .30, p < .01) i marginalno supresija misli (β = .12, p = .09), objasnile su dodatnu varijansu nezavisno od dimenzija shizotipije (ΔR^2 = .07, p < .01). Ruminacija se pokazala kao jedini značajan medijator između kognitivno-perceptivne (β = .102, p < .01, SE = .027, CI [.041, .145]), dezorganizovane (β = .081, p < .01, SE = .024, CI [.034, .131]) i interpersonalne shizotipije (β = .038, p < .05, SE = .024, CI [.006, .099]), s jedne strane i auditivnih halucinacija, s druge strane. U modelu serijalne medijacije, supresija misli se takođe pokazala kao značajan medijator, povezujući kognitivno-perceptivnu (β = .048, p < .01, SE = .013, CI [.02, .069]), interpersonalnu (β = .032, p < .01, SE = .015, CI [.016, .074]) i dezorganizovanu shizotipiju (β = .021, p < .05, SE = .01, CI [.003, .044]) sa auditivnim halucinacijama, preko svog sekvencijalnog dejstva na ruminaciju. Nalazi ovog istraživanja ukazuju na važnu ulogu strategija emocionalne regulacije u pojavi auditivnih halucinacija u opštoj populaciji, pri čemu ruminacija i supresija misli predstavljaju značajne medijatore između shizotipije i auditivnih halucinacija. Ovi rezultati naglašavaju potrebu za daljim usmeravanjem pažnje na maladaptivne strategije emocionalne regulacije kao metu preventivnih intervencija u okviru terapijskog rada. Takav pristup, ne samo da bi potencijalno doprineo smanjenju učestalosti, ili uopšte javljanja, auditivnih halucinacija u okviru opšte populacije, već bi smanjio i rizik egzacerbacije ovih simptoma i tranzicije u punu psihotičnu epizodu.

Ključne reči: auditivne halucinacije; opšta populacija; shizotipija; emocionalna regulacija; ruminacija

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ODNOS RELIGIOZNOSTI I IRACIONALNIH UVERENJA – ZAJEDNIČKI EFEKAT STILOVA MIŠLJENJA I DEZINTEGRACIJE

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Brojna istraživanja su pokazala povezanost religioznosti i iracionalnih uverenja – paranormalnih uverenja, zavereničkih uverenja i antinaučnih stavova. Religioznost, međutim, u ovim istraživanjima nije sistematično proučavana, na način koji bi pokrio raznovrsne aspekte njenog ispoljavanja. Pored toga, poznato je da se stilovi mišljenja i šizotipija, odnosno prisustvo fenomena sličnih psihozi, javljaju kao zajednički prediktori religioznosti i iracionalnih uverenja. Ostalo je, međutim, nejasno koja je uloga ovih zajedničkih prediktora u objašnjavanju povezanosti religioznosti i iracionalnih uverenja. Ovo istraživanje je sprovedeno u cilju boljeg razumevanju odnosa religioznosti i iracionalnih uverenja, pri čemu je religioznost posmatrana kroz njena četiri aspekta – religiozna uverenja, iskustva, identitet i prakse. Osim toga, odnos religioznosti i iracionalnih uverenja je bio dodatno razjašnjen utvrđivanjem udela deljene varijanse ova dva konstrukta koji se može predvideti stilovima mišljenja i dezintegracijom. Podaci su prikupljeni putem onlajn upitnika, pri čemu je uzorak bio prigodan, $N = 417$, 80.1% ženskog pola, prosečnog uzrasta $M = 38.31$ godina, $SD = 14.80$, pri čemu su 18.2% uzorka činili studenti psihologije. Rezultati konfirmatorne faktorske analize su pokazali da bifaktorski model, sa četiri specifična faktora koji odgovaraju aspektima religioznosti i jednim opštim faktorom religioznosti, najbolje opisuje podatke. Svi aspekti religioznosti su umereno do visoko korelirali sa svim iracionlanim uverenjima, uz to da su korelacije bile najjače za religiozna uverenja. Model u kome su religijska uverenja bila uvrštena u paranormalna uverenja je bolje odgovarao podacima od analognog modela u kome je ova veza fiksirana na nulu. U modelu strukturalnih jednačina, iskustveni stil mišljenja je bio značajan prediktor i religioznosti i iracionalnih uverenja, dok su racionalni stil i dezintegracija bili značajni prediktori samo u slučaju iracionalnih uverenja ali ne i religioznosti. Rezidualne varijanse religioznosti i iracionalnih uverenja u ovom modelu su međusobno snažno pozitivno korelirale, ali je ova korelacija bila niža u odnosu na proste Pirsonove korelacije ove dve varijable. Ovakvi rezultati ukazuju na nekoliko stvari. Prvo, da je religioznost opravdano posmatrati i kao jedinstven, i kao kompleksan konstrukt. Drugo, da se iracionalna uverenja grupišu u opšti faktor, kao i da religijska uverenja treba posmatrati kao deo iracionalnih uverenja. Treće, da stilovi mišljenja i dezintegracija objašnjavaju deo varijanse kako religioznosti tako i iracionalnih uverenja, kao i deo varijanse koju ova dva konstrukta dele.

Ključne reči: religioznost; iracionalna uverenja; paranormalna uverenja; zavereničko mišljenje; antinaučni stavovi;stilovi mišljenja; dezintegracija

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