IV SEJyD MEETING

Society for the Advancement of Judgment and Decision-Making Studies

ABSTRACT BOOK

Sociedad para el estudio de los juicios y las decisiones

sepex sociedad española de psicología experimental

Facultad de Psicología Universidad de Granada

UNIVERSIDAD DE GRANADA

ABSTRACT BOOK

IV Scientific Meeting of the Society for the Advancement of Judgment and Decision-Making Studies

Universidad de Granada, 2023

COLLABORATING ENTITIES

Sociedad para el estudio de los juicios y las decisiones

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SCIENTIFIC PROGRAMME

FRIDAY, NOVEMBER 1ST	
8:30 - 9:00	**Registration**
9:00 - 9:15	**Opening act**
9:15 - 10:30	**SEPEX conference**
9:15	David Lagnado (University College London) *Causality in Mind: Learning, Reasoning and Blaming*
10:30 - 11:50	**First session**
10:30	Gender differences in social preferences and cognitive styles have common grounds.
10:50	The impact of a biased AI decision support system in a human-in-the-loop process.
11:10	The inherited bias effect: the propagation of artificial intelligence biases to human decisions.
11:30	Does the position where students sit in class influences their performance, estimations and/or judgments?
11:50 - 12:20	**Coffee break & poster session**
12:20 - 14:00	**Second session**
12:20	Economic scarcity reduces the causal illusion, even in later, wealthier condition.
12:40	Do losses promote more cognitive effort than gains?
13:00	How important is intention in causal responsibility judgements?
13:20	A decision-making model of non-substance addictive behaviors: the role of incidental and intentional emotion regulation.
13:40	Age and moral disgust: an experimental priming effects vignette study
LUNCH BREAK (14:00 - 15:30)	

15:30 - 16:50	**Third session**
15:30	A new methodology to study prehospital decision delay in acute coronary syndrome: results from the Spanish Cardiobarometer.
15:50	Improving medical screening tests comprehension and recommendations with informative brochures: the advantages and limitations of visual-aids.
16:10	Decision-making under arousal stress.
16:30	The relationship between intolerance of uncertainty and threat expectancy under uncertainty.
16:50 - 17:10	**Coffee break**
17:10 - 18:50	**Fourth session**
17:10	Evidence of a positive bias towards androgynous faces.
17:30	Preliminary results from GraCo: a multidimensional questionnaire assessing severity of addictive behaviours.
17:50	Personality and executive functions in the down-regulation of emotions.
18:10	The design of training tasks conditions inhibitory control of team players.
18:30	Impact of a 4-Month Basketball and Fitness Training Program on Prefrontal Cortical Structures in Young Adults without Health Conditions.
19:00 - 20:00	**SEJyD Meeting**

ABSTRACTS

ORAL COMMUNICATIONS

SEPEX CONFERENCE

Causality in Mind: Learning, Reasoning and Blaming

David Lagnado

University College London

Knowledge of cause and effect is vital to our ability to predict, control and explain the world. It helps us diagnose diseases, build bridges and decide guilt. How do people learn and reason about causality? This talk will focus on three key areas of cognition: (1) Learning: how we construct causal models by actively exploring the world, using heuristics to overcome cognitive limitations; (2) Reasoning: how we use causal models to explain uncertain evidence, simplifying complex inferences; (3) Attribution: how we rely on causal counterfactuals to assign responsibility and blame, especially in situations with multiple interacting agents.

Gender differences in social preferences and cognitive styles have common grounds.

Antonio M. Espín[1], Valerio Capraro[2], Brice Corgnet[3], Simon Gächter[4], Roberto Hernán-González[5], Praveen Kujal[6], & Stephen Rassenti[7]

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Previous studies have shown that women are more egalitarian and less self-interested than men whereas men are more concerned with social efficiency and this has important implications for people and organizational management. Yet the roots of such gender differences remain poorly understood. We hypothesize that gender differences in social preferences can be partially explained by differences in cognitive styles and confirm it meta-analytically using data from seven studies in four countries (USA, Spain, India, and UK; n=6,910): differences in cognitive reflection test scores explain up to 41% of the gender differences in social preferences. These results suggest that the socio-ecological or evolutionary—including cultural—pressures that determine gender differences in cognitive styles also influence gender differences in social preferences.

The impact of a biased AI decision support system in a human-in-the-loop process.

Ujué Agudo[1,2], Karlos G. Liberal[2], Miren Arrese[2], Helena Matute[1]

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[2] Bikolabs / Biko, Pamplona, Spain.

The use of automated decision making in the public sector is growing rapidly, although policy institutions are concerned about the possibility of erroneous or biased algorithmic decisions. To mitigate these risks, they recommend involving humans in the decision-making process, despite the fact that there is no clear consensus in the scientific literature on the benefits of having humans in the loop or on the factors that may influence their final decision. We conducted an experiment in which participants were asked to judge several defendants for different crimes. We simulated an automated decision-making process by providing participants with support from a fictitious AI system before or after they made their judgments, and measured whether the order in which participants received the biased AI support affected their accuracy. Our results show that the accuracy of participants' judgments was reduced by the biased AI support they received, particularly when they received it before emitting their own judgments.

The inherited bias effect: the propagation of artificial intelligence biases to human decisions.

Lucía Vicente Holgado & Helena Matute

Departamento de Psicología. Universidad de Deusto, Bilbao.

Artificial intelligence systems to support human decision-making are becoming increasingly common in professional fields. Such AI-human collaboration has raised concerns about how biases in AI systems could impact human decisions. A biased AI advisor could cause humans to make worse decisions than they would have made on their own. Furthermore, after interacting with a biased AI-based decision-support system, could people reproduce the same bias as the system in their choices when the AI recommendations are no longer present? To explore this possible human inheritance of AI bias, we conducted two experiments in which participants completed a health-themed classification task that simulated a diagnostic decision-making process. In Experiment 1 (N= 169), a group of participants completed the classification task with the help of recommendations from a biased AI system, while the other group completed this task unassisted. AI-assisted participants made more errors, specifically in the trials where the AI advice was wrong than the unassisted participants. In Experiment 2 (N=199), the AI-assisted and the unassisted groups completed a second, non-aided phase of the classification task. In this non-aided phase, the AI-assisted group also made more mistakes than the unassisted group, and their errors mimicked the bias of the AI recommendations presented in the previous phase of the task, an effect that was also observed in trials with ambiguous information. Thus, AI bias influenced participants' responses, even when the AI system was no longer making suggestions. These results provide evidence for a possible human inheritance of AI biases.

Does the position where students sit in class influences their performance, estimations and/or judgments?

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This study investigates the link between classroom seating choices, academic performance, calibration accuracy, and confidence judgments among 130 college students (*M* = 21.52, *SD* = 1.59; 103 female) at the University of Jaen, Spain. Bridging academic performance with cognitive biases and classroom dynamics, the research spotlights the intriguing connections between seating preferences and academic self-awareness. Results reveal that seating position significantly influences calibration levels. Middle-row students demonstrate optimal calibration, accurately gauging their performance. Conversely, front-row students overestimate, while those at the back tend to underestimate performance. This alignment of seating with self-assessment patterns offers insight into students' cognitive biases and spatial preferences. Moreover, seating choice correlates with confidence judgments. Front-row students exhibit heightened confidence, resonating with the Dunning-Kruger effect. These findings suggest that seating arrangements subtly impact students' calibration and confidence, underscoring the potential for environmental factors to influence self-perception. This study opens avenues to refine pedagogical strategies and classroom design, aiding educators in fostering accurate self-assessment and learning effectiveness. Further studies will be needed to delve deeper into the cause behind the result obtained. The exploration into underlying mechanisms could optimize students' calibration through deliberate seating arrangements.

Economic scarcity reduces the causal illusion, even in later, wealthier conditions.

Aranzazu Vinas[1], Fernando Blanco[2] & Helena Matute[1]

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Previous literature has shown that economic scarcity affects people's judgments, decisions, and cognition. We hypothesized that scarcity could reduce the causal illusion, a cognitive bias that consists of believing that one event causes another when it does not. The literature on causal illusion shows that reducing the probability of occurrence of the potential cause, or P(C), can reduce this bias. Thus, we hypothesized that scarcity would cause participants in our experiments to reduce the P(C) and hence, their causal illusion. In two experiments, participants played the role of doctors deciding whether to administer a drug for healing a series of patients. The drug was ineffective: the percentage of patients recovering it was identical regardless of whether they took the drug. Across the experiments, we manipulated the amount of budget available to buy the drugs. Our results show that participants in the scarce group reduced their P(C) and, therefore, showed a lower causal illusion as compared to those in the wealthy group. Experiment 2 featured an additional phase in which the budget changed, a common real-life situation. The results showed that participants who transitioned from a scarce to a wealthy budget exhibited a more careful use of the resources and, consequently, a lower causal illusion. On the other hand, those participants who suffered the opposite change (from wealth to scarcity) were unaffected by their previous experience.

Do losses promote more cognitive effort than gains?

Carlos Rey[1], Antoni Rubí-Barceló[1] & Tomás Lejarraga[1,2]

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Despite the growing evidence challenging the concept of loss aversion, several studies have shown an asymmetry between gains and losses in physiological arousal, neural response, on-task attention, and exploratory search. Our goal was to examine whether losses promote more cognitive effort than equivalent gains. We conducted a between-subjects design with 1 factor (treatment) with 2 levels ("gains" and "losses"). Participants in the gain condition completed an unrelated task and received 4€, whereas participants in the loss condition completed a longer version of this unrelated task and received 16€. One week later, participants in both conditions completed 6 tasks assessing different aspects of reflection or cognitive effort: reflection on the semantic space, reflection on problem-solving, strategic reflection, and non-strategic reflection. There participants could earn (gain condition) or lose (loss condition) money based on their performance. MANOVA analysis revealed no effect of losses on the six performance variables ($p = .064$). As expected, however, losses led to longer reflection as measured in response times ($p < .001$). In 5 out of 6 tasks, participants used more time to avoid losses than to reap gains. This effect was more marked in responses to syllogisms. Individual tests aggregating the 6 response time variables and the 6 performance variables confirmed higher response times for losses than for gains ($p < .005$) but not better performance ($p = .78$).

How important is intention in causal responsibility judgements?

Cristina Gordo[1], María Manuela Moreno-Fernández[2] & Sergio Moreno-Ríos[2]

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We investigated the role of intention in causal responsibility judgements in the framework of the criticality-pivotality model. This model establishes that when assigning responsibility, people consider how important a target is to reach a positive outcome (criticality) and the extent to which the target contributed to the actual outcome (pivotality). To this end, we created scenarios involving two bullies planning to harass a classmate, manipulating the intention of one of them. In one condition, the bully intended to hurt his classmate but was unable to carry out the act. In the other condition, the bully had the ability to harm his classmate but chose not to do so. Even though the bully did not engage in the aggression in either of the two conditions, he was still judged to be responsible. Furthermore, participants rated him as more responsible in the condition where he was unable to act compared to the condition where he chose not to act. Results are discussed in terms of their theoretical implications in the criticality-pivotality model and how viewers perceive instances of bullying.

A decision-making model of non-substance addictive behaviors: the role of incidental and intentional emotion regulation.

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Competing models conceptualize non-substance addictions as either resulting from compulsive, stereotyped, and mostly goal-detached behavior, or from instrumental, goal-driven, value-based decision making. Different sources of evidence partially support both approaches. For instance, neurobiological evidence shows a transition from model-based to model-free behavior control circuits with addiction chronification, but, at the same time, addictive behaviors do retain some flexibility, and seem to be sensitive to contingency management interventions.

Here, we present a model in which the main motivational drive underlying addictive behaviors is craving. Craving is a conditioned response to environmental cues that have become associated with potentially addictive rewards. In our proposal, craving can be both a state of aberrant expectancy of reward, and a distressing state, in some senses similar to withdrawal, i.e. it has both appetitive and aversive components. Most importantly, under the influence of craving, the value of consummation is severily distorted, relative to a neutral state.

Craving is also an affect-driven state, so craving control can be regarded as an instance of emotion regulation. A distinction can be made between incidental and intentional emotion regulation mechanisms. Applied to craving regulation, incidental emotion regulation would take place before the craving state is fully appraised, and would determine its subjective intensity. Intentional emotion regulation would take place after craving is appraised, and would determine the degree to which experienced craving translates into lack of control of the potentially problematic behavior. Here we present several pieces of preliminary evidence supporting this distinction.

Age and moral disgust: an experimental priming effects vignette study.

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The latest advances in the field suggest that disgust is involved in certain aspects of moral psychology. Also, people are known to judge the actions of old people differently to those of young people. Previous work in a vignette study and correlational research design has found that disgust sensitivity affects how acceptable actions portrayed by old people are perceived to be. Building on the reviewed literature, the present research is intended to extend Aguiar and his colleagues' finding that disgust sensitivity responds to the target's age in the making of moral judgments, by examining whether the influence on moral judgements from disgust activated by affective priming is sensitive to the target's age. We present the pilot data for a preregistered study protocol.

A new methodology to study prehospital decision delay in acute coronary syndrome: results from the Spanish Cardiobarometer.

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In acute coronary syndrome (ACS), longer prehospital decision delay – the time patients wait before seeking medical attention after symptoms have started – increases the risk of complications and death. The majority of research into the causes of decision delay comes from retrospective studies with ACS survivors that are susceptible to memory and selection biases. To overcome these limitations, we developed and validated a new methodology that can be used in the general healthy population at risk of ACS. We created and pre-tested four scenarios describing the most common symptom clusters of ACS (i.e., “classic”, “heavy”, “diffuse”, and “weary”). The scenarios were administered in the Spanish Cardiobarometer survey to a representative random sample of 1001 individuals aged 55 or older in telephone computer-assisted interviews. The scenarios were presented in random order and for each scenario participants answered 4 questions about their help-seeking intentions. Participants were more likely to decide to seek medical help (e.g., choose to call an ambulance or go to the emergency room) in the scenarios compatible with a typical “Hollywood heart attack” (92% in “classic” and 97% in “heavy”), compared to the other common but less popular symptom presentations (62% in “diffuse” and 80% in “weary”). Women and younger individuals were consistently less likely to seek help and the order of the scenarios had little effect on responses. Generally, results paralleled key findings from studies with patients, suggesting that the scenario methodology could produce valuable results for the study of prehospital decision delay.

Improving medical screening tests comprehension and recommendations with informative brochures: the advantages and limitations of visual-aids

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Medical screening tests are commonly perceived as a valuable tool for the early detection of medical conditions. If a screening test comes out positive, generally a more invasive diagnostic test is recommended to make sure the medical condition is present. However, positive screening test results are often not as reliable as people assume. The validity of the test results (i.e. positive predictive value) needs to be calculated using Bayes' theorem, but few patients and doctors are aware of what information is relevant or know how to perform these difficult calculations. Additionally, in medical contexts people rarely have access to informative brochures that explain the information clearly and help them avoid the computational complexity. We performed an experiment (n = 200) investigating if a simple visual-aid can improve the accuracy in positive predictive value estimation and recommendations. Female mechanical Turkers were randomly assigned to a standard informative brochure or one including a visual-aid, and solved two items concerning screenings for Breast Cancer and Down syndrome, leading to a riskier follow-up test after a positive result. The results showed that participants made a more accurate PPV estimation and recommendation in the screening step with the visual-aid, but the improvement did not reach the final follow-up recommendation. Our results indicate that it is possible to improve comprehension and recommendations with visual-aids, but once a positive screening test result has been given, even if the test is known not to be trustworthy, participants generally would ask for further tests, ignoring the risk.

Decision-making under arousal stress.

Clara Alameda[1], Chiara Avancini[1], Daniel Sanabria[1], Tristan A. Bekinschtein[2], Andrés Canales-Johnson[2] & Luis F. Ciria[1]

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Arousal and alertness levels fluctuate constantly and non-linearly across the day, with more pronounced changes during transitions towards strained states such as sleep or physical exertion. These arousal fluctuations have an impact on task performance, by facilitating or hampering certain cognitive processes. Here, we aimed at characterising the modulation of decision-making processes at both sides of the arousal spectrum. Throughout two different studies, healthy participants performed a probabilistic reversal learning task (Study 1) and a classical conflict task (Study 2) while either exercising at high intensity or falling asleep. Our results from Study 1 revealed that, although both drowsy and highly-aroused participants showed poorer performance, and thereby diminished cognitive flexibility, it was driven by different maladaptive decisional patterns. As predicted, drowsy states were primarily associated with decision volatility, whereas high arousal led to perseverative behaviour. In Study 2, overall task performance was markedly poorer during low arousal, but not for high arousal. However, in line with our pre-registered hypothesis, conflict and conflict adaptation effects were preserved during both states. Drift-diffusion modelling analyses revealed that deterioration in performance during drowsiness could be explained by a temporary loss of efficiency in some decision-making elements, such as slower rate of evidence accumulation, wider separation of decision boundaries and longer non-decision time. Notably, increased levels of arousal were associated with a decrease in the interference of task-irrelevant information processing. Altogether, these findings show how arousal differentially modulates cognitive control, cognitive flexibility and the underlying decision-making processes at both sides of normal alertness.

The relationship between intolerance of uncertainty and threat expectancy under uncertainty .

Pedro L. Cobos, Ana Rueda & Joaquín Morís

Universidad de Málaga

Inflated expectancy of uncertain threatening events has been frequently related to intolerance of uncertainty (IU), which is considered to play a significant role in the development of anxiety-related disorders. However, studies based on self-report expectancy measures have provided weak, conflicting, or null evidence in favour of the above-mentioned relationship. In our study, participants (N = 147) learnt on a trial-by-trial basis the predictive relationship between different geometric shapes and subsequent aversive images that could follow the shapes with different probabilities (.5 or .25, depending on the preceding shape). Our participants had to make expectancy judgements about the occurrence of aversive images given each shape, and prediction responses on every trial throughout the associative learning task. Expectations about the occurrence of the aversive images were also indirectly measured through a decision-making task in which the participants were repeatedly confronted with choices between two shapes: a geometric shape from the associative learning task, and a rectangular shape conveying numerical information about the probability of being followed by an aversive image if chosen. The likelihood of an aversive image to occur was consistent with the selected shape. Our results showed a significant positive association between trait anxiety (TA) and the participants' self-report expectancy of aversive images, but no significant main or moderation effect of IU. Additionally, neither IU nor TA were associated with individual differences in the decision-making task. Consequently, our results do not support the claim that IU is related to inflated expectancy of uncertain threatening events.

Evidence of a positive bias towards androgynous faces.

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Some studies suggest that the difficulty in classifying androgynous-looking faces into a binary category represents a metacognitive variable capable of facilitating negative social judgments (Stern et al., 2018). This research explores the influence of categorical uncertainty on social judgments of androgynous faces. The relationship between individual differences in moral sensibility and said social judgments is studied. Method: Categorical uncertainty was measured through the "Face Evaluation Task" (Stern et al., 2018). Confidence, the perception of what is disturbing (“creepy”) and the perception of moral similarity were established as dependent variables (Likert scales). To measure individual differences in moral sensitivity, the Colombian version of the moral foundations questionnaire (Saldarriaga et al., in press) was used. Results: In Study 1 (Spanish-speaking sample, N = 76; 73.7% Colombian), we found that androgynous faces were rated as more trustworthy, less "creepy," and more morally "similar" than typical faces. Although androgynous faces were more difficult to classify into a binary category (female vs. male) than typical-sex faces, this cognitive difficulty had no influence on social judgments of faces. These results were replicated in an Italian sample (Study 2, N = 45) and with different facial stimuli (Study 3, N = 140). Regardless of face type, “liberal” moral foundations were associated with an increase in overall trust and perceived moral similarity to faces, as well as a reduction in judgments of “creepiness.” In contrast, "conservative" moral foundations were associated with lower trust judgments and an increase in the perception of faces as "creepy." Conclusions: Taken together, this research suggests the existence of a positive social bias towards androgynous faces that is independent of categorical uncertainty.

Preliminary results from GraCo: a multidimensional questionnaire assessing severity of addictive behaviours.

María Fernanda Jara-Rizzo & José A. Rodas

Facultad de Ciencias Psicológicas, Universidad de Guayaquil-Ecuador.

Issues related to toxic and non-toxic addictions pose significant challenges for both clinical practice and research, thereby underscoring the need for a comprehensive tool that effectively evaluates the wide spectrum of related disorders. In response to this need, we developed a concise, multidimensional questionnaire known as GraCo, designed to assess the severity of both toxic and non-toxic addictions. This questionnaire comprises 34 items, designed to evaluate the impact of substance use on various facets of life, including family dynamics, interpersonal relationships, occupational and educational attainment, and financial stability. Additionally, it provides an assessment of treatment prognosis, non-problematic use, and eligibility for a diagnosis of substance abuse. To assess the utility and performance of the GraCo, we conducted two separate studies. The first involved administering the GraCo and evaluating executive functions, clinical symptoms, and impulsivity in a cohort of 55 patients undergoing rehabilitation for substance use disorders. The second study utilized the GraCo along with a personality questionnaire and executive function assessment in a group of 60 'recreational' users of substances, video games, the internet, and gambling. Our findings revealed significant correlations between GraCo scores and symptoms of somatization, obsessive-compulsive behavior, and anxiety. Additionally, impulsivity was found to be associated with financial difficulties stemming from substance use and treatment prognosis as evaluated by the GraCo. As for executive functions, attentional difficulties and issues with self-control were associated with the total GraCo score and, more specifically, with various subscales in both studies. Moreover, personality traits, such as extraversion, responsibility, and neuroticism, demonstrated significant associations with GraCo scores. While further research is necessary to ascertain the validity of the GraCo as an evaluative instrument, the current results suggest its promising utility in this context.

Personality and executive functions in the down-regulation of emotions.

Jose A. Rodas[1], María Jara-Rizzo[1] & Brendan Roonie[2]

[1] Universidad de Guayaquil
[2] University College Dublin

Emotions are a constituent part of human experience and our ability to regulate them can have a profound impact in health and general well-being due to its role in decision making. In fact, emotion dysregulation has been identified as a transdiagnostic component in many psychiatric disorders. Despite its relevance, the factors of individual differences in emotion regulation are still not sufficiently clear, and even less their specific contribution to these differences. In a study combining correlational and experimental methods, we investigated the role of personality and executive functions in emotion regulation, more specifically, in the down-regulation of intense emotions. In total, 112 participants were evaluated in down-regulation, three executive functions (inhibition, switching and updating) using experimental tasks, and completed a personality questionnaire. Down-regulation was measured by the difference from two rating conditions after presenting a set of 70 pictures from The International Affective Picture System (Lang et al., 2008): (a) rate their natural emotion, or (b) rate their emotions after a down-regulation process. Results from a multiple regression analysis using a stepwise procedure indicated that both personality and executive functions significantly predicted 16% of the variance in down-regulation (F [3, 111] = 6.856, p , .001), more specifically, working memory (β = .258), extraversion (β = -0.308) and agreeableness (β = .255). Prior studies have already identified working memory to be related in several emotion regulation processess and, contrary to expectations, inhibition does not seem to be a significant predictor of down-regulation. Also, personality seems to be playing an important role in this process.

The design of training tasks conditions inhibitory control of team players.

Alejandro Gutiérrez-Capote [1,2], Iker Madinabeitia [1,2], Elisa Torre [1], Francisco Alarcón [3], Jesús Jiménez-Martínez [1,2], Diego Andrés Cruz[1,2] & David Cárdenas [1,2]

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Background: Executive functions, especially inhibition, have been found to play a crucial role in team sports. However, field research addressing this problem taking into account the individual characteristics of the players, such as their experience, skills and cognition, is scarce. Therefore, the aim of this study was to analyze how two different types of practice, with different learning objectives, affect both inhibition capacity and motor performance, following a dose-response approach. Methods: Forty-four university students (age 20.36 ± 3.13 years) participated in this study. Two sessions were conducted: one in which 1 × 1 basketball was practiced with standard rules ("free practice") and another in which motor, temporal and spatial constraints were applied in 1 × 1 tasks ("practice with challenges"). Results: "Practice with challenges" resulted in a depletion of scores in both reaction time ($p < 0.001$) and accuracy ($p < 0.001$) for the Flanker and GoNogo test, these results were moderated by the participants' practical experience and baseline cognitive resources. Conclusions: The findings showed that increasing the difficulty of the 1 × 1 situations depleted the cognitive resources (inhibition) and performance of the players. Furthermore, these results were moderated by the players' previous experience and cognitive ability. Consequently, coaches have the need to adjust training conditions by making them easier or harder by limiting the practical action time, the playing space, or the level of freedom granted to a player.

Impact of a 4-Month Basketball and Fitness Training Program on Prefrontal Cortical Structures in Young Adults without Health Conditions.

Iker Madinabeitia Cabrera[1], Francisco Alarcón López[2], Irene Esteban Cornejo[1] & David Cárdenas[1]

[1] Departamento de Educación Física y Deportiva, Universidad de Granada
[2]Departamento de didáctica general y didácticas específicas, Universidad de Alicante.

In a sample of young university students with low physical exercise habits, a 2-hour intervention per week for 4 months was conducted. Neuroimaging analysis techniques were applied to the study sample to observe if modifications in brain structures, specifically in the prefrontal cortex zone could occur. It was observed that the experimental groups engaged in physical exercise showed a significant increase, compared to the control group, in the dorsal and medial regions of the prefrontal cortex. Additionally, it was also observed that the basketball group exhibited a significantly greater increase in the ventrolateral part compared to the other groups. The authors anticipate that this study will provide insights into the application of different physical exercise methodologies to enhance brain structures and emphasize the importance of including high cognitive activities through sports such as basketball.

ABSTRACTS

POSTER SESSION

P1: Presentation format influences the strength of causal illusion.

Ainoa Barreiro, Anadaniela del Carpio, Javier Rodríguez-Ferreiro, Itxaso Barberia

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In modern societies, the proliferation of pseudoscientific beliefs is an increasing trend that jeopardizes people's health. Causal illusions, a tendency to perceive causal connections between non-contingent events, have been proposed as cognitive facilitator of these beliefs. Therefore, finding strategies to debias these illusions constitutes a major priority. Previous studies have found that causal reasoning can be influenced by the format in which information is displayed. Accordingly, our work aimed to investigate the capacity of different visualization formats to weaken causal illusions. Four groups of participants were asked to rate the efficacy (i.e., emit a causal rating) of a fictitious substance to cure a headache based on non-contingent information that was presented either trial-by-trial, in a contingency table with numbers, in a contingency table with icons, or in a frequency tree. Results showed that causal ratings were significantly lower when information was presented with a frequency tree or icons than trial-by-trial. Additionally, significant differences were found between ratings corresponding to the frequency tree and the contingency table with numbers. Overall, our results suggested that graphical displays could be a useful tool to enhance the assessment of non-contingent information.

P2: It's not how you finish, but it's how you start: unwarranted beliefs are predicted by initial ratings in a BADE task.

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A bias against disconfirmatory evidence (BADE) has been linked with delusion and presence of paranormal and conspiracist beliefs. According to this observation, believers might be characterized by a tendency to cling to their initial interpretations of events even when faced with evidence that contradicts them. To explore this further, we conducted a study involving participants with varying degrees of endorsement of epistemically unwarranted beliefs, including paranormal and pseudoscientific beliefs. They were presented with a BADE task comprising different scenarios with increasingly and decreasingly plausible interpretations, as well as consistently absurd interpretations. The BADE effect was measured by comparing participants' initial ratings of plausibility for different interpretations of the scenarios with their final ratings after receiving disconfirmatory hints. We failed to observe a significant correlation between endorsement of epistemically unwarranted beliefs and the BADE effect (i.e., the difference between initial vs. final ratings for decreasingly plausible scenarios). Nonetheless, the presence of paranormal beliefs was associated with a bias against confirmatory evidence (BACE) as believers were resistant to increase their ratings for increasingly plausible scenarios. More importantly, regression models including both initial and final ratings as explanatory variables indicated that the former were the main, positive, predictors of endorsement of paranormal beliefs, both for the increasingly and decreasingly plausible interpretations. Hence, our results suggest that more liberal acceptance of initial interpretations of given events might be a key aspect in the endorsement of epistemically unwarranted beliefs.

P3: Individuals under treatments that take time to show results are more likely to use pseudomedicine and overestimate its effectiveness.

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Beliefs of effectiveness play a significant role in patients' decisions about their treatments, including whether to quit or seek alternative treatments. We propose that these beliefs are shaped by the perceived contingency between the treatment and symptom relief. Delayed Effectiveness Treatments (DETs) are particularly interesting because they imply a change in the contingency: initially, there is no immediate symptom relief (null contingency), but over time, the treatment becomes associated with positive results (positive contingency with symptom relief). We study the formation of effectiveness beliefs of a DET through a computer-based contingency learning task. Experiment 1 reveals that individuals using DETs are more susceptible to considering pseudoscientific remedies, especially during the initial stages of treatment when there is no immediate relief. Experiment 2 explores a potential solution to this issue: by strategically introducing and removing a harmless placebo drug (which has no contingency with symptom relief), participants improve their beliefs of effectiveness about a DET. While the principles underlying these experiments draw from well-established contingency learning research, they are not typically applied to the study of how beliefs regarding treatment efficacy are formed.

P4: The acute effect of moderate- and high-intensity physical exercise on executive function: a systematic review and meta-analysis.

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Background: Recent research shows benefits of physical exercise (PE) on executive functions (EF). However, studies with better methodological quality are required to establish which quantitative and qualitative moderators have an effect on cognition. Methods: We searched the electronic databases Web of Science, PubMed/MEDLINE, Scopus and Sport Discus from January 1, 2011 to May 30, 2023. A total of 23 studies were included in the systematic review, of which 17 provided sufficient data to perform meta-analytic analyses. The intensity of the intervention, EF evaluated by differentiating its three main domains (inhibitory control, working memory or cognitive flexibility) and the type of test used in its two assessment variables (accuracy (ACC) and reaction time (RT)) were considered as moderators.
Results: Small effect sizes were found when exercise intensity was high on inhibition (ACC (ES -0.29) and RT (ES -0.23)) and working memory (ACC (ES -0.24)). The negative direction of the data showed that they were less accurate and faster. In contrast, when the exercise intensity was moderate all effect sizes were trivial with a positive character, i.e., they were more accurate and faster.
Conclusion: The mixed results obtained, the differences between the interventions used and the characteristics of the participants suggest the need to adjust the physical and cognitive level individually. This could help determine what types of moderators, both quantitative and qualitative, actually influence benefits or impairments in acute PE practice.

P5: The role of emotion regulation in an experimentally induced craving state.

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Craving plays a fundamental role in decision-making models of non-substance addictive behaviors (see complementary presentation by the same authors in this conference). Craving is conceptualized as an emotion-driven state. Therefore, its control is a matter of emotion regulation, with two types of mechanisms involved: incidental and intentional. Incidental emotion regulation takes place before there is awareness of the craving state, whereas intentional emotion regulation does so afterwards. So far, in the studies conducted by our research team, craving has been assessed by asking the person to recall moments of intense craving in the past. In the experiment presented here, a state of craving will be experimentally induced by using an audio-guided procedure. For this purpose, 70 gamblers and 70 video game players, in a subclinical severity range, will be recruited to be administered the craving-inducing protocol (based on Cornil et al., 2019). Our aim here is to describe a pre-registered method to replicate our findings in cross-sectional studies, regarding the role of craving in incidental and intentional emotion regulation mechanisms (using as proxies urgency and cognitive emotion regulation strategies scales, respectively), and to present preliminary evidence, if available.

P6: Transdiagnostic analysis of the contingency-based cognitive flexibility in a sample of the impulsive-compulsive spectrum.

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Contingency-based cognitive flexibility is based on dynamic adjusting our decisions to the contingencies of the environment, in order to have an adaptive behaviour, obtaining the maximum rewards and minimum punishments. It is supposed to be affected in impulsive-compulsive spectrum disorders resulting to rigid, maladaptive, or compulsive behaviour. The function of the orbitofrontal cortex and its connections with the dorsolateral prefrontal cortex seem to have a significant role in reversal learning. However, the reported results are inconsistent when comparing categorical diagnostic groups. For this reason, we aim to explore dimensional profiles from a transdiagnostic approach, assessing the cognitive flexibility of 149 adults aged 18-55 years (43 OCD, 53 ADHD and 53 healthy controls) at the neurobehavioral and neurofunctional level. We used the Probabilistic Reversal Learning Task to assess flexibility in decision-making during reversal learning and Functional Near-Infrared Spectroscopy (fNIRS) (16x16) to record the role of frontoparietal cortex resting-state functional connectivity (rsFC). Cluster analysis showed different performance profiles, based on the variables: reward-learning rate, punishment-learning rate and inverse temperature, by Bayesian generalized logistic model. Dimensional studies are needed to clarify whether this process could be a transdiagnostic marker of impulsive-compulsive psychopathology.

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Keywords: impulsive-compulsive disorders, probabilistic reversal learning task, contingency-based cognitive flexibility, resting-state functional connectivity, orbitofrontal cortex.

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