



Angelo Fasce

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General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

Information retrieved from Web of Science:

- Indexed documents: 35
- Articles under review: 6
- Articles in preparation: 2
- Articles published as first author: 63%
- Articles published in first quartile: 30%
- Citations: 313
- H-index: 11
- Verified peer reviews: 33

Research skills:

- Knowledge of SPSS and R for quantitative data analysis (power analysis, within and between group analyses, exploratory and confirmatory factor analyses, correlations, regressions, mixed models, canonical correlations, mediation and suppression, SEM, latent profile and class analyses, and other analytical techniques).
- I support and adhere to open science practices. I usually work with the OSF repository: <https://osf.io/gbdqh/>.
- Writing and editing scientific texts: I have edited two special issues, delivered dozens of peer reviews in prestigious journals, and I have experience using LaTeX.
- Knowledge of ethical applications, data management, cultural and gender sensitivities, and budget management.
- Experience in mentoring of young researchers and leadership of groups, including organization, workloads, productivity, and stress management.

International network:

I have a well-established international network of collaborations, including Stephan Lewandowsky (University of Bristol), Cornelia Betsch (University of Erfurt and Bernhard Nocht Institute for Tropical Medicine), Sander van der Linden (University of Cambridge), Anna Soveri (Åbo Akademi University), Pierre Verger (Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur), Philipp Schmid (Radboud University), Hugo Viciano (University of Seville), Javier Rodríguez-Ferreiro (University of Barcelona), Fernanda Rodrigues (University of Coimbra), Jesús Adrián-Ventura (University of Zaragoza), Agustín Espinosa Pezzia (Pontifical Catholic University of Peru), and Claudia Iveth Astudillo-García (National Autonomous University of Mexico).

**C****V****n**

CURRÍCULUM VÍTAE NORMALIZADO

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Ongoing studies:

- Prevalence of belief in traditional and alternative medicine in Peru.
- Systematic review of psychometrics of left-wing ideology.
- Attitudes toward vaccines and anti-scientific beliefs among Peruvian and Mexican physicians.
- Impact of teaching critical thinking on disinformated beliefs.



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Current professional situation

1 Employing entity: University of Erfurt (Germany)

Professional category: Researcher

Start date: 20/01/2025

Performed tasks: Researcher at the Institute for Planetary Health Behaviour of the University of Erfurt with a contract for experienced researchers funded by the Humboldt Foundation.

2 Employing entity: PseudoLab

Professional category: Group Leader

Start date: 09/08/2019

Dedication regime: Part time

Performed tasks: Leader of PseudoLab, an independent and dynamic research group with collaborators from Spain and several Latin American countries. Our research focuses on how radical ideologies interact with information over politically charged facts and, consequently, motivate the acceptance of anti-scientific conceptions that are consistent with people's values and beliefs. PseudoLab hosts several research projects on a wide range of topics (e.g., vaccine hesitancy, authoritarianism, psychometrics, neuroimaging, polarization, spirituality, and alternative medicine). <https://sites.google.com/view/pseudo-lab>

Previous positions and activities

	Employing entity	Professional category	Start date
1	University of Coimbra (Portugal) and Southeastern Health Regional Observatory (France)	Postdoctoral Researcher	10/05/2021
2	SciBeh	Coordination Team	22/11/2021
3	University of Valencia (Spain)	Researcher	13/03/2015
4	University of Salamanca (Spain)	Research Assistant	01/01/2014

- 1** **Employing entity:** University of Coimbra (Portugal) and Southeastern Health Regional Observatory (France)
Department: Faculty of Medicine
Professional category: Postdoctoral Researcher
Start-End date: 10/05/2021 - 19/01/2025
Performed tasks: Post-doctoral researcher for the research project "Jiu-jitsu with misinformation in the age of COVID: Using refutation-based learning to enhance vaccine uptake and knowledge among healthcare professionals and the public" (JITSUVAX), funded by the European Commission (€3,118,832.74). JITSUVAX is an ambitious multidisciplinary project led by Professor Stephan Lewandowsky and composed of seven nodes: University of Bristol (UK), University of Cambridge (UK), University of Coimbra (Portugal), University of Turku (Finland), University of Erfurt (Germany), Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur (France), and University of Sherbrooke (Canada). I investigated misinformation around vaccines which may lead to people being less likely to accept vaccination, thus testing ways of combatting this misinformation and helping healthcare professionals to communicate with patients. <https://jitsuvax.github.io/>
- 2** **Employing entity:** SciBeh **Type of entity:** Associations and Groups
Professional category: Coordination Team
Start-End date: 22/11/2021 - 16/01/2023
Performed tasks: Member of the coordination team of the SciBeh research group. <https://www.scibeh.org/>
- 3** **Employing entity:** University of Valencia (Spain)
Professional category: Researcher
Start-End date: 13/03/2015 - 08/08/2019
Performed tasks: Member of the Méthodos research group. <https://methodosuv.wordpress.com/>
- 4** **Employing entity:** University of Salamanca (Spain)
Professional category: Research Assistant
Start-End date: 01/01/2014 - 30/04/2014



Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

- 1** **Name of qualification:** Master's Degree in Basic and Applied Neuroscience
Degree awarding entity: University of Valencia
Date of qualification: 09/2015
- 2** **Name of qualification:** Master's Degree in Logic and Philosophy of Science
Degree awarding entity: Spanish National Research Council, University of Salamanca, and University of Valencia
Date of qualification: 09/2014
- 3** **Name of qualification:** Bachelor's Degree in Philosophy
Degree awarding entity: University of Valencia
Date of qualification: 07/2013

Doctorates

Doctorate programme: PhD in Logic and Philosophy of Science
Degree awarding entity: Spanish National Research Council, University of Salamanca, and University of Valencia
Date of degree: 12/2018
Thesis title: A cognitive approach to the demarcation problem between science and pseudoscience
Thesis director: Valeriano Iranzo García
Obtained qualification: Cum Laude

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
English	C1	C1	C1	C1	C1
Spanish	C2	C2	C2	C2	C2

Teaching experience



Experience supervising doctoral thesis and/or final year projects

- 1** **Project title:** Correlational study of epistemically unwarranted beliefs and sustainable behavior
Type of project: Bachelor's thesis
Co-director of thesis: María Fernanda Durón Ramos
Entity: Technological Institute of Sonora
City of entity: Guaymas, Mexico
Student: Angel Sánchez Zavala
Date of reading: 2023
- 2** **Project title:** The dimensions of authoritarianism and its relationship with political orientation and social axioms
Type of project: Bachelor's thesis
Co-director of thesis: Luis Alberto Molano Quintero
Entity: University of Pamplona
City of entity: Cúcuta, Colombia
Student: Diego Avendaño
Date of reading: 2019
- 3** **Project title:** Forms of spirituality across the political spectrum: A binational (Argentina/Spain) cross-sectional study
Type of project: Bachelor's thesis
Co-director of thesis: Catriel Fierro
Entity: National University of La Plata
City of entity: Buenos Aires, Argentina
Student: Laureano Brisuela Blume

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

- 1** Frederike Taubert; Philipp Schmid; Cornelia Betsch; Dawn Holford; Pierre Verger; Angelo Fasce; Stephan Lewandowsky. Association of the Belief in Conspiracy Narratives with Vaccination Status and Recommendation Behaviours of German Physicians. Vaccine: X. Elsevier, 2024.

DOI: 10.1016/j.jvacx.2024.100560

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: IMMUNOLOGY

Impact index in year of publication: 2.7

Relevant results: Vaccine hesitancy has been identified as one of the top ten threats to global health by the World Health Organization (WHO). The belief in conspiracy narratives is repeatedly discussed as a major driver of vaccine hesitancy among the general population. However, there is a lack of research investigating the role of the belief in conspiracy narratives on vaccination decisions and recommendation behaviours of physicians. This is particularly relevant as physicians are one of the major and trusted sources of information for patients' vaccination decisions. This study therefore investigated the association between believing in COVID-19- related conspiracy

narratives and physicians' own COVID-19 vaccination status and their recommendation behavior for COVID-19 and other vaccines (e.g., HPV or flu). In a cross-sectional survey among German physicians (N = 602, April 2022) two conspiracy narratives were assessed, stating that the coronavirus is a hoax and that it is human-made. Additional control variables included trust in health institutions, the rejection of complementary and alternative medicine (CAM), the 5C psychological antecedents of vaccination (confidence, complacency, constraints, calculation, and collective responsibility) and demographic variables. Hierarchical regressions indicated that greater belief in the conspiracy narrative claiming that the coronavirus is a hoax was associated with lower COVID-19 vaccination uptake and fewer COVID-19 vaccination recommendations among physicians. The results for recommendation behavior remain robust even when controlling for all other variables. Contrary to our assumption, believing that the coronavirus is human-made was not related to vaccination status nor vaccine recommendation behavior. In conclusion, believing in conspiracy narratives doubting the danger of the virus is an important independent predictor of vaccine hesitancy among physicians that should be addressed in future public health interventions.

- 2** Dawn Holford; Philipp Schmid; Angelo Fasce; Amanda Garrison; Linda Karlsson; Frederike Taubert; Pierre Verger; Stephan Lewandowsky; Harriet Fisher; Cornelia Betsch; Fernanda Rodrigues; Anna Soveri. Difficulties faced by physicians from four European countries in rebutting anti-vaccination arguments. *BMJ Public Health*. 2024.

DOI: 10.1136/bmjph-2023-000195

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Relevant results: Physicians play a critical role in encouraging their patients to get vaccinated, in part by responding to patients' concerns about vaccines. It is therefore important to understand what difficulties physicians have in dealing with different concerns they may encounter. We investigated physicians' perceptions of difficulties in rebutting different anti-vaccination arguments from patients using data collected as part of a cross-sectional, cross-national questionnaire on physicians' vaccine attitudes and behaviours. Physicians in four European countries (Finland, Germany, France, and Portugal, total n= 2,718) rated 33 different arguments, chosen to represent 11 different psychological motivations, in terms of their perceptions of how difficult each argument would be to rebut. Across all countries, physicians perceived arguments based on religious concerns and "reactance" (ie, resistance to perceived curbs of freedom) to be the most difficult to rebut, whereas arguments based on patients' distorted perception of the risks of disease and vaccines were perceived as the easiest. There were also between-country differences in the level of perceived difficulty of argument rebuttal. Physicians' perceived difficulty with rebutting arguments was significantly negatively correlated with their vaccine recommendation behaviours and their preparedness for vaccination discussions. Physicians may feel better equipped to counter arguments that can be rebutted with facts and evidence, but may need support to respond when arguments are motivated by more complex psychological dispositions.

- 3** Dawn Holford; Ezequiel Lopez; Angelo Fasce; Linda Karlsson; Stephan Lewandowsky. Identifying the underlying psychological constructs from self-expressed anti-vaccination argumentation. *Humanities and Social Sciences Communications*. Springer-Nature, 2024.

Type of production: Scientific paper

Impact source: JCR

Category: SOCIAL SCIENCES, INTERDISCIPLINARY

Impact index in year of publication: 3.7

Journal in the top 25%: Yes

Relevant results: People's opposition to vaccines can be difficult to overcome if their attitudes are motivated by psychological factors such as fears, ideological beliefs, and cognitive patterns, known as "attitude roots". In this study, the objective was to identify which attitude roots are featured in individuals' self-expressed reasons for negative vaccine attitudes, and explore how these are associated with psychological construct measures of those attitude roots. Our study involved 556 participants from the US who wrote texts to explain their negative vaccine attitudes. The texts encompass 2,327 conceptually independent units of anti-vaccination argumentation, each coded for its attitude root(s) by at least two psychological experts. Each participant also completed scale measures of 11 psychological constructs and rated their agreement and familiarity with 11 anti-vaccination arguments, each representing an attitude root. We found that there were four groups of attitude roots whose self-expression was linguistically similar. Logistic regressions showed that a related psychological construct was the strongest, and significant, predictor for expression of three out of the four attitude root groups. In contrast, only the construct of risk distortion most strongly predicted endorsements of anti-vaccination arguments, which were highly intercorrelated, indicating that individuals were willing to endorse all arguments presented, even if they were unfamiliar with them. In addition, latent class analysis of participants' coded texts identified three distinct groups of participants that were characterised by their

tendency to express combinations of arguments related to (1) fears, (2) anti-scientific conceptions, and (3) politicised perspectives. These findings are discussed in terms of how they can provide cues to vaccine communicators for how best to tailor messaging and responses to individuals motivated by different attitude roots, based on patterns in their self-expression.

- 4 Hugo Viciano; Anibal Monasterio Astobiza; Angelo Fasce; Ivar Hannikainen. Scientifically Together, Politically Apart? Epistemological Literacy Predicts Updating on Contested Science Issues. Science & Education. Springer, 2024.

Type of production: Scientific paper

Impact source: JCR

Impact index in year of publication: 2.1

Category: HISTORY & PHILOSOPHY OF SCIENCE

Journal in the top 25%: Yes

Relevant results: Science education is generally perceived as a key facilitator in cultivating a scientifically literate society. In the last decade, however, this conventional wisdom has been challenged by evidence that greater scientific literacy and critical thinking skills may in fact inadvertently aggravate polarization on scientific matters in the public sphere. The "conflict of interests hypothesis" posits that individuals, when shaping their beliefs about socioscientific controversies, often face a dilemma in which their political and ideological affiliations clash with the pursuit of truth. In this predicament, individuals with a deeper understanding of science might use these abilities instead to their ideological advantage. Supporting an alternative "scientific update hypothesis", in a series of studies (total N=2087) we show that increased science's epistemology literacy might have consequential population level effects on the public's alignment with scientific results. In one exploratory study and a pre-registered national online survey, we first show that understanding scientific epistemology predicts refusal of pseudoscientific beliefs and higher scores in a methodology of science test. We also find and replicate a propensity for epistemologically literate citizens to endorse the norm of belief updating and the communicated scientific consensus following both ideologically congruent and incongruent scientific results. Notably, after two months of first being presented with scientific results on politically controversial issues, a one standard deviation higher score in epistemological literacy is associated with a 14% increase in the odds (standardized odds ratio = 1.14, 95% CI [1.03, 1.25]) of individuals switching their beliefs to align with the scientifically communicated consensus. We close by discussing how, on the face of ideological incongruity, a general understanding of scientific epistemology might foster the acceptance of scientific results, and we underscore the need for a more nuanced appreciation of how education, public comprehension of scientific knowledge, and the dynamics of polarization intersect in the public sphere.

- 5 Linda Karlsson; Karl Otto Mäki; Dawn Holford; Angelo Fasce; Philipp Schmid; Stephan Lewandowsky; Anna Soveri. Testing psychological inoculation to reduce reactance to vaccine-related communication. Health Communication. Taylor & Francis, 2024.

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Impact index in year of publication: 3

Format: Journal

Category: COMMUNICATION

Journal in the top 25%: Yes

Relevant results: Research has found that vaccine-promoting messages can elicit state reactance (i.e., negative emotions in response to a perceived threat to behavioral freedom), especially among individuals with high trait reactance (i.e., proneness to experiencing reactance). This can result in a lower willingness to accept vaccines. We investigated whether inoculation against reactance—that is, forewarning individuals about potentially experiencing reactance—can reduce the effects of trait reactance on vaccination willingness. Participants (N = 710) recruited through Facebook were randomly allocated to be either inoculated or not. They were then shown a message promoting a fictitious vaccine, which included either a low, medium, or high threat to freedom. Contrary to research on other health topics, inoculation was ineffective at reducing state reactance towards the vaccination message. Inoculation also did not mitigate the effects of trait reactance on vaccination willingness, and was even counterproductive in some cases. High-reactant individuals were less willing to get vaccinated than low-reactant ones, especially at high freedom threat. Conversely, high freedom threat resulted in increased vaccination willingness among low-reactant individuals. Further research is needed to understand why inoculation against reactance produces different results with vaccination, and to develop communication strategies that mitigate reactance to vaccination campaigns without compromising the positive effects of vaccine recommendations for low-reactant individuals.

- 6** Dawn Holford; Philipp Schmid; Angelo Fasce; Stephan Lewandowsky. The Empathetic Refutational Interview to tackle vaccine misconceptions: Four randomised experiments. Health Psychology. American Psychological Association, 2024.

DOI: 10.1037/hea0001354

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: PSYCHOLOGY

Impact index in year of publication: 3.1

Journal in the top 25%: Yes

Relevant results: Objective. We introduce and report early-stage testing of a novel, multi-component intervention that can be used by health care professionals (HCPs) to address false or misleading anti-vaccination arguments while maintaining empathy for and understanding of people's motivations to believe misinformation: the "Empathetic Refutational Interview" (ERI). Methods. We conducted four experiments in 2022 with participants who were predominantly negative or on the fence about vaccination (total $n = 2,545$) to test four steps for tailoring an HCP's response to a vaccine-hesitant individual: (1) elicit their concerns, (2) affirm their values and beliefs to the extent possible, (3) refute the misinformed beliefs in their reasoning in a way that is tailored to their psychological motivations, and (4) provide factual information about vaccines. Each of the steps was tested against active control conditions, with participants randomised to conditions. Results. Overall, compared to controls, we found that observing steps of the ERI produced small effects on increasing vaccine acceptance and lowering support for anti-vaccination arguments. Critically, a HCP who affirmed participants' concerns generated significantly more support for their refutations and subsequent information, with large effects compared to controls. In addition, participants found tailored refutations (compared to control responses) more compelling, and displayed more trust and openness towards the HCP giving them. Conclusions. The ERI can potentially be leveraged and tested further as a tailored communication tool for HCPs to refute anti-vaccination misconceptions while maintaining trust and rapport with patients.

- 7** Anna Soveri; Linda Karlsson; Karl Mäki; Dawn Holford; Angelo Fasce; Phillip Schmid; Jan Antfolk; Linnea Karlsson; Hasse Karlsson; Saara Nolvi; Max Lindfelt; Stephan Lewandowsky. Trait reactance as psychological motivation to reject vaccination: Two longitudinal and one experimental study. Applied Psychology: Health & Well-Being. John Wiley & Sons, 2024.

DOI: 10.1111/aphw.12506

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: PSYCHOLOGY, APPLIED

Impact index in year of publication: 3.8

Journal in the top 25%: Yes

Relevant results: Background: Previous research posits that anti-science attitudes can be resilient to scientific evidence if they are rooted in psychological motives. One such motive is trait reactance, which refers to an individual's need to react with opposition when they feel their freedom of choice has been threatened. Methods: We conducted two longitudinal and one experimental study to investigate trait reactance as a psychological motivation to reject vaccination. In the longitudinal studies, we examined if trait reactance measured before the COVID-19 pandemic was related to people's willingness to get vaccinated against COVID-19 up to two years later during the pandemic. In the experimental study, we tested whether trait reactance makes anti-vaccination attitudes more resistant to information and whether this resistance can be mitigated by providing information in a way that minimizes the risk of triggering state reactance. Findings: The longitudinal studies showed that people who scored high on trait reactance before the COVID-19 pandemic had lower willingness to get vaccinated against COVID-19. Our experimental study indicated that highly reactant individuals were unaffected by the amount of information provided. It also did not matter if vaccination was presented as voluntary or compulsory—their vaccination willingness remained relatively constant. Interpretation: The results indicated that trait reactance has a strong and durable impact on peoples' vaccination willingness. This highlights the importance of considering the role of trait reactance in people's vaccination-related decision-making.

- 8** Angelo Fasce; Philipp Schmid; Dawn Holford; Luke Bates; Iryna Gurevych; Stephan Lewandowsky. A Taxonomy of Anti-Vaccination Arguments from a Systematic Literature Review and Text Modeling. Nature Human Behaviour. Springer-Nature, 2023.

DOI: 10.1038/s41562-023-01644-3

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: PSYCHOLOGY, EXPERIMENTAL

Impact index in year of publication: 21.4

Journal in the top 25%: Yes

Relevant results: The proliferation of anti-vaccination arguments is a threat to the success of many immunisation programmes. Effective rebuttal of contrarian arguments requires an approach that goes beyond addressing flaws in the arguments, by also considering the attitude roots—that is, the underlying psychological attributes driving a person's belief—of opposition to vaccines. Through a preregistered systematic literature review of 152 scientific articles and thematic analysis of anti-vaccination arguments, we developed a hierarchical taxonomy that relates common arguments and themes to 11 attitude roots that explain why an individual might express opposition to vaccination. We further validated our taxonomy on COVID-19 anti-vaccination misinformation, through a combination of human coding and machine learning using natural language processing algorithms. Overall, the taxonomy serves as a theoretical framework to link expressed opposition of vaccines to their underlying psychological processes. This enables future work to develop targeted rebuttals and other interventions that address the underlying motives of anti-vaccination arguments.

- 9 Angelo Fasce; Linda Karlsson; Pierre Verger; Otto Mäki; Frederike Taubert; Amanda Garrison; Phillip Schmid; Dawn Holford; Stephan Lewandowsky; Fernanda Rodrigues; Cornelia Betsch; Anna Soveri. Endorsement of alternative medicine and vaccine hesitancy among physicians: A cross-sectional study in four European countries. *Human Vaccines & Immunotherapeutics*. Taylor & Francis, 2023.

DOI: 10.1080/21645515.2023.2242748

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: BIOTECHNOLOGY & APPLIED MICROBIOLOGY

Impact index in year of publication: 4.1

Journal in the top 25%: Yes

Relevant results: Vaccine hesitancy has become a threat to public health, especially as it is a phenomenon that has also been observed among healthcare professionals. In this study, we analyzed the relationship between endorsement of complementary and alternative medicine (CAM) and vaccination attitudes and behaviors among healthcare professionals, using a cross-sectional sample of physicians with vaccination responsibilities from four European countries: Germany, Finland, Portugal, and France (total N = 2,787). Our results suggest that, in all the participating countries, CAM endorsement is associated with lower frequency of vaccine recommendation, lower self-vaccination rates, and being more open to patients delaying vaccination, with these relationships being mediated by distrust in vaccines. A latent profile analysis revealed that a profile characterized by higher-than-average CAM endorsement and lower-than-average confidence and recommendation of vaccines occurs, to some degree, among 19% of the total sample, although these percentages varied from one country to another: 23.72% in Germany, 17.83% in France, 9.77% in Finland, and 5.86% in Portugal. These results constitute a call to consider health care professionals' attitudes toward CAM as a factor that could hinder the implementation of immunization campaigns.

- 10 Linda Karlsson; Amanda Garrison; Dawn Holford; Angelo Fasce; Stephan Lewandowsky; Frederike Taubert; Philipp Schmid; Cornelia Betsch; Fernanda Rodrigues; Lisa Fressard; Pierre Verger; Anna Soveri. Healthcare professionals' attitudes to mandatory COVID-19 vaccination: Cross-sectional survey data from four European countries. *Human Vaccines & Immunotherapeutics*. Taylor & Francis, 2023.

DOI: 10.1080/21645515.2023.2256442

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: BIOTECHNOLOGY & APPLIED MICROBIOLOGY

Impact index in year of publication: 4.1

Journal in the top 25%: Yes

Relevant results: Mandatory vaccinations are widely debated since they restrict individuals' autonomy in their health decisions. As healthcare professionals (HCPs) are a common target group of vaccine mandates, and also form a link between vaccination policies and the public, understanding their attitudes toward vaccine mandates is important. The present study investigated physicians' attitudes to COVID-19 vaccine mandates in four European countries: Finland, France, Germany, and Portugal. An electronic survey assessing attitudes to COVID-19 vaccine mandates

and general vaccination attitudes (e.g., perceived vaccine safety, trust in health authorities, and openness to patients) was sent to physicians in the spring of 2022. A total of 2796 physicians responded. Across all countries, 78% of the physicians were in favor of COVID-19 vaccine mandates for HCPs, 49% favored COVID-19 vaccine mandates for the public, and 67% endorsed COVID-19 health passes. Notable differences were observed between countries, with attitudes to mandates found to be more positive in countries where the mandate, or similar mandates, were in effect. The associations between attitudes to mandates and general vaccination attitudes were mostly small to neglectable and differed between countries. Nevertheless, physicians with more positive mandate attitudes perceived vaccines as more beneficial (in Finland and France) and had greater trust in medical authorities (in France and Germany). The present study contributes to the body of research within social and behavioral sciences that support evidence-based vaccination policymaking.

- 11** Amanda Garrison; Linda Karlsson; Lisa Fressard; Angelo Fasce; Fernanda Rodrigues; Philipp Schmid; Frederike Taubert; Dawn Holford; Stephan Lewandowsky; Peter Nynäs; Emma Anderson; Arnaud Gagneur; Eve Dubé; Anna Soveri; Pierre Verger. International adaptation and validation of the Pro-VC-Be: measuring the psychosocial determinants of vaccine confidence in healthcare professionals in European countries. Expert Review of Vaccines. Taylor & Francis, 2023.

DOI: 10.1080/14760584.2023.2242479

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: IMMUNOLOGY

Impact index in year of publication: 5.5

Relevant results: Background Healthcare professionals (HCPs) play an important role in vaccination; those with low confidence in vaccines are less likely to recommend them to their patients and to be vaccinated themselves. The study's purpose was to adapt and validate long- and short-form versions of the International Professionals' Vaccine Confidence and Behaviors (I-Pro-VC-Be) questionnaire to measure psychosocial determinants of HCPs' vaccine confidence and their associations with vaccination behaviors in European countries. Research design and methods After the original French-language Pro-VC-Be was culturally adapted and translated, HCPs involved in vaccination (mainly GPs and pediatricians) across Germany, Finland, France, and Portugal completed a cross-sectional online survey in 2022. A 10-factor multigroup confirmatory factor analysis (MG-CFA) of the long-form (10 factors comprising 34 items) tested for measurement invariance across countries. Modified multiple Poisson regressions tested the criterion validity of both versions. Results 2,748 HCPs participated. The 10-factor structure fit was acceptable to good everywhere. The final MG-CFA model confirmed strong factorial invariance and showed very good fit. The long- and short-form I-Pro-VC-Be had good criterion validity with vaccination behaviors. Conclusion This study validates the I-Pro-VC-Be among HCPs in four European countries; including long- and short-form tools for use in research and public health.

- 12** Angelo Fasce; Diego Avendaño. Left-wing identity politics and authoritarian attitudes: A correlational study of social media users. Journal of Political Ideologies. Taylor & Francis, 2023.

DOI: 10.1080/13569317.2023.2246914

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: POLITICAL SCIENCE

Impact index in year of publication: 1

Relevant results: Identity politics based on an interpretation of society as a system of power and privilege are increasingly influential within left-wing parties and movements. We used two cross-sectional samples composed of Spanish-speaking social media users (total N = 1684) to assess the relationship between psychological variables typically associated with left-wing identity politics and authoritarian attitudes. In Study 1, we tested perceived grievance, identity-based ideology, and prejudice toward groups perceived as privileged, which positively predicted left-wing authoritarianism, with large effect sizes. In Study 2, we replicated our results on identity-based ideology and observed that social justice attitudes also positively predicted left-wing authoritarianism. These results aid understanding of political attitudes among social media users and help to close the gap in relation to the wider literature on right-wing authoritarianism.

- 13** Stephan Lewandowsky; Philipp Schmid; Katrine Bach Habersaat; Siff Malue Nielsen; Holly Seale; Cornelia Betsch; Robert Böhm; Mattis Geiger; Brett Craig; Cass Sustein; Sunita Sah; Noni MacDonald; Eve Dubé; Daisy Fancourt; Heidi Larson; Cath Jackson; Alyona Mazhnaya; Mohan Dutta; Konstantinos Fountoulakis; Iago Kachkachishvili; Anna Soveri; Marta Caserotti; Dorottya Öri; Giovanni de Girolamo; Carmen Rodriguez-Blazquez; Maria Falcón; Maria Romay-Barja; Maria João Forjaz; Sarah Earnshaw Blomquist; Emma Appelqvist; Anna Temkina; Andreas Lieberoth; T. S. Harvey; Dawn Holford; Angelo Fasce; Pierre Van Damme; Margie Danchin. Lessons from COVID-19 for behavioural and communication interventions to enhance vaccine uptake. Communications Psychology. Springer-Nature, 2023.

DOI: 10.1038/s44271-023-00036-7

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Relevant results: The Covid pandemic has yielded new insights into psychological vaccine acceptance factors. This knowledge serves as a basis for behavioral and communication interventions that can increase vaccination readiness for other diseases.

- 14** Dawn Holford; Angelo Fasce; Thomas Costello; Stephan Lewandowsky. Psychological profiles of anti-vaccination argument endorsement. Scientific Reports. Springer-Nature, 2023.

DOI: 10.1038/s41598-023-30883-7

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: MULTIDISCIPLINARY SCIENCES

Impact index in year of publication: 3.8

Relevant results: The proliferation of anti-vaccination arguments online can threaten immunisation programmes, including those targeting COVID-19. To effectively refute misinformed views about vaccination, communicators need to go beyond providing correct information and debunking of misconceptions, and must consider the underlying motivations of people who hold contrarian views. Drawing on a taxonomy of anti-vaccination arguments that identified 11 “attitude roots”—i.e., psychological attributes—that motivate an individual’s vaccine-hesitant attitude, we assessed whether these attitude roots were identifiable in argument endorsements and responses to psychological construct measures corresponding to the presumed attitude roots. In two UK samples (total n = 1250), we found that participants exhibited monological belief patterns in their highly correlated endorsements of anti-vaccination arguments drawn from different attitude roots, and that psychological constructs representing the attitude roots significantly predicted argument endorsement strength and vaccine hesitancy. We identified four different latent anti-vaccination profiles amongst our participants’ responses. We conclude that endorsement of anti-vaccination arguments meaningfully dovetails with attitude roots clustering around anti-scientific beliefs and partisan ideologies, but that the balance between those attitudes differs considerably between people. Communicators must be aware of those individual differences.

- 15** Dawn Holford; Angelo Fasce; Katy Tapper; Miso Demko; Stephan Lewandowsky; Ulrike Hahn; et al.. Science Communication as a Collective Intelligence Endeavour: A Manifesto and Examples for Implementation. Science Communication. SAGE, 2023.

DOI: 10.1177/10755470231162634

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: COMMUNICATION

Impact index in year of publication: 4.6

Journal in the top 25%: Yes

Relevant results: Effective science communication is challenging when scientific messages are informed by a continually updating evidence base and must often compete against misinformation. We argue for the need for a new programme of science communication as collective intelligence—a collaborative approach, supported by technology. This would have four key advantages over the typical model where scientists communicate as individuals: scientific messages would be informed by (1) a wider base of aggregated knowledge, (2) contributions from a diverse scientific community, (3) participatory input from stakeholders, and (4) better responsiveness to ongoing changes in the state of knowledge.

- 16** Angelo Fasce; Jesús Adrián-Ventura; Stephan Lewandowsky; Sander van der Linden. Science through a tribal lens: A group-based account of polarization over scientific facts. *Group Processes & Intergroup Relations*. SAGE, 2023.
DOI: 10.1177/1368430221105032

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Category: PSYCHOLOGY, SOCIAL

Impact index in year of publication: 4

Relevant results: Previous research has confirmed the prominent role of group processes in the promotion and endorsement of disinformation. We report three studies on a psychological framework derived from integrated threat theory—a psychological theory which describes how perceived threat leads to group polarization and prejudice—composed of the following constructs: group belongingness, perceived threat, outgroup derogation, and intergroup anxiety. Our pilot study suggested that need to belong and intergroup anxiety predict antiscientific beliefs (pseudoscientific, paranormal, and conspiracy theories), thus justifying the general applicability of integrated threat theory. Study 1 investigates the transition from weak to strong critical thinking regarding pseudoscientific doctrines. Besides greater outgroup derogation and perceived threats among strong critical thinkers, the model does not perform well in this context. Study 2 focuses on the intergroup conflict around anthropogenic global warming, revealing the strong predictive power of the model. These results are discussed in relation to the distinctive psychological profiles of science acceptance and rejection.

- 17** Angelo Fasce; Jesús Adrián-Ventura. Who seeks alternative psychotherapies? Domain-specific predictors and latent profiles. *Studia Psychologica*. Slovak Academy of Sciences, 2023.

DOI: 10.31577/sp.2023.01.864

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Category: PSYCHOLOGY, MULTIDISCIPLINARY

Impact index in year of publication: 1.1

Relevant results: Techniques presented as psychotherapies without evidence for effective treatment constitute a long-standing and under-researched issue within clinical psychology. We report on an exploratory study using a cross-sectional sample (N = 538) to find predictors and profiles of use of Complementary and Alternative Psychotherapies (CAP). Five well-established constructs were assessed: help-seeking preferences, psychiatric scepticism, mental health literacy, psychological mindedness, and psychotherapy expectancy. Religiosity, help-seeking, distrust in mental health care, interest in psychological phenomena, expectations of relationship with the psychotherapist, and belief in the effectiveness of alternative psychotherapies positively predicted use of CAP. Parallel analyses of evidence-based psychotherapies and alternative medicine revealed that some of these predictors are specific to CAP. Latent profile analysis identified three profiles among users of alternative psychotherapies, conceptualized as religious, unmotivated, and analytical. We discuss our results in relation to these profiles, suggesting various implications and lines of research.

- 18** Cornelia Betsch; Philipp Schmid; Pierre Verger; Stephan Lewandowsky; Anna Soveri; Ralph Hertwig; Angelo Fasce; et al.. A call for immediate action to increase COVID-19 vaccination uptake to prepare for the third pandemic winter. *Nature Communications*. Springer-Nature, 2022.

DOI: 10.1038/s41467-022-34995-y

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: MULTIDISCIPLINARY SCIENCES

Impact index in year of publication: 16.6

Journal in the top 25%: Yes

Relevant results: COVID-19 vaccine uptake is suboptimal in many countries. In the European Union, for example, uptake is at 72%, with countries ranging between about 50% and 90% of the adult population being vaccinated twice. In North America, 65% are vaccinated twice, in lower middle income countries 56% are vaccinated twice. Immunity through infection or vaccination will have waned significantly by late 2022, and third and fourth booster shots

are recommended. However, as of mid November, only 46% have received the booster in Europe (59% European Union), 42% in North America, 17% in lower middle income countries¹. Governments in the northern hemisphere, where colder temperatures are likely to lead to winter COVID-19 waves, face the challenge of promoting vaccination uptake. This task includes encouraging people to access vaccination services, especially those in vulnerable and marginalised groups. Relatedly, it will also be crucial to reach pre-COVID-19 coverage for other recommended vaccinations—the World Health Organisation (WHO) and the United Nations International Children's Emergency Fund (UNICEF) have sounded the alarm, acknowledging the largest backslide in routine vaccinations in three decades (WHO press release, July 15, 2022). Moreover, in Europe, the unprecedented pressure to protect refugees from Ukraine means that some countries will face additional challenges in maintaining functioning and reliable health-care systems. After living through almost 3 years of a pandemic, citizens are neither immunologically nor psychologically naïve. Therefore, future vaccination protocols and communication initiatives must account for the full range of individual experiences of vaccination and infection. Meanwhile, the impacts of past health policies must also be considered. In this article, we will summarise three major challenges before offering recommendations on how to meet them. We conclude by providing a number of resources to help implement the recommendations.

- 19** Pierre Verger; Lisa Fressard; Anna Soveri; Nicolas Dauby; Angelo Fasce; Linda Karlsson; Stephan Lewandowsky; Philipp Schmid; Eve Dubé; Arnaud Gagneur. An instrument to measure psychosocial determinants of health care professionals' vaccination behavior: Validation of the Pro-VC-Be questionnaire. *Expert Review of Vaccines*. Taylor & Francis, 2022.

DOI: 10.1080/14760584.2022.2046467

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Impact index in year of publication: 6.2

Relevant results: The lack of validated instruments assessing vaccine hesitancy/confidence among health care professionals (HCPs) for themselves, and their patients led us to develop and validate the Pro-VC-Be instrument to measure vaccine confidence and other psychosocial determinants of HCPs' vaccination behavior among diverse HCPs in different countries. We report a cross-sectional survey in October-November 2020 among 1,249 GPs in France, 432 GPs in French-speaking parts of Belgium, and 1,055 nurses in Quebec (Canada), all participating in general population immunization. Exploratory and confirmatory factor analyses evaluated the instrument's construct validity. We used HCPs' self-reported vaccine recommendations to patients, general immunization activity, self-vaccination, and future COVID-19 vaccine acceptance to test criterion validity. The final results indicated a 6-factor structure with good fit: vaccine confidence (combining complacency, perceived vaccine risks, perceived benefit-risk balance, perceived collective responsibility), trust in authorities, perceived constraints, proactive efficacy (combining commitment to vaccination and self-efficacy), reluctant trust, and openness to patients. The instrument showed good convergent and criterion validity and adequate discriminant validity. This study found that the Pro-VC-Be is a valid instrument for measuring psychosocial determinants of HCPs' vaccination behaviors in different settings. Its validation is currently underway in Europe among various HCPs in different languages.

- 20** Angelo Fasce; Diego Avendaño. Attitudes toward civil liberties and rights among politically charged online groups. *Social Psychology*. Hogrefe, 2022.

DOI: 10.1027/1864-9335/a000496

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Category: PSYCHOLOGY, SOCIAL

Impact index in year of publication: 1.8

Relevant results: Civil liberties and rights such as freedom of expression, press, thought, religion, association, lifestyle, and equality against the law are being subjected to controversies in Western countries. We developed two hypotheses aimed at explaining divergent attitudes toward civil liberties among politically charged online communities on each side of the political spectrum. A study using a cross-sectional sample of social media users (N = 902) suggest that, as expected by our hypotheses, support for civil liberties tend to be higher among online groups of rightists—with economic conservatism being the only direct positive predictor and left-wing authoritarianism being a strong

negative predictor. These results are discussed in relation to polarization over civil liberties and perceived power imbalances between online groups.

- 21** Amanda Garrison; Lisa Fressard; Arnaud Gagneur; Pierre Verger; Angelo Fasce. Measuring psychosocial determinants of vaccination behavior in healthcare professionals: Validation of the Pro-VC-Be short questionnaire. Expert Review of Vaccines. Taylor & Francis, 2022.

DOI: 10.1080/14760584.2022.2108800

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: IMMUNOLOGY

Impact index in year of publication: 6.2

Relevant results: Vaccine confidence among health care professionals (HCPs) is a key determinant of their vaccination behaviors for themselves, their families and their patients. This article sought to assess the validity of a short-form version of the validated 31-item Pro-VC-Be questionnaire that measured HCPs' confidence in and commitment to vaccination. One item from each of the previously established ten dimensions of the Pro-VC-Be were combined and tested for construct validity through Confirmatory Factor Analysis. The criterion validity of the most-frequently selected items in best-fit models was analyzed with four behavioral and attitudinal outcomes using weighted multiple robust Poisson regressions. A pro-vaccine score was constructed from summing the responses of the most correlated dimensions. A 10-item short-form tool showed good construct validity in CFA analyses (RMSEA = 0.018 [0.010; 0.026]; CFI = 0.987; TLI = 0.975; SRMR = 0.029) and comparable criterion validity to the original long-form tool. A pro-vaccine score, comprised of vaccine confidence, proactive efficacy, and trust in authorities, showed excellent criterion validity in regression models. The Pro-VC-Be short-form showed good construct validity and criterion validity, similar to the long-form, can therefore be recommended to be measure determinants of vaccine behaviors among HCPs.

- 22** Angelo Fasce. The explanation-polarisation model: Pseudoscience spreads through explanatory satisfaction and motivated reasoning. Journal of Social and Political Psychology. Leibniz Institute for Psychology, 2022.

DOI: 10.5964/jspp.8051

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Category: PSYCHOLOGY, SOCIAL

Impact index in year of publication: 2.1

Relevant results: This article presents an integrative model for the endorsement of pseudoscience: the explanation-polarisation model. It is based on a combination of perceived explanatory satisfaction and group polarisation, offering a perspective different from the classical confusion-based conception, in which pseudoscientific beliefs would be accepted through a lack of distinction between science and science mimicry. First, I discuss the confusion-based account in the light of current evidence, pointing out some of its explanatory shortcomings. Second, I develop the explanation-polarisation model, showing its explanatory power in connection with recent research outcomes in cognitive and social psychology.

- 23** Angelo Fasce; Diego Avendaño; Neil Dagnall; Andrew Denovan; Álex Escolà-Gascón. Validation of the Spanish version of the Generic Conspiracist Beliefs Scale. Spanish Journal of Psychology. Cambridge University Press, 2022.

DOI: 10.1017/SJP.2022.21

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Category: PSYCHOLOGY

Impact index in year of publication: 2.3

Relevant results: Theorists acknowledge that conspiracy beliefs represent an established psychological construct. The study of conspiracy beliefs is important because allied ideation potentially influences everyday attitudes and behaviors across a range of domains (i.e., cognitive, social, cross-cultural, and political psychology). In this article,

we analyze the internal structure and construct validity of the Spanish adaptation of the Generic Conspiracist Beliefs Scale (GCBS). Correlational and confirmatory factor analyses revealed a five-factor structure equivalent to the original instrument. Convergent validity was demonstrated using educational level, political orientation, need for uniqueness, and four social axioms (social cynicism, religiosity, reward for application, and fate control). In comparison to two English samples, the adaptation demonstrated satisfactory, although restricted, levels of invariance. Accordingly, findings support the use of this translated form of the GCBS with Spanish speakers. Editors' choice for December, 2022. We were invited to publish an associated piece in the Cambridge Core Blog (<https://www.cambridge.org/core/blog/2023/01/05/conspiracy-beliefs-in-the-spanish-speaking-context/>).

- 24** Angelo Fasce; Diego Avendaño. Revised and short versions of the pseudoscientific belief scale. Applied Cognitive Psychology. Wiley, 2021.

DOI: 10.1002/acp.3811

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: PSYCHOLOGY, EXPERIMENTAL

Impact index in year of publication: 2.36

Relevant results: In this article, we develop the revised and short versions of the pseudoscientific belief scale through two empirical studies (N = 4154). This revision is motivated by the excessive length of the scale, as well as by consistent observations of poor item loadings across several studies. Exploratory factor analysis in Study 1 revealed 11 dispensable items, resulting in a 19-item revised form, whereas in Study 2 we constructed a short eight-item form. Confirmatory factor analysis revealed unidimensional factor structures for both scales, exhibiting excellent psychometric properties in relation to factor structure, item loadings, internal consistency and convergent validity with paranormal beliefs, conspiracy theories and need for uniqueness. Whereas the original scale provides reliable indices, we encourage the use of these improved versions to measure pseudoscientific beliefs in the context of socio-psychological studies.

- 25** Diego Avendaño; Angelo Fasce; Thomas Costello; Jesús Adrián-Ventura. Spanish Adaptation of the Left-Wing Authoritarianism Index. Journal of Personality Assessment. Taylor & Francis, 2021.

DOI: 10.1080/00223891.2021.1981345

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: JCR

Category: PSYCHOLOGY, CLINICAL

Impact index in year of publication: 3.72

Relevant results: Notwithstanding long-simmering controversies around the construct, several studies have gathered consistent evidence of authoritarian attitudes among left-wing voters and activists. Recently, Costello et al. (Clarifying the structure and nature of left-wing authoritarianism. Journal of Personality and Social Psychology, 2021) validated, in the English-speaking context, a three-factor scale to measure left-wing authoritarianism, as well as two shortened versions of the same scale (Costello & Patrick, Development and initial validation of two brief measures of left-wing authoritarianism: A machine learning approach, 2021; composed of 39, 25 and 13 items, respectively). In this article, we used three samples (total N=2586) to validate the structural and construct validity of a Spanish adaptation of these three versions. The resulting scales exhibited an analogous three-factor structure, adequate internal consistency, and convergent and discriminant validity regarding sex, religion, moral exporting, conspiracy theories, social and economic conservatism, and right-wing authoritarianism.

- 26** Angelo Fasce; Jesús Adrián-Ventura. Alternative Psychotherapies: Conceptual Elucidation and Epidemiological Framework. Professional Psychology: Research and Practice. American Psychological Association (APA), 2020.

DOI: 10.1037/pro0000310

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Impact index in year of publication: 1.72

Relevant results: This article elucidates and defines alternative psychotherapies, as well as describes the variables that explain why some professional psychologists are prone to endorse these practices. First, the novel concept of “complementary and alternative psychotherapies” (CAP) is defined within the framework of the established hierarchy of clinical evidence. Second, we report a literature review to aid understanding of the main variables explaining why some clinicians prefer CAP. We review rejection of scientific reasoning, misconceptions about human nature, and pragmatic limitations of evidence-based practice.

- 27** Angelo Fasce. Are pseudosciences like seagulls? A discriminant metacriterion facilitates the solution of the demarcation problem. *International Studies in the Philosophy of Science*. Taylor & Francis, 2020.

DOI: 10.1080/02698595.2020.1767891

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Impact index in year of publication: 0.44

Relevant results: In this article, I develop a philosophical framework, or ‘metacriterion’, for the demarcation of pseudoscience. Firstly, ‘gradualist demarcation’ is discussed in depth, considering an approach to the demarcation problem that presupposes the existence of a spectrum between science and pseudoscience; six general problems are found by means of this analysis. Secondly, based on the subsequent discussion of these problems, a discriminant metacriterion composed of four philosophical requirements is proposed. Lastly, it is shown that this metacriterion is able to guide the development of a workable and well-founded demarcation criterion for pseudoscience.

- 28** Angelo Fasce; Jesús Adrián-Ventura; Diego Avendaño. Do as the Romans Do: On the Authoritarian Roots of Pseudoscience. *Public Understanding of Science*. SAGE, 2020.

DOI: 10.1177/0963662520935078

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: SCOPUS

Category: HISTORY & PHILOSOPHY OF SCIENCE

Impact index in year of publication: 2.98

Journal in the top 25%: Yes

Relevant results: Recent research highlights the implications of group dynamics in the acceptance and promotion of misconceptions, particularly in relation to the identity-protective attitudes that boost polarisation over scientific information. In this study, we successfully test a mediational model between right-wing authoritarianism and pseudoscientific beliefs. First, we carry out a comprehensive literature review on the socio-political background of pseudoscientific beliefs. Second, we conduct two studies ($n = 1189$ and $n = 1097$) to confirm our working hypotheses: H1 – intercorrelation between pseudoscientific beliefs, authoritarianism and three axioms (reward for application, religiosity and fate control); H2 – authoritarianism and social axioms fully explain rightists’ proneness to pseudoscience; and H3 – the association between pseudoscience and authoritarianism is partially mediated by social axioms. Finally, we discuss our results in relation to their external validity regarding paranormal and conspiracy beliefs, as well as to their implications for group polarisation and science communication.

- 29** Angelo Fasce; Diego Avendaño. Opening the can of worms: A comprehensive examination of authoritarianism. *Personality and Individual Differences*. Elsevier, 2020.

DOI: 10.1016/j.paid.2020.110057

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Impact index in year of publication: 3

Relevant results: We carry out an exhaustive analysis of both right-wing and left-wing forms of authoritarianism in order to assess the specific predictors of these illiberal agendas. Firstly, we conduct a literature review on authoritarianism as a multidimensional psychological construct, with emphasis on its controversial links to the political



spectrum, religion, and economic conservatism. Moreover, we review its potential associations with social axioms, as an interesting psychological framework to aid understanding of authoritarian attitudes. We extract three working hypotheses from this literature review, all successfully tested in two empirical studies ($n = 1097$ and $n = 1102$). Our results suggest that the strongest predictor of right-wing authoritarianism is social conservatism, whereas left-wing authoritarianism is better understood as an illiberal backlash against conservatism-related constructs. Both authoritarian agendas may be motivated by their opposed expectations of reward for conventional behavior.

- 30** Angelo Fasce. The upsurge of irrationality: Post-truth politics for a polarised world. *Disputatio. Philosophical Research Bulletin*. University of Salamanca, 2020.

DOI: 10.5281/zenodo.3567160

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: SCOPUS

Category: Philosophy

Relevant results: Firstly, I summarise the current philosophical and psychological study of post-truth. Secondly, I discuss “white post-truth”, a still unattended form perceived as morally superior by many social actors and scholars. Thirdly, I describe the kind of intergroup struggle that underlies the emergence and spread of these non-standard epistemologies.

- 31** Angelo Fasce; Alfonso Picó. Conceptual foundations and validation of the Pseudoscientific Belief Scale. *Applied Cognitive Psychology*. John Wiley & Sons, 2019.

DOI: 10.1002/acp.3501

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Impact index in year of publication: 0.58

Relevant results: In this study, we present the Pseudoscientific Belief Scale (PSEUDO; $\alpha = 0.90$). The conceptual foundations of the scale include (a) a philosophically grounded and functional demarcation criterion between science and pseudoscience; (b) an analysis of the pseudoscientific status of science denialism, which is integrated into the scale; and (c) a bibliographic justification to back up the inclusion of each item. The validation process is carried out based on two studies. Study 1 ($N = 3,416$) uses both exploratory factor analysis and cluster analysis: Conceptually congruent factors are not reported. Study 2 ($N = 292$) includes a total of 21 sociodemographic, personality, and cognitive independent variables, as well as the two thematic subscales of PSEUDO as dependent variables, in order to analyze the psychological profile of both sets of believers. Results show high similarity between both groups, confirming construct validity.

- 32** Angelo Fasce; Alfonso Picó. Science as a Vaccine The Relation between Scientific Literacy and Unwarranted Beliefs. *Science & Education*. Springer, 2019.

DOI: 10.1007/s11191-018-00022-0

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: JCR

Category: HISTORY & PHILOSOPHY OF SCIENCE

Impact index in year of publication: 1.27

Relevant results: In this study, we explore the relation between scientific literacy (knowledge about scientific theories, trust in science, and critical thinking) and unwarranted beliefs (pseudoscience, the paranormal and conspiracy theories). The results show heterogeneous interactions between six constructs: (1) conspiracy theories poorly interact with scientific literacy; (2) there are major differences between attitudinal and practical dimensions of critical thinking; (3) paranormal and pseudoscientific beliefs show similar associations (they are predicted by scientific knowledge and trust in science); and (4), only scientific knowledge interacts with other predictor of unwarranted beliefs, such as ontological confusions. These results reveal a limited impact: science educators must take into



account the complex interactions between the dimensions of scientific literacy and different types of unwarranted beliefs to improve pedagogical strategies.

- 33** Edzard Ernst; Angelo Fasce. Dismantling the Rhetoric of Alternative Medicine Smokescreens, errors, conspiracies and follies. *Mètode Science Studies Journal*. Universidad de Valencia, 2018.

DOI: 10.7203/metode.8.10004

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: No

Impact source: SCOPUS

Category: History and Philosophy of Science

Impact index in year of publication: 0.16

Relevant results: Alternative medicine has a high social prevalence, being promoted by well organized groups that have developed an intricate rhetoric in order to self-justify in the absence of evidence. This article will analyse some of these arguments, some of their fallacies –?ad populum, ad ignorantiam?–, other styles of reasoning –?conspiracy theories?– and other misconceptions of scientific concepts –?placebo effect, scientific authority. The objective will be to highlight the poverty of the rhetoric of proponents of alternative medicine, with special emphasis on the dangers for the consumer.

- 34** Angelo Fasce. Divan couches and gurus. The origin and dangers of clinical pseudopsychology. *Mètode Science Studies Journal*. Universidad de Valencia, 2018.

DOI: 10.7203/metode.8.9977

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: SCOPUS

Category: History and Philosophy of Science

Impact index in year of publication: 0.16

Relevant results: Pseudoscience is alarmingly present in the context of clinical psychology and is also very dangerous. As a set of pseudoscientific ideas, clinical pseudopsychology has a peculiar characteristic: it has established an entire tradition parallel to psychology, with numerous branches and interrelated theoretical and practical developments. In this paper we will review that tradition, from pseudoscientific hypnosis to psychoanalysis, and from New Age to present-day neuropsychopseudoscience. We will then review some of the dangers of pseudoscience related to mental disorders.

- 35** Angelo Fasce. What do we mean when we speak of pseudoscience? The development of a demarcation criterion based on the analysis of twenty one previous attempts. *Disputatio. Philosophical Research Bulletin*. Universidad de Salamanca, 2018.

DOI: 10.5281/zenodo.1433737

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: SCOPUS

Category: Philosophy

Relevant results: A critical analysis of twenty-one demarcation criteria is carried out, obtaining as a result a demarcating tool that allows appropriate screening between science and pseudoscience. After an introduction that will emphasize the scientific and social relevance of the demarcation problem and the need of an adequate approach to face it, the specific problems of multicriterial attempts will be remarked, such as their lack of theoretical foundations and the presence of dispensable and contradictory items. On the basis of this first analysis, a metacriterion, the necessary general requirements for a demarcation criterion, will be established. The data analysis will show a lack of progress among demarcation criteria from 1964 to date, and will provide a demarcation criterion partially based on the items with greater support.

- 36** Angelo Fasce. Conceptual foundations of culture as a biological phenomenon. *Ludus Vitalis*. Revista de Filosofía de las Ciencias de la Vida. Edicions UIB, 2017.

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Relevant results: In this study, I will develop the theoretical foundations for a conceptual unification of all the fields involved in the understanding of culture as a biological phenomenon. First, I will offer a general model for all types of cultural exchange, located at a purely behavioral level. After that, I will define “human culture” using this model, taking into account the specific neurological features of Homo sapiens. This definition is based on the conceptual framework of internist memetics and on some current developments in neuroscience, among which the so-called “concept neurons” stand out.

- 37** Angelo Fasce. The Parasites of Science. A Psycho-cognitive Characterization of a Pseudoscientific Hoax. *Theoria*. An International Journal for Theory, History and Foundations of Science. Universidad del País Vasco, 2017.

DOI: 10.1387/theoria.17775

Type of production: Scientific paper

Format: Journal

Position of signature: 1

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Total no. authors: 1

Impact source: SCOPUS

Category: History and Philosophy of Science

Impact index in year of publication: 0.14

Relevant results: The theoretical framework of research on pseudoscience is deficient, since it usually includes other types of beliefs lacking epistemic warranty. In this paper, I review the mechanisms of exploitation of scientific authority by pseudoscience, developing a more refined psycho-cognitive framework to characterize the phenomenon. I will analyze the psychology of pseudoscientific deception, the cognitive roots that enable the epidemiology of these ideas and their mechanisms of self-legitimation, such as dialectical superiority, false external support or false ethical and/or epistemological superiority.

- 38** Angelo Fasce; Mirela Mustaș; Alexandra Deliu; Dawn Liu Holford; Linda Karlsson; Ginny Gould; Gheorghe Gindrovel Dumitra; Dana Farcasanu; Iulia Vișinescu; Pierre Verger; Stephan Lewandowsky. A field test in Romania of empathetic refutational and motivational interviewing to address vaccine hesitancy among patients. Under review.

Type of production: Scientific paper

Format: Journal

Relevant results: Vaccine hesitancy is among the most concerning public health issues due to declining immunization rates worldwide. We report a mixed-methods field test of two conversational techniques that allow for an empathetic and compelling face-to-face dialogue between health care professionals and patients: Empathetic-Refutational Interviewing (ERI) and Motivational Interviewing (MI). Thirty Romanian general practitioners were assigned to an untrained control group and to two experimental groups in which they were trained in ERI or MI. After training, physicians had conversations with 334 patients who were hesitant to receive a vaccination. Compared to the control group, patients of physicians in the ERI group demonstrated larger increases in positive attitudes toward vaccines and willingness to get vaccinated, while a greater proportion of patients in the MI group scheduled vaccination appointments after the conversation. There were no statistically significant differences between groups in patients' satisfaction with the conversation or doubts about vaccination remaining after the conversation. Semi-structured interviews with participating physicians revealed overall satisfaction with the conversational techniques, but also pointed out some challenges for large-scale implementation of both approaches. Our results suggest that these techniques for empathetic interpersonal communication can have substantial positive impact on vaccination rates, especially for vaccines subject to social polarization and mass misinformation campaigns.

- 39** Ángel Sánchez-Zavala; Diego Avendaño; María Fernanda Durón Ramos; Amauri Martínez-Vázquez; Angelo Fasce. Antiscience will tear us apart: Relationship between antiscientific beliefs and sustainable behaviour in a Mexican population. Under review.

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Relevant results: Sustainability is momentous in decreasing environmental and societal problems caused by the climate crisis, and is essential in Mexico, one of the most affected countries. The network of antiscientific beliefs promoted by misinformation has been consistently deemed a major challenge to achieving sustainability. To study the association of these antiscientific conceptions with sustainable behaviour, we conducted a pre-registered, cross-sectional study on a sample of 415 Mexican individuals recruited through social media. We found that conspiracy beliefs negatively predict pro-ecological behaviour and frugality, paranormal beliefs negatively predict frugality and equity, and climate change denial negatively predicts pro-ecological behaviour, frugality, and equity. A latent profile analysis was performed, resulting in a 3-profile model with 6.5% of our sample showing a combination of above-average antiscientific beliefs and below-average sustainable behaviours. We discuss these results in relation to the Mexican socio-political context and the need to understand the complex dynamics between politics, antiscience and sustainability in developing countries.

- 40** Jesús Adrián-Ventura; Diego Avendaño; Anna Miró-Padilla; Anastasia Cherednichenko; César Ávila; Angelo Fasce. Authoritarianism and the brain: Structural MR correlates associated with left- and right-wing ideology traits. Under review.

Type of production: Scientific paper

Format: Journal

Relevant results: Authoritarian attitudes across the political spectrum foster radical behaviors, which adversely affects the social fabric. Both left-wing (LWA) and right-wing (RWA) forms of authoritarianism have been described in relation to their psychological correlates, yet little is known about their neurobiological basis. In this study, we explored brain structural correlates (e.g., in gray matter (GM) volume and cortical thickness) of authoritarianism. For this purpose, we assessed authoritarian dispositions by using validated scales in a sample of 100 participants and collected 3D-T1 3T MR images. Images were preprocessed and analyzed using the CAT12 toolbox. Behaviorally, both the LWA and RWA were associated with negative urgency; the LWA also showed a robust association with trait anxiety. At the neural level, results showed a negative correlation ($r = -.48$) between the RWA scale and a GM volume cluster located in the dorsomedial prefrontal cortex. In addition, we also observed a negative correlation ($r = -.41$) between the anti-hierarchical aggression factor of the LWA scale and a cortical thickness cluster located in the right anterior insula/inferior frontal gyrus (IFG). Additionally, the resulting clusters converged with further left-wing and right-wing ideology scales, thus providing a robustness check. These results support previous studies showing the relevance of the medial prefrontal cortex and the anterior insula/IFG on social cognition and empathy/inhibitory control, respectively.

- 41** Angelo Fasce; José Rosales-Trabuco; Itxaso Barberia; Elvis Pinedo-Yzaguirre; Juan Manuel Espinoza Nuñez; Wilson Marcos Ortiz-Treviños; Christian David Pizarro Moncada; Mario Reyes-Bossio; Carlos Carbajal-León; Javier Rodríguez-Ferreiro. Effects of debunking interventions on endorsement of alternative medicine: A randomized controlled experiment in Peru. Under review.

Type of production: Scientific paper

Total no. authors: 10

Relevant results: Debunking interventions to tackle misconceptions related to scientific issues have gained momentum, especially in the context of health care. In this randomized controlled experiment, we assessed the effectiveness of empathetic (i.e., tailored contrarian information addressing participants' specific motives with an affirmation of their psychological profile) and non-empathetic (i.e., general contrarian information regardless of participants' psychological profile) debunking interventions in a sample of 167 Peruvian participants with positive attitudes toward egg cleanse, a popular local alternative medicine treatment. Interventions resulted in significant reductions in endorsement of usage reasons within both the empathetic debunk ($d = 0.50$) and non-empathetic debunk ($d = 0.62$) groups, whereas only the non-empathetic debunk caused a reduction in belief in the effectiveness of egg cleanse ($d = 0.43$). A comparison between experimental groups resulted in the group that received an empathetic debunk being more satisfied with the interaction with the physician than the group that received a non-empathetic debunk ($d = 0.73$). These results suggest that debunking interventions could be effective also in the Peruvian cultural context and for alternative medicine. Strengths and weaknesses of empathetic and non-empathetic approaches to health misinformation, as well as future research pathways to shed light on the impact and pitfalls of debunking interventions, are discussed.

- 42** Diego Avendaño; Dawn Holford; Linda Karlsson; Stephan Lewandowsky; Angelo Fasce. That's not my truth! Epistemic relativism as a root factor of political polarization. Under review.

Type of production: Scientific paper

Format: Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Relevant results: Political polarization is a growing issue in Western democracies that may affect the open exchange of ideas and public deliberation upon which democracy is built. In the present pre-registered study of a representative sample of the United States ($N = 1000$) we investigated the relationship between two forms of epistemic relativism (namely faith in intuition for facts and a politicized conception of truth) and polarization between Republicans and Democrats. Beliefs reflecting higher epistemic relativism were associated to lower support for democracy and trust in the 2020 election results. Moreover, we identified two subgroups of the same size on each side of the political divide (17% of the total sample for Democrats and 16.5% for Republicans) who held a highly politicized conception of truth and a greater willingness to violate democratic norms and support political violence against their respective out-parties. These groups of relativistic participants exhibited many similarities with each other in comparison to their less relativistic co-partisans. Results are discussed in relation to the upsurge of illiberal tendencies across the political spectrum.

- 43** Angelo Fasce. The upsurge of irrationality: Pseudoscience, denialism and post-truth. *Disputatio. Philosophical Research Bulletin*. University of Salamanca, 2020.

Type of production: Scientific book or monograph

Format: Journal

Degree of contribution: Editor or co-editor

Impact source: SCOPUS

Category: Philosophy

Relevant results: Main editor of this special number, which includes contributions of authors such as Massimo Pigliucci, Michael Ruse, Taner Edis and Lawrence Torcello,

- 44** Angelo Fasce. The Scam of Pseudoscience. *Mètode Science Studies Journal*. University of Valencia, 2018.

Type of production: Scientific book or monograph

Format: Journal

Degree of contribution: Editor or co-editor

Impact source: SCOPUS

Category: History and Philosophy of Science

Impact index in year of publication: 0.16

Relevant results: Main editor of this special number, which includes contributions of authors such as Sven Ove Hansson, Edzard Ernst, Stefaan Blanck, and Johan Braeckman.

- 45** Angelo Fasce; Philipp Schmid; Dawn Liu Holford; Stephan Lewandowsky. A psychological taxonomy of anti-vaccination arguments. Official report for the European Commission. JITSUVAX, 2021.

Type of production: Scientific-technical report

Relevant results: The proliferation of anti-vaccination arguments, especially on the Internet and social media, is a threat to the success of many immunisation programmes, including for COVID-19. Effective rebuttal of such contrarian arguments requires an approach that goes beyond addressing flaws in the arguments, by also considering the attitudinal roots—that is, the underlying psychological attributes driving a person's belief—of opposition to vaccines. Through a preregistered systematic literature review of 152 scientific articles and thematic analysis of anti-vaccination arguments ($N = 2,066$), we developed a hierarchical taxonomy that not only identifies common and recurring themes, but, crucially, relates the arguments to 11 attitude roots that explain why an individual might express opposition to vaccination. We further validated our taxonomy on a dataset of COVID-19 anti-vaccine misinformation, using a combination of human coding and topic modeling through Latent Dirichlet Allocation (LDA). The human coders identified attitudinal roots for a sample of 585 debunked claims about COVID-19 vaccinations, and the LDA model that was informed by our original taxonomy predicted these assigned roots above chance level. Overall, the taxonomy serves as a theoretical framework to link expressed opposition of vaccines to their underlying psychological processes. This enables future work to develop targeted rebuttals and other interventions that address the underlying motives of anti-vaccination arguments.

- 46** Laureano Brisuela-Blume; Diego Avendaño; Angelo Fasce. Inner peace, outer power: An empirical examination of the relationship between expressions of spirituality and political ideology. Under review.

Total no. authors: 3

Relevant results: This research examines the relationship between a multidimensional model of spirituality (comprising cognitive orientation toward spirituality, the experiential/phenomenological dimension, existential well-being, paranormal beliefs, and religiousness) and political ideology across the political spectrum in the Spanish-speaking sphere. Study 1 included a Spanish sample ($N = 688$) and an international Hispanic American



sample (N = 404), while Study 2, a confirmatory follow-up, focused on an Argentinean sample (N = 607). Regression analyses from both studies revealed positive associations of religiousness and right-wing political orientation and ideologies, aligning with previous research. However, non-traditional forms of spirituality showed more complex patterns of associations. In Study 1, the experiential/phenomenological dimension of spirituality was positively associated with left-wing political orientation and left-wing authoritarianism, while in Study 2, a variety of forms of spirituality positively predicted left-wing authoritarianism, environmentalism, indigenism, and new age beliefs. Moreover, a series of latent profile analyses identified a subgroup of left-wing participants with more positive attitudes toward spirituality, which was larger in the Hispanic American (31%) and Argentinean (49%) samples than in the Spanish sample (13%). Results are discussed in relation to the dimensions of spirituality that might influence individuals' political attitudes across the political spectrum in Hispanic populations, especially in non-WEIRD contexts. Furthermore, this research contributes to addressing the lack of comprehensive studies on distinct forms of spirituality within the political left.

Works submitted to national or international conferences

- 1** **Title of the work:** Advancing prevention strategies to combat infectious diseases
Name of the conference: POLITICO Health Care Summit
Type of participation: Participatory - oral **Reasons for participation:** Upon invitation
City of event: Brussels, Belgium
Date of event: 20/11/2024
Organising entity: POLITICO
Angelo Fasce.
- 2** **Title of the work:** Field testing of ERI in France and comparison between France and Romania's experiments
Name of the conference: Meeting with health care authorities and professional on the empathetic refutational interview to address vaccine hesitancy
Type of participation: Participatory - oral **Reasons for participation:** Upon invitation
City of event: Bucharest, Romania
Date of event: 06/11/2024
Organising entity: Center for Health Policies and Services
Angelo Fasce.
- 3** **Title of the work:** In-depth understanding of vaccine hesitancy: the attitude roots
Name of the conference: Meeting with health care authorities and professional on the empathetic refutational interview to address vaccine hesitancy
Type of participation: Participatory - oral **Reasons for participation:** Upon invitation
City of event: Bucharest, Romania
Date of event: 06/11/2024
Organising entity: Center for Health Policies and Services
Angelo Fasce.
- 4** **Title of the work:** Vaccines and disinformation
Name of the conference: Scientific philosophy
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation
talk
City of event: Bogotá, Colombia
Date of event: 17/10/2024
Organising entity: National Distance Education University



Angelo Fasce.

- 5** **Title of the work:** How to defend ourselves against misinformation about vaccines? Results of the JITSUVAX project
Name of the conference: Seminar of the University of Lima
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Lima, Peru
Date of event: 20/09/2024
Organising entity: University of Lima
- 6** **Title of the work:** Psychological roots of vaccine hesitancy and an empathetic strategy to address them: The JITSUVAX project
Name of the conference: Seminar of the Faculty of Psychology
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Lima, Peru
Date of event: 19/09/2024
Organising entity: Pontifical Catholic University of Peru
Angelo Fasce.
- 7** **Title of the work:** Philosophy and psychology of pseudoscience
Name of the conference: Epidemiology of pseudoscience
Type of event: Seminar
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Lima, Peru
Date of event: 17/09/2024
Organising entity: National University of San Marcos
Angelo Fasce.
- 8** **Title of the work:** A taxonomy of arguments against vaccination and its practical applications
Name of the conference: Meeting the Challenges of the Online Information Environment: Democratic debate and public health
Type of participation: Participatory - oral **Reasons for participation:** Upon invitation communication
City of event: Berlin, Germany
Date of event: 05/07/2024
Organising entity: Max Planck Institute for Human Development
Angelo Fasce.
- 9** **Title of the work:** Ethical applications
Name of the conference: Ethics in social sciences
Type of event: Seminar
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Loja, Ecuador
Date of event: 28/05/2024
Organising entity: UNESCO Chair on Ethics and Society in Higher Education



- 10 Title of the work:** Trainer in empathetic refutational interviewing
Name of the conference: Train of Trainers Workshop
Type of event: Workshop
City of event: Bucharest, Romania
Date of event: 19/01/2024
Organising entity: JITSUVAX and the Romanian Centre for Health Policies and Services
 Angelo Fasce.
- 11 Title of the work:** How to address vaccine hesitancy? An empathetic approach
Name of the conference: Seminar of the Faculty of Chemistry
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Mexico City, Mexico
Date of event: 22/11/2023
Organising entity: National Autonomous University of Mexico
 Angelo Fasce.
- 12 Title of the work:** Vaccine hesitancy. Psychology or culture?
Name of the conference: Seminar of the Faculty of Philosophy
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Mexico City, Mexico
Date of event: 22/11/2023
Organising entity: National Autonomous University of Mexico
 Angelo Fasce.
- 13 Title of the work:** A Psychological Taxonomy of Anti-Vaccination Arguments
Name of the conference: Psychonomic Society's 64th Annual Meeting
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance
City of event: San Francisco, United States of America
Date of event: 19/11/2023
Organising entity: Psychonomic Society
 Angelo Fasce; Dawn Holford; Philipp Schmid; Luke Bates; Linda Karlsson; Ezequiel Lopez; Iryna Gurevych; Thomas Costello; Stephan Lewandowsky.
- 14 Title of the work:** Are we having the wrong conversation about vaccine hesitancy? How to address the health inequalities affecting vaccine decision-making
Name of the conference: European Health Forum
Type of participation: Participatory - oral **Reasons for participation:** Upon invitation
City of event: Bad Hofgastein, Austria
Date of event: 27/09/2023
Organising entity: EuroHealthNet and the RIVER-EU project
 Angelo Fasce; Danielle Jansen; Mira Jovanovski; Caroline Bollars.
- 15 Title of the work:** Determining the cognitive factors driving anti-vaccination attitudes from linguistic expression
Name of the conference: ESCOP 2023 - 23rd Conference of the European Society for Cognitive Psychology
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance
 communication



City of event: Porto, Portugal

Date of event: 08/09/2023

Organising entity: European Society for Cognitive Psychology

Dawn Holford; Angelo Fasce; Stephan Lewandowsky; Ezequiel López; Stefan Herzog.

16 Title of the work: Anti-vaccination beliefs

Name of the conference: 23rd Annual Summer Interdisciplinary Conference

Type of participation: Participatory - oral communication

Reasons for participation: Review before acceptance

City of event: Kranjska Gora, Slovenia

Date of event: 06/07/2023

Organising entity: University of Indiana

Angelo Fasce; Dawn Holford; Stephan Lewandowsky; Philipp Schmid; Luke Bates; Thomas Costello.

17 Title of the work: Post-COVID era: Facilitating access and acceptance to immunization in Europe

Name of the conference: 41st Annual Meeting of the European Society for Paediatric Infectious Diseases (ESPID)

Type of participation: Participatory - oral communication

Reasons for participation: Upon invitation

City of event: Lisbon, Portugal

Date of event: 10/05/2023

Organising entity: Advanced Course of Vaccinology (ADVAC) **Type of entity:** Associations and Groups

18 Title of the work: How to write an article

Name of the conference: TedCog group professional development sessions

Type of participation: Participatory - oral communication

Reasons for participation: Upon invitation

City of event: Bristol, United Kingdom

Date of event: 10/02/2023

Organising entity: University of Bristol
Angelo Fasce.

19 Title of the work: How to review an article

Name of the conference: TedCog group professional development sessions

Type of participation: Participatory - oral communication

Reasons for participation: Upon invitation

City of event: Bristol, United Kingdom

Date of event: 09/12/2022

Organising entity: University of Bristol
Angelo Fasce.

Type of entity: University

20 Title of the work: How to address conspiracist ideation and other attitude roots of vaccine hesitancy? Results from the JITSUVAX project

Name of the conference: Symposium on Conspiracy Theory Research

Type of participation: Participatory - invited/keynote talk **Reasons for participation:** Upon invitation

City of event: Helsinki, Finland

Date of event: 25/11/2022

Organising entity: University of Turku and University of Helsinki
Angelo Fasce.



- 21 Title of the work:** How to address anti-vaccination arguments? Validation of a Taxonomy and Empathetic Rebuttals
Name of the conference: Scientific Knowledge and its Public Understanding: Interdisciplinary Perspectives
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Seville, Spain
Date of event: 21/10/2022
Organising entity: University of Seville
Angelo Fasce.
- 22 Title of the work:** An Introduction to the Psychological Study of Pseudoscientific Beliefs: Psychometrics, Spread, and Specific Domains
Name of the conference: III International Congress on Mental Health
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Lima, Peru
Date of event: 10/10/2022
Organising entity: Scientific University of the South
Angelo Fasce.
- 23 Title of the work:** Effectiveness of Psychological Interventions to Counter Health Misinformation — Jiu-jitsu with misinformation using a psychological taxonomy of anti-vaccination arguments
Name of the conference: 52nd DGPs congress
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance
City of event: Hildesheim, Germany
Date of event: 14/09/2022
Organising entity: German Psychological Society (DGPs)
Angelo Fasce; Dawn Holford; Stephan Lewandowsky.
- 24 Title of the work:** The psychological roots of anti-vaccination arguments: Literature review, natural language processing, and empathetic rebuttals
Name of the conference: 2nd meeting of the European Society for Cognitive Psychology (ESCoP)
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance
City of event: Lille, France
Date of event: 30/08/2022
Organising entity: European Society for Cognitive Psychology (ESCoP)
Angelo Fasce; Philipp Schmid; Dawn Holford; Stephan Lewandowsky.
- 25 Title of the work:** Psychological and philosophical foundations of a taxonomy of anti-vaccination arguments
Name of the conference: 3rd Joint Conference of the Society for Philosophy and Psychology (SPP) and the European Society for Philosophy and Psychology (ESPP)
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance
City of event: Milan, Italy
Date of event: 19/07/2022
Organising entity: SPP and ESPP
Angelo Fasce.



- 26** **Title of the work:** Developments for the study of left-wing authoritarianism in the Spanish-speaking context
Name of the conference: New Directions in the Conceptualization and Measurement of Political Ideologies: Current Practices and Recent Developments
Type of participation: Participatory - oral **Reasons for participation:** Upon invitation communication
City of event: Mannheim, Germany
Date of event: 07/07/2022
Organising entity: European Association of Social Psychology (EASP)
 Diego Avendaño; Angelo Fasce; Jesús Adrián-Ventura; Thomas Costello.
- 27** **Title of the work:** Communicating about vaccines
Name of the conference: General assembly of the Standing Committee of European Doctors (CPME)
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Brussels, Belgium
Date of event: 25/03/2022
Organising entity: IMMUNION
 Angelo Fasce.
- 28** **Title of the work:** A brief introduction to a taxonomy of contrarian arguments
Name of the conference: Technology, Democracy and Cognition (TeDCog) group's seminar
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Bristol, United Kingdom
Date of event: 28/01/2022
Organising entity: University of Bristol
 Angelo Fasce.
- 29** **Title of the work:** Vaccine hesitancy: What it is and how to address it
Name of the conference: III Congress of the UNESCO Chair on Ethics and Society in Higher Education
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Loja, Ecuador
Date of event: 29/07/2021
Organising entity: UNESCO Chair on Ethics and Society in Higher Education
 Angelo Fasce.
- 30** **Title of the work:** Vaccine hesitancy: What it is and how to address it
Name of the conference: Seminar "Epistemology and health"
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Loja, Ecuador
Date of event: 22/07/2021
Organising entity: Loja Technical University
 Angelo Fasce.
- 31** **Title of the work:** Psychological and philosophical factors associated with vaccinate hesitancy
Name of the conference: Seminar on Scientific Philosophy
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Barranquilla, Colombia
Date of event: 19/07/2021



Organising entity: University of Atlántico
Angelo Fasce.

32 Title of the work: Pseudoscientific beliefs

Name of the conference: Jornada Internacional de Psicología Social

Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk

City of event: Brazil

Date of event: 11/06/2021

Organising entity: Centro Universitario Campos de Andrade
Angelo Fasce.

33 Title of the work: Mechanisms in clinical psychology: limitations, controversies and prospects

Name of the conference: Forth Meeting Philosophy, Probability and Scientific Methodology - Statistical Evidence and Evidence of Mechanisms

Reasons for participation: Upon invitation

City of event: Valencia, Spain

Date of event: 27/06/2019

Organising entity: University of Valencia
Angelo Fasce.

34 Title of the work: Postmodernity and identity politics

Name of the conference: Avivament - Philosophy Festival

Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk

City of event: Valencia, Spain

Date of event: 07/06/2019

Organising entity: Valencia City Council

35 Title of the work: A demarcation criterion. Theoretical foundations and practical capacity of a tool to distinguish between science and pseudoscience

Name of the conference: IX Conference of the Spanish Society for Logic, Methodology and Philosophy of Science

Type of participation: Participatory - oral communication

Reasons for participation: Review before acceptance

City of event: Madrid, Spain

Date of event: 13/11/2018

Organising entity: Spanish Society of Logic, Methodology and Philosophy of Science
Angelo Fasce.

36 Title of the work: Consciousness and artificial intelligence

Name of the conference: Artificial Intelligence

Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk

City of event: Valencia, Spain

Date of event: 09/11/2018

Organising entity: Polytechnic University of Valencia
Angelo Fasce.



- 37** **Title of the work:** Pseudoscience: The wolf in disguise
Name of the conference: Science Between Disciplines
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 24/04/2018
Organising entity: University of Valencia
Angelo Fasce; José Miguel Mulet.
- 38** **Title of the work:** Why so many clinicians use pseudoscientific techniques? On the most inopportune rejection of psychology
Name of the conference: Behavior Therapy Commission Seminar
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 14/04/2018
Organising entity: Spanish Psychology Association (COP)
Angelo Fasce.
- 39** **Title of the work:** Journalism and pseudoscience
Name of the conference: Scientific Journalism
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 15/11/2017
Organising entity: University of Valencia
Angelo Fasce.
- 40** **Title of the work:** The usefulness of the useless?
Name of the conference: Avivament - Philosophy Festival
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 03/06/2017
Organising entity: Valencia City Council
Angelo Fasce; David Barberá.
- 41** **Title of the work:** Psychomylth nº 564: Repressed memories
Name of the conference: Pint of Science
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 16/05/2017
Organising entity: Pint of Science
Angelo Fasce.
- 42** **Title of the work:** Neuro/psychomylths and the pseudoscience of the brain
Name of the conference: II Congress of Critical Thinking and Scientific Dissemination
Type of participation: Participatory - others **Reasons for participation:** Upon invitation
City of event: Valencia, Spain
Date of event: 04/05/2017



Organising entity: University of Valencia

Angelo Fasce; María Rodrigo; Fernando Martínez-García; Enrique Lanuza.

- 43** **Title of the work:** Levels of abstraction in scientific explanation: The nervous system
Name of the conference: LIV Congress of Young Philosophers
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Valencia, Spain
Date of event: 30/03/2017
Organising entity: University of Valencia
 Angelo Fasce.
- 44** **Title of the work:** Pseudoscience and bad science
Name of the conference: Philosophy of Science: An Introduction
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 08/03/2017
Organising entity: University of Valencia
 Angelo Fasce.
- 45** **Title of the work:** The Psychologist in front of pseudoscience
Name of the conference: Cultural Week of the Faculty of Psychology
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 07/03/2017
Organising entity: University of Valencia
 Angelo Fasce.
- 46** **Title of the work:** Reasoning pseudoscience. A philosophical perspective on the nature of science, pseudoscience and pathological science in the context of physics
Name of the conference: Faculty Seminar
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 28/02/2017
Organising entity: Polytechnic University of Valencia
 Angelo Fasce.
- 47** **Title of the work:** Why philosophy of science?
Name of the conference: Philosophy of Science: An Introduction
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 15/02/2017
Organising entity: University of Valencia
 Angelo Fasce.



- 48** **Title of the work:** The irrational ape
Name of the conference: Why do we believe in nonsense? Pseudoscience as a social affair
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Alicante, Spain
Date of event: 11/11/2016
Organising entity: University of Alicante
Angelo Fasce.
- 49** **Title of the work:** Pseudoscience and bioethics
Name of the conference: IV International Congress of Bioethics
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance
City of event: Valencia, Spain
Date of event: 08/11/2016
Organising entity: Spanish Ministry of Economy and Finance
Angelo Fasce.
- 50** **Title of the work:** Nature, tactics and dangers of pseudoscience
Name of the conference: Science Between Disciplines
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 30/04/2016
Organising entity: University of Valencia
Angelo Fasce.
- 51** **Title of the work:** The nature of science
Name of the conference: Seminar of the Master's Degree in Contemporary Philosophy
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 24/04/2016
Organising entity: University of Valencia
Angelo Fasce.
- 52** **Title of the work:** Philosophy of pseudopsychology
Name of the conference: XXI Valencian Congress of Philosophy
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance
City of event: Castellón, Spain
Date of event: 11/03/2016
Organising entity: Valencian Association of Philosophy
Angelo Fasce.
- 53** **Title of the work:** What is justified scientific belief? A new approach to the old demarcation problem
Name of the conference: The Moral Brain's Research Seminar
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Gent, Belgium
Date of event: 16/02/2016



Organising entity: Ghent University
Angelo Fasce.

- 54** **Title of the work:** On the possibility of Biology of Culture
Name of the conference: The Moral Brain's Research Seminar
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Gent, Belgium
Date of event: 08/02/2016
Organising entity: Ghent University
Angelo Fasce.
- 55** **Title of the work:** Philosophy and pseudoscience: The case of pseudotherapies
Name of the conference: IV Catalan Congress of Philosophy
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance
City of event: Vilafranca del Penedès, Spain
Date of event: 26/11/2015
Organising entity: Catalan Association of Philosophy
Angelo Fasce.
- 56** **Title of the work:** Moral, ethical and legal implications of the so-called 'philosophical therapy'
Name of the conference: I Conference on Professional Philosophy
Type of participation: Participatory - invited/keynote **Reasons for participation:** Upon invitation talk
City of event: Valencia, Spain
Date of event: 19/11/2015
Organising entity: University of Valencia
Angelo Fasce.
- 57** **Title of the work:** The problem of demarcation: A social responsibility of philosophy of science
Name of the conference: Seminar of the Master's Degree in Contemporary Philosophy
Geographical area: National
Type of participation: Participatory - oral **Reasons for participation:** Upon invitation communication
City of event: Valencia, Spain
Date of event: 12/03/2015
Organising entity: University of Valencia
Angelo Fasce.
- 58** **Title of the work:** The role of philosophy in the fight against pseudoscience and irrationality
Name of the conference: I International Congress of the Spanish Philosophy Network
Type of participation: Participatory - oral **Reasons for participation:** Review before acceptance communication
City of event: Valencia, Spain
Date of event: 05/10/2014
Organising entity: Spanish Philosophy Network (REF)
Angelo Fasce.

R&D management and participation in scientific committees

Scientific, technical and/or assessment committees

- 1** **Committee title:** Evaluation committee for a training program in Empathetic Refutational Interviewing
City: London, United Kingdom
Affiliation entity: University of Bristol and National Health Service in England
Start-End date: 09/10/2023 - 11/10/2023
- 2** **Committee title:** Academic Quality Commission for Silvia Esparza-Oviedo's PhD
City: Bogotá, Colombia
Affiliation entity: Pontifical Xavierian University
Start date: 23/10/2023

Organization of R&D activities

- 1** **Title of the activity:** 2023 Workshop: Collectively intelligent science communication - Lessons learned for a post-COVID era
Type of activity: Workshop
City of event: Online,
Convening entity: SciBeh
Type of participation: Organiser
Start-End date: 01/03/2023 - 02/03/2023
- 2** **Title of the activity:** Train the trainers of the JITSUVAX project
Type of activity: Workshop
City of event: Coimbra, Portugal
Convening entity: University of Coimbra
Type of participation: Organiser
Nº assistants: 25
Start-End date: 20/02/2023 - 23/02/2023
- 3** **Title of the activity:** III Congress of Critical Thinking and Scientific Dissemination
Type of activity: Conference
Convening entity: University of Valencia
City convening entity: Valencia, Spain
Type of participation: Organiser
Nº assistants: 60
Start-End date: 06/03/2018 - 07/03/2018
- 4** **Title of the activity:** II Congress of Critical Thinking and Scientific Dissemination
Type of activity: Conference
Convening entity: University of Valencia
City convening entity: Valencia, Spain
Type of participation: Organiser
Nº assistants: 250
Start-End date: 04/05/2017 - 05/05/2017

5 Title of the activity: Philosophy of Science: An Introduction**Type of activity:** Course**Convening entity:** University of Valencia**City convening entity:** Valencia, Spain**Type of participation:** Organiser**Nº assistants:** 20**Start-End date:** 15/02/2017 - 08/03/2017**6 Title of the activity:** I Congress of Critical Thinking and Scientific Dissemination**Type of activity:** Conference**Convening entity:** University of Valencia**City convening entity:** Valencia, Spain**Type of participation:** Organiser**Nº assistants:** 250**Start-End date:** 05/03/2016 - 06/03/2016**R&D management****1 Name of the activity:** <https://jitsuvax.info/>**Performed tasks:** Content manager; website design, maintenance, and translation**Entity:** JITSUVAX**Start date:** 2022**Specific tasks:** Content manager of a web tool designed to equip health care professionals with context that can help balance arguments and debunk vaccine disinformation in real consultations. I am also responsible of the design and maintenance of the website, as well as of the supervision and implementation of translations (Spanish, German, French, and Romanian).**2 Name of the activity:** Training course in Empathetic-Refutational Interview**Performed tasks:** The JITSUVAX team**Entity:** JITSUVAX**Start date:** 2022**Specific tasks:** Development of a training course in empathetic-refutational interview for health care professionals, focused on face-to-face discussion about vaccines with patients. Initial versions of the materials can be found in <https://osf.io/kpn2m/>.**3 Name of the activity:** Management of the Portuguese node**Performed tasks:** Angelo Fasce & Fernanda Rodrigues**Entity:** JITSUVAX**Start date:** 2021**Duration:** 3 years**Specific tasks:** Integral management of the Portuguese node of the JITSUVAX project, including budgetary planification and reallocation (€238,123.75), as well as management of invoices generated by planned trips and studies. I have managed the deliverables and annual reports of the node.**4 Name of the activity:** Data management plan**Performed tasks:** Angelo Fasce & Ginny Gould**Entity:** JITSUVAX**Start date:** 2021**Specific tasks:** The Data Management Plan for JITSUVAX and describes the data management strategies and principles, the data to be collected and the tools to be used including those for making the data open



using the FAIR data principles of findable, accessible, interoperable and re-usable, as described in the Guidelines on FAIR Data Management in Horizon 2020.

5 Name of the activity: Gender and cultural sensitivities plan

Performed tasks: Linda Karlsson & Angelo Fasce

Entity: JITSUVAX

Start date: 2021

Specific tasks: The Gender and Cultural Sensitivity Plan provides guidance and checklists for the research conducted within the JITSUVAX project, with the purpose to guard against the risks that arise from inadvertent failures to consider gender and cultural variables in research on vaccination decisions. Promoting equality is a core value of the European Commission, and taking gender and cultural aspects into account in research is an integral part of the Commission's Horizon 2020 funding programme. This increases the societal relevance of the research findings and acknowledges that belongingness to different, overlapping social groups contributes to different kinds of inequality.

6 Name of the activity: Mentoring

Performed tasks: Mentor to several young collaborators

Entity: PseudoLab

Start date: 2019

Duration: 4 years

Specific tasks: As leader of the PseudoLab group, I mentor several young collaborators from Latin American countries, many of them lacking opportunities in their country of origin, including professional development sessions, supervision of Bachelor's thesis, and personalized guidance in the development of their careers (<https://sites.google.com/view/pseudo-lab/team>). My first young collaborator, Diego Avendaño, with whom I started collaborating supervising his Bachelor's thesis, won an scholarship to study a Master's Degree in Hungary, and has recently been awarded a predoctoral contract from the Research Foundation – Flanders (FWO) to obtain his PhD at the Catholic University of Leuven.

Other achievements

Stays in public or private R&D centres

1 Entity: Ghent University (UGent)

City of entity: Gent, Belgium

Start-End date: 01/01/2016 - 30/04/2016

Goals of the stay: Doctorate

Provable tasks: Participation in seminars and research lines.

Narrative explanation: Collaboration with Johan Braeckman, Maarten Boudry, and Stefaan Blancke.

2 Entity: City University of New York (CUNY)

City of entity: New York, United States of America

Start-End date: 22/06/2015 - 22/09/2015

Funding entity: University of Valencia

Goals of the stay: Doctorate

Provable tasks: Participation in seminars and research lines.

Narrative explanation: Collaboration with Massimo Pigliucci.