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# **4TH ANNUAL MEETING OF THE SOCIETY FOR RISK ANALYSIS-EUROPE IBERIAN CHAPTER**

Preparing for future risks: The role of risk science



**Edições Universitárias  
Lusófonas**

# **4th Annual Meeting of the Society for Risk Analysis-Europe Iberian Chapter**

**Preparing for future risks: The role of risk science**

*April 13-14, 2023  
Lisboa (Portugal)*

*Edited by*  
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## EVENT OVERVIEW

This publication presents a comprehensive overview of the 4th Annual Meeting of the Society for Risk Analysis-Europe Iberian Chapter, held at Universidade Lusófona in Lisbon, Portugal, on April 13-14, 2023. The event revolved around the central theme of “Preparing for future risks: The role of risk science,” a topic of great significance in our rapidly changing world. Universidade Lusófona and Universidade Católica Portuguesa co-organized this insightful event, in collaboration with SBEC -Social Behavior, Environment, and Culture Lab from HEI-Lab: Digital Human-Environment Interaction Lab, and Catolica Research Center for Wellbeing (CRC-W).

The meeting served as a crucial platform for thought leaders, including renowned experts, top researchers, and dynamic practitioners, who came together to explore the frontiers of risk science. This proceedings publication captures the insights, debates, and innovative ideas that emerged from these interactions, providing a comprehensive record of the meeting.

The program for the 13th commenced with a formal welcome session, officially marking the beginning of the meeting. Guided by Ana Loureiro, representative of EPCV at Universidade Lusófona, Sílvia Luís, President of SRA-E Iberian Chapter and from Universidade Lusófona, and Rui Gaspar, President of SRA-E and from Universidade Católica Portuguesa, this session set the stage for the event.

Following the welcome session, keynote speaker Maria João Rosado from Direção Nacional de Bombeiros addressed the gathering, sharing her insights and expertise on risk governance, public policy, and decision-making.

The day progressed with a captivating round-table discussion



**Figure 1.** Opening Session.

centered around pandemic response. The panel included Rui Gaspar from Universidade Católica Portuguesa, Anders Tegnell from the Public Health Agency of Sweden, Frederic Boudier from Maastricht University and University of Stavanger, and Diana Costa from Direção Geral de Saúde. Together, they explored the management of systemic risks in a post-COVID-19 environment, providing diverse perspectives that fostered a thought-provoking and enlightening dialogue.

During lunchtime, a poster session provided an interactive forum for participants to showcase their research and findings. Attendees were given voting bulletins to cast their votes for the top three posters, which would later receive the best poster prize.

In the afternoon, a visit to the National Fire Service School was organized, where participants had the opportunity to explore the school's Virtual Reality Center. This excursion was followed by a social dinner, during which the winners of the best poster award were announced: Juan A. García, Miguel Gómez, and María Américo, with the poster titled "An assessment of the intention-impact gap in climate change risk mitigation behaviours", Belén



Ruiz and Juan A. García with the poster titled “Importance of corporate social responsibility in the risk perception of bank consumers”, and Natascha Parreira and Carla Mouro with the poster titled “Living by the sea: Place attachment, coastal risk perception and eco-anxiety when coping with climate change”.



**Figure 2.** Juan A. García, Maria Amérigo, and Belén Ruiz being awarded Best Posters.

On April 14th, the second day of the meeting, Sandra Dema from Oviedo University, Spain, delivered a keynote speech on gender issues in disaster risk. Subsequently, attendees participated in a workshop titled “Reading the Tea Leaves: Making Sense of Crisis Response Through Data Analytics,” led by Ben Trump from the U.S. Army Engineer Research and Development Center’s Environmental Laboratory, who shared his expertise on the management of the COVID-19 pandemic.

Later in the day, the SRA-E Iberian Chapter Meeting and Elections took place, providing members with the opportunity to discuss crucial issues and elect representatives.

The day concluded with a doctoral colloquium, offering a valuable platform for doctoral students to present their research projects and engage in critique, discussion, and praise from their peers and senior researchers.

Overall, the 4th Annual Meeting of the Society for Risk Analysis-Europe Iberian Chapter proved to be an engaging and

insightful gathering, providing professionals and researchers with a platform to share knowledge, discuss emerging risks, and emphasize the vital role of risk science in preparing for the future.

## ACKNOWLEDGEMENTS

We gratefully acknowledge the funding provided by the Society for Risk Analysis - Europe and Universidade Lusófona, which enabled us to offer this event free of charge to participants. Additionally, we would like to express our appreciation for the dedicated efforts of the organizing and scientific committees, whose invaluable contributions made this meeting possible.

### Organizing Committee

- Sílvia Luís | Universidade Lusófona, Portugal (Chair)
- Rui Gaspar | Universidade Católica, Portugal (Co-Chair)
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- José Palma-Oliveira | Faculdade de Psicologia da Universidade de Lisboa, Portugal
- Juan Antonio García | Universidad de Castilla-La Mancha, Spain
- María Amérigo | Universidad de Castilla-La Mancha, Spain
- Maria Luísa Lima | Iscte - Instituto Universitário de Lisboa, Portugal
- Pablo Aznar | Universidad de Alicante, Spain
- Samuel Domingos | Universidade Católica Portuguesa, Portugal
- Vítor Hugo Silva | Universidade Lusófona, Portugal

## **KEYNOTE SPEAKERS**

## **Civil protection: future perspectives and challenges**

**Maria João Rosado**

*National Emergency and Civil Protection Authority*



**Figure 3.** Maria João Rosado.

### **ABSTRACT**

The National Emergency and Civil Protection (ANEPC) is the entity responsible for the Portuguese civil protection system. Its territorial organization encompasses the National Emergency and Civil Protection Command, 5 Regional Emergency and Civil Protection Commands, and 24 Sub-Regional Emergency and Civil Protection Commands. ANEPC activity focused on protecting the heritage (natural and built), the environment, and the citizens. The main missions are to plan, coordinate and implement emergency and civil protection policies regarding prevention and response to

major accidents and disasters; protection and assistance to populations; coordination of civil protection agents; planning and coordination of national needs in the area of civil emergency planning (in situations of crisis or war). Professionals work, on a daily basis, with pressure, stress, uncertainty but also willingness to know and do more. Networking or strengthening ties, i.e., the organization and coordination between different teams is fundamental when responding to emergency situations. Wisdom of crowds or collective knowledge is also paramount: having a comprehensive understanding of the situations (god's view), scientific guidance, and embedded knowledge in teams. Therefore, it is necessary to Invest in research and to develop conceptual frameworks that facilitate the understanding of future scenarios, as well as to foster the development of critical thinking skills of professionals.

## **Gender, Disasters and Risks: What do we know and what do we still need to know?**

**Sandra Dema**

*Oviedo University*



**Figure 4.** Sandra Dema.

### **ABSTRACT**

Considering the scientific production included in the main databases, such as WOS and SCOPUS, it can be said that gender is not yet a central analytical category in risk and disaster studies. However, since the late 1990s and especially after the tsunami that affected several South-East Asian countries in 2004, there has been a turning point, as data showed that in some places more women than men died, suggesting that the impact of disasters is not gender neutral. Since then, most of the research on gender and disasters has focused on women's vulnerability to these events at different levels (female mortality, violence against women, economic



inequality, etc.), showing that pre-existing gender inequalities condition the impact of disasters in almost all areas of women's lives. Recent studies also focus on the importance of intersectional analyses, highlighting the relationship between gender and other variables, such as poverty or social class, age, disability, ethnicity, and sexual diversity, among others. Another important line of analysis that has emerged in recent decades concerns the active role that women can play in disasters, broadening the object of study from vulnerability to women's agency. This research focuses mainly on the gender roles that men and women play in disasters, as well as the processes of empowerment and female leadership that can be observed in some cases because of the disruptive context created by such events. While some authors see such processes as having an important potential for reducing gender inequalities, others are critical, arguing that they do not necessarily imply a structural transformation of gender relations, but on the contrary could lead to a feminisation of responsibilities and an overburdening of women. Science is an indispensable tool for dealing with disasters and the challenges they pose, and that it is particularly important to take gender issues into account and address them systematically. It is essential to produce sex-disaggregated data to highlight gender inequalities, as well as to raise gender awareness among researchers to integrate the gender perspective into our studies, highlight gender inequalities and provide practitioners with the information they need to reduce gender gaps.

## **WORKSHOP**

## Reading the Tea Leaves: Making Sense of Crisis Response Through Data Analytics

**Ben Trump**

*U.S. Army Engineer Research and Development  
Center's Environmental Laboratory*



**Figure 5.** Ben Trump.

### **ABSTRACT**

At the onset of the SARS-CoV-2 pandemic, various civil and military responders were required to adapt to urgent, highly uncertain, and hazardous environments to deliver critical emergency response to states, communities, and overseas jurisdictions. Likewise, pandemic response and recovery were bottlenecked by

the strains that human health and environmental risks had on critical infrastructure use and saturation. Through data analytics, much of the pandemic's emergency response effort required a fusion of engineered system operations and public health – including activities ranging from preventing hospital saturation and a collapse in emergency care provisions, to supply chain assessment of PPE and vaccines, to various social and economic aid programs intended to aid societies grappling with disruption. Many new programs and methodologies were crafted and deployed to address the COVID challenge. Learning from the successes and failures of pandemic response is an urgent necessity for scientists and practitioners in risk analysis. This talk will review a range of emergency response functions performed in the United States at various stages of the pandemic, and how interdisciplinary approaches to data analytics, risk analysis, and risk governance informed urgent, life-saving activities. Topics include the allocation of scarce PPE, to epidemiological forecasting of significant uncertainty, to vaccine production and distribution, to evaluating the indirect socioeconomic fallout of the pandemic upon different segments of society.

## ROUND TABLE

## **Pandemic response: managing systemic risks in the post-COVID-19 environment**

### **Participants**

- Rui Gaspar (*Chair*, Catholic University of Portugal) – Risk perception, risk and crisis communication
- Anders Tegnell (Public Health Agency of Sweden) – Epidemiology, risk management and governance
- Frederic Boudier (Maastricht University & University of Stavanger) – Risk governance
- Diana Costa (Directorate-General of Health of Portugal) – Vaccination and risk prevention

### **This roundtable had two general goals**

1. Share the participants' experience in risk analysis (assessment, management, communication, governance) and related activities in past pandemics, with a particular focus on the difficulties experienced and the benefits/opportunities that emerged for improving the health system and the social system, during the COVID-19 pandemic.

2. Identify the participants' insights and learnings from past pandemics, with a particular focus on the COVID-19 pandemic, and how can these insights/learnings be used to improve response to future pandemics and public health crises.

From the discussion, the main take home messages were:

– There is still somewhat a lack of collaborative work between and within organizations at the national and international



**Figure 6.** Pandemic response roundtable.

(European) levels, which should be enhanced in future public health crises, before they emerge.

- Trust in information sources and in the risk managers/governing organizations is key for an effective and impactful crisis communication and crisis management.

- There are difficulties but also opportunities in collecting and integrating multiple types of data from multiple sources.

- There is an increasing need (but how to effectively do it?) to integrate mental health dimensions into the public health response measures implemented.

- We should be moving from uni-dimensional risk analysis (e.g., considering only (physical) health risks) to systemic risk analysis (considering multiple risks during pandemics, namely physical and mental health, social, economic, ...).

## **POSTER ABSTRACTS**



## **Perception of climate change risk. A study on knowledge and false beliefs**

**Lucia Poggio** | *Faculty of Psychology, Universidad Complutense de Madrid*

**Raquel Pérez-López** | *Faculty of Education,  
Universidad Complutense de Madrid*

**Laura Pasca** | *Faculty of Psychology, Universidad Complutense de Madrid*

**Juan Ignacio Aragonés** | *Faculty of Psychology,  
Universidad Complutense de Madrid*

Climate Change (CC) risk perception is related to the degree of objective knowledge that people have about this event; nevertheless, the Climate Change Perception Model (CCRPM+) does not take into account the precise role that specific knowledge and false beliefs play in the risk perception of this phenomenon. The present study aims to observe to what extent knowledge about CC is linked to CC risk perception. A sample of 150 Spanish participants from the general population responded to an online questionnaire asking them to freely state what they understood CC to mean and what they considered to be this event's causes and consequences. In addition, participants completed a scale on CC risk perception. Two simple correspondence analyses locate the knowledge (causes and consequences) around the four quartiles of risk perception in which the sample is distributed. Taking into consideration the causes of climate change, participants with higher CC risk perception report more incorrect beliefs and changes on climate conditions. Regarding consequences, results show that impact in humans is the most frequent effect when participants score high

on CC risk perception. The outcomes shed light on the importance of CC risk perception, concretely the degree to which CC risk perception is reported relates to objective knowledge and incorrect beliefs about CC. Therefore, the cognitive factor, specifically false beliefs, might be decisive when perceiving CC risk.

*Keywords:* Climate change, Perception of risk, false beliefs, knowledge

## **An assessment of the intention-impact gap in climate change risk mitigation behaviours**

**Juan A. García** | *University of Castilla-La Mancha*

**Miguel Gómez** | *University of Castilla-La Mancha*

**María Amérigo** | *University of Castilla-La Mancha*

Previous studies conclude that behavioural change is a key aspect to mitigate the risks of climate change. However, there is a significant gap between environmental attitudinal variables (i.e., knowledge, concern, values, or intentions) and pro-environmental behaviour of the population (Kennedy et al., 2009; Klöckner, 2013). Furthermore, Geiger et al. (2018) argue that the pro-environmental behavioural intention approach has been deeply studied by the Social and Human Sciences (i.e., anthropology, economics, environmental psychology, or sociology), while the behavioural impact approach has received more interest from the Natural Sciences (i.e., engineering, or environmental sciences). This fact has led to an accentuated fragmentation in the study of pro-environmental behaviours, despite being an area where interdisciplinary research has enormous potential (Geiger et al., 2018).

Considering the above, the aim of this research is to examine whether there is a gap between the intention to behave in a pro-environmental way and the actual personal impact on the consumption of environmental resources. Using a quota sampling procedure according to gender, age and habitat, an online survey was administered to 800 Spanish individuals aged 20-74 years old ( $M = 45.7$ ,  $SD = 12.5$ ). The questionnaire administered included the fol-

lowing sections: (a) socio-demographic data; (b) personal ecological footprint scale (impact approach) measured using a scale adapted from the questions of Global Footprint Network (GFN, 2023); (c) self-reported pro-environmental behaviours (intention approach) in the private sphere (green consumption, waste generation and management, residential resource conservation, and mobility and transport) and high-impact behaviours related to lifestyle choices (Schultz & Kaiser, 2012; Stern, 2000); and (d) environmental attitudes measured using the Multidimensional Environmental Concern Scale (MECS) proposed by Amérigo et al. (2020). In addition, contextual factors of the municipality of residence of the respondents were measured using secondary data from the Spanish National Statistics Institute (2020).

First, confirmatory factor analyses (CFA) were carried out to assess the validity of the scales relating to pro-environmental behaviours and environmental attitudes and the ordinal alpha and omega were used to assess the reliability. Secondly, a latent class cluster analysis (LCCA) was used, identifying seven different segments among which divergences of varying magnitude were detected between intention and impact measures. This research provides relevant data on the gaps between self-reported pro-environmental behaviours and the impact of behaviours using ecological footprint indicators, providing analytical insight to propose appropriate strategies in different areas, depending on the target segment and the type of behaviour.

**Keywords:** climate change; intention; impact; personal ecological footprint; latent class cluster analysis

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## **Psychological capital (PsyCap) and the relationship with job satisfaction and turnover in long term care employees**

**Ana Catarina N. Ferreira** | *Universidade Lusófona*

Research describes that high psychological capital (high self-efficacy, optimism, hope, and resilience), benefits organizations in creating and promoting a healthy work environment, and workers tend to have better health (Luthans, 2002). The present research aimed to understand the relevance of psychological capital in long-term care employees, a professional category that performs physically and psychologically demanding work, with unattractive salaries, few perks and benefits, and high levels of turnover. Specifically, it was explored whether a high psychological capital is associated with lower levels of turnover, and whether this relationship would be explained by increased job satisfaction. It was also analyzed whether the relationship between psychological capital and turnover was moderated by the satisfaction of worker needs in the areas of food, housing, health, and education. Three measures were used: PsyCap (Luthans et al., 2007), Job Satisfaction (Lima, et al., 1994), Intention to Turnover (Mendes, 2014) and self-report of basic need satisfaction. 128 employees in long term care participated, 83% female and age ranged between 20 and 64 years old. The results showed that psychological capital negatively predicts turnover intention, with this relationship being mediated by job satisfaction and moderated by perceived satisfaction of basic needs. It was also identified that the psychological capital dimension most related to turnover intention was Hope. These results

make it possible to inform programs to decrease turnover intention in this population.

**Keywords:** Employees in long term care, psycap, job satisfaction, intention to turnover

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## **Risk factors related to perceived vulnerability in the management of the Tagus River**

**María Amérigo** | *University of Castilla-La Mancha*

**Fernando Talayero** | *University of Castilla-La Mancha*

**Juan A. García** | *University of Castilla-La Mancha*

**Lucía Poggio** | *Complutense University of Madrid*

**Raquel Pérez-López** | *Complutense University of Madrid*

The Tagus River deterioration due to water pollution and the Tagus-Segura water transfer, as well as the complaints of the affected populations motivate the present research. This exploratory study aims to characterize the population of three riverside municipalities (Aranjuez, Talavera de la Reina and Toledo) in relation to variables related to perceived vulnerability. For this purpose, a sample of 468 adults ( $M=48.86$  years,  $SD=16.98$ ; 53% women) were surveyed in March 2022 using the Computer-Assisted Personal Interviewing (CAPI) methodology.

The results indicate that, with respect to the risk perception that certain human activities and natural phenomena represent for the Tagus, drought, the Tagus-Segura water transfer, and urban, industrial and agricultural spillage stand out. ANOVAs showed that the participants from Aranjuez ( $N=156$ ) perceived less risk from drought ( $F=107.837$ ,  $p<.001$ ,  $\eta^2=.317$ ) and spillage ( $F=10.084$ ,  $p<.001$ ,  $\eta^2=.042$ ), while the residents of Talavera ( $N=157$ ) perceived greater risk from the water transfer ( $F=11.344$ ,  $p<.001$ ,  $\eta^2=.047$ ). The perception of the state of the river was quite negative, highlighting the poor quality of the water, the impact of climate change and the lack of information to the population on the state of the river, although the residents of Aranjuez showed a less negative evaluation ( $F=226.073$ ,  $p<.001$ ,  $\eta^2=.493$ ;  $F=49.749$ ,  $p<.001$ ,



$\eta^2=.176$ ;  $F=18.742$ ,  $p<.001$ ,  $\eta^2=.075$ ; respectively). With respect to the evaluation of certain management measures, improvement in the management of discharges and pollution was the measure perceived as most valuable in the three municipalities.

These results coincide with those obtained through a content analysis of the participants' representation of the Tagus River, who perceive it to be more polluted and with less water than in the past, as well as abandoned by public administrations that could solve the problem if they adopted the necessary measures. In addition, the results are contrasted with a previous study developed with different stakeholders from public administrations, productive sectors, media, and civil society (Blázquez et al., 2022), as well as with the recent report derived from the Hydrological Plan of the Spanish part of the Tagus Hydrographic Demarcation 2022-2027 (Ministry for Ecological Transition and the Demographic Challenge, 2023). Both works highlight the need to improve the ecological status of the Tagus River. In addition, the fact that the largest volume of contaminated water arrives through a tributary (Jarama River) downstream of Aranjuez, explains a lower perceived risk of contamination in this municipality. Also noteworthy is the demand for greater communication with the affected populations.

**Keywords:** risk perception; vulnerability; river management; Tagus River

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## **Social vulnerability to floods from a capacitative approach: The AQUASOC project**

**Guadalupe Ortiz** | *University of Alicante*

**Antonio Aledo** | *University of Alicante*

**Pablo Aznar-Crespo** | *University of Alicante*

**José Javier Mañas-Navarro** | *University of Alicante*

Climate change has increased the frequency and intensity of potentially catastrophic flood events. This fact has driven a strong line of research focused on the analysis of social vulnerability to floods. Diverse disciplines within the social sciences have made efforts to identify and analyse those characteristics or conditions that determine the level of vulnerability of a territory or population. Thus, the creation of so-called “social vulnerability indices” have proliferated, often linked to a social mapping exercise, which normally result from the combination and quantitative measurements of socio-demographic such as age, income, educational level, ethnicity, etc. These scientific products offer valuable information to risk managers to understand the social context of risk but present some limitations in operative terms given the lack of malleability of such variables. The AQUASOC project seeks to provide useful information to local risk managers by focusing on the identification and understanding of the social capacities that need to be strengthened in order to make local communities more resilient to floods. The AQUASOC project (2022-2025) is funded by the Ministry of Science and Innovation through its National Plan of Research and Development. The general objective of this work is to design and transfer tools for a preventive management of the social impacts of flood events by strengthening the social response capacities of local communities. This general objective is broken down

into the following specific objectives: 1) To systematically identify, categorize and analyse the network of social impacts caused by flood events in the selected case studies through social impact assessment and network analysis methodologies; 2) To analyse the adaptive dimension of social vulnerability by identifying and categorizing the social capacities that determine an effective response to floods; 3) To collaboratively design and validate tools and protocols that allow key social agents in flood prevention, planning and management to systematically identify the potential impacts of flood events and the social capacities needed for their response; and 4) To transfer and disseminate the results and products to key social agents in flood prevention, planning and management, as well as to the scientific community. Ultimately, the project will provide a freely accessible web tool (SCABA-Social Capacity Building Appraisal for Flooding Events) aimed at risk managers so that they can analyse ex-ante the social impacts of floods at a local level, as well as the most optimal social capacities that must be reinforced for coping with them.

*Keywords:* flood risk, adaptive capacities, social impacts, risk management

## **Social Participation in times of COVID-19: Effects on depression in the elderly**

**Samuel Domingos** | *Católica Research Centre for Psychological,  
Family and Social Wellbeing (CRC-W), Universidade Católica Portuguesa*

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### **INTRODUCTION**

The social restrictions that were globally observed during the COVID-19 pandemic impacted the livelihoods of individuals and communities, particularly amongst those typically most vulnerable, such as the elderly. For example, decreases in the frequency of relationships and interactions with other persons, in the participation in recreational and social activities, and in available instrumental and emotional support were identified as significant predictors of higher physical and mental health deterioration during COVID-19 pandemic, particularly among the elderly population. Here we aim to better understand and contextualize the relationship between lower social participation during COVID-19 pandemic critical moments and the risk of depression, focusing on a sample of elderly participants residing in a vulnerable region of Portugal. Method: A random sample of 324 elderly participants (Mage = 75.11; SD = 6.89; range 65-92), residing in the Portuguese region of Alentejo, answered, with the help of an interviewer, to a questionnaire that enabled collecting indicators of self-reported social participation during COVID-19 pandemic critical moments, social support since the beginning of the pandemic, health condition,

depression, and other sociodemographic variables. Results: Regression analysis suggest that lower self-reported social participation during COVID-19 pandemic critical moments increased the likelihood of depression. Serial mediation analysis further suggested that this relationship was statistically explained by lower self-reported social support since the beginning of the pandemic, and lower self-reported health condition. Conclusion: Lower social participation during COVID-19 pandemic critical moments may have protected participants from infection and other physical health related negative outcomes. However, this social deprivation may have put these participants at greater risk of depression, perhaps due to lowering social support since the beginning of the pandemic and health condition. These findings suggest the importance of creating the needed conditions to promote social participation in a post-pandemic scenario, particularly amongst elderly communities most affected by such social deprivation.

*Keywords:* COVID-19; Elderly; Social Participation & Support; Health Condition; Depression

## Psychosocial risks in long term care facilities in Lisbon

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Psychosocial risks (PSR) and work-related stress are one of the health risks most frequently identified by workers in Europe, and it contributes to around half of all lost working days. Some evidence suggests an increment on PSR in long term care (LTC) sector in some European countries (ETUI, 2022). Studies in Portugal are still scarce, but recent research reported specific PSR in this sector.

The study was conducted in two Lisbon facilities of a LTC care operator in Portugal. Semi-structured interviews and a day's work observation were conducted prior to COPSOQ application (medium version of COPSOQ III, validated for the Portuguese population (Cotrim, et al., 2022)). Results indicate that dimensions presenting the greatest PSR to workers' health are cognitive and emotional demands of work, followed by insecurity regarding working conditions, then burnout and work rhythm, and finally job insecurity and role conflict. Work demands and Health & Well-being have thus the main impacts on PSR of this sample.

The risk profiles show differences between units, which may be due to the type of intervention developed in each one. In continuing care (national health system) facility the level of cognitive and emotional demands and the work rhythm was higher than in the nursing home (private customers). In nursing homes depressive symptoms and labor insecurity was higher. Conflicts in work family balance and Role conflicts were identical.

Regarding protective factors, nursing home workers favored

Workplace Commitment, Role Clarity and Job satisfaction. The continuing care sample valued the perception of Work Quality and Role clarity. Differences between educational qualifications levels emerged regarding PSR identified.

A mitigation plan was conceptualized, that includes: staffing negotiations with unit managers; training in PSR and coping strategies for workers; cross-cut internal communication plan on job descriptions and company organization chart, with a clear specification of role responsibilities and operation model desired; technical training for non-clinical caregivers; dynamization of moments of social interaction between workers; scheduled opportunities for a team to provide peer support during shifts (break times, shift change); time for team meetings and regular review meetings, that underpin direct group participation practices that can mitigate low control and increase social support; training in communication and feedback skills for local managers; introduction of stress management and physical well-being initiatives (Pilates, yoga).

The effectiveness of the plan will be evaluated through the reapplication of COPSOQ, and measurement of worker satisfaction and absenteeism.

**Keywords:** Psychosocial risk management, COPSOQ, Long term care, work-related stress

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## **Holistic characterization of flash flood resilience: Construction and validation of an integrated multidimensional resilience index (IMRI)**

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Over the last twenty years, numerous strategies and policies (e.g., 2030 Agenda for Sustainable Development) have emerged to promote flood risk reduction that is compatible with the conservation or restoration of river ecosystems, with the ultimate goal of achieving sustainable development. In this context, resilience analysis is considered a key aspect in flood risk reduction, and the most widespread methodology for its characterization is the construction of indices. However, such indices have been obtained so far through a fragmented approach because they do not consider all resilience dimensions (i.e., social, economic, ecosystem, physical, institutional, and cultural). Moreover, indices developed on a regional scale focusing on areas prone to flash floods are rarely validated, as the necessary information is often not available and flash floods do not occur simultaneously in all urban areas of a given region. This paper addresses the above two knowledge gaps and describes the construction at regional level of a flash flood Integrated Multidimensional Resilience Index (IMRI). Resilience here is characterized holistically, integrating in the index all the dimensions involved. Subsequently, an uncertainty and sensitivity analysis were performed to validate the IMRI. Lastly, resilience regional spatial patterns were identified through a Latent Class Cluster Analysis. The methodology implemented here allows one to identify resilience inherent characteristics, helping to improve flood



risk management. Moreover, validation outputs enable to determine index uncertainty sources, thereby encouraging decision-makers to design more efficient resilience strengthening strategies.

*Keywords:* flash flood; resilience analysis; flood risk reduction; multidimensional framework; sustainable development

## Reducing the Weekly Working Hours: Views and expectations from employees and managers

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The time we spend working during our lives is only surpassed by sleeping. And this time at work is mostly perceived negatively by people, with feelings of being miserable at work, unsatisfied and disengaged from work context. This represents a societal risk, and several solutions are being studied and implemented at different levels. Working time reduction (WTR) is not an emerging issue, but its discussion is increasingly in the mainstream of the media, society, and organizational context. The implementation of a reduction in the number of working time hours is commonly presented as to providing several benefits for individual, organizations, and the society. This study aims to review the theoretical and empirical effects of WTR and, then to confront these effects with workers' expectations and experiences. A questionnaire was applied to Portuguese workers whose working hours were not reduced ( $n = 61$ ), workers with WTR experience ( $n = 36$ ) and managers ( $n = 47$ ), first exploring the workers and managers expectations, and then comparing them with workers who had the experience of WTR. In general, the attitudes are favorable to reduce the number of hours and to changes in mode of weekly working time. Considering societal impact, reducing working hours is perceived as having more positive effects, although some negative impacts are identified. We

also found different expectations and experiences among the three categories of participants. Those without WTR consider that companies' competitiveness will decrease if WTR is implemented, while those having already a WTR experience consider that competitiveness has in fact increased. Additionally, participants with WTR experience report that the extra time has leading to an increase in consumption, what is not predicted by those not having WTR experience.

*Keywords:* Working Time Reduction; Expectations; Experiences; Societal impact

## **Importance of corporate social responsibility in the risk perception of bank consumers**

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The risks taken by several banking companies in Europe and the US between 2007 and 2013 led to the most significant global economic crisis since the Great Depression of 1929 (Ruiz & Garcia, 2019). Greed, lack of morals and breach of ethical codes caused the reputation of the banking sector to plummet. Bank failures resulting from this financial crisis have undermined public confidence and consumer distrust and anger are evident. Against this backdrop, the banking sector's effective use of crisis management and reputation restoration strategies is particularly important for business survival and economic development (Weber et al., 2011). Since then, the world's leading banks have prioritised the development of social policies to convince people of their social commitment.

This study analyses whether corporate social responsibility (CSR) policies contribute to improving the reputation of major financial institutions in two of the countries where the crisis had its most virulent effects: UK and Spain. Considering that these are two countries with considerable cultural differences in terms of their uncertainty avoidance (The Hofstede Center, 2018), which is a concept commonly related to risk avoidance (Carretta et al., 2017; Zhang et al., 2018), we also analyse whether there are significant differences in terms of the importance that these two cultures attach to social actions.

By means of 910 online questionnaires conducted with consumers of the main banks in these countries, we analyse the main corporate reputation variables: quality of the offer, customer serv-

ice, innovation, employer branding, leadership, integrity, financial soundness, social action using a multidimensional scale of bank reputation proposed by Ruiz et al. (2019).

The model was estimated using the consistent partial least squares (PLSc) method (Dijkstra & Henseler, 2015). A multi-group analysis (MGA) assessed the differences between British and Spanish individuals. The results of the research show that financial soundness and bank leadership are the aspects most valued by consumers, while CSR is valued more in less risk-averse cultures (UK) than in less risk-averse cultures (Spain), where this variable even has a negative relationship given that the banks most involved in social actions were the most questioned during the crisis.

**Keywords:** risk avoidance, trust, CSR, corporate reputation, crisis

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## **Economic empowerment or mental health risk? Stress and mental health among the self-employed: evidence from a developing country context**

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The literature provides mixed evidence on the effect of self-employment on the business owner's mental well-being, such as stress (Cardon & Patel, 2015; Rietveld et al., 2015; Hessels et al., 2015; Stephan & Roesler, 2010; Wiklund et al., 2019). Most studies find self-employment to increase owner's perceived stress and to reduce mental well-being, while there are also some studies that show the opposite result. There is also a paucity of research on this topic in developing country settings, where self-employment may be the only way to earn income in an economy with limited formal employment opportunities.

We collected two waves of data from N=2,800 respondents in a probability sample of twenty-five enumeration areas in the Tshwane Municipality (South Africa) dominated mostly by African Townships. The sample includes about 1,000 business owners and 1,800 controls not involved in their own business. In addition to detailed business-related variables, the respondents answered the SF12 questionnaire that measures both physical health (PCS) and mental health (MCS; Ware et al., 1995), the Kessler Psychological Distress Scale (KS; Kessler et al., 2002), and the Perceived Stress Scale (PSS; Cohen et al., 1983). Together, these variables provide a com-

prehensive picture of the respondents' mental well-being and health. The data also contains a 12-item grit scale (Duckworth & Quinn, 2009).

Using pooled OLS regression, we find evidence that self-employment is mental-health protective. Respondents who have their own business actually reported lower levels of stress in both KS and PSS and higher levels of mental health in MCS. In contrast to prior literature, grit as a coping style has no moderating effect between business ownership and stress. Using fixed effect regression, we find that the same relationships persist. In terms of effect size, having one's own business reduced stress and improved mental health scores to a level that completely offsets the negative detriment imposed by developing a chronic illness ( $p < 0.01$ ). Examining separately by gender, we find that the effects are almost entirely attributable to females.

In developing countries where formal employment opportunities are scarce, self-employment may be an avenue out of persistent poverty. However, the mental health effect of self-employment is under-researched in this population. To have informed policy promoting self-employment as a means of (at least local) economic development, the mental health effect of self-employment should not be overlooked.

*Keywords:* mental health, stress, grit, self-employment

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## **Work-related stress and subjective well-being: The role of affective well-being, organizational climate, and organizational identification**

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The promotion of healthy workplaces, along with well-being research, has received increasing attention in recent decades. The way people feel at work has an impact both on organizational results and on overall subjective well-being (SWB). The present study aims to analyze the relationship between work-related stress and SWB based on the examination of individual factors, such as affective well-being at work and organizational identification, as well as contextual processes, such as the perception of a climate of support, as explanatory psychological processes of this relationship. The data were collected through an online survey (N= 138 workers from a Portuguese University). The results obtained show that the effect of work-related stress on SWB is fully explained by the perception of a climate of support and affective well-being at work.

Contrary to what was expected, the results obtained show that organizational identification has no buffering effect on the relationships between work-related stress and affective well-being at work, nor between work-related stress and a climate of support. Taken together, the results suggest that work-related stress impacts individuals' overall well-being through the indirect pathway of a climate of support and affective well-being at work. The results are discussed considering their contribution to the development of research on the promotion of healthier workplaces, namely regard-

ing the promotion of contexts with a positive impact on workers' SWB.

*Keywords:* Well-being, work stress, organizational climate, organizational identification

## **Social disadvantaged neighborhoods: violence, collective efficacy, and collective action**

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Living in a socioeconomically disadvantaged neighborhood negatively impacts mental health (van Ham et al., 2013). Neighborhoods' violence exacerbates and jeopardizes residents' well-being (Morenoff et al., 2001). The absence of collective efficacy – formal or informal organization and control of the neighborhood by residents- is cited as one of the causes of violence (Sampson et al., 1997; Sampson & Wikstrom, 2008). Nevertheless, research in other domains suggests that fear reduces collective efficacy, which then discourages collective action by individuals (Miller et al, 2009). According to Social Identity Model of Collective Action (SIMCA; Van Zomeren et al., 2008), the core motivations for collective action to achieve social change- any action individuals undertake as members of a group to improve their group's conditions- are group social identification, experience of injustice, and group efficacy beliefs.

Based on SIMCA model, this study aims to investigate if neighborhood violence reduces social identification with the neighborhood, particularly in low SES individuals, leading to decreased collective action due to perceived injustice and reduced collective efficacy beliefs (Van Zomeren et al., 2008, Arndt et al., 2002; Miller et al., 2009; Cottrell & Neuberg, 2005).

One hundred and forty-five participants (53.8% male, Mage = 26.8, SDage = 6.91) were randomly assigned to one of four experimental conditions, using a 2 (Socio-Economic Status: Low vs. High) x 2 (Violence: neutral images vs. violent images) design. Socio-economic status (SES) was manipulated using a paradigm where participants were asked to imagine living in a hypothetical society (Jetten et al., 2015), while violence was manipulated by presenting participants with either neutral or violent images from the International Affective Picture System database (Lang et al., 2008).

Results show an interaction effect of SES and Violence on the identification with the neighborhood of the hypothetical society. Low SES participants show lower social identification with the neighborhood than higher SES group, regardless if there is priming of violence or not. For higher SES participants, social identification is higher when there is no priming of violence compared to when there is. Results also show a significant mediation effect of collective efficacy, in the relation between social identification with the neighborhood and collective action. In conclusion, low SES individuals, regardless of their neighborhood's violence, may experience decreased social identification with the community. This may reduce their sense of collective efficacy and lead to a lack of involvement in actions to improve their living conditions, perpetuating inequalities.

*Keywords:* low socioeconomic status, violence, neighborhood effects, collective efficacy, collective action

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# Reducing mental health risks during diagnostic imaging: a systematic review on anxiety reduction strategies through music

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*Background:* Diagnostic imaging today becomes an asset to modern medicine in identifying diseases. Imaging procedures involve several steps to perform these examinations. Patients during these examinations experience a huge emotional burden and consequently high levels of anxiety. Several non-pharmacological strategies have been introduced before and during imaging procedures to minimize patient anxiety, such as: meditation, massage, aromatherapy, hypnosis, and the use of music. The use of musical interventions has been shown to be effective in managing psychological and emotional problems.

*Objective.* To highlight the use of music in medicine, to increase patient comfort and to obtain a diagnostic imaging quality study in various medical diagnostic imaging interventions.

*Methods:* A systematic literature search was carried out with the following keywords: Diagnostic Imaging, Anxiety, Music

Therapy, Relaxation, Music, Sound, Imaging in the databases PubMed and Web Science. The search included articles published from 2005 to 2022. It included all studies which analysed imaging procedure, study design, musical strategies, measurement instruments, physiological and psychological parameters.

*Results.* 14 articles were included in this review. The studies used several musical strategies and measurement instruments in patients undergoing imaging procedures. The articles were analyzed given psychological and physiological parameters such as anxiety levels, heart rate, blood pressure and respirations. Most of the results showed significant decreases in anxiety levels and improvements in heart rate and respirations. Studies with headphones and self-selected relaxing music showed better results.

*Conclusion.* This study provides scientific evidence of the effects of listening to music in reducing anxiety. Different music strategies can help maximize efforts to promote comfort and relaxation for patients, thereby reducing mental health risks during diagnostic imaging procedures.

*Keywords:* Diagnostic Imaging, Anxiety, Music Therapy, Sound

## **The risk communication Conundrum: the case of COVID-19**

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The SARS-CoV-2 pandemic was an enormous challenge for risk communicators. From the basic life sciences questions regarding the viruses and its effects to the efficacy of associated interventions, communicators around the world had to compete with an endless array of hostile and inaccurate messaging – often within an environment of equally considerable uncertainty and urgency. There were many successes with such public engagement, but considerable opportunities to improve upon. we will discuss some of the causes of communication breakdowns and describes how the corresponding social dilemmas and complexities of socioecological systems can be more effectively characterized and addressed for future crises.

*Keywords:* risk communication, covid-19, social identity, social dilemmas



## **Climate change and drought risk perception: Socio-psychological determinants**

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In the context of climate change, certain natural phenomena characteristic of certain regions are becoming more serious, requiring the development of prevention and coping mechanisms. In this context, the drought in the region of Alentejo, southern Portugal, is an aspect associated with the region's own identity, which has been aggravated in recent years by climate change.

The aim of the current research is to contribute to a new conceptual framework that integrates different theoretical approaches to the comprehension of drought risk perception. Based in past research in climate change risk perception (e.g. van der Linden, 2015) we considered the following four dimensions: a) Cognitive (e.g., cause knowledge, impact knowledge, behaviour knowledge); emotional /experiential (e.g., Emotions, Psychological distance; Place identity to Alentejo and to the residence area ) socio-cultural (e.g., value orientation; social norms; and perception of social responsibility) and socio-demographic (e.g., gender, age, drought risk experience). The main purpose is to explore the impact of these facts in the drought risk perception.

In a first exploratory study, this model was tested through questionnaires to the resident population of the Alentejo region. From a sample of approximately 312 subjects, we are carrying out the statistical analyses that allow us to understand the validity of this model and to contribute to better understand how it applies to

contexts where climate change may interfere with the perception of typical climate phenomena.

*Keywords:* climate change; risk perception; drought

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## Living by the sea: Place attachment, coastal risk perception and eco-anxiety when coping with climate change

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Climate change poses major threats to coastal regions. In Portugal, the Aveiro district is one of the most vulnerable areas due to urbanized areas' exposure to the dangers of rising water. The prospect of flood threats can trigger a range of cognitions and emotions that affect adaptation and mitigation measures' success. This study sought to examine whether active and traditional place attachment is associated with residents' active and passive coping strategies to deal with the risk of rising water levels. An additional aim was to clarify whether these relationships are mediated by risk perception and eco-anxiety. The links between individuals' level of trust in authorities and coping mechanisms were also examined. An online questionnaire was completed by 197 Aveiro residents. The data show that active place attachment is connected to greater risk perception, eco-anxiety, and adoption of active coping strategies (e.g., problem solving). Low eco-anxiety was also found to have a positive effect on active coping strategies. Lower trust in the responsible authorities was additionally associated with active coping mechanisms. Overall, the results support the sequential mediation model for active coping but not for passive coping. The findings reinforce the need to consider cognitive factors (e.g., risk perception) and emotional factors (e.g., place attachment and practical eco-anxiety) to understand more fully how coastal residents deal with flood threats. Practical implications for policymakers are discussed.

**Keywords:** place attachment, Risk Perception, Eco-anxiety, coping strategies, coastal areas

## **The impact of inequality on mental health: Meritocratic beliefs and the internalization of shame**

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Over the past three decades, social inequality has risen, leading to significant societal and individual repercussions. While social movements have brought attention to the structural barriers underlying inequality, mainstream culture and backlashes often reinforce myths that justify this inequality. One such myth is the meritocratic belief that social mobility and economic success are achievable for all who exert the necessary effort. By disregarding systemic obstacles and advantages that shape an individual's opportunities, social and economic positions are perceived as results of personal responsibility.

Research reveals the association between lower social standing and subjective social status and diminished perceived control, increased shame, and poorer mental health. Adherence to meritocratic beliefs is also associated with heightened stress levels and reduced well-being. Moreover, epidemiological data demonstrates a significant relationship between inequality and deteriorating mental health. However, most evidence is based on national or regional levels, leaving personal experiences of inequality unexplored. To better comprehend the impact of inequality on mental health, it is crucial to assess subjective experiences of inequality and examine their associations with perceived uncertainty and loss of control, considering adherence to meritocratic beliefs as a risk factor for internalizing shame.

This study examined the effect of inequality on mental health, exploring the mediating role of uncertainty, personal control, and internal shame and the moderating influence of adher-

ence to meritocratic beliefs. The sample included 226 participants aged 18 to 72 years ( $M = 30$ ;  $SD = 11.14$ ), with 59.75% identifying as female and the majority reporting a medium subjective social status. Measures included the Inventory of Perceived Inequality (Cabral et al., 2016), the Uncertainty Response Scale (Greco & Roger, 2001), Internalized Shame Scale (Cook, 1993), and the Brief Symptom Inventory (Derogatis, 1982). Results from moderated mediations revealed that higher levels of inequality contributed to increased depression and anxiety by intensifying perceptions of uncertainty and diminishing the sense of personal control, ultimately leading to elevated internal shame. Additionally, the impact of perceived loss of control on internal shame was amplified in the condition of higher meritocratic beliefs.

Our findings highlight the risks of inequality for mental health and suggest the myth of meritocracy exacerbates these risks. Implications for policymakers, mental health professionals, and social intervention professionals will be discussed, emphasizing the importance of challenging meritocratic beliefs as a means to prevent the internalization of shame and its consequences on mental health.

**Keywords:** inequality, mental health, uncertainty, internal shame, meritocracy.

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## **Avoiding anchoring effects in credit card payment options: Exploring alternative information associated to credit card monthly statements**

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One of the advantages of credit cards is the possibility of dividing the payment of the full debt into smaller monthly payments with the addition of interests. Credit card companies establish a minimum amount that should be paid each month and this value is usually displayed in the credit card monthly statement. This scenario presents a potential risk for consumers due to cognitive biases that could lead to unadvised decisions. The mere display of a minimum value to be paid can often work as a decision anchor leading to smaller payments, while difficulty in calculating compound interests and the influence of hyperbolic discounting can blind consumers to the exponential accruing of interests when paying the minimum and its financial consequences in the long term. To avoid this, we explored payment decisions for credit card statements which include supplemental information presenting estimations of time and amount with interest necessary to pay off the full debt for different options of payment regarding different percentages of the total debt, using either table or graph formats in two separate conditions. These were compared to a condition with presentation of a credit card statement which included a supplemental information that offers the same estimations but for a single payment option (as established by the US CARD Act of 2009) potentially producing a new decision anchor and compared to a

control condition (presenting only the minimum payment). Results indicate that the proposed supplemental information, either in a table or graph format, leads to higher monthly payments than the CARD Act and the control condition, attenuating the anchoring effects of displaying fixed payment options (e.g., amount to pay-off the debt in 2 years; minimum payment). These findings suggest new designs for credit card statement that may contribute to lead consumers to better decisions when paying off credit card debts.

*Keywords:* Credit card; CARD Act; Information disclosure; Debt; Financial decision-making

**DOCTORAL COLLOQUIUM  
ABSTRACTS**



# **Impact of earthquakes on gender relations: Inequality and gender roles**

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Since the 1990s, feminist researchers have revealed that the impact of natural disasters is conditioned by gender inequalities. In particular, a number of studies point to the different impact of such events in terms of mortality and health of women and men (Oxfam International, 2005; Akerkar, 2007; Bradshaw & Fordham, 2013); others indicate an increase in gender-based violence (Enarson, 1999; Fisher, 2010; Seager, 2014); as well as increased economic inequalities (Bradshaw & Fordham, 2013; Llorente-Marrón et al., 2020a) and social vulnerability, especially for women (Llorente-Marrón et al., 2020b), in the aftermath of a disaster.

The main objective of this PhD dissertation is to understand the material impact of disasters of natural origin, particularly earthquakes, on gender relations, trying to understand whether they are maintained or reinforced or, on the contrary, transformed in the case of five earthquakes taken place in the Dominican Republic (2003), Honduras (2007 and 2009), Haiti (2010) and Spain (Lorca 2011). This main aim is materialised in four specific objectives:

1. To quantify the socio-economic impact of the earthquakes on the situation of men and women before and after the disaster in the three Caribbean countries mentioned above, identifying possible gender gaps.
2. To analyse the housing vulnerability of men and women before and after the disaster, in the same cases selected to carry out the previous specific objective.
3. To study the patterns of reproduction and/or alteration of

- gender roles in the rescue of material goods by people affected by the Lorca earthquake (Cocina Díaz et al., 2022).
4. To analyse how the affected population of Lorca faced the search for and organisation of temporary accommodation and the process of rebuilding their homes from a gender perspective.

To this end, a mixed methodology, both quantitative and qualitative, will be used. The first two specific objectives need to be developed from a quantitative point of view, for which multi-criteria analysis and econometric methodologies will be used. The data to fulfill the analysis are microeconomic and come from the Demographic and Health Survey (DHS), carried out by the United States Agency for International Development (USAID). Specific objectives 3 and 4 will be developed from a qualitative point of view. To this end, part of the primary information produced in the framework of the GENDER (Gender, Disasters and Risk R&D Project, Reference FEM2017-86852-P), consisting of four focus groups made up of survivors of the earthquake in Lorca carried out in 2019, will be analysed.

**Keywords:** Gender, disasters, inequality, gender roles

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# **Managing Municipal Risk: Understanding the Determinants of Internal Migration in Portugal to Prevent Population Losses**

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Mobility has been part of human practices for a long time, however, the reasons have been changing. In the past, the reasons were related to territorial issues, such as climate change, conflicts, and food shortages. Nowadays, this mobility is more linked to socioeconomic issues, the search for better living conditions, well-being and better wages (Barbosa et al., 2018). Portugal is made up of 308 municipalities, each with its own characteristics in terms of socio-economic, demographic, business, and employment aspects, representing different opportunities.

The results of the 2021 Census (INE, 2022) show that the main population trends in Portugal in the last decade were, in addition to the 2.1% population decrease, the accentuation of imbalances in the distribution of the population across the territory. A pattern of littoralization of the country is perceptible, with the concentration of the population near the capital. These facts demonstrate the importance of knowing the factors of internal migration in Portuguese territory, which may represent a useful tool in fighting the risk that the 208 less populated municipalities, which occupy 65.8% of the area of the country (INE, 2022), face with the possible increasing loss of population.

Different studies show that internal migration is driven by diverse factors, many of which are associated with the pursuit of improved economic and professional circumstances (e.g., Xiong et

al., 2020). Migration is an important phenomenon for those seeking to increase the fit between their needs and their living conditions. The notion of person-environment fit encompasses various aspects of life, encompassing matters related to employment (e.g. van Vianen, 2018) as well as community-related concerns (e.g., Chishima et al., 2023). It is a multidimensional construct (Jansen & Kristof-Brown, 2006), that can be employed to evaluate the compatibility between individuals and the attributes of the municipality in which they work. Given that sustainable development and social cohesion are prominent policy objectives of the European Union, it is imperative to strategically address the allure of specific territories to ensure fair responses to societal needs (Servillo et al., 2012).

The objective of this research is to conclude on the critical factors that enable the alignment of individual preferences with the characteristics of municipalities. Additionally, the study aims to develop a tool that can provide users with information about the municipalities that offer a better professional fit for them. To achieve this, a systematic literature review will be conducted to gain insights into the general factors influencing internal migration decisions. Furthermore, focus groups involving Portuguese migrants will be utilized to gain a deeper understanding of the determinants specific to Portugal. The findings from this research will be valuable for municipal administrations, as they can evaluate their performance across each identified dimension and invest in improvement plans. By doing so, they can prevent population loss and attract individuals to their respective municipalities.

*Keywords:* internal migration; municipal risks; municipal management; Portugal

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