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Dehumanization and the devaluation of the suffering of informal caregivers: The impact of psychosocial work factors, justice perceptions, gender, and socioeconomic status

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CIÊNCIAS SOCIAIS
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Department of Social and Organizational Psychology

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“O cuidador informal é veiculado à sociedade civil como sendo uma alma bondosa que escolhe abdicar da sua vida em prol do outro. O cuidador informal ama, muitas vezes incondicionalmente ... Mas também é um trabalhador a tempo inteiro que poupa ao Estado milhões todos os anos, que não sobrecarrega o Serviço Nacional de Saúde com o seu cuidado, que por falta de meios pecuniários, físicos e outros, assume o encargo de tomar conta de outro ser humano, colocando a sua saúde física e psíquica em risco. Fica sem o seu ganha-pão, sem folgas, fins-de-semana, férias, repouso, ordenado, vida social e tantas outras conquistas cívicas que a sociedade considera como mínimas para a manutenção da decência humana. O cuidador vê os seus direitos sonegados, ostracizado, como se pedindo uma legislação laboral para cuidar de quem mais precisa estivesse a perpetrar um roubo. Somos uma força de trabalho com cerca de 800.000 trabalhadores. Queremos ser escutados.”

Associação Nacional de Cuidadores Informais
No decorrer das celebrações no 1.º de Maio de 2024

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Resumo

Muitos estudos têm identificado os impactos negativos associados ao trabalho de cuidado informal. No entanto, o estudo sobre como os cuidadores informais são socialmente percebidos continua em grande parte negligenciado na literatura, apesar das evidências que indicam a sua falta de reconhecimento e apoio social. Este trabalho pretende analisar os fatores que contribuem para a sua desvalorização social, utilizando abordagens metodológicas complementares. Para atingir este objetivo, realizámos cinco estudos. Um estudo transversal mostrou que os cuidadores informais estão expostos a elevadas exigências e poucos recursos de trabalho, especialmente em termos de reconhecimento, justiça e respeito e suporte social do Estado Português (Artigo 1). Dois estudos experimentais examinaram os efeitos de ser um cuidador informal e do seu género utilizando uma medida de desumanização baseada em emoções. Os resultados revelaram que os cuidadores informais foram desumanizados ao serem-lhes atribuídas menos emoções exclusivamente humanas do que aos não-cuidadores, independentemente do seu género. Além disso, indivíduos com uma maior Crença no Mundo Justo (CMJ) foram mais propensos a desumanizar os cuidadores informais, e tanto a CMJ como a desumanização foram preditoras de uma menor perceção do sofrimento dos cuidadores informais (Artigo 2). Outros dois estudos experimentais examinaram mais a fundo os efeitos de ser um cuidador informal e do seu nível socioeconómico (ESE) utilizando duas medidas de desumanização baseadas em traços. Os resultados replicaram o efeito esperado de desumanização, independentemente do seu ESE (Artigo 3). No geral, esta tese destaca a importância de reconhecer e apoiar os cuidadores informais na sociedade.

Palavras-chave: cuidadores informais, desumanização, fatores psicossociais, crença no mundo justo, perceções de sofrimento, saúde e bem-estar, género, nível socioeconómico

Categorias e códigos de classificação PsycINFO:
3020 Processos Grupais e Interpessoais
3120 Traços e Processos de Personalidade
3670 Condições de Trabalho e Segurança Industrial
2970 Papéis de Sexo e Género

Abstract

Extensive research has identified the negative impacts associated with informal care work. However, the study of how informal caregivers are socially perceived remains largely neglected in the literature, despite evidence indicating they lack social recognition and support. This work aims to analyze the factors contributing to their social devaluation, by employing complementary methodological approaches. To achieve this goal, we conducted five studies. A cross-sectional study revealed that informal caregivers are exposed to high work demands and low resources, especially in terms of recognition, justice and respect, and social support from the Portuguese State (Article 1). Two experimental studies examined the effects of being an informal caregiver and their gender using an emotion-based measure of dehumanization. Findings revealed that informal caregivers were dehumanized by being attributed fewer uniquely human emotions than non-caregivers, regardless of their gender. Moreover, individuals with higher Belief in a Just World (BJW) were more likely to dehumanize informal caregivers, and both BJW and dehumanization predicted a lower perception of informal caregivers' suffering (Article 2). Two other experimental studies further examined the effects of being an informal caregiver and their socioeconomic status (SES) using two trait-based measures of dehumanization. Results replicated the expected dehumanization effect, regardless of their SES (Article 3). Overall, this thesis underscores the importance of recognizing and supporting informal caregivers in society.

Keywords: informal caregivers, dehumanization, psychosocial factors, belief in a just world, perceptions of suffering, health and well-being, gender, socioeconomic status

PsycINFO Classification Categories and Codes:
3020 Group & Interpersonal Processes
3120 Personality Traits & Processes
3670 Working Conditions & Industrial Safety
2970 Sex & Gender Roles

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Introduction

The global trend of population aging and the prevalence of chronic diseases has increased the number of dependent individuals requiring care (OECD, 2021). This scenario, coupled with substantial reforms in long-term care and greater government emphasis on the civic responsibility of caring for one another (Pavolini & Ranci, 2008), has placed the responsibility for care on middle-aged women family members (e.g., spouses and children) from disadvantaged groups (i.e., lower education and socioeconomic status (SES)) (Esplen, 2009; OECD, 2017; Poole & Isaacs, 1997). On the other hand, changes in family structures and increased female participation in the workforce have exacerbated the “care gap”, characterized by a high demand for care and a limited number of available caregivers (Hoffmann & Rodrigues, 2010).

Considering these emerging demographic trends, it would be reasonable to expect governments to adequately prioritize the safety, health, and well-being of informal caregivers, and to recognize and support them for their crucial role in the economy and the well-being of individuals and societies. However, several studies have shown that the informal care environment is often marked by unexpected and uncontrollable situations, lack of remuneration, legal and social protections, and social support (e.g., Gaspar et al., 2023; Hoffmann & Rodrigues, 2010; Schulz et al., 2020).

These circumstances impose several challenges on informal caregivers and may also affect the quality of the care provided (e.g., Ali et al., 2012). The recent incidents reported in the Portuguese press[1] illustrate the severity of their situation: two informal caregivers attempted to take the lives of their mothers, whom they care for seven days a week, due to burnout and limited access to formal care (i.e., paid professional care). Indeed, millions of informal caregivers face numerous financial and employment difficulties (e.g., poverty and unemployment), the risk of social isolation (e.g., limited availability to spend time with friends) (Dixe et al., 2019; Lee et al., 2022), and negative effects on their psychological and physical health (e.g., high levels of anxiety, stress, depressive symptoms, and burnout) (Barbosa et al., 2020; del-Pino-Casado et al., 2017).

Despite the Informal Caregiver Statute implemented in Portugal in 2019 being an effort to support and recognize the Portuguese informal caregivers, further steps should be taken to

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[1] Available at https://www.cmjornal.pt/portugal/detalhe/cuidador-em-esgotamento-tenta-matar-a-mae-de-96-anos-e-atira-se-de-predio; https://www.publico.pt/2023/06/18/sociedade/noticia/pj-investiga-caso-mae-filha-encontradas-mortas-coimbra-2053724

implement and evaluate it effectively (Hoffmann & Rodrigues, 2010). Indeed, there are still continuous public demonstrations by informal caregivers seeking political changes to the Statute because it does not adequately address all their needs or ensure their social recognition (Gaspar et al., 2023)[2]. It may seem paradoxical that such an important group in society remains largely invisible, unrecognized, and inadequately supported (EUROCARERS, 2019; Tranberg et al., 2021).

Therefore, the general research aim of this thesis is to examine the factors contributing to the social devaluation of informal caregivers, aligning with the United Nations' Sustainable Development Goals in the 2030 Agenda. Identifying these factors is crucial for raising awareness about the importance of informal caregivers in society and promoting actions that can increase their social recognition and support. To achieve this, several specific aims are outlined.

While several studies have examined the impact of various factors on informal caregivers' health and well-being, they have primarily focused on the caregiver and the care recipient characteristics (e.g., age, gender, type of illness) (e.g., Brandt et al., 2022; Gaspar et al., 2023; Lindt et al., 2020; Teixeira et al., 2020; Shifren, 2009). Moreover, much of the research has limited its focus to the burden of informal caregivers of dementia patients, often using the Zarit Burden Interview (Zarit et al., 1980) (e.g., Alshammari et al., 2023; Rodríguez-González et al., 2021).

However, no research has investigated the impact of psychosocial factors on informal caregivers' health and well-being. Silva et al. (2012) define psychosocial factors as characteristics inherent to the conditions and organization of work that affect the health and performance of individuals, some of which negatively impact individual health and thus constitute risk factors. The consequences of these risks are severe and varied, including work accidents, absenteeism, various illnesses (e.g., anxiety, depression, stress, cardiovascular diseases, neuroendocrine diseases), isolation, substance abuse, aggressiveness, reduced ability to focus and make decisions, deterioration of the social work environment, and a decrease in productivity and work quality (Silva et al., 2012, for a review).

Given this context, the **first specific aim** of this thesis is to identify the work-related psychosocial factors of Portuguese informal caregivers (e.g., work-family conflict, recognition, justice and respect, and cognitive demands), and to test their impact on multiple dimensions of

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[2] Available at https://sicnoticias.pt/programas/essencial/2024-02-07-A-vida-de-quem-cuida-a-tempo-inteiro-para-que-serve-o-estatuto-do-cuidador-informal--76b2fa6b; https://www.deco.proteste.pt/saude/doencas/noticias/que-esta-falhar-estatuto-cuidador-informal

their health and well-being (e.g., sleeping problems, stress, burnout, depressive symptoms). By comprehensively characterizing the work environment of Portuguese informal caregivers, we aimed to deepen our understanding of the daily challenges they face. Moreover, we aim to identify their perceptions of how much their work is valued and rewarded, and the support they receive.

Moreover, few studies have explored the social perceptions of informal caregivers. Understanding how informal caregivers are perceived socially is crucial, as negative perceptions towards them can negatively impact their health and well-being, the quality of the care provided, and prevent them from receiving the support they need (e.g., Ali et al., 2012; Phelan et al., 2011, 2018). These studies have identified informal caregivers as targets of courtesy stigma, characterized by negative stereotypes, prejudice, and discrimination from the general public due to their association with a stigmatized individual or group (Goffman, 1963) (e.g., Abojabel & Werner, 2019; Kinnear et al., 2016; Zwar et al., 2020). Given that dehumanization – the act of perceiving or treating individuals as less than fully human (Haslam & Stratemeyer, 2016) – is a pervasive phenomenon observed among various groups facing stigma and challenging living conditions, the **second specific aim** of this thesis is to examine whether informal caregivers are also subject to dehumanization.

Indeed, there is evidence that people with disabilities (e.g., Betancor et al., 2016; Martinez et al., 2011), the elderly (e.g., Boudjemadi et al., 2017), traditional women (e.g., Fiske et al., 2002; Tipler & Ruscher, 2019), individuals in low-status occupations (e.g., Volpato et al., 2017) and those with low-SES (Loughnan et al., 2014; Sainz et al., 2020) are often perceived with a lack of self-control and intelligence, implicitly and explicitly associated with animals (animalistic dehumanization), and targets of indifference (Haslam & Loughnan, 2014). Since the profile and work environment of informal caregivers – unpaid work, predominantly performed by women with low-SES, who care for individuals with disabilities – shares similar characteristics with these dehumanized groups, it is reasonable to expect that informal caregivers are also animalistically dehumanized.

Moreover, given the relationship between dehumanization and factors such as gender, SES, and justice perceptions (e.g., Boudjemadi et al., 2017; DeVaul-Fetters, 2014; Sainz et al., 2020; Tipler & Ruscher, 2019), as well as its link to reduced helping behavior (e.g., Andrighetto et al., 2014; Cuddy et al., 2007) and empathy for victims' suffering (e.g., Čehajić et al., 2009; Nagar & Maoz, 2017), the **third specific aim** of this thesis is to analyze whether informal caregivers' gender and SES, along with observers' justice perceptions, influence dehumanizing attitudes towards informal caregivers and consequently minimize their perceived suffering. For these purposes, we will apply the most influential theoretical models of dehumanization (i.e., the Infrahumanization Theory, Leyens et al., 2001; the Dual Model of Dehumanization, Haslam, 2006; and the Stereotype Content Model, Fiske et al., 2002).

Overall, this thesis aims to represent an important step toward understanding the factors that contribute to the social devaluation of informal caregivers. By adopting a comprehensive approach – analyzing the perceptions of informal caregivers themselves (**Chapter 4/Article 1**) and those of the general population (**Chapter 5/Article 2** and **Chapter 6/Article 3**) – it allows a comprehensive examination of the factors contributing to the lack of recognition and support that informal caregivers receive. Specifically, by comprehensively characterizing the work environment of Portuguese informal caregivers, we can understand the daily challenges they face and shed light on the perceived recognition and support they receive. Their lack of recognition and support will be evident if they perceive low resources, especially in terms of recognition, quality of leadership, social support from supervisors, and justice and respect (**Chapter 4/Article 1**).

Furthermore, by conducting an in-depth analysis of the dehumanization of informal caregivers by applying various theoretical models and how different factors related to informal caregivers and observers (e.g., informal caregivers' gender and SES and observers' BJW) can influence this dehumanization process (**Chapter 5/Article 2** and **Chapter 6/Article 3**), we can contribute to a deeper understanding of their lack of recognition and support. In addition to these theoretical contributions, our empirical results provide various insights into potential intervention strategies aimed at reducing the dehumanization of informal caregivers, improving the quality of their lives, and increasing their social recognition.

Next, we present an overview of the present thesis and the chapters with empirical evidence testing our hypotheses.

1. Structure of this thesis

This thesis comprises seven chapters. **Section I** establishes the theoretical framework supporting this thesis, exploring the relevant concepts and theories, including research aims. Specifically, **Chapter 1** begins with a definition of informal care, describes the responsibilities and profile of informal caregivers, explores the factors that contribute to becoming an informal caregiver, discusses its impact on health and well-being, and examines the formal support measures for caregivers in Portugal provided by the Informal Caregiver Statute.

Chapter 2 explores the concept of humanness and dehumanization, describes various theoretical models of dehumanization by highlighting their similarities and differences, presents an integrated model of (de)humanization on which we based our studies, explores different methodologies for studying dehumanization, and discusses how factors such as power, status, and social class influence these perceptions and reinforce social inequalities.

Chapter 3 discusses how the belief in a just world (BJW) influences people's perceptions and reactions toward victims. It introduces the concept of secondary victimization, where victims not only experience the negative consequences of the initial event that victimized them but also face other reactions such as having their suffering minimized and denied by others. Moreover, it highlights the impact of individual differences in BJW on reactions to victims, showing that dehumanizing the victims may serve as a defensive mechanism for individuals dealing with discomfort about others' suffering.

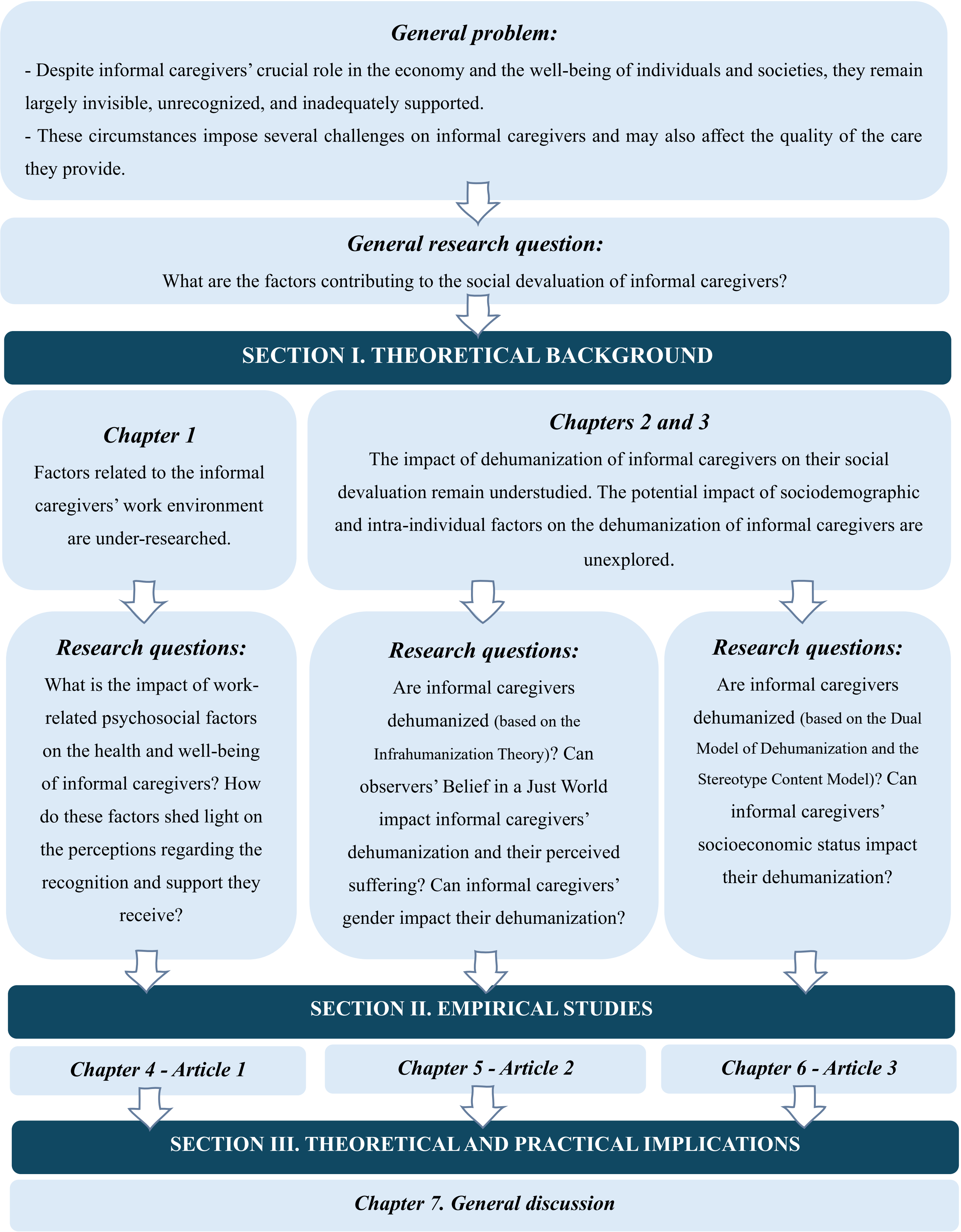
Section II includes three chapters presenting empirical studies. **Chapter 4/Article 1**, entitled "Psychosocial risk factors in informal caregivers: A study with the Copenhagen Psychosocial Questionnaire", presents a cross-sectional study aimed at (a) identifying the work-related psychosocial factors of Portuguese informal caregivers; and (b) testing the unique impact of these factors on the health and well-being of informal caregivers. Comprehensively characterizing the work environment of Portuguese informal caregivers will help identify the daily challenges that informal caregivers face in their work environment, as well as their perceptions of how much their work is valued and rewarded, and the support they receive. To achieve this goal, one of the most widely used psychosocial risk assessment methods in formal work contexts – the Copenhagen Psychosocial Questionnaire (COPSOQ) (Silva et al., 2012) – will be used.

Chapter 5/Article 2, entitled "Dehumanization and minimization of informal caregivers suffering: The legitimizing role of justice perceptions" (Romão & Correia, 2024, published in *The Spanish Journal of Psychology*), presents two experimental studies aimed to examine (a) whether informal caregivers are targets of dehumanization (based on the Infrahumanization Theory, Leyens et al., 2001) (Study 1); (b) the moderating impact of participants' BJW on this process (Study 2); (c) the predictive impact of BJW and the dehumanization of informal caregivers on the perception of informal caregivers' suffering (Study 2); and (d) the impact of the target's gender on these effects (Studies 1 and 2). In these studies, we manipulated the target's identity (informal caregiver *vs.* non-caregiver) and the target's gender (female *vs.* male).

Chapter 6/Article 3, entitled "Deepening the understanding of the dehumanization of informal caregivers: Considering two trait-based measures of dehumanization and the impact of informal caregivers' socioeconomic status", presents two experimental studies aimed to further examine (a) whether informal caregivers are also dehumanized when different measures of dehumanization are used (based on the Dual Model of Dehumanization, Haslam, 2006; and the Stereotype Content Model, Fiske et al., 2002); and (b) the impact of target's SES on this effect. In these studies, we manipulated the target's identity (informal caregiver *vs.* non-caregiver) and the target's SES (high-SES *vs.* middle-SES *vs.* low-SES *vs.* control). Studies 1 and 2 are very similar, differing only in the gender of the target: in Study 1, the target is female, while in Study 2, the target is male.

Finally, in **Section III**, **Chapter 7**, we provide a summary and discussion of the main findings of this thesis. This discussion integrates the key theoretical and applied contributions of the findings. The chapter also includes the limitations of the present research and offers suggestions for future studies.

Figure 1 synthesizes the structure of this thesis.



General problem:

- Despite informal caregivers' crucial role in the economy and the well-being of individuals and societies, they remain largely invisible, unrecognized, and inadequately supported.
- These circumstances impose several challenges on informal caregivers and may also affect the quality of the care they provide.

General research question:

What are the factors contributing to the social devaluation of informal caregivers?

SECTION I. THEORETICAL BACKGROUND

Chapter 1

Factors related to the informal caregivers' work environment are under-researched.

Chapters 2 and 3

The impact of dehumanization of informal caregivers on their social devaluation remain understudied. The potential impact of sociodemographic and intra-individual factors on the dehumanization of informal caregivers are unexplored.

Research questions:

What is the impact of work-related psychosocial factors on the health and well-being of informal caregivers? How do these factors shed light on the perceptions regarding the recognition and support they receive?

Research questions:

Are informal caregivers dehumanized (based on the Infrahumanization Theory)? Can observers' Belief in a Just World impact informal caregivers' dehumanization and their perceived suffering? Can informal caregivers' gender impact their dehumanization?

Research questions:

Are informal caregivers dehumanized (based on the Dual Model of Dehumanization and the Stereotype Content Model)? Can informal caregivers' socioeconomic status impact their dehumanization?

SECTION II. EMPIRICAL STUDIES

Chapter 4 - Article 1

Chapter 5 - Article 2

Chapter 6 - Article 3

SECTION III. THEORETICAL AND PRACTICAL IMPLICATIONS

Chapter 7. General discussion

Figure 1. Overview of the Problem, Research Questions, and Studies.

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SECTION I.

Theoretical Background

CHAPTER 1.

Definitions and determinants of informal care provision, and health and well-being of informal caregivers

1. Sociodemographic changes and increasing need for informal care

The world is currently facing several sociodemographic changes, including an increase in average life expectancy and a growing prevalence of chronic diseases and disabilities (Charalambous, 2023; Revenson et al., 2015; Schulz et al., 2020; United Nations, 2019). Globally, approximately 727 million individuals, constituting 9.3% of the population, are aged 65 or older, with projections indicating that this percentage will increase to 15.9% by 2050. In Europe, it is predicted that by 2050, 25% of the population will be aged 65 or older (United Nations, 2020) and that the percentage of individuals aged 80 years or older is expected to increase from 4.6% in 2017 to 10.1% in 2050 (OECD, 2019). Specifically, in Portugal, the proportion of individuals aged 65 or older is expected to increase from 23.7% in 2022 to 40% by 2050 (Maia et al., 2022; OECD, 2017). Furthermore, around 1.3 billion people worldwide (16% of the population) live with some form of disability (International Labour Organization, 2015).

Moreover, healthcare and social support systems have undergone substantial transformations in the last decades, resulting in inadequate responses to the challenges posed by population aging and the growing demand for care. For example, the Portuguese National Network for Long-term Integrated Care (Rede Nacional de Cuidados Continuados), the main measure responsible for the provision of long-term care in Portugal (Lopes et al., 2018), has a low public expenditure per person aged 65 years and older, resulting in fewer individuals receiving formal long-term care at home or in an institution (Barbosa et al., 2020). Furthermore, formal services such as home-based care, and nursing homes face challenges in terms of accessibility and cost, with a formal support coverage rate of only 12.6% (Alves et al., 2020; Schulz et al., 2012). At the same time, deinstitutionalization policies for older individuals have been implemented (Cruz et al., 2023; Erreguerena, 2015).

These aging population trends, coupled with the decrease in publicly funded care and the insufficient number of formal caregivers, have put pressure on the community, particularly on informal caregivers, to provide care for individuals with long-term care needs (Alves et al., 2020; Broese van Groenou & De Boer, 2016; Pavolini & Ranci, 2008; Schulz et al., 2020).

However, other profound societal changes, such as the increasing presence of women in the workforce, delayed retirements, and reduced family sizes due to declining fertility, have limited the availability of informal caregivers (Broese van Groenou & De Boer, 2016; Gil, 2021; Schulz & Eden, 2016; Zarzycki & Morrison, 2021). Indeed, projections indicate a decline in the number of informal caregivers aged 45-64 available for each person aged 80 and above by 2050 across all Europe countries. Notably, Portugal is expected to have only two adults available to care for each older person aged 80 in 2050, positioning it among the European countries with fewer potential informal caregivers (Ribeiro et al., 2022). These projections, aligned with the aforementioned population aging trends, suggest a greater demand for informal care work, which may impose additional burdens on Portuguese informal caregivers in the coming years (Broese van Groenou & De Boer, 2016; Schulz et al., 2020).

2. Who are the informal caregivers?

2.1. Defining informal care

The concept of informal care encompasses a diverse range of definitions, which vary across studies, relevant institutions, civil society stakeholders, and even within official recording systems across different countries (Bauer & Sousa-Poza, 2015; Cruz et al., 2023).

The most common definition in the scientific community characterizes informal care as the provision of unpaid care by family members, friends, or neighbors to individuals who have limitations in their physical, mental, or cognitive functioning (Hoffmann & Rodrigues, 2010; Revenson et al., 2015; Schulz et al., 2020). These limitations may include chronic illness, disability, or other long-term care needs (Cipolletta et al., 2020; Revenson et al., 2015; Zarzycki & Morrison, 2021). Therefore, informal care typically implies a close relationship with the care recipient and no formal training or monetary compensation to the informal caregiver (Cès et al., 2019), which results in cost savings for governments (e.g., Galiana & Haseltine, 2019) but imposes substantial costs on informal caregivers (Schulz et al., 2020).

Various definitions of informal care have posed challenges in recognizing informal caregivers and implementing measures to address their needs (Charalambous, 2023; Revenson et al., 2015; Zarzycki & Morrison, 2021). To overcome these challenges, Portugal through Law No. 100/2019, established the Informal Caregiver Statute[3], which defines who can be considered an informal caregiver, regulates the rights and duties of both the caregiver and the care recipient, and establishes support measures. The Statute distinguishes between primary and

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[3] Available at https://diariodarepublica.pt/dr/detalhe/lei/100-2019-124500714

non-primary informal caregivers: a primary informal caregiver is considered to be the spouse or unmarried partner, relative, or kin up to the 4th degree in the direct or collateral line of the person being cared for (e.g., children, grandchildren, siblings, parents, grandparents, cousins) over 18 years old, who accompanies and cares for them permanently, cohabiting with them, and not receiving any remuneration for professional activity or the care provided. The non-primary informal caregiver is the one who regularly, but not permanently, takes care of the person being cared for and may or may not receive monetary compensation. More recently, a first amendment to the Informal Caregiver Statute, through Law No. 20/2024, allows neighbors and friends to be considered non-primary informal caregivers if they cohabit with the care recipient.

2.2. Caregiver responsibilities

Informal care encompasses a wide range of activities seeking to contribute to the health and overall well-being of individuals who require assistance (Chew et al., 2022; Dixe et al., 2019). Estimates suggest that informal caregivers provide approximately 80% of all care in Europe.

Their assistance typically encompasses activities of daily living (ADLs) (e.g., bathing, dressing, and eating), as well as instrumental activities of daily living (IADLs) (e.g., shopping, meal preparation, and housework) (Hoffmann & Rodrigues, 2010; Roth et al., 2015; Schulz et al., 2020). Moreover, some informal caregivers take on responsibilities requiring specific professional skills, such as providing nutritional support, administering oral medications, and managing complex treatments like home-based dialysis and insert catheters (Dixe et al., 2019; Revenson et al., 2015). Studies have also revealed gender disparities in the provision of care, with women being more involved in ADLs activities, while men often focus on IADLs activities, thus complementing the caregiving provided by women (Revenson et al., 2015).

The intensity and duration of care provided are influenced by the health condition of the care recipient (Broese van Groenou & De Boer, 2016), with some informal caregivers providing full-time care while others provide more sporadic support (Dixe et al., 2019). Cultural norms and societal structures also play a pivotal role in determining the intensity and duration of the care provided. In Eastern and Southern European countries, where the responsibility for long-term care is mainly assumed by families (Maia et al., 2022), informal caregiving tends to be more frequent and intense, primarily focusing on supporting ADLs. Conversely, in Western and Northern European countries, where individualism is more prevalent and caregiving is typically considered a government responsibility, care provision tends to be more sporadic, with an emphasis on IADLs (Verbakel et al., 2017).

2.3. Informal caregiver's profile

The profile of the informal caregiver is complex, involving various factors such as age, gender, ethnicity, the health condition of the care recipient, the relationship with the care recipient, living arrangements, and whether they are primary or non-primary caregivers (Roth et al., 2015).

In Portugal, an estimated 1 million people (10% of the population) assume the role of informal caregivers (Gaspar et al., 2023; Maia et al., 2022). Most of the caregiving responsibilities fall on women, particularly wives, daughters, and daughters-in-law (Alves et al., 2020; OECD, 2019), despite there is increasing involvement of men, particularly those in the LGBTQ+ community (e.g., Hughes & Kentlyn, 2011; Kramer, 2002). Moreover, the informal caregiving role is mostly performed by middle-aged individuals, unemployed or domestic workers, religious people, and those with low education and SES (Gaspar et al., 2023; Gil, 2021; OECD, 2017).

Moreover, recent findings from the 4th and 6th waves of SHARE revealed that Portugal is the European country with the highest proportion of co-residential informal caregivers aged 50 or older, with percentages reaching 11.5% in the 4th wave (2011) and 12.7% in the 6th wave (2015) (Barbosa et al., 2020; Maia et al., 2022). These findings contribute to placing Portugal as the second OECD country with the highest rate of informal day-care (Maia et al., 2022), coupled with the lowest rate of provision of extra-residential care compared to other European countries (Barbosa & Matos, 2014).

Informal caregivers typically provide care to three distinct groups of care recipients. Among these, elderly individuals often being cared for by their spouses or middle-aged children constitute a substantial proportion due to health or functional limitations. However, informal caregivers also play a crucial role in supporting other specific groups, such as children with chronic illnesses, who are cared for by young adult parents, and adult children with mental illness, who are cared for by middle-aged parents (Schulz et al., 2020). Each of these individuals poses unique challenges to informal caregivers, resulting from differences in health conditions, available healthcare and social systems, and the life course stage of the caregiver and care recipient (Schulz et al., 2020).

3. Determinants of informal care provision

Informal care provision is strongly determined by contextual factors, cultural norms and values, and socio-psychological processes (Broese van Groenou & De Boer, 2016; Zarzycki et al., 2023, for reviews).

Contextual factors that facilitate or restrict the provision of care involve both the informal caregiver and the care recipient. These factors include demographic characteristics (e.g., age and marital status of the caregiver), geographical proximity, family structure (e.g., the presence of other family members who can assist), financial resources, caregiver's job responsibilities, family dynamics (e.g., the quality of relationships between the caregiver and the care recipient, communication style), the care recipient's illness characteristics, religious affiliation, and the accessibility of formal support services (Broese van Groenou & De Boer, 2016, Zarzycki et al., 2023).

Moreover, providing (or not providing) care is influenced by cultural and societal norms. Sociocultural beliefs of individualistic cultures (e.g., Western and Northern European countries), which tend to value independence, self-reliance, and personal goals over group cohesion (Grossmann & Santos, 2016), tend to emphasize the government's responsibility to ensure care services for those in need. Indeed, these countries have a well-established long-term formal care sector (Maia et al., 2022), justified by the better socioeconomic conditions of older people and their families, as well as by the social and health policies instituted in healthcare. For example, in the Netherlands, Denmark, and Norway, governments or local authorities assume legal responsibility for care (Broese van Groenou & De Boer, 2016; Revenson et al., 2015). In contrast, in more collectivist societies (e.g., Eastern and Southern European countries), which tend to emphasize the needs and goals of the group (community, family, and society) over those of the individual (Akkuş et al., 2017), a family-based care model has prevailed for centuries (Poole & Isaacs, 1997). Indeed, the health and social care policies in France, Italy, and Portugal impose limitations on providing care homes and professional in-home services, thereby placing the responsibility on informal caregivers of those countries to provide care to their family members at home (Broese van Groenou & De Boer, 2016; Charalambous, 2023; Roth et al., 2015).

Moreover, the provision of care is strongly influenced by a sense of societal responsibility and norms of reciprocity (Broese van Groenou & De Boer, 2016). Informal care is often driven by the desire to repay past help received (Schulz et al., 2012).

The informal caregiving role provision is also influenced by gender stereotypes (Erreguerena, 2015). Across the world, women consistently find themselves overrepresented among unpaid informal caregivers. Recent data from 106 countries highlight that women typically spend disproportionately two to ten times more time on unpaid care work than men. This unequal distribution of caregiving responsibilities is linked to gender roles, which often assign the traditional responsibilities of unpaid care work as an intrinsic aspect of the "women's domain" in societies worldwide. Indeed, several authors have identified a common expectation to associate women with femininity and motherhood (e.g., Erreguerena, 2015; Esplen, 2009; Kepic et al., 2019; Revenson et al., 2015; Poole & Isaacs, 1997). This culturally imposed expectation for women to take on caregiving roles can undermine their rights and restrict their opportunities, capabilities, and choices. Consequently, the gender gap in unpaid care work directly contributes to gender inequalities by limiting women's ability to actively participate in the labor market, reducing the time available for education and leisure, and further reinforcing gender-based social and economic disadvantages (Addati, 2021; Erreguerena, 2015). Furthermore, the lower involvement of men in caregiving, attributed to pervasive stereotypes depicting men as more agentic (i.e., independent and self-focused) than women, creates barriers for men in assuming this counter-normative role (Calasanti & King, 2007; Esplen, 2009).

Despite some informal caregivers may not identify themselves as such (Revenson et al., 2015; Rocard & Llena-Nozal, 2022), most informal caregivers assume the role driven by self-imposed pressures to meet social and family expectations (Cruz et al., 2023; Schulz et al., 2012). Caregivers motivated by a sense of duty, guilt, or social and cultural norms are more likely to experience negative effects on their health and well-being, as well as engage in abusive behaviors towards the care recipient (Schulz et al., 2020).

4. Informal caregivers' burden

Caring for dependent individuals can be a long-term responsibility, often extending over months or even years. This demanding role is characterized by its complexity, unpredictability, and lack of control (Lindeza et al., 2020; Schulz et al., 2020).

While some informal caregivers find benefits from their role, such as experiencing personal fulfillment and growth, development of skills, and the opportunity to strengthen family relationships (Quinn & Toms, 2019; Shifren, 2009), several studies consistently demonstrate that working in such a challenging environment often leads to substantial personal, professional, financial, and social consequences for informal caregivers which, in turn, impact their health, well-being, and quality of life (e.g., Lindt et al., 2020; Pinquart & Sörensen, 2003; Schulz et al., 2020).

Specifically, compared to non-caregivers, informal caregivers often experience higher rates of musculoskeletal disorders (e.g. Barbosa et al., 2020), poorer immune response (e.g., Kiecolt-Glaser et al., 1996), increased risk of hospitalizations and mortality (e.g., Schulz & Beach, 1999), higher levels of anxiety, stress, depressive symptoms (e.g., Pinquart & Sörensen, 2003), and burnout (e.g., Gérain & Zech, 2020). Moreover, informal caregiving contributes to financial (e.g., poverty) and employment (e.g., unemployment) difficulties, increased risk of social isolation, and compromised interpersonal relationships and social activities (e.g., limited availability to spend time with friends) (e.g., Dixe et al., 2019; Lee et al., 2022; Pinquart & Sörensen, 2003).

Informal caregivers may experience varying degrees of burden when exposed to similar situations as the impact of caregiving can be influenced by various risk and protective factors (Dixe et al., 2019; Lam et al., 2022; Lindt et al., 2020; Schulz et al., 2020; Shifren, 2009, for reviews). Indeed, combining paid work with caregiving responsibilities (e.g., EUROCARERS, 2015; Lam et al., 2022) and perceiving higher levels of formal care support, stronger social relationships (e.g., Chan et al., 2023; del-Pino-Casado et al., 2022; Gaspar et al., 2023; Lindeza et al., 2020), and a strong sense of community (e.g., Maytles et al., 2020) have been identified as protective factors for the health and well-being of informal caregivers. Conversely, being female (e.g., Angermeyer et al., 2006; Revenson et al., 2015), being older (e.g., Gaspar et al., 2023; Metzelthin et al., 2017), having lower income and education levels (e.g., Brandt et al., 2022), being the spouse of the care recipient (e.g., Alves et al., 2020; Cuijpers & Stam, 2000), cohabiting with the care recipient (Barbosa et al., 2020), providing intensive care (e.g., Alves et al., 2020; Bom et al., 2019), caring for individuals with dementia (e.g., Duplantier & Williamson, 2023), having multiple caregiving responsibilities (e.g., DePasquale et al., 2018; Kepic et al., 2019), and perceiving a lack of choice in taking on the caregiving role (e.g., del-Pino-Casado et al., 2017) have been identified as risk factors.

Furthermore, caregiving experiences have been exacerbated in recent years due to the COVID-19 pandemic. Recent studies have highlighted an increase in informal caregivers' socioeconomic difficulties, concerns about the health and well-being of care recipients, and challenges in accessing healthcare services and social support due to government-imposed restrictions aimed at controlling the spread of COVID-19 (Chew et al., 2022; Maia et al., 2022).

These findings highlight the importance of considering both the caregiver's characteristics (e.g., age and gender) and the care recipient's characteristics (e.g., gender and type of illness) when examining the health and well-being of informal caregivers. However, studies have ignored the impact of work-related psychosocial factors on the health and well-being of informal caregivers. Psychosocial factors (e.g., work-family conflict, recognition, justice and respect, and cognitive demands) can be defined as characteristics associated with the organization, design, and management of work, as well as social and environmental contexts. These factors can have the potential to cause physical, social, or psychological harm (Leka et al., 2017), such as maladaptation, tension, or psychophysiological stress responses (e.g., Talavera-Velasco et al., 2018), and thus be considered risk factors.

Given their centrality in understanding the daily challenges faced by informal caregivers in their work environment, the first specific aim of this thesis was to identify the work-related psychosocial factors of informal caregivers (e.g., work-family conflict, recognition, justice and respect, and cognitive demands), and to test their impact on multiple dimensions of their health and well-being (e.g., sleeping problems, stress, burnout, depressive symptoms). By identifying these work-related psychosocial factors of informal caregivers, we can not only understand the daily challenges that informal caregivers face but also shed light on their perceptions of how much their work is valued and rewarded, and the support they receive. The impact of these factors is discussed in Chapter 4/Article 1.

5. The formal status for informal caregivers in Portugal

The vulnerability of informal caregivers is also exacerbated by the lack of access to social rights, formal training, adequate resources, and necessary caregiving skills (Cès et al., 2019; Revenson et al., 2015). To address these needs and to improve the well-being of informal caregivers and care recipients, several European countries have attempted to develop supporting measures for informal caregivers.

In Portugal, recognition of the need for measures to support informal carers emerged in 2016 with the launch of Petition No. 191/XIII/2nd, which sought to establish the Informal Caregiver Statute for those caring for individuals with Alzheimer’s disease, other dementias, or neurodegenerative conditions related to aging. These efforts culminated in the approval of the Informal Caregiver Statute through Law No. 100/2019, published on September 6, 2019, marking the beginning of important achievements for informal caregivers.

The Informal Caregiver Statute was designed to define the roles of caregivers and care receivers, outlining their rights and duties and providing guidelines on measures to support them. This law has been gradually introduced through experimental pilot projects in several municipalities, as outlined in Regulation No. 64/2020. These pilot projects aimed to provide informal caregivers with financial support (e.g., cash benefits) and social support (e.g., cooperation with community services). Subsequently, in 2022, the Statute was extended to cover the entire Portuguese territory by Regulatory Decree No. 1/2022, dated January 10, 2022. This extension aimed to simplify the process of obtaining the Informal Caregiver Statute and introduced several new rights for caregivers. These include: receiving training and follow-up to improve their skills and the quality of care they provide; receiving information from professionals of health and social security; being informed about the health condition of the care recipient; receiving psychological support from the healthcare services, when needed, even after the death of the care recipient; benefiting from respite periods; receiving support allowance; being eligible for the student-worker regime while attending an educational institution; and being consulted on public policies affecting informal caregivers.

The Informal Caregiver Statute also outlines the support measures to which informal caregivers are entitled, including legal recognition within the framework of care systems; subsidies to support the primary caregiver; designation of a health professional as a contact reference; provision of counseling, follow-up, capacity-building, and training in caregiving skills; participation in self-help; access to homecare services; and facilitation of placement for the care recipient in a long-term care unit.

Despite the Informal Caregiver Statute contemplates almost all necessary support to address the needs of Portuguese informal caregivers (Gaspar et al., 2023), obstacles hinder the effective implementation of the law in addressing these needs. Limited dissemination of support information through appropriate channels, complex and bureaucratic processes, and insufficient public service resources have impeded access to this support (Gaspar et al., 2023). Indeed, four years after the approval of the Informal Caregiver Statute in Portugal, there are only fourteen thousand individuals properly recognized as informal caregivers. The fragmented and unequal implementation of these policies has not always resulted in real improvements in caregiver support, highlighting the invisibility and undervaluation of informal caregivers despite their crucial contributions to society (EUROCARERS, 2019; Rea et al., 2010; Tranberg et al., 2021).

The factors influencing the social devaluation of informal caregivers remain largely understudied. To the best of our knowledge, only a few studies have examined the impact of stigma as a contributing factor to the lack of recognition of informal caregivers (e.g., Abojabel & Werner, 2019; Zwar et al., 2020, 2021). Given this gap in the literature, it is crucial to investigate other potential factors contributing to their devaluation. There is evidence that dehumanization reduces prosocial behaviors, concern, and even indifference toward dehumanized groups (e.g., Cuddy et al., 2007; Čehajić et al., 2009). Therefore, the second specific aim of this thesis was to build on these findings by examining whether informal caregivers are dehumanized. The findings regarding the dehumanization of informal caregivers are discussed in Chapters 5/Article 2 and 6/Article 3.

CHAPTER 2.

Dehumanization: Influential theoretical models, distinct approaches, and facilitating factors

What defines humanity? And why do some individuals see others, and sometimes even themselves, as less than human? Exploring the essence of humanity and the factors that place specific groups at opposite ends of human perception has become a focus of considerable theoretical and empirical research in social psychology since the 1970s.

Before 2000, early perspectives explored dehumanization in the context of mass violence. They portrayed it as an explicit and absolute phenomenon, involving the conscious perception or treatment of others as nonhuman (Haslam & Loughnan, 2014). This blatant dehumanization functioned as a delegitimizing belief (Bar-Tal, 1989), leading to moral exclusion (Opotow, 1990), moral disengagement (Bandura, 1999), and severe intergroup conflicts and violence, such as genocides and wars (Kelman, 1976; Staub, 1989).

Indeed, Kelman (1976) states that violent behavior, exclusion, and racial and colonial contempt are justified by the dehumanization of the victims, i.e., by denying their "identity" and "community". Staub (1989) complements this perspective by emphasizing dehumanization as a facilitator of mass murders against various groups, such as Jews, Armenians, and Cambodians. Moreover, Bar-Tal (1989) conceptualized dehumanization as a form of delegitimization, in which others are perceived as savages or monsters, thus legitimizing violent intergroup conflicts and aggressive behavior. Two other perspectives emphasize the role of dehumanization in contexts of harm that are less severe than wars and genocides. Specifically, Opotow (1990) proposed dehumanization as a mechanism of "moral exclusion" for certain groups, thereby making people indifferent to the suffering and unfair treatment of others. Bandura (1999) considers dehumanization as a manifestation of "moral disengagement", where the moral value of individuals is denied, leading to self-condemnation and empathic self-angst.

While early perspectives of dehumanization were primarily based on theoretical or qualitative research, more recent research has employed quantitative methods, such as experiments or questionnaires, to explore dehumanization in diverse everyday contexts. As a result, the concept of dehumanization has expanded from the blatant denial of humanity to encompass more subtle perceptions, i.e., unintentional dehumanizing perceptions that apply outside of the domains of violence and cruelty (Haslam, 2021; Karantzas et al., 2023). These early theories of dehumanization set the stage for the creation of new theoretical models, each with a different definition of (de)humanization and how it should be studied, expanding upon the original conception (Haslam, 2021)[4].

1. The new look at dehumanization: The most influential theoretical models

The most influential contemporary theoretical contributions to dehumanization include the Infrahumanization Theory (Leyens et al., 2001), the Dual Model of Dehumanization (Haslam, 2006), the Mind Perception Theory (Gray et al., 2007), and the Stereotype Content Model (Fiske et al., 2002). Table 2.1. presents the operationalizations of dehumanization of each theoretical model.

Table 2.1.

Theoretical Models of Dehumanization, Dimensions Associated, and Corresponding Definitions

Dehumanization model	Dimensions	Definition
Infrahumanization (Leyens et al., 2001)	Primary emotions; Secondary emotions	Dehumanization is the tendency to deny secondary (uniquely human) emotions
Dual Model of Dehumanization (Haslam, 2006)	Human uniqueness; Human nature	Dehumanization is the tendency to deny uniquely human and human nature traits
Mind Perception Theory (Gray et al., 2007)	Agency; Experience	Dehumanization is the tendency to deny agency and experience
Stereotype Content Model (Fiske et al., 2002)	Competence; Warmth	Dehumanization is the tendency to deny competence and warmth traits

1.1. Infrahumanization Theory

Leyens et al. (2000, 2001) were pioneers in analyzing subtle dehumanization. They used the term “infrahumanization” to describe this subtle denial of humanness to outgroups.

Beginning a journey to define the essence of humanity, Leyens et al. (2000) conducted a study asking participants what characteristics they considered uniquely human. They found that

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[4] For reasons of simplicity, we will use the term dehumanization to refer to the denial of humanness. All the theoretical models of dehumanization fall under this framework.

rationality, the use of language, and the capacity to experience uniquely human (secondary) emotions were considered the main attributes distinguishing humans from animals. Since morality (Crocker et al., 1998) and language (Giles & Coupland, 1991) had already been considered in intergroup discrimination and less focus had been given to the emotional aspect (Mackie & Smith, 2002), Leyens et al. (2001) decided to focus on the capacity to experience secondary (uniquely human) emotions as an essential quality of human beings. Consequently, they considered the denial of those emotions as a subtle form of dehumanization in which outgroups are considered less human and more animal-like than the ingroup.

To test the infrahumanization hypothesis, Leyens et al. (2001, 2003, 2007) conducted a series of studies. In one of those studies (Leyens et al., 2001), participants from two different regions – the Canary Islands and the Spanish mainland – which at the time were experiencing a conflictual situation, were presented with a list of secondary (uniquely human) emotions (e.g., pride and shame) and primary (non-uniquely) human emotions (e.g., fear and pleasure) (controlled for differences in desirability) and were asked to assign them to the ingroup and the outgroup. Leyens et al. (2003, 2007) consistently found that people tend to attribute more secondary (uniquely human) emotions to the ingroup than to the outgroup while usually attributing primary (non-uniquely human) emotions equally to the ingroup and the outgroup. Therefore, the infrahumanization effect reflects the tendency of the ingroup to reserve secondary (uniquely human) emotions for itself, while denying them to the outgroup (Leyens et al., 2001, 2007; Paladino et al., 2002).

In a further attempt to examine whether people could distinguish between those emotions and whether they considered secondary (uniquely human) emotions as an index of humanity, Demoulin et al. (2004) conducted a cross-cultural study. The results showed that people distinguish between these emotions: while primary (non-uniquely human) emotions (e.g., joy, sadness, anger) are universal, easily observable in others, short in duration, caused by external factors, and involve low levels of cognition and morality; secondary (uniquely human) emotions (e.g., admiration, pride, regret) are not universal, not easily observable in others, long in duration, caused by internal factors, and involve high levels cognition and morality. Moreover, Demoulin et al. (2004) implicitly showed that participants more quickly associated secondary (uniquely human) emotions with humans and non-uniquely human (primary emotions) with animals. Furthermore, they showed that some participants were reluctant to associate primary (non-uniquely human) emotions with humans.

This differential attribution of secondary (uniquely human) emotions has been observed across various intergroup contexts (e.g., Chas et al., 2015; Costello & Hodson, 2014), and even in the absence of intergroup conflict or ingroup favoritism, as people tend to associate both positive and negative secondary (uniquely human) emotions more with the ingroup than the outgroup (Cortes et al., 2005; Gaunt et al., 2002; Leyens et al., 2003, 2007). Moreover, Leyens et al. (2001) found that infrahumanization can occur regardless of the social status of the group (low or high-status). Furthermore, this phenomenon has been established in a large body of research (Leyens et al., 2003, 2007, for reviews), usually involving simple judgment tasks (e.g., attribution of emotions to groups) or implicit association methods (e.g., Paladino et al., 2002).

For example, Betancor et al. (2016), using a lexical decision task (Wittenbrink et al., 1997), found a tendency to infrahumanize individuals with Down syndrome: fewer secondary (uniquely human) emotions were attributed to individuals with Down syndrome compared to members of the ingroup (students without Down syndrome). Moreover, the faces of individuals without Down syndrome were more quickly associated with secondary (uniquely human) emotions than the faces of individuals with Down syndrome.

Furthermore, Chas et al. (2015) found that like adults, children reserve secondary (uniquely human) emotions for their ingroup and deny them to their outgroup. Specifically, using a competitive sports scenario, the authors showed that participants attributed more secondary (uniquely human) emotions to the ingroup (independent of their valence), and were reluctant to accept that the outgroup members also experienced those emotions. Furthermore, Paladino et al. (2002), using the Implicit Association Test (Greenwald et al., 1998), demonstrated that people more quickly associated the ingroup with secondary (uniquely human) emotions and the outgroup with primary (non-uniquely human) emotions, regardless of the valence of the emotions or the status of the ingroup. Boccato et al. (2007) corroborated these findings using a lexical decision task (Wittenbrink et al., 1997): reaction times were quicker when associating the ingroup with secondary (uniquely human) emotions compared to the outgroup. However, no differences were found in attributing primary (non-uniquely human) emotions to the ingroup and outgroup.

Although infrahumanization might seem subtle, it can lead to harmful consequences. Indeed, infrahumanization entails an active refusal to acknowledge the outgroup's humanity, as secondary (uniquely human) emotions attributed to the ingroup are perceived as more human than those attributed to the outgroup, despite the emotions being similar (Vaes et al., 2006). Research on infrahumanization has also shown that individuals are more likely to help and be empathic with the suffering of ingroup members than outgroup members, even when both are attributed with secondary (uniquely human) emotions (Cuddy et al., 2007; Čehajić et al., 2009; Vaes et al., 2003).

The Infrahumanization Theory (Leyens et al., 2001) was innovative in expanding the concept of dehumanization beyond intergroup conflicts, recognizing it as an everyday, pervasive, and often subtle phenomenon. However, the theory is limited in its focus, as it only focuses on the distinction between humans and animals.

1.2. Dual Model of Dehumanization

Drawing on the initial work of Leyens et al. (2000, 2001), Haslam (2006) proposed the Dual Model of Dehumanization to offer a more comprehensive view of the dehumanization phenomenon.

Departing from the prevailing notion that humanness is defined exclusively by the distinction between humans and animals (Leyens et al., 2000, 2001), Haslam (2006) proposes that humanness can also be defined in opposition to inanimate objects, such as robots and automatons. Contrary to Leyens et al. (2000, 2001) which focused on specific emotions as indicators of humanness, Haslam (2006) focuses on personality traits and conceptualizes humanness as involving two distinct senses: human uniqueness and human nature.

To empirically support the distinction between the two senses of humanness, Haslam et al. (2005, 2006) conducted a series of studies where participants were presented with a list of personality traits and were asked to categorize the traits as dimensions of human uniqueness (traits exclusively or uniquely human) or human nature (traits shared by human beings and animals).

The results showed that the human uniqueness dimension refers to traits that distinguish humans from animals (e.g., civility, moral sensibility, and rationality), as they emerge later in development, are low in prevalence, and are susceptible to cultural variation. Conversely, the human nature dimension refers to traits considered essential or typical of humans, distinguishing them from robots (e.g., emotional responsiveness, interpersonal warmth, and depth), as they emerge early in development, are considered universal, and consistent across different populations and cultures (Demoulin et al., 2004; Haslam, 2005, 2006). Moreover, Haslam et al. (2005) highlighted a lack of correlation between each sense of humanness, suggesting that the dimensions are independent and complementary.

Haslam (2006) proposed two distinct forms of dehumanization corresponding to the denial of the two senses of humanness: the denial of uniquely human traits (e.g., self-control, morality) leads to “animalistic dehumanization”, with individuals and groups being treated or perceived as similar to animals and their behavior driven by instinctual features; the denial of human nature traits (e.g., emotional responsiveness, interpersonal warmth) leads to “mechanistic dehumanization”, with individuals and groups being treated or perceived as objects or cold robots (see Figure 2.1.). Animalistic dehumanization encompasses a variety of situations, from explicitly perceiving individuals as vermin to subtler forms such as infrahumanization (Haslam, 2006) and is often discussed in the context of ethnicity, race, and immigration or genocide (Haslam & Loughnan, 2014). Mechanistic dehumanization encompasses phenomena related to the objectification of individuals and is explored in the context of technology, medicine, and sexual objectification (Haslam & Loughnan, 2014).

Extensive empirical research found evidence of the two distinct senses of humanness and related forms of dehumanization. For example, using a Go/No-go Association Task (Nosek & Banaji, 2001), Loughnan and Haslam (2007) examined implicit associations between social groups, personality traits, and two types of nonhumans (animals or automata). Specifically, they asked participants to rate some social groups (e.g., artists, children, businesspeople) on human nature and human uniqueness traits. As predicted, Loughnan and Haslam (2007) found that artists were perceived as imaginative and spirited (high human nature) but with a lack of restraint and civility (low human uniqueness). Conversely, businesspeople were perceived as rational and self-controlled (high human uniqueness) but unemotional (low human nature). Moreover, both groups were associated with the corresponding non-human type: artists were more associated with animals, and businesspeople with automata. In three cross-cultural studies, Bain et al. (2009) also showed a complementary attribution of humanness dimensions with both explicit and implicit methodologies: Australian participants denied Chinese participants human nature traits but attributed them uniquely human traits; conversely, Chinese participants denied Australian participants uniquely human traits but attributed them human nature traits. Using a Go/No-go Association Task (Nosek & Banaji, 2001), the authors found that Chinese participants were faster in associating uniquely human traits with Asians than with Australians, while Australians were faster in associating human nature traits with Australians than with Asians. Moreover, Chinese participants associated more animal-related words with Australians than with Asians, whereas Australian participants associated more robot-related words with Asians than with Australians (Bain et al., 2009).

Furthermore, more recent studies have also shown that children can associate animal-related words (Chas et al., 2018) and machine-related words (Chas et al., 2022) with the outgroup. Overall, these findings validate the distinction between the two senses of humanness and the two correspondent forms of dehumanization, as adults and children independently attribute the ingroup and outgroup uniquely human and human nature traits.

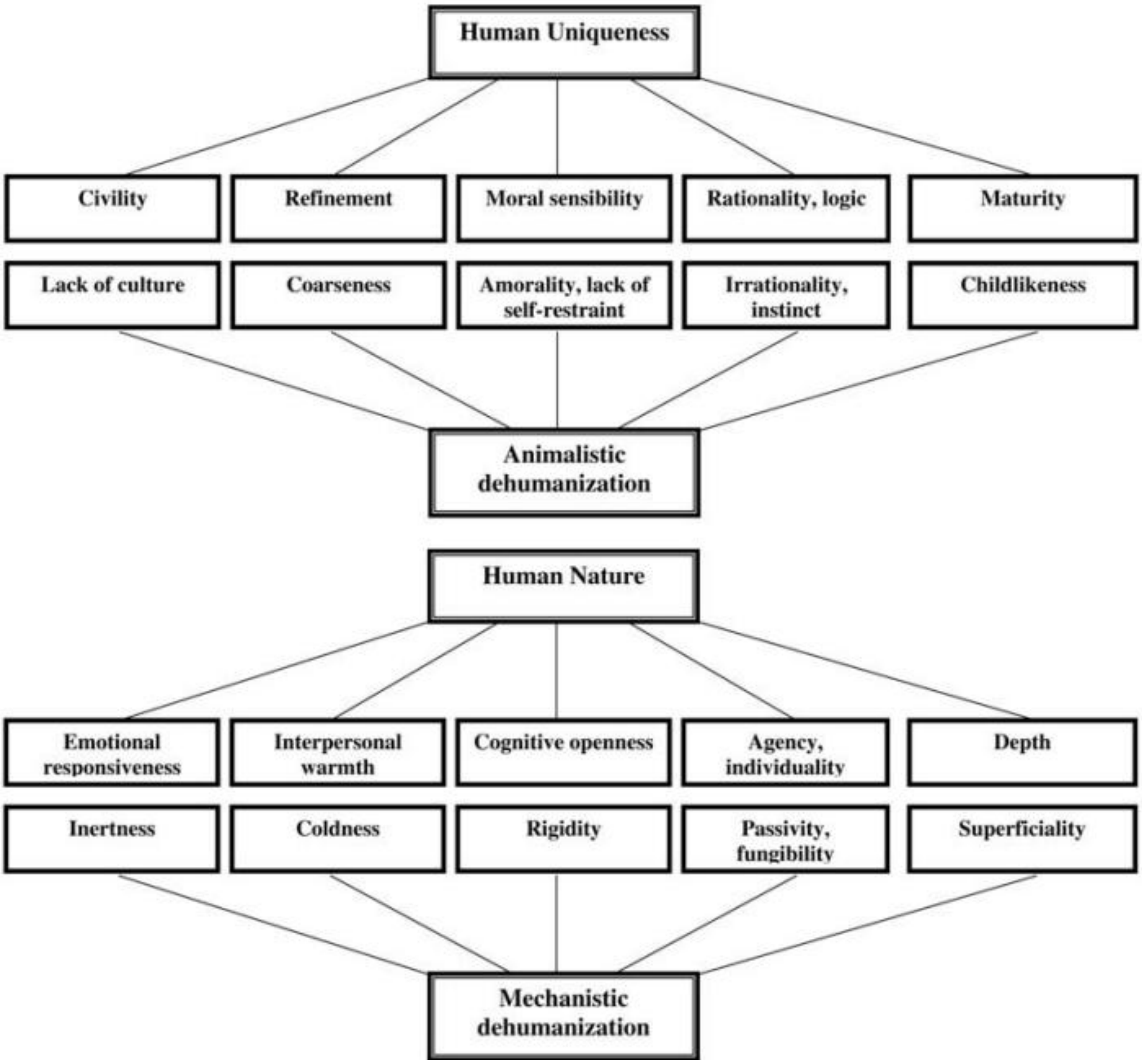

Figure 2.1. Conceptions of Humanness and Corresponding Forms of Dehumanization.
Note. From "Dehumanization: An Integrative Review" by Haslam, N., 2006, *Personality and Social Psychology Review, 10*(3), p. 257 (https://doi.org/10.1207/s15327957pspr1003_4). Copyright 2006 by Lawrence Erlbaum Associated, Inc.

The denial of both forms of humanness is related to distinct implications for intergroup and interpersonal relations. Animalistic dehumanization denotes the perceived lower status of outgroups, with members of such groups being devalued and consequently exploited for various purposes (Haslam et al., 2008; Martínez et al., 2012). Indeed, groups with disadvantaged social positions in society (e.g., low social classes, physically or mentally disabled people) (Haslam

& Loughnan, 2014) are denied equal treatment due to perceptions of their lack of maturity and rationality. In contrast, mechanistic dehumanization is related to reduced prosocial and increased antisocial behavior from others (Bastian & Haslam, 2011), and a lack of concern or indifference toward others (e.g., Felig et al., 2024; Haslam et al., 2008; Rudman & Mescher, 2012). Indeed, the objectification of women was found to predict male sexual aggression and to reduce perceptions of their suffering (Felig et al., 2024; Rudman & Mescher, 2012).

The Dual Model of Dehumanization (Haslam, 2006) contributed to a more comprehensive understanding of dehumanization in interpersonal and intergroup relations, allowing it to capture a range of severity levels, from more explicit to subtle forms of dehumanization.

1.3. Mind Perception Theory

Drawing from research on mind perception, Gray et al. (2007) introduced the Mind Perception Theory as another dehumanization approach. According to this theoretical framework, humanness and dehumanization imply attributing or denying mental capacities to others, respectively.

In an international study, Gray et al. (2007) asked participants to rate various targets (e.g., human adults and children, animals, machines, and supernatural beings) on their perceived mental capacities. Contrary to the common belief that people attribute mental capacities along a single continuum from less to more, the authors found that people perceive other minds in two dimensions: agency[5] and experience. The agency dimension includes mental capacities associated with higher cognition and morality (e.g., thinking, planning, and acting); the experience dimension refers to mental capacities associated with feelings and sensations (e.g., emotions, pain, hunger). Moreover, the findings revealed distinctions in how human adults were perceived compared to non-human entities: human adults were perceived as having more agency than animals and children, and more experience than objects. In other words, human adults were perceived as fully human because they can think and feel, unlike animals, which cannot think, and objects, which cannot feel.

Research on mind perception has shown that attributing or denying others the ability to act intentionally or to suffer has important consequences (Gray et al., 2007, 2011; 2012; Waytz et al., 2010). For example, perceiving mental states in other entities can shape human behavior to

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[5] It is important to note that the term “agency” differs between the Mind Perception Theory (Gray et al., 2007) and the Dual Model of Dehumanization (Haslam, 2006). While for Haslam (2006), agency refers to individuality or fungibility (i.e., how easily someone can be replaced), for Gray et al. (2007), agency pertains to higher-order cognitive abilities.

conform to what is socially expected (e.g., greater responsibility, greater adherence to moral codes, deterrence of dishonest behavior, promotion of altruistic acts, non-withdrawal of support of life for terminally ill patients, attribution of responsibility to machines). On the other hand, denying mental states can have harmful effects (e.g., genocide and prejudice against marginalized groups). The Mind Perception Theory (Gray et al., 2007) contributes to a broader perspective on dehumanization and reinforces the argument that it can manifest in different forms (Waytz et al., 2010).

1.4. Stereotype Content Model

Another theoretical perspective on dehumanization emerged from the Stereotype Content Model (SCM; Fiske et al., 2002), a highly influential model of social cognition. According to this theoretical framework, the social perception of individuals and social groups is based on two fundamental dimensions: warmth and competence (Fiske et al., 2002).

Warmth refers to how groups are perceived as kind, trustworthy, and friendly and it is predicted by the perceived cooperation or competition between groups, i.e., noncompetitive groups are often seen as friendly, while competitive groups tend to be viewed as cold. Conversely, competence refers to how groups are perceived as intelligent and capable of achieving their objectives, and it is predicted by the perceived status of the group, i.e., high-status groups are often seen as competent, while low-status groups are more likely to be perceived as incompetent (Fiske et al., 2002, 2007). Depending on how a group is perceived in terms of these two structural dimensions, four distinct outgroup clusters emerged (see Table 2.2.).

The four combinations of warmth and competence evoke distinct emotional reactions and behavioral intentions toward members of the group (Durante et al., 2013, 2017; Fiske & Durante, 2016). Indeed, groups stereotyped as both competent and warm (e.g., ingroup members, reference groups, middle-class) are perceived to be high-status, non-competitive, and elicit admiration and pride. Groups stereotyped as competent but cold (e.g., rich people, businesspeople, nontraditional women) are perceived to be high-status, and competitive, and elicit envy and jealousy. Groups stereotyped as incompetent but warm (e.g., older people, people with disabilities, traditional women) are perceived to be low-status, non-competitive, and elicit pity or sympathy. Groups stereotyped as neither competent nor warm (e.g., the homeless, refugees, drug addicts) are perceived to be low-status, competitive, and elicit contempt and disgust (Fiske et al., 2002). These dynamics are commonly observed in intergroup contexts and are supported by various studies in social psychology (e.g., Yzerbyt & Demoulin, 2010).

Table 2.2.

Four Types of Out-Groups, Combinations of Status and Competition, and Corresponding Forms of Prejudice as a Function of Perceived Warmth and Competence

Warmth (Friendliness, Trustworthiness)	**Competence** (Capability, Assertiveness) **Low**	 **High**
High	Paternalistic prejudice Low status, not competitive Pity, Sympathy (e.g., elderly, disabled, traditional women)	Admiration High status, not competitive Pride, admiration (e.g., ingroup, middle class, close allies)
Low	Contemptuous prejudice Low status, competitive Contempt, disgust, anger, resentment (e.g., poor, homeless, immigrants)	Envious prejudice High status, competitive Envy, jealousy (e.g., rich, professional, technical experts)

Note. From "A Model of (Often Mixed) Stereotype Content: Competence and Warmth respectively follow from perceived status and competition" by Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J., 2002, *Journal of Personality and Social Psychology, 82*(6), p. 881 (https://doi.org/10.1037//0022-3514.82.6.878). Copyright 2002 by the American Psychological Association, Inc.

Fiske et al. (2002, 2007) suggested that low competence-low warmth groups are particularly vulnerable to dehumanization. To further examine this assumption, Harris and Fiske (2006, 2011) employed social neuroscience methods to investigate the cognitive responses to social groups from the four quadrants of the SCM. Specifically, Harris and Fiske (2006, 2011) asked participants to identify the emotions – pride, envy, pity, and disgust – elicited by photographs of representatives of the members from the four social groups. The results showed that social targets evoking pride, envy, and pity activated the medial prefrontal cortex (mPFC), indicating spontaneous attributions of mental states regarding these groups. However, groups perceived as cold and incompetent, such as homeless individuals and drug addicts, failed to activate social cognition (Harris & Fiske, 2006, 2011). Instead, those groups lead to activation in the amygdala and insula, a pattern consistent with disgust, a reaction often induced by non-human entities. Therefore, Harris and Fiske (2006) suggested that the deprivation of mental states to these groups led them to be perceived as less than human and treated like objects, consistent with mechanistic dehumanization (Haslam, 2006). However, Vaes and Paladino (2010) indicated that these groups are perceived as closer to animals, aligning with the concept of animalistic dehumanization (Haslam, 2006).

Beyond the previous identification of the "lowest of the low" groups as the only dehumanized groups (e.g., Fiske et al., 2002; Harris & Fiske, 2006, 2011), more recently, Fiske (2021) has argued that the SCM is a comprehensive framework for understanding dehumanization, as distinct stereotypes elicit different forms of dehumanization. Indeed Fiske (2021) proposed that low competence-low warmth groups (e.g., homeless individuals) are often animalistically dehumanized; low competence-high warmth groups (e.g., older people) are portrayed as passive objects; high competence-low warmth groups (e.g., rich people) are likened to robots; and high competence-high warmth groups (e.g., ingroup members) are perceived as fully human.

2. Similarities and differences between the humanness dimensions proposed by the theoretical models

Numerous efforts have been made to examine the relationship between the dimensions of humanness proposed by each model of dehumanization mentioned before (Haslam, 2021).

Some researchers have identified parallels and presented persuasive evidence supporting the link between them (e.g., Chas et al., 2022; Jones-Lumby & Haslam, 2005; Loughnan & Haslam, 2007; Martínez et al., 2017). For instance, Bain et al. (2009) and Loughnan and Haslam (2007) found evidence of the relationship between stereotypical traits of warmth and competence (Fiske et al., 2002) and the human nature and human uniqueness dimensions of humanness (Haslam, 2006). Specifically, the authors found that businesspeople and Chinese people (stereotyped with low warmth but high competence) were attributed low human nature but high uniquely human traits, while artists and Australians (stereotyped with high warmth but low competence) were attributed high human nature but low uniquely human traits. Similarly, Martínez et al. (2012) showed that Germans (stereotyped with low warmth but high competence) were more associated with machine words, while gypsies (stereotyped with high warmth but low competence) were more associated with animal words. Expanding upon this, Rodríguez-Pérez et al. (2021) selected diverse outgroups as representative of the three outgroup quadrants of the Stereotype Content Model (Fiske et al., 2002), excluding the high competence-high warmth quadrant, and asked participants to rate the groups in terms of competence, warmth, human nature, and uniquely human traits. Results showed that competence had greater power in predicting human uniqueness than sociability (a component of the warmth dimension) and that sociability and human nature shared similar functions. Moreover, the dimensions of agency and experience (Gray et al., 2007) showed evident similarity to the dimensions of human uniqueness and human nature, respectively (Haslam et al., 2008). Indeed, Haslam et al. (2008) found that animals were perceived to lack agency but were perceived as having better perceptual abilities than humans. Conversely, robots were perceived to lack mental capacities and desires but were perceived as having fewer deficits in higher-level cognition.

Nevertheless, some disparities between the dimensions of humanness were also suggested, particularly between human nature, experience, and warmth (Jones-Lumby & Haslam, 2005; Paladino & Vaes, 2009). Indeed, although the warmth dimension is rooted in social interactions (e.g., friendliness) and moral aspects (e.g., sincerity) (Fiske et al., 2002), none of the studies examining the relationship between warmth and human nature (e.g., Jones-Lumby & Haslam, 2005; Loughnan & Haslam, 2007; Paladino & Vaes, 2009) considered the moral aspect of warmth (Abele et al., 2021). While in the SCM (Fiske et al., 2002), morality is considered a component of the warmth dimension, Haslam (2006) and Gray et al. (2007) classify it as a higher-order cognition more closely related to human uniqueness. Moreover, Rodríguez-Pérez et al. (2021) deepened this assumption by showing that the sociability and morality components of the warmth dimension relate differently to the two dimensions of humanness proposed by Haslam (2006): morality is a better predictor of human uniqueness, whereas sociability is a better predictor of human nature.

2.1. An integrative approach to the two dimensions of humanness

By establishing connections between the dimensions of humanness proposed by the theoretical models of dehumanization (Dual Model of Dehumanization, Mind Perception Theory, Stereotype Content Model), Li et al. (2014) proposed a comprehensive conceptualization of humanness and dehumanization.

The authors suggested integrating the theoretical models into a Mixed Model of (De)humanization that defines two fundamental dimensions of humanness: one focused on agency, competence, and uniquely human traits, and the other focused on experience, warmth, and human nature traits. Agency and competence represent an element of human uniqueness, reflecting the ability to perform complex tasks; experience and the social component of warmth represent an element of human nature, reflecting the ability to connect with others socially. The moral aspect of warmth aligns with moral sensibility in Haslam's Dual Model of Dehumanization (Haslam, 2006).

Consequently, the Mixed Model of (De)humanization posits different combinations of these dimensions, resulting in four clusters where humanness is attributed or denied in others differently (e.g., animalistic dehumanization, mechanistic dehumanization, objectification, demonization) (see Table 2.3.).

Table 2.3.

Four Combinations of Human Uniqueness (Including Agency and Competence) and Human Nature (Including Experience and Warmth), and Corresponding Forms of (De)humanization

	Human Uniqueness	
Human Nature	**High**	**Low**
High	Humanization (e.g., ingroup members)	Animalistic dehumanization (e.g., artists, disabled people, traditional women)
	Superhumanization (e.g., God, religious authorities)	
Low	Mechanistic dehumanization (e.g., businesspeople, technicians) Superhumanization (e.g., God)	Double dehumanization: - disgusted dehumanization (e.g., homeless, drug addicts) - objectification (e.g., slaves, women in pornography)
	Demonization (e.g., terrorists)	

Note. From "Toward a comprehensive taxonomy of dehumanization: Integrating two senses of humanness, mind perception theory, and stereotype content model" by Li, M., Leidner, B., & Castano, E., 2014, *TPM - Testing, Psychometrics, Methodology in Applied Psychology, 21*(3), p. 292 (https://doi.org/10.4473/TPM21.3.4). Copyright 2014 by Cises.

According to Li et al.’s (2014) model, animalistic dehumanization corresponds to perceiving others as lacking uniquely human traits, agency, and competence while attributing high levels of human nature traits, experience, and warmth to them. This results in perceiving others as simultaneously unintelligent and lacking in self-control, yet warm and imaginative. This perception aligns with the paternalistic stereotype in the Stereotype Content Model (Fiske et al., 2002), which refers to traditional portrayals of women, the elderly, or disabled individuals.

Mechanistic dehumanization corresponds to perceiving others as lacking human nature traits, warmth, and experience, but attributing high levels of uniquely human traits, agency, and competence to them. While Fiske et al. (2002) suggest that being stereotyped as competent but cold involves a vertical social comparison where groups (e.g., rich people, businesspeople, nontraditional women) are perceived as high-status, competitive, and elicit envy and jealousy, Li et al. (2014) posit that mechanistic dehumanization implies a horizontal social comparison with others, leading to indifference and alienation. Consequently, this leads to perceiving other individuals and groups as cold, rigid, and passive, yet highly competent, like objects or automatons.

Moreover, Li et al. (2014) suggest that the denial of uniquely human and human nature traits to others can lead to double dehumanization, involving extreme derogation of others (disgusted dehumanization) (e.g., drug addicts, and homeless people) or perceiving others as possessing utilities that are exploitable (objectification) (e.g., women in pornography). While Haslam’s (2006) mechanistic dehumanization shares similarities with Li et al.’s (2014) objectification, Haslam (2006) argues that mechanistic dehumanization does not necessarily imply treating others as disposable or exploitable.

At the opposite extreme of double dehumanization, some individuals and groups are perceived with high levels of uniquely human and human nature traits. This may reflect phenomena such as humanization and superhumanization, which involve the tendency to favor and admire ingroup members and religious and political leaders (Li et al., 2014).

In this thesis, the three recent theoretical models of dehumanization (Infrahumanization Theory, Leyens et al., 2001; Dual Model of Dehumanization, Haslam, 2006; Stereotype Content Model, Fiske et al., 2002) will be considered when analyzing the dehumanization of informal caregivers.

3. Attribute, metaphor, and target-based approaches to dehumanization

The study of dehumanization encompasses not only distinct theoretical perspectives, but also distinct methodological approaches, each employing different strategies to evaluate humanness and dehumanization: attribute-based, metaphor-based, and target-based approaches (Loughnan et al., 2009).

The attribute-based approach focuses on denying individuals or groups one or two senses of humanness. It includes empirical works such as the Infrahumanization Theory (Leyens et al., 2001), and the Dual Model of Dehumanization (Haslam, 2006). Specifically, researchers examine the extent to which secondary emotions, uniquely human traits, or human nature traits are attributed or denied to outgroup members. In this perspective, animalistic dehumanization occurs when others are denied secondary (uniquely human) emotions (e.g., shame, passion) or uniquely human traits (e.g., morality, civility, dishonesty); while mechanistic dehumanization occurs when others are denied human nature traits (e.g., friendly, curious).

The metaphor-based approach focuses on linking social groups with nonhuman entities, such as animals or robots. For instance, research has shown that while ingroup members were associated with human traits (e.g., civil, person), some outgroups (e.g., artists, African Americans, gypsies) were more commonly associated with animals (e.g., ape, pet) and others (e.g., businesspeople, police officers, Germans) with robots (e.g., machine, technological) (e.g., Goff et al, 2008; Loughnan & Haslam, 2007; Martínez et al., 2012; Viki et al., 2006). Loughnan et al. (2009) proposed a strong interconnection between the attribute-based and metaphor-based approaches. Specifically, when participants were presented with an outgroup associated with animals or robots, they were less likely to attribute uniquely human and human nature traits to that group, respectively. Conversely, when participants were presented with an outgroup lacking uniquely human or human nature traits, participants tended to perceive that group as more animal-like or mechanized, respectively.

The target-based approach proposed a reverse causal path compared to the attribute-based approach. Instead of focusing on human characteristics and assessing their attribution to a group, this approach involves examining the degree of humanness attributed to the characteristics of that group (Paladino & Vaes, 2009). Therefore, from this perspective not only do people tend to attribute uniquely human traits more commonly to the ingroup, but they also perceive those traits as more uniquely human compared to those of outgroups (Vaes et al., 2012). For instance, Paladino & Vaes (2009) presented Italian participants with similar human traits described as typical of the ingroup (Italians) or typical of an outgroup (e.g., Slavs, Albanians, or Belgians). Following this exposure, participants evaluated the level of humanness associated with each trait. The findings revealed that regardless of the valence or type of traits used to describe the groups, traits associated with the ingroup were rated as more human than those describing the outgroup.

4. Dehumanization and hierarchical social groups

Research has consistently demonstrated that power, status, and social class impact the perceptions of (de)humanization (e.g., Baldissarri et al., 2017; Volpato et al., 2017). Specifically, animalistic dehumanization is associated with vertical intergroup comparisons and is motivated by the desire of more privileged groups to maintain an advantage over disadvantaged groups (Haslam & Loughnan, 2014). In contrast, mechanistic dehumanization is associated with horizontal interpersonal comparisons, characterized by indifference and alienation towards mechanized groups (Haslam, 2006). Despite these distinctions, both forms of dehumanization serve to reinforce existing social hierarchies and legitimize inequalities based on social categories such as race, ethnicity, gender, or SES (Haslam et al., 2008).

In the following pages, we will explore how two specific variables – status and social class – impact dehumanizing perceptions towards individuals and groups. Although there is a relationship between these concepts, we will address the impact of each separately to better understand their specific contributions.

4.1. Status and dehumanization

Social status is a measure of where a group or individual stands in terms of their position in the service hierarchy, personal reputation, and demographic characteristics such as gender, race, and age (Blader & Chen, 2014).

The Infrahumanization Theory (Leyens et al., 2001) proposed that infrahumanization can occur regardless of group favoritism or the social status of the perceiver. Indeed, Leyens et al. (2007) suggested that ingroup members (whether high-status – Spanish mainland; or low-status – Canary Islands) differentiated themselves from the outgroup by attributing more secondary (uniquely human) emotions to themselves than to the outgroup members. However, more recent research suggests that dehumanization occurs asymmetrically, with high-status groups being more likely to dehumanize low-status groups, while the low-status groups not only not dehumanize high-status groups but also tend to humanize them compared to the ingroup (e.g., Capozza et al., 2012; Iatridis, 2013).

For instance, Capozza et al. (2012) showed that members of the high occupational-status group (Northern Italians) perceived their ingroup as more human, while the same pattern of results was not found regarding the members of the low-status group (Southern Italians). Similar results were found in the study of Iatridis (2013), which showed that high occupational-status groups (e.g., white-collar or lawyers) infrahumanized low occupational-status groups (e.g., blue-collar or shopkeepers), while the reverse pattern was not found. Moreover, low occupational-status groups tended to humanize high occupational-status groups, attributing them more secondary (uniquely human) emotions than to the ingroup.

4.1.1. The animalistic dehumanization of low-status groups

Research on animalistic dehumanization primarily focuses on low-status groups. Despite prior discussions on this topic, we aim to delve deeper into this phenomenon since the profile of informal caregivers and their work environment share similar characteristics with these dehumanized groups.

Initially examined in racial or ethnic groups such as African Americans (e.g., Goff et al., 2008), Arabs (e.g., Kteily et al., 2015), Palestinians (e.g., Nagar & Maoz, 2017), immigrants, and asylum seekers (e.g., Costello & Hodson, 2011), animalistic dehumanization has expanded to other low-status and stigmatized groups, such as disabled individuals (e.g., Betancor et al., 2016; Fontesse et al., 2021; Sitruk et al., 2023), elderly individuals (e.g., Boudjemadi et al., 2017), traditional women (e.g., Fiske et al., 2002; Tipler & Ruscher, 2019), and some occupational groups (e.g., Volpato et al., 2017).

Indeed, studies have shown that individuals with mental and developmental disabilities (e.g., Down Syndrome) are perceived as warm but incompetent (Fiske et al., 1999, 2002), associated with animals (Harris & Fiske, 2011), and attributed fewer uniquely human (secondary) emotions by both the general public and professional educators. Moreover, Boudjemadi et al. (2017), through different methodological approaches (attribute-based, metaphor-based, and target-based), found that older individuals tend to be attributed fewer uniquely human traits and emotions and are more associated with animal-related words than younger individuals. Furthermore, women in traditional roles (e.g., housewives, mothers) are typically perceived with a lack of uniquely human traits, and implicitly associated with animals and nature (e.g., Cuddy et al., 2004; Fiske et al., 2002; Morris et al., 2018; Ridgeway & Correll, 2004), which in turn, contributes to diminishing their social status compared to men, that tend to be attributed with more uniquely human traits than women (Cuddy et al., 2004; Fiske et al., 1999, 2002).

Animalistic dehumanization also extends into the professional realm. Occupational prestige serves as an indicator of an individual's social status, i.e., those in low-status jobs are often perceived as having low status themselves, while the opposite holds true for those in high-status jobs (Fujishiro et al., 2010). Previous studies have shown that "dirty" jobs – those socially deemed as physically disgusting (associated with waste, death, and disease) or morally disgusting (involving the violation of social norms or using fraudulent methods to achieve one's goal) are often associated with animalistic dehumanization and perceived as humiliating to human dignity (Valtorta, 2019, for a review). People in such jobs are often linked to animal metaphors (e.g., animals, gorillas, savage beasts) and are attributed fewer uniquely human traits (e.g., Loughnan & Haslam 2007; Valtorta et al., 2019; Volpato et al., 2017).

However, it is important to emphasize that not all "dirty" work necessarily implies low status (Terskova & Agadullina, 2019). For instance, casino managers, politicians, bankers, and lawyers are perceived as morally "dirty" and more similar to animals, yet they are considered high-status workers (e.g., Ashforth et al., 2007; Valtorta et al., 2019).

4.2. Social class and dehumanization

While research on dehumanization has predominantly focused on factors such as ethnicity, race, gender, and illness, there is a growing interest in investigating the impact of socioeconomic status (SES) on perceptions of dehumanization about different groups.

Recent research on class-based dehumanization has identified that both low and high-SES groups, situated at both extremes of the social ladder, are dehumanized in different ways: low-SES groups are usually animalistically dehumanized, whereas high-SES groups are usually mechanistically dehumanized (e.g., Durante et al., 2017; Loughnan et al., 2014; Sainz et al., 2019).

Indeed, in three correlational studies, Loughnan et al. (2014) found that low-SES groups and some animals (e.g., apes, and dogs) were perceived as sharing similar personality traits, regardless of participants' SES. Building upon these findings, Sainz et al. (2018) conducted three experimental studies to analyze the animalistic and mechanistic dehumanization of low and high-SES groups, respectively. In the first study, Sainz et al. (2018) manipulated the SES of two fictitious groups (low-SES *vs.* high-SES) and measured the attribution of humanness to them using different measures. They found that the low-SES group was animalized, in contrast to the high-SES group, which was mechanized. In the second study, Sainz et al. (2018) reversed the experimental design by manipulating the humanness attributed to two groups (animals or machines) and measured the perceived SES of those groups. The results showed that while the group described as animals was attributed to a lower SES, the group described as machines was attributed to a higher SES. In the third study, using the Implicit Association Test (Greenwald et al., 1998), Sainz et al. (2018) replicated the results of the previous studies by showing that low-SES groups were associated more with animal-related words, while high-SES groups were associated more with machine-related words.

Furthermore, dehumanization based on social class also occurs within the healthcare sector (e.g., Diniz et al., 2020; Summers et al., 2021). Indeed, Diniz et al. (2020) showed how nurses' perceptions of patients' SES influenced different dehumanizing inferences about their pain and diverse treatment recommendations. The findings revealed that, while middle-SES patients were attributed uniquely human and human nature traits, positive prospects, and competence to self-manage pain, low-SES patients were attributed human nature traits but denied uniquely human traits, agency, and competence to manage pain. Related to this, Summers et al. (2021) found that lower-SES individuals are perceived to experience less pain compared to higher-SES individuals, which contributes to the perception that lower-SES individuals require less pain treatment.

Moreover, Sainz et al. (2020) highlighted how people's SES impacts the perception of being dehumanized by others (i.e., meta-dehumanization) and its effect on psychological health. Specifically, Sainz et al. (2020) argued that while both low and high-SES groups are dehumanized, only low-SES groups tend to internalize these perceptions, leading to adverse effects on their psychological health.

The animalistic dehumanization of low-SES groups serves to justify income inequality (e.g., poverty seen as a natural consequence) and results in indifference and blame toward them (Waytz & Schroeder, 2014); while mechanistic dehumanization of high-SES groups may influence how wealth is legitimized (e.g., they work hard) or even elicit some attitudes about income redistribution (e.g., advocating for higher taxation) (Sainz & Jiménez-Moya, 2023).

The studies discussed in this chapter highlight how gender and SES impact people's perceptions of others' humanity. Traditional women and low-SES groups are often animalistically dehumanized, while men and high-SES groups are mechanistically dehumanized (Sainz et al., 2020). Given the similarities between the profile and work environment of informal caregivers (e.g., unpaid work, predominantly undertaken by women with low-SES, and involving the care of disabled individuals), the third specific aim of this thesis was to experimentally examine the impact of informal caregivers' gender and SES on their dehumanization effect (see Chapter 5/Article 2 and Chapter 6/Article 3).

Furthermore, considering the demanding nature of informal caregiving, which is closely associated with suffering, we aim to extend our investigation beyond the factors directly related to informal caregivers to examine observers' intra-individual factors, such as justice perceptions. Recent studies have shown that the dehumanization of individuals is deeply rooted in specific psychological processes, such as the Belief in a Just World (DeVaul-Fetters, 2014; Gillmor et al., 2014; Lerner, 1980). Understanding how these observers' justice perceptions influence the dehumanization of informal caregivers is crucial for a deeper understanding of the phenomenon. This argument is further explored in Chapters 3 and 5/Article 2.

CHAPTER 3.

Belief in a Just World: Secondary victimization, perceptions of suffering, and dehumanization of victims

1. Secondary victimization: The origin of the Belief in a Just World Theory

Throughout our lives, we often see or become aware of our own or others' severe, unpredictable, and undeserved misfortunes across various domains, such as health, social interactions, and professional life (Correia, 2001, for a review).

When observers are exposed to injustices, they may offer support to the victim. However, when they cannot personally restore justice (e.g., Lerner & Simmons, 1966), they may restore justice cognitively by changing their perceptions of the situation. This may lead to one or more forms of negative reaction toward the victim (Montada, 1994), which is frequently named secondary victimization (Brickman et al., 1982).

The phenomenon of secondary victimization (Brickman et al., 1982) occurs when innocent victims beyond experiencing the negative consequences of the initial event that victimized them (primary victimization; Brickman et al., 1982), also experience additional victimization due to the negative consequences caused by the social acceptance of their suffering.

Secondary victimization is a pervasive yet very detrimental phenomenon, given that it contributes to increasing the suffering of innocent victims through various concurrent forms, including minimizing and denying the perception of victims' suffering, blaming victims for events beyond their control, avoiding interaction with victims, and devaluing victims (e.g., Correia, 2001; Hafer & Bègue, 2005). It occurs across diverse situations of victimization, such as when victims of sexual assault are asked about their clothing choices or alcohol consumption instead of being supported (e.g., Felson & Palmore, 2018); when victims of domestic violence are suggested to provoke the situation (e.g., Gracia et al., 2009); when victims of natural disasters (e.g., Hurricane Katrina) are perceived as responsible for their misfortune (e.g., Napier et al., 2006); or when bereaved parents are avoided after a child's funeral (e.g., Rosenblatt, 2000).

2. Belief in a just world: A fundamental delusion

The belief in a just world theory (Lerner, 1980) represents a fundamental contribution to the understanding of the surprising and seemingly paradoxical phenomenon of secondary victimization. This theory originated from Lerner's observations in the mid-1960s when he worked as a clinical psychologist with students in a medical college. He noticed that doctors tended to devalue and blame mentally ill patients for their difficulties and that college students tended to blame the poor without considering the social factors contributing to their poverty.

Just-world theory asserts that people are motivated to perceive the world as predictable and fair (Lerner, 1980), i.e., people are motivated to perceive the world as a just place where everyone receives what they deserve. Consequently, the theory posits a motivation to perceive inequalities as legitimate (Volpato et al., 2017), placing responsibility on the victim, i.e., implying that there are no innocent victims (Correia et al., 2018; Lerner, 1977, 1980).

To maintain the illusion of stability, people act to defend their BJW through rational and irrational mechanisms to restore justice (Hafer & Begue, 2005). Rational mechanisms involve acknowledging injustice and, whenever possible, a proactive effort to restore behaviorally (e.g., compensating victims and/or penalizing perpetrators). Irrational or defensive mechanisms involve restoring justice cognitively by changing their perceptions of the situation through one or more forms of secondary victimization in such a way that it appears just, thus maintaining the idea of a meaningful world.

The BJW and the motivation to restore it serve as a common, functional, and adaptive phenomenon (Dalbert, 2001) that gives people confidence that no unjust events will happen to them, even when they face injustices. Therefore, Lerner (1980) considers that the behaviors associated with secondary victimization are essential, as they give people a sense of confidence in the future, ensure their health and well-being, and empower them to invest in future goals (Hafer & Rubel, 2015; Lerner, 1980, for reviews). However, this belief also legitimizes and worsens the situation in which victims find themselves, impeding the crucial social support necessary for their physical and psychological well-being (Cohen & Wills, 1985; Ross et al., 1999).

2.1. The development of the personal contract

The adaptive value of perceiving events as just is proposed to be universal (Bartholomaeus et al., 2023; Lerner, 1980). As a result, despite being formed during early childhood through cognitive development, societal and cultural values, and personal experiences (Rubin & Peplau, 1975), BJW persists into adulthood, although with potential variations among individuals and situations (Lerner, 1980).

Lerner (1971) suggests that the BJW develops as a child transition from living according to the "pleasure principle" to living according to the "reality principle" (Freud, 1920). This principle leads the child to be able to give up an immediate reward to obtain, presumably, a greater reward at a later moment (e.g., wealth, status). When an individual engages in this delay of gratification, they believe that the world is just, to the extent that the costs and investments of that individual will translate into the expected outcome. Therefore, it is the belief in a just world that maintains the "personal contract" with oneself and the surrounding world (Lerner, 1971). This contract becomes a guiding principle in the lives of most people as those who believe in a just world expect to be rewarded for their actions and tend to behave according to established and shared rules of conduct and provides a trust that others will do the same (Dalbert, 2001).

3. The belief in a just world as a personal disposition

Over the past five decades, researchers have studied the BJW in a wide range of contexts, leading to the emergence of two distinct lines of research. One focused on experimental literature investigating peoples' responses when their just world is threatened (Hafer & Bègue, 2005, for review). The other focused on correlational literature examining the effects of individual differences in BJW (Dalbert & Donat, 2015; Furnham 2003; Hafer & Sutton, 2016, for review).

In experimental studies, inspired by Lerner's research (Lerner & Simmons, 1966), participants had their BJW threatened by inducing situations with different degrees of primary victimization. Subsequently, researchers measured the extent of secondary victimization.

Although Lerner (1971) described all people's general tendency to believe in a just world, Rubin and Peplau (1973, 1975) observed that not all participants in the traditional innocent victim experiment (Lerner & Simmons, 1966) reacted by degrading the victim. Instead, they concluded that stable individual differences in BJW exist with people varying in the extent to which they think the world is, in fact, just (Rubin & Peplau, 1975). This research led to the development of the first self-report measure of individual differences in the BJW, referred to as the Just World Scale (Rubin & Peplau, 1973, 1975).

The development of this scale resulted in the realization of several correlational studies allowing researchers to measure the association between an individual's BJW and the degree of secondary victimization (Dalbert & Donat, 2015; Hafer & Sutton, 2016). Most of these studies have shown that more extreme instances of injustice pose a greater threat to BJW, motivating stronger efforts to restore it (Hafer & Bègue, 2005, for a review). Indeed, individuals are more likely to engage in secondary victimization when faced with an innocent victim whose suffering persists (e.g., Correia & Vala, 2003) and when they share a common identity with the victim (e.g., Correia et al., 2018).

Another line of research has expanded its focus to examine the association between BJW and sociodemographic factors (e.g., gender, age, social status), ideological factors (e.g., religiosity, political orientation), and psychological factors (e.g., psychological well-being). Contradictory results emerged regarding gender, age, and social status. However, a consistent pattern was observed in the case of political orientation and religiosity, where participants with higher BJW were described to have higher levels of religiosity and a right-wing political orientation (e.g., Dalbert et al., 2001; Sorrentino & Hardy, 1974).

Regarding psychological factors, studies found positive associations between higher BJW and different measures of well-being across ages, countries, and sample types. As previously mentioned, and in line with the predictions of the theory (Lerner, 1980), BJW has been recognized as a crucial personal resource (Dalbert, 2001) promoting well-being in various aspects, including life satisfaction, optimism, and self-esteem (Correia et al., 2009, 2023; Dalbert, 2001; Hafer & Bègue, 2005), among both victimized individuals (e.g., Kiecolt-Glaser & Williams, 1987) and non-victimized individuals (e.g., Dalbert, 1999).

For instance, studies involving individuals not facing distress and uncertainty revealed an association between higher BJW and high life satisfaction in Portuguese children (Correia & Dalbert, 2007), high levels of well-being in Russian university students (Nartova-Bochaver et al., 2019), and low levels of depressive symptoms in Indian adolescents (Kamble & Dalbert, 2012). Furthermore, online MTurk studies with diverse groups of adults demonstrated a consistent association between BJW and well-being (Hafer et al., 2020). Moreover, Nudelman et al. (2021) recently highlighted the protective role of BJW on individuals' well-being, particularly during the challenging times of the COVID-19 pandemic.

Regarding studies involving victimized individuals, higher BJW was associated with less negative affect experienced by teachers subjected to violence (Dzuka & Dalbert, 2007), lower turnover intentions for employees following workplace bullying incidents (Öcel & Aydin, 2012), fewer negative life events and self-injury (Gu et al., 2021), as well as less discrimination and depression (Sadiq & Bashir, 2015). Even in extreme events, such as the loss of family members and friends in an earthquake, individuals with higher BJW reported low levels of anxiety compared to those who had not experienced such adversities (Xie et al., 2011).

3.1. Belief in a just world for self and others

This literature, which explores individual differences in the BJW, represents a significant step in the development of the bi-dimensional model that distinguishes two forms of the BJW as distinct constructs: the belief in a just world for the self (BJW-self; Lipkus et al., 1996) and the belief in a just world for others (BJW general; Dalbert, 1999). While personal BJW reflects the belief that, overall, events in one's own life are just, general BJW reflects the belief that, basically, the world is a just place.

Research has shown that the two forms of BJW lead to different outcomes (Bartholomaeus & Strelan, 2019, Goodwin & Williams, 2023, for a review). Specifically, personal BJW is associated with positive personal outcomes, such as better subjective well-being (e.g., Correia & Dalbert, 2007), higher life satisfaction (e.g., Correia & Dalbert, 2007; Sutton et al., 2017; Sutton & Douglas, 2005), greater ability to cope with difficult life circumstances (e.g., Dalbert & Donat, 2015), and increased prosocial behavior (e.g., Bègue, 2014). On the other hand, general BJW is more strongly associated with negative reactions to victims, including victim blaming, discrimination, harsh social attitudes, and punitive actions (Bartholomaeus & Strelan, 2019, for review).

4. Perceptions of suffering, dehumanization of victims, and the just world belief

The intricate connection between negative reactions to victims and dehumanization has been a subject of research for decades. Beyond the evidence mentioned in Chapter 2 demonstrating that the dehumanization of others significantly contributes to their suffering (Bandura, 1999; Bar-Tal, 1989; Viki et al., 2012), research also reveals that dehumanization can follow experiences of suffering.

Indeed, recent studies suggest that when confronted with the unjustified suffering of others, individuals tend to dehumanize victims of such suffering (Bastian et al., 2013; Bastian & Haslam, 2010; Fousiani et al., 2020; Sakalaki et al., 2017). Support for the dehumanization of victims by observers is particularly evident among those facing challenging life conditions such as illnesses (e.g., Vaes & Muratore, 2013), social distress, ostracism, bullying (e.g., Bastian & Haslam, 2010; Fousiani et al., 2020), low-status (e.g., Harris & Fiske, 2006), mental illness (e.g., Fontesse et al., 2021; Martinez et al., 2011; Svoli et al., 2018; Trifiletti et al., 2014), lower SES (e.g., Loughnan et al., 2014; Sainz et al., 2018, 2019), and victims of natural disasters (e.g., Andrighetto et al., 2014; Cuddy et al., 2007).

For example, Sakalaki et al.'s (2017) work illustrates how experiences of suffering, such as familial and economic difficulties, unemployment, and mental disorders, lead observers to perceive those facing these challenging life conditions, including the self, as less than human. Moreover, Fousiani et al. (2020), across two experiments, also showed that the confrontation with the suffering of bullying victims resulted in double dehumanization, i.e., denying victims both uniquely human and human nature characteristics. Furthermore, the study by Kozak et al. (2006) found that people attribute fewer mental states to targets portrayed as victims of unfortunate and difficult circumstances, compared to individuals not portrayed as victims of such circumstances.

Given that the simple observation of someone's vulnerability and suffering, such as being ignored and excluded, induces similar levels of negative affect and psychological stress in the observer (Wesselmann et al., 2009), dehumanization of others is suggested to serve as a secondary victimization strategy that helps individuals to avoid emotional exhaustion and overwhelm when faced with distressing experiences (Bastian et al., 2013; Benbow et al., 2022; Cameron et al., 2016; Capozza et al., 2016; Fousiani et al., 2019; Nagar & Maoz, 2017).

Indeed, Vaes and Muratore (2013), Trifiletti et al. (2014), and Cameron et al. (2016) show that defensive dehumanization is a strategy that observers use to cope with the stress induced by others' suffering. For instance, Vaes and Muratore (2013) and Trifiletti et al. (2014) found that healthcare professionals attributing uniquely human emotions to fictitious suffering patients experienced more stress and burnout symptoms, especially those with higher direct contact and affective commitment to patients. Moreover, a recent study by Cameron et al. (2016) showed that individuals motivated to avoid emotional exhaustion by helping drug addicts are more likely to dehumanize them.

Taken together, these studies suggest that perceiving victims as less than human is considered crucial for the well-being of observers (e.g., Vaes & Muratore, 2013), and for the proper functioning of society (Bastian et al., 2014). However, this perception worsens the situation in which victims find themselves, as it is associated with reduced helping behavior (e.g., Andrighetto et al., 2014; Cuddy et al., 2007) and indifference toward the victims' suffering (e.g., Čehajić et al., 2009; Nagar & Maoz, 2017). The study conducted by Cuddy et al. (2007) on victims of Hurricane Katrina elucidates this phenomenon. They observed that intentions to volunteer time to help victims were influenced by the reluctance of both White and Black Americans to attribute uniquely human emotions to outgroup members. Similar outcomes were observed in the study of Andrighetto et al. (2014) involving earthquake victims, indicating that dehumanizing perceptions of the victims explained the observers' reluctance to offer support.

The study of Felig et al. (2024) showed that perceiving a woman victim of domestic violence as an object (i.e., when she was mechanistically dehumanized) led to a decrease in the perceived suffering of the woman and the severity of the recommended punishment for the perpetrator. Moreover, the study conducted by Villar et al. (2018) revealed that children also attribute a lower capacity to experience social pain to dehumanized individuals.

This reduced empathy for the suffering of dehumanized individuals not only correlates with a lack of prosocial behavior towards victims (e.g., Andriguetto et al., 2014; Cuddy et al., 2007) but also leads to adverse outcomes in other domains. These include bias in treatment recommendations (e.g., Diniz et al., 2020, 2022), dynamics within patient-nurse relationships (e.g., Diniz et al., 2022; Haque & Waytz, 2012), impacts on the health and well-being of victims (e.g., Benbow et al., 2022), and their inclusion in society (e.g., Costello & Hodson, 2011).

Based on the previous evidence, we believe that the dehumanization of victims functions as a secondary victimization strategy, allowing observers to restore their sense of justice. Indeed, Lerner (1980) argued that "In some cases we try to help the victim and eliminate the suffering, but even while doing that we may change our view of the victim, either to eliminate our awareness of his suffering, or to persuade ourselves that he really is not suffering at all, or that he is the kind of person who brings suffering upon himself, or that he is somewhat less than human." (Lerner, 1980, p. 6). Although Lerner (1980) may not have intentionally used the term "he is somewhat less than human" to express the concept of "dehumanization", especially given that the term was not widely recognized at that time, the phenomenon of dehumanization towards victims is indeed deeply rooted in specific psychological processes, such as the Belief in a Just World.

As previously discussed, extensive research has focused on how observers' BJW correlates to different forms of secondary victimization. However, only a few studies have attempted to investigate how observers' BJW is correlated to the dehumanization of victims. This includes the studies of Abreu (2018) on bullying victims, DeVaul-Fetters (2014) on refugee claimants, and Gillmor et al. (2014) on assault victims.

The research by Abreu (2018) revealed a significant and negative association between the dehumanization of bullying victims and the teachers' levels of burnout, i.e., the more teachers dehumanized bullying victims, the less likely they were to experience burnout. Moreover, DeVaul-Fetters (2014) showed that across multiple strategies employed to cope with just world threats, the dehumanization of refugees emerged as one of these strategies. Specifically, individuals with a higher BJW dehumanized the refugees more than individuals with a lower BJW. In a related study, Gillmor et al. (2014) found that victims perceived as being sexually promiscuous (i.e., perceived as having responsibility for their victimization) were more likely to be dehumanized than those perceived as sexually conservative (i.e., perceived as not having responsibility for their victimization). Moreover, the authors suggested a correlation between observers' BJW and the tendency to dehumanize those victims, i.e., observers with a higher BJW were particularly likely to infrahumanize promiscuous victims. Considering the demanding nature of informal caregiving, which is closely associated with suffering, we aim to analyze the predictive impact of BJW and the dehumanization of informal caregivers on the perception of informal caregivers' suffering.

Based on this research linking dehumanization and BJW (e.g., DeVaul-Fetters, 2014; Gillmor et al., 2014), we propose that informal caregivers are likely to be dehumanized, especially among observers with higher BJW. Moreover, as dehumanization serves as an underlying process in the relationship between observers' BJW and the minimization of the perception of others' suffering, we propose that the animalistic dehumanization of informal caregivers and the consequent minimization of their perceived suffering will be a defensive mechanism used by observers with higher BJW to cope with the acknowledgment of informal caregivers' difficulties. These relationships are discussed in Chapter 5/Article 2.

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SECTION II.

Empirical Studies

CHAPTER 4.

Psychosocial risk factors in informal caregivers: A study with the Copenhagen Psychosocial Questionnaire

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Romão, Â., & Correia, I. Psychosocial risk factors in informal caregivers: A study with the Copenhagen Psychosocial Questionnaire.

1. Abstract

Caring for a dependent person involves multiple and complex responsibilities, unpredictability, and exposure to suffering, pain, and traumatic events. This exposure increases the risk of informal caregivers developing psychological and physical health problems. Despite extensive research on a wide range of determinants affecting the health and well-being of informal caregivers, no studies to date have analyzed the impact of work-related psychosocial factors. This study aimed to identify the work-related psychosocial factors in a sample of 178 Portuguese informal caregivers ($M_{\text{age}} = 52.79$; $SD = 11.19$), during the COVID-19 pandemic. Furthermore, we aimed to test the unique impact of these factors on the health and well-being of informal caregivers. The Portuguese medium version of the Copenhagen Psychosocial Questionnaire II (COPSOQ II) assessed the perceived psychosocial risks among informal caregivers. Our results revealed that informal caregivers identify a highly demanding work environment coupled with limited exposure to protective factors. Moreover, our results showed that, when considered together, only a few work-related psychosocial factors had a unique impact on the health and well-being of informal caregivers: work demands as risk factors; and predictability, role clarity, and trustworthy relationship with the Portuguese State as protective factors. Decreasing risk factors and strengthening protective factors are crucial for preventing and promoting the health and well-being of informal caregivers and ensuring the quality of care they provide.

Keywords: COPSOQ, COVID-19 pandemic, health and well-being; informal caregivers, psychosocial factors

2. Introduction

Significant socio-demographic changes are occurring across the world, marked by an increase in average life expectancy and a higher prevalence of chronic diseases and disabilities (Lindt et al., 2020; Schulz et al., 2020). Approximately 727 million individuals worldwide (9.3%) are aged 65 or older (United Nations Department of Economic and Social Affairs, Population Division, 2020), while around 1.3 billion people (16%) live with some form of disability (International Labour Organization, 2015). In Portugal, the proportion of individuals aged 65 and over is expected to grow from 23.7% in 2022 to 40% by 2050 (OECD, 2017).

These trends in population aging, coupled with changes over recent decades in healthcare and social support systems (e.g., growing emphasis on non-institutional care, challenges tied to accessing and affording formal care), as well as changes in social structures (e.g., higher female workforce participation, increased single-person households), have contributed to an increased demand for informal care (Lindt et al., 2020; OECD, 2017; Schulz et al., 2020; Teixeira, et al., 2020).

Informal caregivers are individuals who assist with activities of daily living (e.g., personal hygiene, eating, and dressing) as well as instrumental activities of daily living (e.g., housework, mobility, and meal preparation), for individuals with a chronic illness or disability, without receiving training or monetary compensation (Hoffmann & Rodrigues, 2010; Schulz et al., 2020). They are predominantly women, middle-aged individuals, unemployed or domestic workers, and individuals with low education and low socioeconomic status (SES) (Esplen, 2009; OECD, 2017; Poole & Isaacs, 1997).

In Portugal, it is estimated that about 1 million people (10% of the population) assume the role of informal caregivers (Gaspar et al., 2023). Most of them are spouses or unmarried partners, relatives, or kin up to the 4th degree in the care recipient's direct or collateral line (e.g., children, grandchildren, siblings, parents, grandparents, or cousins) (Gaspar et al., 2023).

Providing informal care can be a burdensome experience, causing personal, professional, financial, and social challenges that negatively impact the caregivers' health, well-being, and quality of life (Bom et al., 2019; Lindt et al., 2020; Pinquart & Sörensen, 2003; Schulz et al., 2020). Indeed, numerous systematic reviews and meta-analyses have shown that informal caregivers, compared to non-caregivers, often tend to experience worse physical and psychological health outcomes, such as higher levels of anxiety, stress, depressive symptoms (e.g., Barbosa et al., 2020; del-Pino-Casado et al., 2017), and burnout (e.g., Gérain & Zech, 2019, 2020). Furthermore, being an informal caregiver is associated with financial problems (e.g., Gardiner et al., 2020), social isolation, and compromised interpersonal relationships (e.g., Hajek et al., 2021; Lee et al., 2022).

Extensive research has identified several risk factors associated with informal caregivers' health and well-being (Schulz et al., 2020, for a review). These factors include being female (e.g., Teixeira, et al., 2020), being older (e.g., Gaspar et al., 2023; Metzelthin et al., 2017), being married (e.g., Bom et al., 2019), having lower SES and lower education (e.g., Brandt et al., 2022), being a spouse of the care recipient (e.g., Cuijpers & Stam, 2000), and cohabiting with him (e.g., Barbosa et al., 2020). Additionally, factors such as providing intensive daily care (e.g., Chan et al., 2023; Lindt et al., 2020; Teixeira, et al., 2020), caring for individuals with Alzheimer's disease (e.g., Clipp & George, 1993), having multiple roles (e.g., DePasquale et al., 2018), perceiving a lack of choice in becoming a caregiver (e.g., del-Pino-Casado et al., 2017), and having a greater sense of unfairness (e.g., Mohammadi et al., 2017), also have been identified. Conversely, recent evidence highlights that working while providing care (e.g., EUROCARERS, 2015), perceiving higher social support and social relationships (e.g., del-Pino-Casado et al., 2018, 2022; Gaspar et al., 2023), a strong sense of community (e.g., Maytles et al., 2020), and caregiving competence (e.g., Chan et al., 2023), plays a pivotal role as protective factors for the health and well-being of informal caregivers.

While prior research has investigated the impact of a wide range of determinants on the health and well-being of informal caregivers, particularly through a measure developed by Zarit et al. (1980), no published research to date has examined the influence of work-related psychosocial risk factors on informal caregivers' burnout, general health, or stress symptoms.

2.1. Work-related psychosocial risk factors

Work-related psychosocial risk factors refer to organizational and psychosocial aspects within workplaces that can lead to maladaptation, tension, or psychophysiological stress responses, negatively affecting workers' health and the flow of work (e.g., decreased work capacity, less dedication to work, low productivity and/or unsafe work practices; Davison et al., 2019; Wolf et al., 2018).

Given their pivotal role in workplace dynamics, work-related psychosocial risk factors have been the object of considerable research in certain sectors, including education, social work, and healthcare (e.g., Diehl et al., 2021; Goetz et al., 2015; Pereira et al., 2022). Healthcare and long-term care workers, in particular, are the most exposed to occupational risks (Serrano et al., 2022, for a review). Indeed, there has been an increasing awareness that the specific demands inherent to healthcare provision introduce further challenges. These professionals are at the front line of response to patients, confronting specific tasks that entail direct exposure to responsibilities, high levels of vigilance, unpredictable and often uncontrollable events, critical situations on a daily basis, demanding shifts, continuous exposure to physical, chemical, and biological risks, as well as human suffering and mortality (e.g., Ilić et al., 2017; Rahman et al., 2017). Consequently, high quantitative, cognitive, and emotional demands, work-family conflict, job insecurity, lack of job control, low job rewards and recognition, and low social support have been identified as risk factors (Pereira et al., 2022; Serrano et al., 2022).

Informal caregivers also play a central role in the global healthcare system (Gaspar et al., 2022, 2023; Teixeira, et al., 2020). In addition to sharing many common work attributes with healthcare workers, informal caregivers are confronted with instability, and a lack of regulatory and social protection, remuneration, and formal training in their work environment (Gaspar et al., 2023). For instance, in 2019, Portugal through Law No. 100/2019 established the Informal Caregiver Statute (Gaspar et al., 2023) to provide the necessary support to informal caregivers regarding their social recognition, access to healthcare, training, information, rest measures, and integration into the labor market. Nonetheless, most informal caregivers do not receive this support (Gaspar et al., 2023; Henriques et al., 2022). Working within such a challenging psychosocial work environment can result in several negative health consequences for informal caregivers, potentially impacting their performance and the quality of care they provide.

Furthermore, the emergence of the COVID-19 pandemic along with associated lockdown measures not only greatly disrupted the healthcare systems (Gaspar et al., 2021; Serrano et al., 2022), but also exacerbated the difficulties experienced by informal caregivers, impacting their physical and emotional health (e.g., Bergmann & Wagner, 2021; Gaspar et al., 2023; Henriques et al., 2022). Indeed, recent literature reveals that informal caregivers, compared to non-caregivers, were described as one of the groups most affected by the pandemic and its restrictions, including heightened psychological distress, and physical symptoms, such as headaches or fatigue (e.g., Bergmann & Wagner, 2021; Gaspar et al., 2023; Park, 2021).

2.2. The present research

Building upon the mentioned above, this study aims to identify the work-related psychosocial factors in a sample of Portuguese informal caregivers and their impact on their health, during the COVID-19 pandemic period. The work-related psychosocial factors will be assessed using the COPSOQ II questionnaire, a suitable and multidimensional instrument for use in workplaces of any size and sector (Silva et al., 2012). This research is the pioneering step towards comprehensively characterizing work-related psychosocial factors outside the formal occupational environment within the Portuguese context and employing the COPSOQ II. Furthermore, our research aims to test the unique impact of risk and protective psychosocial work factors and individual variables on the health and well-being of informal caregivers. Most studies have focused on a limited set of potential predictors of the mental and physical health of informal caregivers. Therefore, considering all the factors simultaneously in the same study will make it possible that their significance diminishes when other potential predictors are considered. Consequently, this comprehensive perspective will allow us to identify the most impactful factors, which in turn, can help in designing effective interventions that support informal caregivers, thereby promoting the improvement of their psychological and physical health.

3. Method

3.1. Study design and participants

This is a cross-sectional, quantitative study, with a convenience sample of 178 informal caregivers (85.4% female; aged between 23 and 86 years old, M_{age} = 52.79, SD = 11.19). The inclusion criteria were participants of both sexes and residents in Portugal who provided care to dependent individuals at the time of the study. Table 4.1. presents a socio-demographic description of the sample.

Table 4.1.

Socio-demographic Characteristics of Participants and Care Recipients

	Informal caregivers (N = 178)	**Care recipients (N = 230)**
Sex (%)		
Male	14.6	39.1
Female	85.4	60.9
Age (M/SD)	52.79 (11.19)	70.39 (25.33)
≤ 18 (%)		8.7
18-30 (%)	2.8	5.7
31-44 (%)	19.7	3.0
45-54 (%)	30.3	1.3
55-64 (%)	36.0	4.3
65-74 (%)	7.3	9.1
75-84 (%)	3.4	31.7
≥ 85 (%)	0.6	36.1
Area of residence (%)		
North	21.9	
Centre	19.1	
South	18.0	
Metropolitan area Lisbon	26.4	
Metropolitan area Oporto	11.2	
Azores/Madeira Island	3.4	

Table 4.1.

(Continued)

Education level (%)	
Primary school	19.1
High school	42.1
Bachelor’s degree	30.4
Master’s degree	7.3
Doctoral degree	1.1
Marital status (%)	
Single	20.2
Married/Consensual union	57.9
Separated/Divorced/Widowed	21.9
Income (%)	
Very difficult to live with their current income	29.2
Difficult to live with their current income	39.3
Their current income is enough to live	26.4
Their current income allows to live comfortably	5.1
Religiosity (M/SD)	3.08 (1.11)
Occupation (%)	
Employed	41.0
Nonworking	59.0
Number of care recipients (%)	
1 dependent	75.3
2 dependents	20.2
> 2 dependents	4.5
Care duration (%)	
< 10 years	64.6
10-20 years	25.8
> 20 years	9.6
Care hours per day (M/SD)	15.94 (7.83)
Relationship to care recipient (%)	
Spouse	13.9
Child	15.2
Sibling	1.7
Parent	57.8
Others	11.3
Co-residence (%)	
Yes	86%
No	14%
Receiving formal support (%)	
Yes	15.2
No	84.8
Impact of COVID-19 pandemic on functions (%)	
Have improved	0.6
Remained the same	60.7
Got worse	38.8

3.2. Measures

Socio-demographic variables. A socio-demographic questionnaire developed by the researchers was designed to collect information on the informal caregiver’s socio-demographic characteristics (e.g., gender, age, education level, income, and religiosity), as well as information about the care recipient (e.g., gender, age, and degree of kinship/relationship) and the care provision (e.g., number of care recipients and care hours per day). Specifically, income was measured with an item adapted from the European Social Survey (2018): "Which of the following descriptions is closest to your current income?", with a 4-statement response scale: 1 = "*It is very difficult to live with my current income*"; 2 = "*It is difficult to live on my current income*"; 3 = "*My current income is enough to live*"; 4 = "*My current income allows me to live comfortably*". Religiosity was measured with an item adapted from the European Social Survey (2018): "Regardless of whether you belong to a particular religion, how religious would you say you are"? with a 5-point Likert scale ranging from 1 ("*Not religious at all*") to 5 ("*Very religious*"). Furthermore, this section included questions on care provision, such as the care duration, formal support received, and a specific item addressing the impact of the COVID-19 pandemic on caregiving functions: "Has the COVID-19 pandemic changed your functions?" with a 3-statement response scale: 1 = "*Have improved*"; 2 = "*Remained the same*"; 3 = "*Got worse*".

Psychosocial risk factors exposure. The Portuguese middle version of the Copenhagen Psychosocial Questionnaire II (COPSOQ II; Silva et al., 2012) was used to measure work psychosocial factors. COPSOQ is well-established (Kristensen et al., 2005) and has already been translated into more than 20 languages. The Portuguese version of the COPSOQ II evaluates different psychosocial factors at work, health, and work-related outcomes and consists of 29 dimensions organized into eight thematic domains: demands at work; work organization and job contents; interpersonal relations and leadership; work-individual interface; workplace values; personality; health and well-being; and offensive behaviors (Silva et al., 2012). For this study, some original items have been adapted or removed to better fit the specific context of informal caregivers' work (see Table 4.2.). For that, an online focus group with the collaboration of some informal caregivers was carried out. All items were rated on a 5-point Likert scale ranging from 1 ("*Never*") to 5 ("*Always*"), except for the work-individual interface items where the categories ranged from 1 ("*Nothing*") to 5 ("*Always*"). The total score on a scale was the mean of the scores of the individual items. The analysis of results is based on a factor-by-factor interpretation, with the values classified as critical risk, intermediate situation, or favorable situation for health, based on two cut-off points. The interpretation of the values is different according to the subscales, i.e., high values in some subscales represent a low risk (e.g., the meaning of work, predictability, role clarity, and vertical trust), whereas, for other subscales, high values represent a high risk (e.g., emotional demands, job insecurity, work-family conflict, and general health). In the present study, most COPSOQ II subscales showed acceptable to good internal consistency (α > .70). For five of the 29 subscales Cronbach's alpha was between .70 and .60 (quantitative demands, development possibilities, role conflicts, horizontal trust, and offensive behaviors), and one scale had a reliability of little less than .60 (cognitive demands, Cronbach alpha = .58). Although previous COPSOQ's studies (e.g., Caridade et al., 2022; Meira & Coelho, 2019; Silva et al., 2012) showed reliabilities under .60 in some dimensions, we thought it would be more appropriate to reduce some of the items of the following dimensions to improve the measurement quality: influence at work, commitment to the workplace, recognition, vertical trust, justice and respect, sense of community at work, and self-efficacy. The structure and properties of the subscales are presented in Table 4.3.

3.3. Procedure

This study obtained Ethical approval from the Portuguese Order of Psychologists (OPP - Ordem dos Psicólogos Portugueses), as part of an initiative to support scientific research in health psychology and behavior change (Medida AISP - Apoio à Investigação em Saúde Psicológica). An online survey was developed using the Qualtrics® platform (Qualtrics, Inc.; Provo, UT, USA). The survey weblink was disseminated through the official webpages and social networks of several Portuguese associations providing support to informal caregivers, associations supporting specific groups (e.g., cerebral palsy, autism, among others), and support groups. Additionally, the link for the study was also available on the website of the Portuguese Order of Psychologists. The study was developed during the COVID-19 pandemic (March 2022 to June 2023), which made it very difficult to access the study population.

At the beginning of the survey, participants were informed of the voluntary and anonymous nature of their participation. They were also provided with information about the general purpose of the study, emphasizing its non-invasive nature and the absence of any associated physical, financial, social, legal, or other risks. The participants were assured that their responses would be analyzed anonymously. Furthermore, it was explicitly stated that they had the right to withdraw from the study at any point by simply closing the web browser.

After providing informed consent and agreeing to participate, participants were presented with the main measures. At the end of the study, participants were thanked for their participation and were debriefed on the study's purpose. Contact information for the research team was provided for questions or additional information.

Table 4.2.

COPSOQ II Original Items and Adapted Items to Informal Caregivers

Subscales	Original items	Adapted items
Quantitative demands	Do you have to do overtime?	Considering that, according to Portuguese law, the normal working period should be 40 hours per week, do you believe to work more than what is stated by law?
Influence at work	Do you participate in the selection of the people you work with?	Removed
Recognition	Is your work recognized and appreciated by the management?	Is your work recognized and appreciated by the Portuguese State?
	Does the management at your workplace respect you?	Does the Portuguese State respect you?
Quality of leadership	To what extent would you say that your immediate superior makes sure that the members of staff have good development opportunities?	To what extent would you say that the Portuguese State makes sure that the informal caregivers have good development opportunities?
	To what extent would you say that your immediate superior gives high priority to job satisfaction?	To what extent would you say that the Portuguese State gives high priority to job satisfaction?
	To what extent would you say that your immediate superior is good at work planning?	To what extent would you say that the Portuguese State is good at work planning?
	To what extent would you say that your immediate superior is good at solving conflicts?	To what extent would you say that the Portuguese State is good at solving conflicts?
Social support from colleagues	How often do you get help and support from your colleagues, if necessary?	How often do you get help and support from formal caregivers (e.g., doctors, nurses) if necessary?
	How often are your colleagues willing to listen to your problems, if needed?	How often are formal caregivers (e.g., doctors, nurses) willing to listen to your problems, if needed?
	How often do your colleagues talk with you about how well you carry your own work?	How often formal caregivers (e.g., doctors, nurses) talk with you about how well you carry your own work?
Social support from supervisors	How often is your immediate superior willing to listen to your problems at work, if needed?	How often are the health and social security technicians willing to listen to your problems at work, if needed?
	How often do you get help and support from your immediate superior, if needed?	How often do you get help and support from the health and social security technicians, if needed?
	How often does your immediate superior talk with you about how well you carry out your work?	How often does the health and social security technicians talk with you about how well you carry out your work?
Job insecurity	Are you worried about becoming unemployed?	Are you worried that, in case of the death of the care recipient, stop being an informal caregiver?

Table 4.2.

(Continued)

Vertical trust	Does the management trust the employees to do their work well?	Does the Portuguese State trust the informal caregivers to do their work well?
	Can you trust the information that comes from the management?	Can you trust the information that comes from the Portuguese State?
	Does the management withhold important information from the employees? (reversed)	Does the Portuguese State withhold important information from the informal caregivers? (reversed)
Horizontal trust	Do the employees withhold information from each other?	Do the formal caregivers (e.g., doctors, nurses) and informal caregivers withhold information from each other?
	Do the employees withhold information from the management?	Do the formal caregivers (e.g., doctors, nurses) and informal caregivers withhold information from the Portuguese State?
	Do the employees in general trust each other? (reversed)	Do the formal caregivers (e.g., doctors, nurses) and informal caregivers in general trust each other? (reversed)
Justice and respect	Are all suggestions from employees treated seriously by the management?	Are all suggestions from informal caregivers treated seriously by the Portuguese State?
	Is the work distributed fairly by the employees?	Removed
Sense of community at work	Is there a good atmosphere between you and your colleagues?	Is there a good atmosphere between you and the formal caregivers (e.g., doctors, nurses)?
	Is there good co-operation between the colleagues at work?	Is there good cooperation between the formal caregivers (e.g., doctors, nurses) and informal caregivers at work?

Table 4.3.

Internal Consistency, Mean, and Standard Deviation of the COPSOQ II Subscales

	Items	α	Mean	SD
Demands at work				
Quantitative demands	3	.64	3.46	0.80
Work pace	1	*	3.22	0.89
Cognitive demands	3	.58	4.01	0.55
Emotional demands	1	*	4.47	0.76
Work organization and job contents				
Influence at work	3	.73	3.51	0.86
Development possibilities	3	.60	3.90	0.64
Meaning of work	3	.71	4.13	0.64
Commitment to the workplace	1	*	4.01	0.96
Interpersonal relations and leadership				
Predictability	2	.81	2.73	0.99
Recognition	2	.87	1.65	0.79
Role clarity	3	.75	3.99	0.75
Role conflicts	3	.62	2.91	0.60
Quality of leadership	4	.86	1.37	0.49
Social support from colleagues	3	.88	2.37	0.85
Social support from supervisors	3	.85	1.69	0.70
Work-individual interface				
Job insecurity	1	*	3.02	1.39
Job satisfaction	4	.81	2.80	0.82
Work-family conflict	3	.74	3.79	0.89
Workplace values				
Vertical trust	1	*	2.39	0.95
Horizontal trust	3	.61	2.49	0.67
Justice and respect	1	*	2.26	0.89
Sense of community at work	2	.87	3.21	0.99
Personality				
Self-efficacy	1	*	3.42	0.84
Health and well-being				
General health	1	*	3.90	0.84
Stress	2	.77	3.60	0.83
Burnout	2	.84	3.94	0.78
Sleeping problems	2	.84	3.54	0.96
Depressive symptoms	2	.78	3.46	0.88
Offensive behaviors				
Offensive behaviors	4	.65	1.37	0.45

Note. * It is not possible to calculate Cronbach's alpha since the subscale consists of a single item
For all variables with two items, the measure of internal consistency is Spearman-Brown, instead of Cronbach Alpha

3.4. Statistical analysis

The statistical analysis and graphical representations were performed using SPSS (IBM SPSS; version 28) and Microsoft Excel for Microsoft 365, respectively. Firstly, a descriptive analysis was undertaken to determine the characteristics of the study population (Table 4.1.). Furthermore, descriptive analyses of the COPSOQ II scales were conducted. The internal consistency, means, and standard deviations of these scales were reported (Table 4.3.). To calculate the health impact that exposure to psychosocial risk factors represents (health-friendly situation, intermediate health situation, and health risk situation), the average obtained in each dimension of COPSOQ II was placed in a division of tripartite percentiles, with respective cut-off points of 2.33 and 3.66 (Silva et al., 2012) (Figures 4.1 and 4.2).

Afterward, we computed an index of health and well-being by reversing and averaging the nine items related to the general health, stress, burnout, sleeping problems, and depressive symptoms dimensions ($\alpha = 0.89$).

After that, Pearson's correlation was calculated between all measures (Tables 4.4. and 4.5.). Then, a hierarchical regression analysis was carried out (Table 4.6.). The health and well-being variable was treated as an outcome variable, and individual variables and psychosocial work factors were used as predictor variables. The hierarchical regression analysis only included the variables that significantly correlated with the health and well-being variable. An alpha level of $p < .05$ was used for tests of statistical significance.

4. Results

4.1. Socio-demographic characteristics of participants and caregiving information

The descriptive statistics of the socio-demographic characteristics of the study population, as well as care provision information are presented in Table 4.1.

The sample of the present study was composed of 178 Portuguese informal caregivers, 85.4% female, aged between 23 and 86 years old ($M = 52.79$; $SD = 11.19$). The participants were from all regions of Portugal but mostly from the Metropolitan Area of Lisbon (26.4%) and North (21.9%). Most of them (72.5%) had 12 to 15 years of education and were married or living in a consensual union (57.9%). As far as income was concerned, 39.3% of the participants stated that it was difficult to live with their current income and 29.2% considered that it was very difficult to live with their current income. From the whole sample, 64.6% were informal caregivers for less than 10 years, 25.8% between 10 and 20 years, and 9.6% for more than 20 years. Regarding the number of care recipients, the majority of the participants (75.3%) referred to taking care of only one dependent. The average number of hours per day that participants spent caring for the care recipient was around 16 (*SD* = 7.83) and 59% did not have any professional activity. Most of them reported not benefiting from any formal support (84.8%) and reported that the COVID-19 pandemic had not changed the functions they were due to perform (60.7%). Most participants provide care to females (60.9%), with a mean age of 70.39 (*SD* = 25.33). Most reported caring for their parents (57.8%) and cohabiting with the person they cared for (86%).

Psychosocial risk factors exposure. The distribution of the means of the health impact that the exposure to psychosocial risk factors represents, i.e., a health-friendly situation (green), an intermediate health situation (yellow), and a health risk situation (red) (Silva et al., 2012), are illustrated in Figures 4.1. and 4.2. Considering the results of the means of COPSOQ II, the findings revealed that demands at work (cognitive and emotional demands), interpersonal relations and leadership (recognition, quality of leadership, social support from supervisors), work-individual interface (work-family conflict), workplace values (justice and respect), and health and well-being (general health, burnout) are shown as the severe psychosocial risk factors (red) for the health of informal caregivers (see Figure 4.1.). In particular, the dimensions of quality of leadership (94.4%), emotional demands (89.9%), recognition (87.1%), cognitive demands (83.7%), and social support from supervisors (80.3%) were the psychosocial factors which show the most worrying results, given that have the highest percentages of answers corresponding to high risk for the health of informal caregivers (above 80%) (see Figure 4.2.).

At a moderate risk level (yellow), factors related to almost all thematic domains are identified. These include demands at work (quantitative demands, work pace), work organization and job contents (influence at work, commitment to the workplace), interpersonal relations and leadership (predictability, role conflicts, social support from colleagues), work-individual interface (job insecurity, job satisfaction), workplace values (vertical trust, horizontal trust, sense of community at work), personality (self-efficacy), and the health and well-being (stress, sleeping problems, depressive symptoms) (see Figure 4.1.). Of the factors that corresponded to an intermediate situation for the health of informal caregivers, vertical trust (56.7%) and quantitative demands

(52.8%) showed high risk in more than 50% of answers, which suggests that these factors are close to being considered a critical risk to the health of informal caregivers (see Figure 4.2.).

Work organization and job contents was the thematic domain composed of the most psychosocial factors in a healthy-friendly situation (green) (development possibilities, meaning of work). Moreover, role clarity and offensive behaviors were also psychosocial factors favorable to the health of informal caregivers (see Figure 4.1.). Among the psychosocial factors in a healthy-friendly situation, the dimensions of offensive behaviors (95.5%) and meaning of work (82.6%) were the ones that showed the most positive results (see Figure 4.2.).

Bivariate correlations. Table 4.4. presents the cross-sectional correlations between all variables under study. In general, we found that health and well-being significantly correlated with most of the work-related psychosocial factors: it was significantly and positively correlated with most of the psychosocial protective factors, except influence at work, development possibilities, commitment to the workplace, social support from colleagues, social support from supervisors, and self-efficacy. In addition, health and well-being significantly and negatively correlated with all the psychosocial risk factors considered, except job insecurity. The caregivers' education level was significantly and positively correlated with health and well-being.

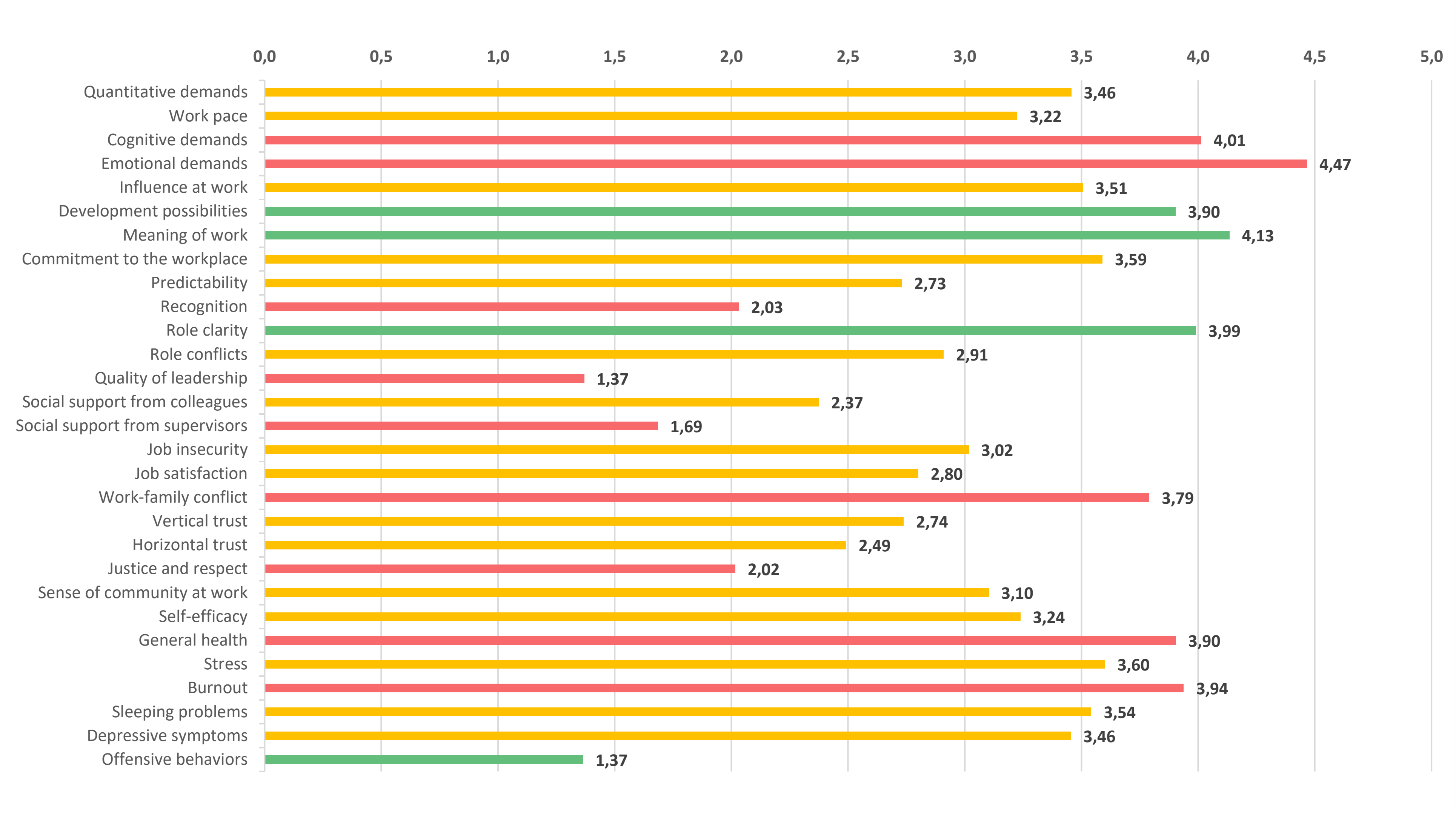

Figure 4.1. Means of Psychosocial Factors Profile of Informal Caregivers. Green: Health-friendly Situation; Yellow: Intermediate Health Situation; Red: Health Risk Situation.

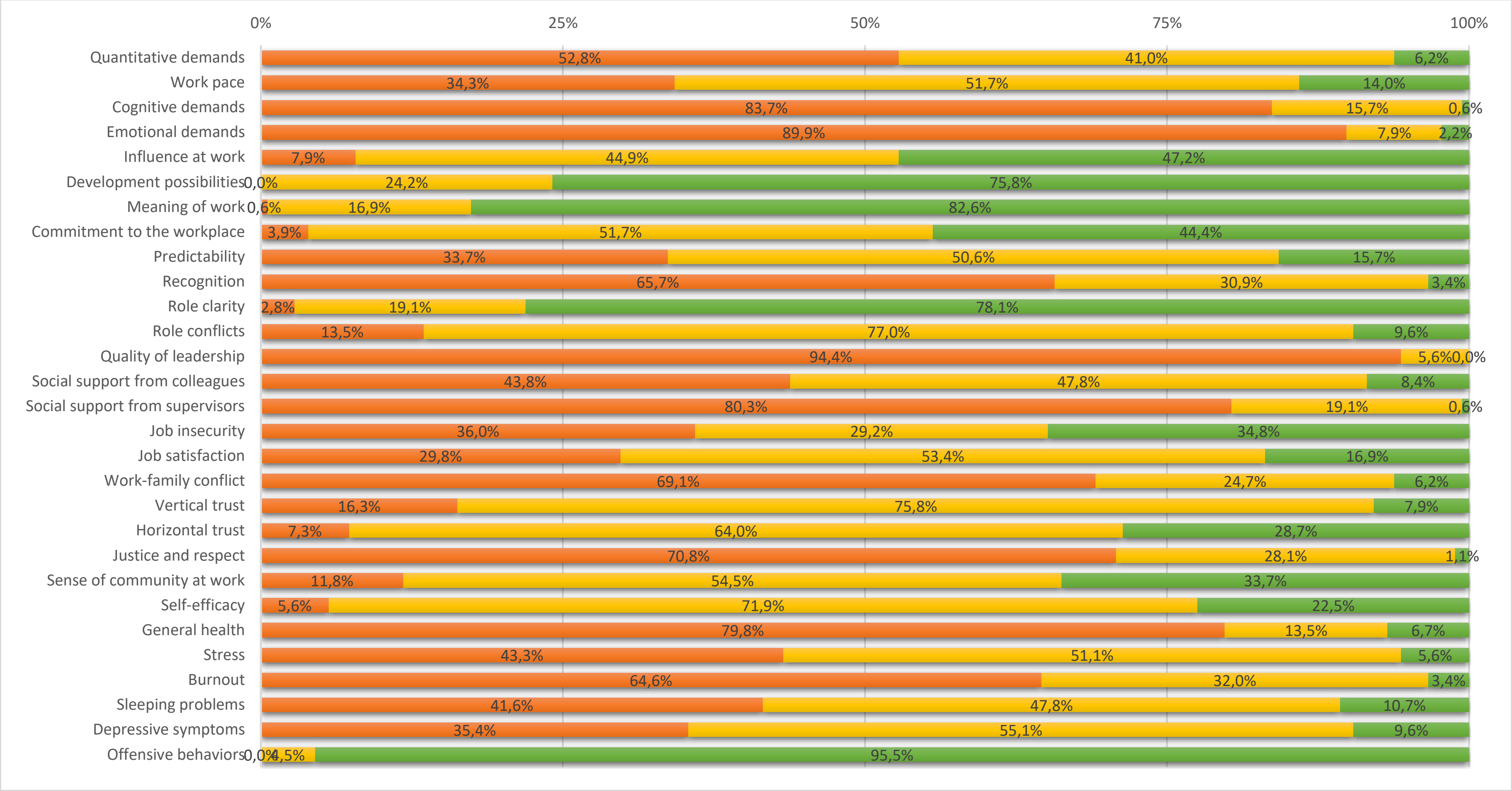

Figure 4.2. Percentage of Informal Caregivers in Each Risk Level of the Subscales of COPSOQ II. Green: Health-friendly Situation; Yellow: Intermediate Health Situation; Red: Health Risk Situation.

Hierarchical regression analysis. A hierarchical regression analysis was performed to test the predictive impact of multiple psychosocial work factors on the perceived health and well-being of informal caregivers while controlling for individual variables. To avoid multicollinearity issues in the hierarchical regression analysis, we first examined the correlation between all the variables that will be considered potential predictors of health and well-being (see Table 4.5.). We found that some of the psychosocial factors were highly correlated with each other. Therefore, we decided not to include in the regression analysis the dimension of quality of leadership. In addition to this, we have also made the decision not to include job satisfaction and work-family conflict as predictor variables in the regression analysis. This decision was influenced by the fact that these variables have commonly been studied as outcome variables in previous research (e.g., Burke & Mikkelsen, 2006; Goetz et al., 2015). By aligning with this approach, we aim to prevent potential confusion with our focal outcome variable, health and well-being, and maintain conceptual clarity in our analysis. Furthermore, because we had so many potential variables to be included in the regression, we also reflected on how much this would affect the power of the model. Harris (1985) considers that for regression equations using six or more predictors, an absolute minimum of 10 participants per predictor variable is appropriate to detect a small effect size, which is the case of the present sample.

After selecting the variables and analyzing the pattern of correlations between the variables under study (Table 4.5.), a hierarchical regression analysis was performed (see Table 4.6.). The variables were only entered in the regression if they significantly correlated with the dimension of health and well-being and were ordered in two blocks: control variables - educational level; and psychosocial factors - demands at work, meaning of work, predictability, recognition, role clarity, role conflicts, vertical trust, horizontal trust, justice and respect, sense of community at work, and offensive behaviors.

The results of the regression indicated that 45% of the variance in the perceived health and well-being of informal caregivers was predicted by demands at work ($\beta = -0.33$, $p < .001$), predictability ($\beta = 0.13$, $p = .049$), role clarity ($\beta = 0.18$, $p = .007$), and vertical trust ($\beta = 0.21$, $p = .003$) (see Table 4.6.). Our findings demonstrate that higher demands at work significantly predicted worse informal caregivers' health and well-being. A higher predictability, higher role clarity, and higher confidence in the information that comes from the Portuguese State significantly predicted better informal caregivers' health and well-being.

Table 4.4.

Correlations between Variables (N = 178)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1. Health and well-being	-																															
2. Caregiver gender	-.07	-																														
3. Caregiver age	-.07	-.30**	-																													
4. Education level	.16*	.08	-.22**	-																												
5. Income	.10	-.13	.05	.26**	-																											
6. Religiosity	-.05	-.22**	.25**	-.16*	-.09	-																										
7. Number of care recipients	.07	.02	-.08	-.05	-.07	.01	-																									
8. Care hours per day	-.01	.14	.13	-.22**	-.24**	.03	-.10	-																								
9. Receiving formal support	-.01	.14	-.02	-.31**	-.20**	-.04	.03	.14	-																							
10. Care recipient’s gender	.02	-.11	-.03	-.07	-.08	.08	-.16*	-.10	-.02	-																						
11. Care recipient’s age	-.08	-.10	.35**	-.12	-.04	.17*	.01	-.04	.00	.24**	-																					
12. Demands at work	-.50**	.16*	.02	-.02	-.12	.14	.03	.15*	.02	-.01	.05	-																				
13. Influence at work	-.09	.07	-.12	.20**	-.07	.06	.05	.02	-.14	.00	-.10	.36**	-																			
14. Development possibilities	-.02	.14	-.11	.06	.10	.11	.03	.10	-.04	-.01	.04	.38**	.45**	-																		
15. Meaning of work	.26**	.00	.01	-.04	.06	.11	.05	.18*	.02	-.04	-.14	-.12	-.04	.18*	-																	
16. Commitment to the workplace	-.09	.07	-.17*	.13	.09	-.02	.02	.13	.01	-.06	-.14	.08	.19*	.10	.26**	-																
17. Predictability	.34**	-.03	-.09	.19*	.12	.08	.09	-.14	-.17*	-.07	-.09	-.21**	.19**	.19*	.11	-.06	-															
18. Recognition	.19*	-.04	-.10	.08	.13	-.13	.04	-.19*	-.01	.12	-.07	-.21**	-.05	-.01	-.12	-.24**	.21**	-														
19. Role clarity	.31**	.02	.01	-.01	-.05	.07	.13	.03	-.02	.19*	.02	-.06	.26**	.26**	.29**	.05	.29**	.06	-													
20. Role conflicts	-.30**	-.07	-.17*	.01	-.10	.03	.06	-.13	-.00	.14	.09	.29**	.09	-.00	-.21**	-.04	-.05	.07	-.16*	-												
21. Quality of leadership	.22**	.06	-.08	.05	-.01	-.07	.07	-.18*	-.03	.13	-.13	-.21**	-.08	-.11	-.05	-.26**	.22**	.60**	-.02	.01	-											
22. Social support from colleagues	.04	-.14	.03	-.06	.07	.13	.02	-.07	-.17*	-.11	-.06	-.12	-.05	.13	.11	-.00	.44**	.12	.04	.01	.19*	-										
23. Social support from supervisors	-.13	-.06	.08	-.10	.06	.18*	-.05	-.13	.02	-.03	-.07	-.07	-13	-.03	.06	.00	.21**	.11	-.17*	.04	.22**	.59**	-									
24. Job insecurity	-.07	-.10	-.11	.01	-.08	.09	-.01	-.03	.04	-.06	-.15*	.04	.11	.04	.25**	.15*	-.05	-.04	.05	.01	-.08	-.02	.15	-								
25. Job satisfaction	.41**	-.10	.01	.03	.13	.19*	.06	.05	-.06	-.02	-.10	-.34**	.03	.18*	.47**	.25**	.33**	.09	.32**	-.35**	.08	.26**	.14	.11	-							
26. Work-family conflict	-.58**	.18*	.07	-.06	-.09	.00	.05	.10	.08	-.05	.14	.49**	.00	-.05	-.05	.22**	-.25**	-.24**	-.23**	.10	-.17*	.02	.10	.04	-.26**	-						
27. Vertical trust	.40**	-.06	-.07	.16*	.09	-.13	-.06	-.06	-.06	-.03	-.15*	-.29**	.07	-.11	.07	-.07	.25**	.35**	.15	-.08	.45**	.10	.05	.03	.26**	-.31**	-					
28. Horizontal trust	-.16*	-.02	.04	.13	.10	-.05	.07	-.04	-.13	-.13	-.04	.11	.01	-.03	-.04	.00	-.14	-.10	-.19*	.10	.00	-.29**	-.19*	.01	-.18*	.04	-21**	-				
29. Justice and respect	.23**	.05	-.05	.06	.06	.02	.02	-.07	-.02	.04	.01	-.24**	-.18*	-.01	.07	-.08	.09	.20**	.07	-.19*	.30**	.23**	.20**	.02	.15*	-.07	.32**	-.33**	-			
30. Sense of community at work	.22**	-.00	-.07	-.03	-.11	.13	.00	.04	-.06	-.01	-.09	-.18*	.08	.12	.15*	.14	.24**	.16*	.24**	-.16*	.21**	.49**	.34*	-.01	.32**	-.02	.30**	-.41**	.42**	-		
31. Self-efficacy	.04	-.04	-.02	-.03	-.07	.03	.03	.12	.12	.05	-.08	-.04	-.02	.13	.19**	.29**	-.08	-.03	.19	-.30**	.04	.01	.08	.09	.30**	-.01	.19*	-.20**	.32**	.22**	-	
32. Offensive behaviors	-.24**	-.04	-.00	-.09	-.16*	.04	.01	.01	.05	.06	-.03	.22**	-.04	.00	-.14	-.08	-.08	-.11	.03	.24**	.03	.01	.07	.04	-.16*	.08	-.04	.14	-.09	-.05	.02	-

Note. *$p < .05$; **$p < .01$; ***$p < .001$

Table 4.5.

Correlations between Potential Predictors of Health and Well-being (N = 178)

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
1. Health and well-being	-														
2. Education level	.16*	-													
3. Demands at work	-.50**	-.02	-												
4. Meaning of work	.26**	-.04	-.12	-											
5. Predictability	.34**	.19*	-.21**	.11	-										
6. Recognition	.19*	.08	-.21**	-.12	.21**	-									
7. Role clarity	.31**	-.01	-.06	.29**	.29**	.07	-								
8. Role conflicts	.-30**	.01	.29**	-.21**	-.05	.07	-.16*	-							
9. Quality of leadership	.22**	.05	-.21**	-.05	.22**	.60**	-.02	.01	-						
10. Job satisfaction	.41**	.03	-.34**	.47**	.33**	.09	.32**	-.35**	.08	-					
11. Work-family conflict	-.58**	-.06	.49**	-.05	-.25**	-.24**	-.23**	.10	-.17*	-.26**	-				
12. Vertical trust	.40**	.16*	-.29**	.07	.25**	.35**	.15	-.08	.45**	.26**	-.31**	-			
13. Horizontal trust	-.16*	.13	.11	-.04	-.14	-.10	-.19*	.10	.00	-.18*	.04	-.21**	-		
14. Justice and respect	.23**	.06	-.24**	.07	.09	.20**	.07	-.19*	.30**	.15*	-.07	.32**	-.33**	-	
15. Sense of community at work	.22**	-.03	-.18*	.15*	.24**	.16*	.24**	-.16*	.21**	.32**	-.02	.30**	-.41**	.42**	-
16. Offensive behaviors	-.24**	-.09	.22**	-.14	-.08	-.1	.03	.24**	.03	-.16*	.08	-.04	.14	-.09	-.05

Note. *p < .05; **p < .01; ***p < .001

Table 4.6.

Hierarchical Regression Analysis Predicting the Perceived Health and Well-being of Informal Caregivers

	Health and well-being		
	B	*SE*$_B$	*β*
Step 1			
Education level	.05	.04	.09
Step 2			
Demands at work	-.41	.08	-.33***
Meaning of work	.11	.07	.11
Predictability	.09	.05	.13*
Recognition	.01	.06	.01
Role clarity	.16	.06	.18**
Role conflicts	-.12	.07	-.11
Vertical trust	.15	.05	.21**
Horizontal trust	-.01	.07	-.01
Justice and respect	.02	.05	.03
Sense of community at work	-.02	.05	-.03
Offensive behaviors	-.15	.09	-.10
Constant	2.63		
R^2	.45		
R^2 adjusted	.41***		
F change	11.165		

Note. For all measures scores were computed by averaging across items with higher scores indicating a stronger endorsement of the construct.
B = Unstandardized coefficients*;* *β* = Standardized coefficients.
**p* < .05; ***p* < .01; ****p* < .001

5. Discussion

This research aimed to conduct a comprehensive investigation of work-related risk and protective factors for the health and well-being of informal caregivers. Although previous studies have investigated the impact of different factors on informal caregivers' health and well-being, they usually focus on a small number of factors. In the present study we assessed a broad range of psychosocial work risk and protective factors and their impact on the health of Portuguese informal caregivers, during the COVID-19 pandemic, and using the COPSOQ questionnaire.

Considering the outcomes of the means of psychosocial factors assessed by COPSOQ II, we found that informal caregivers are at the intermediate risk level (yellow) in most of the psychosocial dimensions (see Figure 4.1.). Vertical trust and quantitative demands, identified as moderate risk factors, presented the potential to be considered a severe risk factor for the health of informal caregivers, as indicated by response percentages above 50% in high risk for health (see Figure 4.2.). Specifically, informal caregivers face high work intensity marked by time pressure, and long continuous work periods and recognize a low trust in the information that comes from the Portuguese State.

Moreover, cognitive and emotional demands, recognition, quality of leadership, social support from supervisors, work-family conflict, justice and respect, general health, and burnout were the most prevalent and severe risk factors for their health (red) (see Figure 4.1.). In particular, the dimensions of quality of leadership, emotional demands, recognition, cognitive demands, and social support from supervisors showed the most worrying results, with response percentages above 80% in high risk for health (see Figure 4.2.). These findings indicate that informal caregivers, in their work environment, are primarily exposed to and confronted with highly challenging cognitive and emotional tasks. Furthermore, they perceive a lack of support and unsupportive leadership from the Portuguese State, characterized by an absence of respectful treatment and recognition of their work.

The remaining four psychosocial risk factors demonstrated a high percentage of answers corresponding to a healthy-friendly situation (green): development possibilities, meaning of work, role clarity, and offensive behaviors (see Figure 4.1.). In particular, the dimensions of offensive behaviors (95.5%) and meaning of work (82.6%) showed the most positive results, with the highest percentages in healthy-friendly situation for health (see Figure 4.2.). These results suggest that informal caregivers recognize the transparency of objectives and responsibilities, the possibility of learning new things and developing new skills, have a strong commitment to the aim and the context of work tasks, and most of them do not are subject to negative acts such as threats, harassment, and violence in their work environment.

Overall, the average scores of the COPSOQ II dimensions deserve some attention and concern, given that they confirm the highly demanding work environment of informal caregivers. In their everyday activity, informal caregivers face challenging tasks that can result in detrimental effects on their health. Moreover, the findings indicate that informal caregivers reveal limited exposure to protective factors, particularly those of an organizational nature. Indeed, the protective factors identified mainly relate to intrinsic motivational aspects of care, instead of organizational factors influenced by the intervention of the Portuguese State.

The results of correlations revealed significant associations between health and well-being with almost all the work-related psychosocial factors. Some variables, in fact, appeared important predictors due to their correlation with health and well-being, but when introduced into the regression with other predictors, they lost their impact. Moreover, despite the outcomes of the averages obtained in COPSOQ II indicating a wide range of psychosocial factors at an intermediate and severe risk level and some protective factors (see Figure 4.1.), when considered together, only a few had a unique impact on informal caregivers' health and well-being. Specifically, demands at work were shown to be risk factors, whereas predictability, role clarity, and trust in the Portuguese State emerged as protective factors. These results assume particular significance due to the consideration of the impact of many other possible confounds.

These results support previous research (e.g., Ilić et al., 2017; Rahman et al., 2017; Trufelli et al., 2008) on the premise of demands at work as a risk for health and well-being in occupations characterized by close emotional interactions with others and active involvement in their problems, exposure to traumatic events (e.g., emergency, patient death), and demanding daily caring routines (e.g., dressings change, medical treatment). Indeed, the specific context of caring for dependent individuals, characterized by multiple responsibilities, continuous care, high levels of emotional and physical energy, and dealing with high levels of vigilance over an extended period of time, represents the characteristics of a chronic stress situation.

Furthermore, the results indicate the impact of predictability and role clarity as informal caregivers' health and well-being protectors. These findings corroborate previous research conducted in different occupations (e.g., Borritz et al., 2005; Hinojosa-Alcalde et al., 2020), which demonstrated that receiving relevant information to reduce uncertainty and insecurity and having a clear understanding of their tasks, expectations, and responsibilities, reduces the potential of experiencing multiple adverse effects on their physical and mental health. Nevertheless, the results from the means of COPSOQ raise concerns: despite informal caregivers having a clear understanding of their objectives and responsibilities, presumably by the many years and hours they invest in caregiving, they still perceive themselves in a highly unpredictable environment. One possible explanation for this may be the constant need to adapt to the care recipient's health condition and the lack of effective policies aimed at providing them with the necessary information and training to ensure adequate assistance.

Moreover, the results highlight the crucial role of trust in the Portuguese State as a protective factor for the health and well-being of informal caregivers. However, it becomes evident through the means of COPSOQ that this dimension was evaluated with a high-risk impact on the informal caregivers' health, suggesting that they perceive and experience low levels of trust regarding the Portuguese State. This result might be explained by the fact that, in contrast to healthcare professionals who benefit from a wide range of organizational and social resources pivotal in managing work demands and promoting their health (e.g., meaningfulness of work, supervision, team; Diehl et al., 2019, 2021; Moreno-Milan et al., 2019), informal caregivers do not have adequate resources to fulfill their role as caregivers, perceive a lack of support, and remain socially and politically unrecognized and unvalued (Ansello & Rosenthal, 2007; EUROCARERS, 2019; Serrano et al., 2022; Tranberg et al., 2021). In fact, most informal caregivers do not make use of the rights and benefits of Law No. 100/2019 that established the Informal Caregiver Statute, because it is very difficult to access this support that is yet to be fully implemented (Gaspar et al., 2023; Henriques et al., 2022).

Furthermore, the results revealed that the COVID-19 pandemic and the respective restrictions and periods of confinement did not impact the health and well-being of informal caregivers. Indeed, more than half of the informal caregivers (60.7%) who participated in this study reported that COVID-19 did not change their caregiving functions. This finding is not in line with previous studies which have suggested that the COVID-19 pandemic exacerbated the difficulties experienced by caregivers in terms of support, access to care, isolation, and health status (e.g., Bergmann & Wagner, 2021; Gaspar et al., 2023; Park, 2021). This unexpected outcome may be attributed to the characteristics of the sample of the study, which is mostly comprised of caregivers who have been providing care for an extended period, who do the main portion of the daily care work without formal help, and who do not have professional activity. So, it can be hypothesized that intense care and lack of resources already existed before the pandemic. Indeed, these caregivers were accustomed to prolonged isolation, experienced continuous challenges deprived of formal support, and had to manage the situation on their own, characteristics that resemble the lockdown measures due to the COVID-19 pandemic.

This study has important theoretical and practical implications because it suggests several focuses that might be simultaneously addressed. Based on these results we emphasize the importance of the Portuguese State applying a treatment with consideration and respect, support policies and initiatives that promote the recognition of the vital role that caregivers play in Portuguese society, and inform about their roles and responsibilities. Moreover, decreasing excessive work demands (quantitative demands, work pace, cognitive demands, and emotional demands) remains central to the prevention of negative health outcomes such as stress, burnout, sleeping problems, and depressive symptoms. Considering the activities carried out by these individuals, it can be very challenging to significantly reduce work demands or unpredictability about the caregiving role, as the situations they encounter on a daily basis can be highly demanding, even traumatic, and often beyond their control. Nevertheless, it is crucial not to underestimate the Portuguese Government's and organizations' responsibility to reduce the work demands to which informal caregivers are subject. For instance, the Portuguese government could disseminate knowledge and provide more effective access to the new Law No. 100/2019, which includes the replacement of the informal caregiver in certain situations of need and during periods of rest/holidays (Gaspar et al, 2023). Therefore, although protective factors may be reinforced, excessive demands at work are an important risk factor, and decreasing it continues to be central to health promotion.

Our findings confirm the relevance of our aim, providing valuable insights into work-related psychosocial risk factors and their impact on the mental and physical health of informal caregivers. Furthermore, they highlight the importance of these factors within programs designed to prevent and/or reduce not just the risk of negative effects on health and quality of life, but also to ensure the quality of the care they provide.

5.1. Limitations

Despite the contributions of this study, it has some limitations that must be overcome in future studies. The first limitation refers to the convenience nature of our sample. The sample is not representative of the informal caregiver population in Portugal, or even less representative globally. However, the predominantly female composition of the sample is a result of the prevailing association of the caregiving role with women (Esplen, 2009, Poole & Isaacs, 1997). In addition to this, our sample only covers informal family caregivers aligning with the recent Portuguese law on informal caregivers. This may be considered a limitation, as neighbors and the community may also play an important role as informal caregivers (Schulz, 2020).

The second limitation is related to the fact that the data was collected during the COVID-19 pandemic, via a survey conducted online. Accessing the population of informal caregivers is not easy, and with the use of an online questionnaire in a pandemic context, becomes even more difficult. Also, it is possible that informal caregivers who experienced greater demands were less motivated to respond to the survey. Therefore, the demands in the present study can be underestimated.

The third limitation is the fact that some psychosocial factors did not show good reliability in the original version of the questionnaire. Therefore, we decided to reduce the number of items in some dimensions or assess them using only one item. The one-item scales of these variables have not been previously validated, which, of course, represents a limitation. However, these variables significantly correlated in the expected direction with health and well-being.

The fourth limitation is related to the correlational design of this study, which restricts the nature of the conclusions that can be drawn about the causal relations among variables. Indeed, in a correlational design, it is not possible to be sure that the predictor variables directly cause the outcome variable. Therefore, longitudinal studies and experimental studies are needed to support causality in the relationships between psychosocial risk factors and health and well-being.

There are two more limitations related to the fact that all predictors and outcome variables were self-reported, which might lead to possible overestimation of the associations between them due to shared method variance. Future studies should try to replicate these results with another sample of informal caregivers and may also explore if the protective factors that we found in this study extend to other occupations in informal contexts and times less affected by the specificities of adapting to a pandemic.

6. Conclusion

To the best of our knowledge, there is no published research on the psychosocial factors at work among informal caregivers in Portugal, considering the COVID-19 pandemic. The findings offer a comprehensive assessment of psychosocial factors affecting informal caregivers and suggest that there are high levels of work demands within the work environment of informal caregivers, coupled with low work resources, especially in terms of recognition, quality of leadership, social support from supervisors, and justice and respect. Furthermore, our study clearly identifies key variables that are unique predictors of the health and well-being of informal caregivers (work demands as risk factors; predictability, role clarity, and trust in the Portuguese State as protective factors). Our study makes a significant and innovative contribution to this research area since is the first step in considering work-related psychosocial factors outside the formal context and suggests several focuses that may be considered in preventive programs aimed at improving the health and well-being of informal caregivers.

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CHAPTER 5.

Dehumanization and minimization of informal caregivers suffering: The legitimizing role of justice perceptions

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1. Abstract

Informal caregivers, who provide unpaid care work to individuals with disabilities, are devalued despite their important contributions to society. Identifying the factors contributing to their devaluation is crucial for recognizing and valuing their work. In two experimental studies, we examined (a) whether informal caregivers are dehumanized; (b) the moderating impact of belief in a just world (BJW) on this process; (c) the predictive impact of BJW and the dehumanization of informal caregivers on the perception of informal caregivers' suffering; and (d) the impact of the target's gender on these effects. In Study 1 (N = 180), a 2 (informal caregiver *vs.* non-caregiver) X 2 (female *vs.* male) between-participants design was used; in Study 2 (N = 205), there were two experimental conditions: female informal caregiver *vs.* male informal caregiver. Participants were randomly assigned to one description of a target and were asked to complete measures assessing the dehumanization of the target (Studies 1 and 2), the perception of the suffering of the target (Study 2), and a measure of BJW referring to themselves (Study 2). Results showed the expected dehumanization effect, such that participants attributed fewer uniquely human emotions to informal caregivers compared to non-caregivers, regardless of their gender (Studies 1 and 2). However, this effect was observed only among participants with higher BJW (Study 2). Furthermore, BJW and the dehumanization of informal caregivers predicted the minimization of the perception of informal caregivers' suffering (Study 2). These results establish a theoretical relationship between these research areas and offer insights for practical implications and future research.

Keywords: belief in a just world, dehumanization, informal caregivers, perception of suffering

2. Introduction

The increasing average life expectancy, the prevalence of chronic diseases and disabilities, and an underfunded, fragile, and fragmented healthcare system have contributed to a growing demand for informal care (Schulz et al., 2020; United Nations Entity for Gender Equality and the Empowerment of Women [UN Women], 2018).

Despite the growing body of literature on the challenges faced by informal caregivers, too little attention has been given to understanding the social perceptions towards this group. Analyzing how informal caregivers are socially perceived is crucial, as negative perceptions can adversely affect their health and well-being, preventing them from receiving the necessary support and ultimately impacting the quality of care they provide (e.g., Ali et al., 2012). Indeed, there is evidence that informal caregivers remain invisible, unacknowledged, and undervalued by society (Ansello & Rosenthal, 2007; EUROCARERS, 2019), even though unpaid care work is crucial to economic activity and societal well-being (Peña-Longobardo & Oliva-Moreno, 2022; UN Women, 2018).

The present research presents two experimental studies aimed at better understanding whether and under which conditions informal caregivers are dehumanized.

2.1. Informal care work

Informal care refers to unpaid care work provided by family members, friends, or neighbors to individuals with physical, mental, or cognitive limitations (EUROCARERS, 2019; Hoffmann & Rodrigues, 2010; Schulz et al., 2020). Societal perceptions that often link caregiving to women's nature result in a disproportionate representation of women (e.g., wives, daughters, and daughters-in-law) in unpaid care work (e.g., Erreguerena, 2015; Esplen, 2009; United Nations of Economic and Social Affairs-Population Division, 2019). Nevertheless, men, especially those in the LGBTQ+ community, are also stepping into the role (e.g., Hughes & Kentlyn, 2011). Moreover, the informal caregiving role predominantly falls on middle-aged individuals, unemployed or domestic workers, and those with lower education and SES (Verbakel et al., 2017).

Informal caregivers perform several tasks that, in some cases, require professional skills and high levels of vigilance (Lindeza et al., 2020). They typically assist with activities of daily living (ADLs) (e.g., personal hygiene, dressing, and eating), as well as instrumental activities of daily living (IADLs) (e.g., housework, meal preparation, shopping, or administrative tasks) (Hoffmann & Rodrigues, 2010). Working in such a complex and unpredictable environment can be challenging for informal caregivers, affecting their personal, professional, financial, and social life (e.g., poverty, and social isolation), which is reflected in their health and well-being (e.g., anxiety, depression, and burnout) (Schulz et al., 2020, for a review).

Moreover, some studies (e.g., Abojabel & Werner, 2019; Kinnear et al., 2016; McGown & Braithwaite, 1992; Yip & Chan, 2022; Zwar et al., 2020) have recognized informal caregivers as targets of courtesy stigma (i.e., negative stereotypes, prejudice, and discrimination from the general public due to their association with a stigmatized individual or group) (Goffman, 1963). For instance, McGown and Braithwaite (1992) found that nurses and the general public tended to perceive informal caregivers of stroke patients as emotionally unstable and incompetent in understanding the care recipient's condition. Similarly, Kinnear et al. (2016) and Yip and Chan (2022) showed that informal caregivers of children with autism spectrum disorder were perceived as incompetent in caring for their children and blamed for their deficits, resulting in high self-stigma, stress, depression, and anxiety. Furthermore, Abojabel and Werner (2019) and Zwar et al. (2020) showed the existence of devaluing and accusative cognitions, disgusted emotions, and behaviors of distance and avoidance towards informal caregivers of elderly individuals.

We believe that the failure to recognize the important contributions of such an important group may be not only a result of complex factors rooted in gender roles (e.g., Erreguerena, 2015; Poole & Isaacs, 1997) and the stigma faced by care recipients and informal caregivers, but also a consequence of the fact that informal caregivers are dehumanized.

2.2. Humanness and dehumanization

Dehumanization refers to the act of denying individuals their humanness by perceiving or treating them as less than fully human beings (Haslam, 2021; Haslam & Loughnan, 2014). This phenomenon is closely associated with categorizing individuals based on personality traits and emotions (Haslam & Stratemeyer, 2016).

The Dual Model of Dehumanization (Haslam, 2006) focuses on personality traits as indicators of people's humanness. In this model, humanness is understood as comprised of uniquely human traits (e.g., rationality, civility, refinement) that distinguish human beings from other animal species due to their emergence later in human development and susceptibility to cultural variation; and by traits that represent the core essence of human nature (e.g., warmth, emotionality, openness) because they are shared by all human beings as they emerge early in human development and remain consistent across different cultures. When individuals or groups are denied uniquely human traits, they are treated or perceived as primitive and irrational animals (animalistic dehumanization); when individuals or groups are denied human nature traits, they are treated or perceived as robots, automatons, or objects (mechanistic dehumanization) (Haslam, 2006).

The Infrahumanization Theory (Leyens et al., 2001) conceptualizes humanness through the attribution or denial of specific emotions to other people. According to this theoretical framework, secondary emotions (e.g., shame, hope, resentment) are considered uniquely human because they require higher cognition and morality, characteristics that develop later in life and are culturally variable. In contrast, primary emotions (e.g., fear, pain, pleasure) are shared by both humans and animals because they tend to manifest early in development (Demoulin et al., 2004). Several studies within this model have shown that people reserve secondary (uniquely human) emotions for the ingroup while denying them to the outgroup. Conversely, primary emotions are usually equally attributed to both groups (Leyens et al., 2007; Paladino et al., 2002; Vaes et al., 2012, for a review). This effect remains independent of negative attitudes and ingroup favoritism (Cortes et al., 2005; Paladino et al., 2002, 2004). The denial of secondary (uniquely human) emotions to individuals or groups aligns with animalistic dehumanization (Haslam, 2006), as represents a subtle form of dehumanization in which individuals or groups are perceived as being close to animals (Demoulin et al., 2004; Haslam, 2021).

Dehumanization is a prevalent phenomenon that impacts a wide range of individuals across various intergroup and interpersonal contexts (e.g., school, work, or society at large) (Haslam, 2021, for a review). Examples include dehumanizing attitudes and behaviors towards stigmatized groups, such as disabled individuals (e.g., Betancor et al., 2016; Martinez et al., 2011), elderly individuals (e.g., Boudjemadi et al., 2017), women (e.g., Fiske et al., 2002; Tipler & Ruscher, 2019), and low-status or low-income occupational groups (e.g., Volpato et al., 2017).

Indeed, evidence suggests that individuals with Down syndrome, compared to those without Down syndrome, are denied uniquely human emotions by professional educators and the general public (e.g., Betancor et al., 2016). Similarly, Martinez et al. (2011) found that individuals with mental illness are dehumanized, and consequently perceived as dangerous and socially rejected. Moreover, Boudjemadi et al. (2017) demonstrated that older individuals tend to be attributed fewer uniquely human traits and emotions and more associated with animal-related words than younger individuals. The animalistic dehumanization also extends to certain subcategories of women, such as those in traditional roles (e.g., housewives and mothers), who are typically perceived with a lack of uniquely human traits (e.g., Fiske et al., 2002), and implicitly associated with animals, particularly when their sexual and reproductive functions are emphasized (e.g., Tipler & Ruscher, 2019). Furthermore, individuals in low-status or low-income occupations are animalistically dehumanized, as they are attributed with fewer uniquely human traits and are associated with animal metaphors (e.g., animals, gorillas, savage beasts) (e.g., Volpato et al., 2017).

To the best of our knowledge, no research has examined whether informal caregivers are dehumanized compared to individuals who do not assume this role. Nevertheless, given that the profile and work environment of informal caregivers (e.g., unpaid work, mainly performed by women, involving the care of disabled individuals), share similar characteristics with dehumanized groups (e.g., Sakalaki et al., 2017; Volpato et al., 2017), it is plausible that informal caregivers might be targets of dehumanization.

2.3. Dehumanization processes on the perception of victims

Dehumanization not only contributes to the suffering of victims (e.g., Viki et al., 2012) but can also follow experiences of suffering or ill-being (e.g., Sakalaki et al., 2017). Recent studies indicate that groups facing challenging life conditions, such as illnesses (e.g., Fontesse et al., 2021), low social status (e.g., Harris & Fiske, 2006), and lower SES (e.g., Loughnan et al., 2014; Sainz et al., 2020), are often perceived or treated as less than fully human.

Despite the crucial role of empathy in understanding the feelings of others (Scatolon et al., 2023), empathizing with the vulnerability and suffering of others can be inconvenient, stressful, and even dangerous, potentially eliciting a defensive reaction from observers (Fousiani et al., 2019; Rosenblatt, 2017). The dehumanization of victims is considered a functional and adaptive mechanism employed by observers to avoid the personal costs and distress associated with helping or witnessing the suffering of other human beings (e.g., Cameron et al., 2016; Trifiletti et al., 2014; Vaes & Muratore, 2013). For instance, Vaes and Muratore (2013) and Trifiletti et al. (2014) found that healthcare professionals attributing uniquely human traits and emotions to suffering patients experienced more stress and burnout symptoms, especially those with higher direct contact and affective commitment to patients. Moreover, a recent study by Cameron et al. (2016) showed that individuals motivated to avoid emotional exhaustion by helping drug addicts are more likely to dehumanize them.

Perceiving victims as less human is considered crucial for the well-being of observers (e.g., Vaes & Muratore, 2013), and for the proper functioning of society as a whole (Bastian et al., 2014). However, this perception worsens the situation in which victims find themselves, as it is associated with reduced helping behavior (e.g., Andrighetto et al., 2014; Cuddy et al., 2007) and with reduced empathy for victims' suffering (e.g., Čehajić et al., 2009; Nagar & Maoz, 2017). Indeed, considering others as less than fully human allows individuals to accept, legitimize (Bar-Tal, 2000), or minimize and deny others' suffering (Čehajić et al., 2009; Nagar & Maoz, 2017).

This defensive dehumanization towards victims is deeply rooted in specific psychological processes, such as the Belief in a Just World (Lerner, 1980), which attempts to explain why observers react negatively toward victims.

2.4. Belief in a Just World and negative attitudes toward people suffering

According to the Belief in a Just World theory (BJW; Lerner, 1980), individuals are motivated to perceive the world as a just place where everyone receives what they deserve. This perception of justice gives people confidence that no unjust events will happen to them, despite the injustices in daily life.

However, the existence of innocent victims contradicts this fundamental assumption, thereby threatening people's BJW. As a result, instead of offering help, observers restore justice cognitively by changing their perceptions of the situation, which may lead to one or more forms of negative attitudes towards the victim, which is frequently named secondary victimization (Brickman et al., 1982). Indeed, aside from dealing with the negative consequences arising from the event that victimized them (primary victimization), victims experience additional victimization from the social reaction of people who know about their situation (secondary victimization). Secondary victimization is a pervasive yet very detrimental phenomenon, given that it exacerbates the adversity faced by victims through various concurrent forms, such as blaming victims for events beyond their control or minimizing and denying the perception of others' suffering (e.g., Hafer & Bègue, 2005).

Most studies exploring individual differences in the BJW have indicated that individuals with higher BJW, when confronted with an innocent victim whose suffering persists, are more likely to engage in secondary victimization than those with lower BJW (e.g., Correia & Vala, 2003). Moreover, recent studies also highlight that sharing an identity with the victim threatens the observers' BJW and is a predictor of negative reactions towards victims (e.g., Correia et al., 2018). Furthermore, research has shown an association between BJW and some ideological variables, such as religiosity and right-wing political orientation (e.g., Dalbert et al., 2001).

Despite extensive research focused on the impact of observers' BJW on different forms of secondary victimization, only a few studies have attempted to investigate the dehumanization of victims as a secondary victimization strategy. Indeed, DeVaul-Fetters (2014) revealed that, across multiple strategies employed to cope with just world threats, the dehumanization of refugees emerged as one of these strategies. Specifically, individuals with a higher BJW dehumanized the refugees more than individuals with a lower BJW. In a related study, Gillmor et al. (2014) found that victims perceived as being sexually promiscuous were more likely to be dehumanized than those perceived as sexually conservative, especially among observers with higher BJW. The findings of these studies suggest that the dehumanization of victims may serve as a defensive mechanism for individuals who feel threatened by the injustices present in the world.

Considering the highly demanding nature of informal caregiving, we believe it has the potential to threaten observers' sense of justice. Therefore, we propose that participants with higher BJW may be particularly likely to dehumanize informal caregivers and, consequently, minimize the perception of informal caregivers' suffering.

2.5. The present research

We conducted two experimental studies to better understand whether and under which conditions informal caregivers are dehumanized. Study 1 aimed to extend the already mentioned studies on the stigmatization of informal caregivers (e.g., Abojabel & Werner, 2019; Zwar et al., 2020) by investigating whether informal caregivers are targets of dehumanization when compared to individuals who do not perform this role. In Study 2, we further expanded these investigations to examine the moderating impact of participants' BJW on this process. Furthermore, Study 2 examined the predictive impact of participants' BJW and the dehumanization of informal caregivers on participants' perception of informal caregivers' suffering, while controlling for sociodemographic and individual variables. Lastly, both studies also explored the impact of the targets' gender on these effects. Based on previous research examining the link between victim dehumanization and perceptions of justice, we measured the attribution of emotions that targets are capable of feeling as an indicator of dehumanization.

3. Pilot study

We developed written vignettes where we manipulated the type of target (informal caregiver *vs*. non-caregiver): the informal caregiver condition presented a fictitious description of the name, age, and daily tasks of an informal caregiver target responsible for caring for a spouse who became paraplegic and suffered a brain injury after a car accident; the non-caregiver condition simply presented a fictitious description of the name and age of a target, along with the information that the target is married. The gender of the target was counterbalanced across experimental conditions with corresponding fictitious names of "Mary" or "Joseph". We tested the written vignettes with a few participants. Changes were made iteratively in response to feedback on the vignette's credibility, concision, and clarity. See Figure 5.1. for a detailed description of all vignettes, which constitute the four experimental conditions used in Study 1.

To increase the perception of the descriptions' realism, the written vignettes were paired with a picture of either a woman or a man. A pre-test of the pictures was conducted following a procedure applied by Bernardes et al. (2021). For the pre-test of the female picture, we presented three pictures of three different white women to a sample of 20 participants (50% female; $M_{\text{age}} = 29.10$). Similarly, for the pre-test of the male picture, a separate sample of 22 participants (72.7% female; $M_{\text{age}} = 36.32$) rated four pictures featuring four different white men. Participants were asked about their perceptions of the targets' age, body weight, educational level, occupation, and SES (using the MacArthur Scale of Subjective Social Status; Adler et al., 2000) (see Appendices A and B). Based on the pre-test findings, one picture of a woman and one picture of a man, both perceived as middle-aged, with normal weight, and ambiguous for SES, were chosen.

Experimental conditions			
Female informal caregiver	**Male informal caregiver**	**Female non-caregiver**	**Male non-caregiver**
Picture of a woman “This is Mary a 45-year-old woman who started taking care of her 47-year-old husband who became paraplegic and with a brain injury after a car accident (…) She was forced to quit work to take care of him full-time, as he has a permanent disability level of 93% (…) Currently, her husband spends a significant part of the day either bedridden or in a wheelchair (…) Her daily tasks involve bathing and dressing her husband, changing his diapers several times a day, dressing him, giving him food, managing his daily medication, and cleaning the house (...) She cannot maintain a social network or take a vacation.”	Picture of a man “This is Joseph a 45-year-old man who started taking care of his 47-year-old wife who became paraplegic and with a brain injury after a car accident (…) He was forced to quit work to take care of her full-time, as she has a permanent disability level of 93% (…) Currently, his wife spends a significant part of the day either bedridden or in a wheelchair (…) His daily tasks involve bathing and dressing his wife, changing her diapers several times a day, dressing her, giving her food, managing her daily medication, and cleaning the house (...) He cannot maintain a social network or take a vacation.”	Picture of a woman “This is Mary a 45-year-old married woman”.	Picture of a man “This is Joseph a 45-year-old married man”.

Figure 5.1. Vignettes Describing the Four Experimental Conditions (Study 1).

4. Study 1

In the present study, we aimed to examine whether informal caregivers are dehumanized by being perceived as experiencing fewer secondary (uniquely human) emotions compared to individuals who do not perform this role. Given that the profile and work environment of informal caregivers (e.g., unpaid work, mainly performed by women, involving the care of disabled individuals), share similar characteristics with dehumanized groups (e.g., Sakalaki et al., 2017; Volpato et al., 2017), we predicted that informal caregivers would be targets of dehumanization. Therefore, we expected participants to attribute fewer secondary (uniquely human) emotions to informal caregivers than to non-caregivers, whereas no differences in the attribution of primary emotions were expected (H_1). We also explored whether the targets' gender impacts our expected effect; however, we did not advance any priori hypothesis, given the lack of previous supporting evidence.

4.1. Method

4.1.1. Participants and design

The sample comprised 180 participants (66.1% female) aged between 18 and 71 years ($M = 32.06$, $SD = 11.18$). Participants were from all regions of Portugal, but mostly resided in the Metropolitan Area of Lisbon (49.4%). Most participants had an undergraduate degree (72.8%) and nearly half were employed (46.1%).

This study used a 2 (Emotion: primary *vs*. secondary) X 2 (Target type: informal caregiver *vs*. non-caregiver) X 2 (Target gender: female *vs*. male) experimental design, with the first factor as within-participants and the two other factors as between-participants.

4.1.2. Procedure

This study was in agreement with the ethics guidelines of the Scientific Commission of the Research Centre where it was conducted and followed the principles outlined in the Declaration of Helsinki. According to the ethics guidelines of the Research Center, formal ethical approval is not required for anonymous surveys that are not compulsory, do not involve sensitive personal information or potentially harmful content, do not use deception, do not require substance ingestion, and do not involve any invasive measures.

Participants were invited to take part in an online survey created on the Qualtrics® platform (Qualtrics, Inc.; Provo, UT, USA) about person perception. Fifty-eight participants completed the study as part of a course requirement, while 122 participants were recruited from the *Clickworker* website.

After providing informed consent, participants were randomly assigned to one of the four experimental conditions mentioned in the pilot study: female informal caregiver, male informal caregiver, female non-caregiver, or male non-caregiver (see Figure 5.1.). Participants were informed that the descriptions in the vignettes were real, and to preserve the anonymity of the person, the fictitious names were used. To verify the effect of the experimental manipulation of the target, after reading/seeing the description/picture of the target in the vignette, participants in the informal caregiver's conditions were asked to recall the target's age, the spouse's level of disability, and two daily tasks performed by the informal caregiver target. This task aimed to ensure that participants perceive the informal caregiver target as a middle-aged informal caregiver of a dependent spouse. Participants in the non-caregiver's conditions were only asked to recall the target's age.

Following this, participants were asked to complete the dependent measure that assessed their perceptions of the target (dehumanization) and provided demographic information (e.g., age, education, area of the country in which they lived). At the end of the survey, participants were thanked, debriefed about the purpose of the study, and provided with the contact of the main researcher.

4.1.3. Measures

Dehumanization. The dehumanization of the target was measured by asking participants to indicate to what extent they considered the target to experience six different emotions presented in random order. These included three negative primary (fear, sadness, and pain; α = .84) and three negative secondary (bitterness, melancholy, and shame; α = .84) emotions already pre-tested for valence (Demoulin et al., 2004; Martínez et al., 2017). Responses were given on a 6-point scale (from 1 = *Not at all* to 6 = *A lot*). Only negative emotions were measured due to the distressing nature of the event, which made it less likely for participants to attribute positive emotions to informal caregivers. This decision was in line with previous studies on adverse situations where only negative emotions were assessed (e.g., Cuddy et al., 2007; Gillmor et al., 2014).

4.2. Analytic plan

Our Hypothesis 1 was tested in a 2 (Emotion: primary *vs*. secondary) X 2 (Target type: informal caregiver *vs*. non-caregiver) X 2 (Target gender: female *vs*. male) mixed repeated measures ANOVA, controlling for participants' gender. When differences between conditions were found, pairwise comparisons with Bonferroni correction were examined. The analysis was conducted using IBM SPSS Statistics 28.0.

5. Results

Manipulation Check. The manipulation check was successful, as all participants in the informal caregiver's condition correctly described the target's age, the spouse's level of disability, and two daily tasks performed by the informal caregiver target; and all the participants in the non-caregiver's condition were able to correctly describe the target's age.

Dehumanization of Informal Caregivers. Results showed a main effect of emotion, $F(1, 176) = 7.03$, $p = .009$, $\eta_p^2 = .04$, such that participants attributed more primary ($M = 4.10$, $SD = 1.15$) than secondary emotions ($M = 3.79$, $SD = 1.03$) to the targets. There was a main effect of the target type, $F(1, 176) = 12.04$, $p < .001$, $\eta_p^2 = .06$, such that participants attributed more emotions to informal caregivers ($M = 4.13$, $SD = 0.80$) than to non-caregivers ($M = 3.72$, $SD = 0.87$). There was no main effect of target gender, $F(1, 176) = 2.04$, $p = .155$, $\eta_p^2 = .01$.

As expected, there was a two-way interaction between emotion and target type, $F(1, 176) = 85.08$, $p < .001$, $\eta_p^2 = .33$. Pairwise comparisons with Bonferroni correction showed that participants attributed more secondary emotions to non-caregivers ($M = 4.02$, $SD = 0.96$) than to informal caregivers ($M = 3.59$, $SD = 1.06$), $p < .001$. In contrast, participants attributed more primary emotions to informal caregivers ($M = 4.66$, $SD = 0.99$) than to non-caregivers ($M = 3.43$, $SD = 0.95$), $p = .006$ (see Figure 5.2.).

Furthermore, in this same two-way interaction, pairwise comparisons with Bonferroni correction showed that participants attributed more secondary ($M = 4.02$, $SD = 0.96$) than primary ($M = 3.43$, $SD = 0.95$) emotions to non-caregivers, $F(1, 176) = 19.89$, $p < .001$. In contrast, participants attributed more primary ($M = 4.66$, $SD = 0.99$) than secondary ($M = 3.59$, $SD = 1.06$) emotions to informal caregivers, $F(1,176) = 77.13$, $p < .001$.

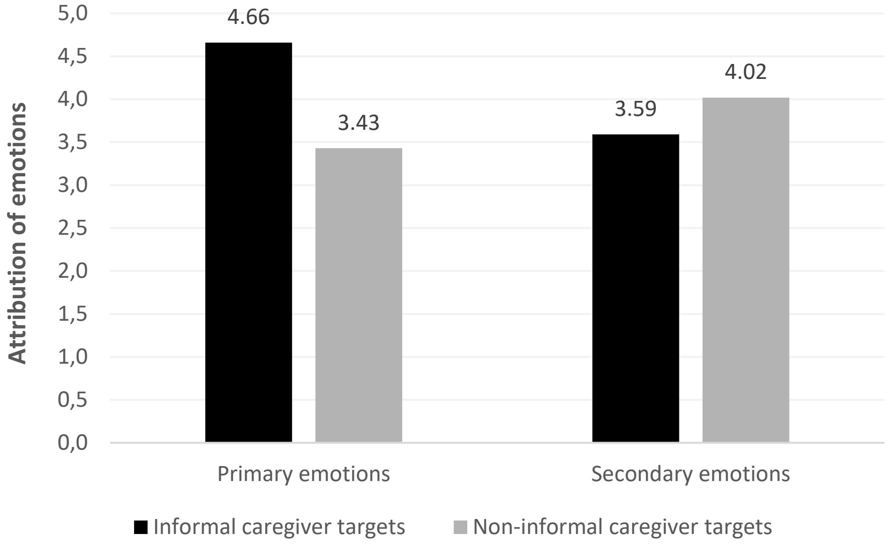

Figure 5.2. Attribution of Primary and Secondary Emotions According to Type of Target (Informal Caregivers *vs.* Non-caregivers) (Study 1).

The two-way interaction between emotion and target gender, $F(1, 176) = 1.47$, $p = .226$, $\eta_p^2 = .01$, and the two-way interaction between target type and target gender, $F(1, 176) = 2.16$, $p = .144$, $\eta_p^2 = .01$, as well as the three-way interaction between emotion, target type, and target gender, $F(1, 176) = 0.63$, $p = .430$, $\eta_p^2 = .01$, were not significant.

Controlling for participants' gender, the two-way interaction between emotion and target type remained significant, $F(1, 175) = 82.87$, $p < .001$, $\eta_p^2 = .32$; the two-way interaction between emotion and target gender remained non-significant, $F(1, 175) = 1.08$, $p = .300$, $\eta_p^2 = .01$; the two-way interaction between target type and target gender remained non-significant, $F(1, 175) = 2.13$, $p = .147$, $\eta_p^2 = .01$; and the three-way interaction between emotion, target type, and target gender remained non-significant, $F(1, 175) = 0.74$, $p = .392$, $\eta_p^2 = .01$.

6. Discussion

In this first study, we aimed to empirically examine whether informal caregivers were dehumanized when compared to non-caregivers and to explore the impact of the targets' gender on this effect.

As expected, our findings suggest that informal caregivers are indeed targets of dehumanization, as they were perceived as experiencing fewer secondary (uniquely human) emotions than non-caregivers, thus supporting our Hypothesis 1. Contrary to the predictions of

Leyens et al. (2001) and our prediction that primary emotions would be equally attributed to both groups, participants surprisingly attributed more primary emotions to informal caregivers than to non-caregivers. This may suggest that informal caregivers are perceived as less human but also more animal-like, as participants associate them with their animalistic nature, expressed through an over-attribution of primary emotions.

A more detailed examination of the attribution of each emotion separately revealed noteworthy differences. While non-caregivers were attributed with more secondary than primary emotions, informal caregivers were attributed with more primary than secondary emotions. This suggests a distancing of non-caregivers from non-human animals and of informal caregivers from human uniqueness.

Our results also demonstrated that the dehumanization of informal caregivers occurred regardless of their gender: we did not find significant differences between the attribution of primary and secondary emotions to female and male informal caregivers.

This study did not consider potential individual determinants contributing to the dehumanization of informal caregivers. Thus, in Study 2, we aimed to examine the moderating impact of participants' BJW on the dehumanization of informal caregivers.

7. Study 2

Extending from our previous study, we aimed to examine the moderating impact of participants' BJW on the dehumanization of informal caregivers. Based on the findings from Study 1, we expected that informal caregivers would be dehumanized by being attributed fewer secondary emotions (H_1[6]). Framed within the BJW theory (Lerner, 1980), and based on research examining the link between dehumanization and BJW (e.g., DeVaul-Fetters, 2014; Gillmor et al., 2014), we expected that informal caregivers would be dehumanized, especially among participants with higher BJW (H_2).

This study also examined the predictive impact of participants' BJW and the dehumanization of informal caregivers on the participants' perception of informal caregivers' suffering, while

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[6] The measure of emotion-based dehumanization typically involves assessing the attribution of primary and secondary emotions to the ingroup compared to the outgroup (Leyens et al., 2001). Nevertheless, since the findings of Study 1 already showed the dehumanization effect on informal caregivers, this study only examined how informal caregivers were perceived concerning primary and secondary emotions, without making comparisons to non-caregivers.

controlling for sociodemographic and individual variables. Previous research has indicated that the dehumanization of others (e.g., Čehajić et al., 2009; Nagar & Maoz, 2017) and a higher BJW endorsement (e.g., Hafer & Bègue, 2005) are associated with minimizing and denying the perception of others' suffering. Therefore, we expected that the participants' perception of informal caregivers' suffering would be predicted by the participants' BJW endorsement (H3) and by the dehumanization of informal caregivers (H4). Additionally, as in Study 1, we explored whether the targets' gender impacts our expected effects; however, we did not advance any priori hypothesis, given the lack of previous supporting evidence.

7.1. Method

7.1.1. Participants

The sample comprised 205 participants (68.8% female) aged between 18 and 79 years (*M* = 38.36, *SD* = 15.02). Participants were from all regions of Portugal, but mostly resided in the Metropolitan Area of Lisbon (71.7%). Most participants had an undergraduate degree (75.6%) and were employed (72.7%). The majority of them reported not being religious at all (61.5%), and not having a political orientation (56.6%). A total of 69.3% of participants reported that, at the time of the study, they were not informal caregivers or had not been informal caregivers in the past. None of these participants completed the previous study.

7.1.2. Procedure

In Study 2 the same ethical procedures as in Study 1 were followed. Participants were invited to take part in an investigation introduced as involving two independent studies: (1) a first study about person perception and (2) a second study that aimed to adapt and validate two scales for the Portuguese population. One hundred and twenty-two participants completed the survey online, while 83 participants completed the survey in a paper format[7].

After providing informed consent, participants were randomly assigned to one of two experimental conditions: female informal caregiver or male informal caregiver. Specifically, participants read a written vignette with a fictitious description of an informal caregiver target who takes care of a spouse with Alzheimer's. The gender of the target was counterbalanced, with the

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[7] Both questionnaire administration methodologies were chosen due to their potential to increase the response rate and, consequently, the sample size.

alternative wording for each experimental condition highlighted in bold: "**Mary**/**Joseph** a 63-year-old **woman**/**man** who started taking care of **her**/**his** 67-year-old **husband**/**wife** who has Alzheimer's over more than 5 years (…) **She**/**He** was forced to quit work to take care of **him**/**her** full-time (…) The doctors estimate that **his**/**her** condition may persist for more than 20 years (…) Currently, **her/his husband/wife** spends a considerable portion of the day bedridden (…) **Her**/**his** daily tasks involve bathing and dressing **his**/**her husband**/**wife**, changing **his**/**her** diapers several times a day, dressing **him/her**, giving **him**/**her** food, managing **his**/**her** daily medication, and cleaning the house (…) **She**/**He** cannot maintain a social network or take a vacation.". Participants were informed that the descriptions in the vignettes were real, and to preserve the anonymity of the person, the fictitious names of "Mary" and "Joseph" were used.

After reading the description of the target in the vignette, participants were asked to complete the dependent measures that assessed their perceptions about the target (dehumanization and suffering) and justice perceptions referring to themselves (BJW). Following this, they provided demographic information (e.g., age, education, area of the country in which they lived, religion), and were asked whether they were or have been informal caregivers. At the end of the survey, participants were thanked, debriefed about the purpose of the study, and provided with the contact of the main researcher.

7.1.3. Measures

Dehumanization. The dehumanization of the target was measured by asking participants to indicate to what extent they considered the target to experience 11 different emotions presented in random order. These included five negative primary (boredom, anguish, terror, tension, and panic; α = .75) and six negative secondary (pity, worry, bitterness, melancholy, resentment, and disconsolation; α = .83) emotions already pre-tested for valence (Demoulin et al., 2004; Martínez et al., 2017). Responses were given on a 5-point scale (from 1 = *Much less than the average person* to 5 = *Much more than the average person*). As with Study 1, we only measured negative emotions.

Belief in a just world. The participants' BJW was measured with the Portuguese translation of the six-item General Belief in a Just World scale (GBJW) (Dalbert et al., 1987) that has been found to be a good predictor of negative reactions towards victims (e.g., Sutton & Douglas, 2005). These items assess the extent to which individuals believe that the world, in general, is a just place (e.g., "I think basically the world is a just place", "I think that, by and large, people get what they deserve"; α = .65). Responses were given on a 5-point scale (from 1 = *Totally disagree* to 5 = *Totally agree*). Higher scores reflected higher levels of BJW endorsement.

Perception of informal caregivers' suffering. The participants' perception of informal caregivers' suffering was measured using ten items adapted from Sebastian et al. (2017)[8]. Some of the items have been adapted to the specific context of informal caregivers described in the experimental manipulation (e.g., "The situation in which Mary/Joseph finds herself/himself is pleasant (reversed)", "Mary's/Joseph's present life is a great sacrifice"; α = .79). Responses were given in a 5-point scale (from 1 = *Totally disagree* to 5 = *Totally agree*). Higher scores reflected higher levels of participants' perception of informal caregivers' suffering.

Control variables. Besides some relevant participants' sociodemographic characteristics, we also included participants' religiosity, empathy, and whether they were or have been informal caregivers as possible controlling variables in the hierarchical regression[9]. Participants' religiosity was measured with a single item from the European Social Survey (2018) where participants were asked to rank themselves, regardless of their particular religion, how religious they would say they were. Responses were given on a 5-point scale (from 1 = *Not religious at all* to 5 = *Very religious*). Empathy was measured using the Basic Empathy Scale in adults (BES-A) (Carré et al., 2013). We used six items for the disconnection dimension (e.g., "The emotions of my friends don't affect me much", α = .78) and eight items for the cognitive dimension (e.g., "I can often understand how people are feeling even before they tell me", α = .79). Responses were given in a 5-point scale (from 1 = *Totally disagree* to 5 = *Totally agree*). To be or have been an informal caregiver was measured with a single item ("Are you or have you ever been an informal caregiver?"), with a (yes/no) answer.

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[8] Sebastian et al. (2017) created and defined the items as a measure of negative and positive volitional stigma. However, we used the items as the perception of informal caregivers' suffering scale.

[9] We did not include political orientation as a control variable in the hierarchical regression analysis, as most participants (56.6%) did not identify with any specific political orientation.

7.2. Analytic plan

Our Hypotheses 1 and 2 were tested in a 2 (Emotion: primary *vs.* secondary) X 2 (BJW: low *vs.* high[10]) X 2 (Target gender: female *vs.* male) mixed repeated measures ANOVA, controlling for whether participants were or have been informal caregivers. When differences between conditions were found, pairwise comparisons with Bonferroni correction were examined. The analysis was conducted using IBM SPSS Statistics 28.0.

For Hypotheses 3 and 4, descriptive statistics (means and standard deviations) were performed to determine the characteristics of the study population and the studied variables. After that, bivariate correlations between all studied variables were conducted. Afterward, a hierarchical regression analysis was conducted to test the predictive impact of participants' BJW and the attribution of secondary emotions to informal caregivers in participants' perception of informal caregivers' suffering. The hierarchical regression analysis included only the variables that significantly correlated with the participants' perception of informal caregivers' suffering. The variables were ordered in two blocks: Step 1 - socio-demographic and control variables = gender, age, religiosity, cognitive empathy; Step 2 - theoretical predictors = BJW, secondary emotions. The analysis was conducted using IBM SPSS Statistics 28.0. A sensitivity power analysis using G*Power (Faul et al., 2009) indicated that we had 80% power to detect an effect size of $\eta_p^2 = .05$, for Hypotheses 3 and 4.

8. Results

Dehumanization of Informal Caregivers Moderated by BJW. Results showed a main effect of emotion, $F(1, 201) = 33.82$, $p < .001$, $\eta_p^2 = .14$, such that participants attributed more primary ($M = 3.94$, $SD = 0.62$) than secondary emotions ($M = 3.69$, $SD = 0.66$) to informal caregivers. There was a main effect of BJW, $F(1, 201) = 17.05$, $p < .001$, $\eta_p^2 = .08$, such that participants with lower BJW attributed more emotions to informal caregivers ($M = 3.98$, $SD = 0.53$) than participants with higher BJW ($M = 3.67$, $SD = 0.51$). There was no main effect of target gender, $F(1, 201) = 0.05$, $p = .826$, $\eta_p^2 = .00$.

As expected, there was a two-way interaction between emotion and BJW, $F(1, 201) = 42.70$, $p < .001$, $\eta_p^2 = .18$. Pairwise comparisons with Bonferroni correction showed that participants with

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[10] We calculated low and high BJW using a median split on the BJW scale.

higher BJW attributed more primary (*M* = 3.93, *SD* = 0.66) than secondary emotions (*M* = 3.41, *SD* = 0.68) to informal caregivers, $p < .001$. In contrast, participants with lower BJW did not differently attribute primary (*M* = 3.96, *SD* = 0.57) and secondary emotions (*M* = 3.99, *SD* = 0.48) to informal caregivers, $p = .619$ (see Figure 5.3.).

Furthermore, in this same two-way interaction, pairwise comparisons with Bonferroni correction showed that participants with higher BJW attributed fewer secondary emotions (*M* = 3.41, *SD* = 0.68) to informal caregivers than participants with lower BJW (*M* = 3.99, *SD* = 0.48), $F(1, 201) = 48.58$, $p < .001$; whereas there were no differences on the attribution of primary emotions to informal caregivers by participants with higher BJW (*M* = 3.93, *SD* = 0.66) and lower BJW (*M* = 3.96, *SD* = 0.57), $F(1, 201) = 0.11$, $p = .742$.

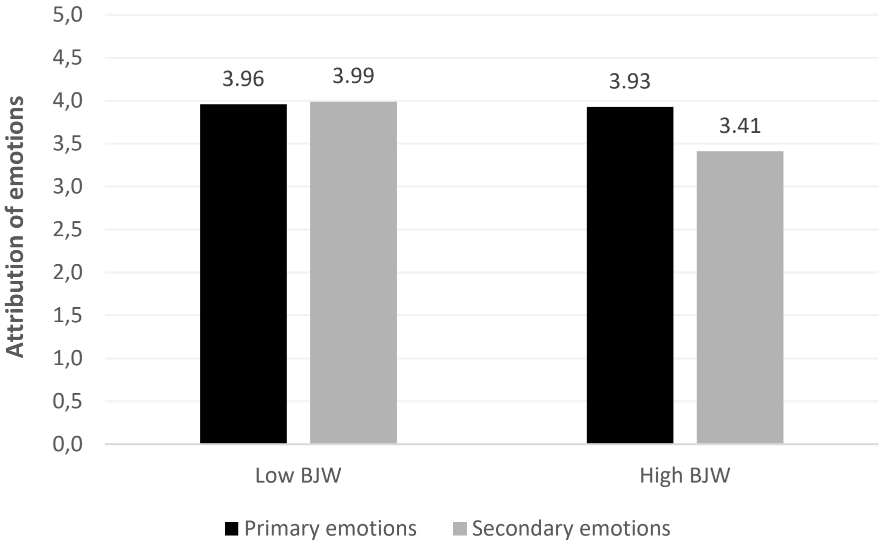

Figure 5.3. Attribution of Primary and Secondary Emotions According to Participants' BJW (Low BJW *vs.* High BJW) (Study 2).

The two-way interaction between emotion and target gender, $F(1, 201) = 0.79$, $p = .374$, $\eta_p^2 = .05$, and the two-way interaction between target gender and BJW, $F(1, 201) = 0.00$, $p = .981$, $\eta_p^2 = .00$., as well as the three-way interaction between emotion, BJW, and target gender, $F(1, 201) = 1.978$, $p = .161$, $\eta_p^2 = .01$, were not significant.

Controlling whether participants were or have been informal caregivers, the two-way interaction between emotion and BJW remained significant, $F(1, 200) = 42.17$, $p < .001$, $\eta_p^2 = .17$; the two-way interaction between emotion and target gender remained non-significant, $F(1, 200) = 0.81$, *p*

= .368, η_p^2 = .00; the two-way interaction between target gender and BJW remained non-significant, *F*(1, 200) = 0.00, *p* = .981, η_p^2 = .00; and the three-way interaction between emotion, BJW, and target gender remained non-significant, *F*(1, 200) = 1.893, *p* = .170, η_p^2 = .01.

*The Predictive Role of Participants' BJW and the Dehumanization of Informal Caregivers in the Participants' Perception of Informal Caregivers' Suffering***.** The descriptive statistics and the pattern of correlations between all the studied variables are presented in Table 5.1. The perception of informal caregivers' suffering was significantly and negatively correlated with BJW (*r* = -.34, *p* < .001) and religiosity (*r* = -.20, *p* = .004); and positively correlated with secondary emotions (*r* = .41, *p* < .001) and cognitive empathy (*r* = .15, *p* = .036). The BJW was significantly and negatively correlated with secondary emotions (*r* = -.44, *p* < .001); and positively correlated with religiosity (*r* = .14, *p* = .046). Cognitive empathy was significantly and negatively correlated with emotional disconnection (*r* = -.42, *p* < .001). Being a woman was significantly and negatively correlated with being or having been an informal caregiver (*r* = -.22, *p* < .001); and positively correlated with religiosity (*r* = .15, *p* = .029) and cognitive empathy (*r* = .14, *p* = .042). Finally, a significant negative correlation between age and being or having been an informal caregiver was found (*r* = -.28, *p* < .001).

The results of the hierarchical regression analysis are presented in Table 5.2. The analysis revealed that Model 1 was statistically significant (*F*(4, 204) = 3.69, *p* = .006) and that participants' religiosity (β = -.21, *p* = .003) and cognitive empathy (β = .15, *p* = .030) significantly explained 0.7% of the variance in the participants' perception of informal caregivers' suffering. Higher participants' religiosity and fewer participants' cognitive empathy significantly predicted the participants' minimization of the perception of informal caregivers' suffering. In Model 2, the inclusion of participants' BJW and attribution of secondary emotions to informal caregivers led to a significant improvement in the model, with significant changes in R^2 of 18% (*F*(6, 204) = 10.70, *p* < .001). Specifically, 25% of the variance in the participants' perception of informal caregivers' suffering was predicted by participants' religiosity (β = -.17, *p* = .007), participants' BJW (β = -.18, *p* = .013), and the attribution of secondary emotions to informal caregivers (β = .32, *p* < .001). Higher participants' religiosity, higher participants' BJW, and a lower attribution of secondary emotions (dehumanization) to informal caregivers significantly predicted the participants' minimization of the perception of informal caregivers' suffering.

Table 5.1.

Descriptive Statistics and Bivariate Correlations between Variables (Study 2)

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Gender[a]	0.69	-	-								
2. Age	38.36	15.02	0.12	-							
3. Religiosity	1.71	1.08	0.15*	0.11	-						
4. To be or have been an informal caregiver	0.69	-	-0.22***	-0.28***	-0.09	-					
5. Emotional disconnection	1.65	0.66	-0.12	0.04	0.00	-0.01	-				
6. Cognitive empathy	4.08	0.60	0.14*	-0.12	-0.02	-0.08	-0.42***	-			
7. BJW	2.28	0.67	-0.07	-0.06	0.14*	-0.06	0.07	0.00	-		
8. Secondary emotions	3.69	0.66	-0.04	0.02	-0.04	-0.01	-0.14	0.12	-0.44***	-	
9. Perception of informal caregivers' suffering	4.22	0.54	0.01	0.04	-0.20**	-0.09	-0.11	0.15*	-0.34***	0.41***	-

Note. For all measures, scores were computed by averaging across items, with higher scores indicating a higher endorsement of the construct. For gender, 1 indicates "male" and 2 "female"; For to be or have been an informal caregiver, 1 indicates "yes" and 2 "no"
Abbreviations: BJW = belief in a just world

[a] Dummy variable: It reports the proportion of females, and the proportion of participants that reported were not an informal caregiver at the time of the study or had not been an informal caregiver in the past (respectively).

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Table 5.2.

Hierarchical Regression Analysis Predicting the Perception of Informal Caregivers' Suffering (Study 2)

Variable	*B*	95% CI for *B*		*SE B*	β	R^2	ΔR^2
		LL	UL				
Step 1						0.07	0.05^{**}
Constant	3.71^{***}	3.13	4.29	0.30			
Gender	0.01	-0.15	0.17	0.08	0.01		
Age	0.00	-0.00	0.01	0.00	0.08		
Religiosity	-0.11^{**}	-0.17	-0.04	0.04	-0.21^{**}		
Cognitive empathy	0.14^{*}	0.01	0.26	0.06	0.15^{*}		
Step 2						0.25	0.22^{***}
Constant	3.22^{***}	2.47	3.97	0.38			
Gender	0.02	-0.13	0.17	0.08	0.02		
Age	0.00	-0.00	0.01	0.00	0.06		
Religiosity	-0.09^{**}	-0.15	-0.02	0.03	-0.17^{**}		
Cognitive empathy	0.10	-0.01	0.22	0.06	0.11		
BJW	-0.14^{*}	-0.25	-0.03	0.06	-0.18^{*}		
Secondary emotions	0.26^{***}	0.15	0.37	0.06	0.32^{***}		

Note. For all measures, scores were computed by averaging across items, with higher scores indicating a stronger endorsement of the construct. For gender, 1 indicates "male" and 2 "female"

Abbreviations: BJW = belief in a just world

B = unstandardized coefficients; *β* = standardized coefficients; CI = confidence interval; LL = lower limit; UL = upper limit

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Mediating Effect of Dehumanization of Informal Caregivers on the Relationship between BJW and the Perception of Informal Caregivers' Suffering. Given the results consistently found the impact of participants' BJW and the attribution of secondary emotions to informal caregivers on the participants' perception of informal caregivers' suffering, we tested a model of the relationship between these variables. Specifically, to test the possible indirect effect of the participants' BJW on the participants' perception of informal caregivers' suffering through the attribution of fewer secondary emotions (dehumanization) to informal caregivers, we computed a mediation model using PROCESS macro (Model 4; Hayes, 2017) with 5,000 bootstrap samples. Our analysis revealed a significant indirect effect (β = -.11, 95% CI [-0.19, -0.05]), which suggests that the participants' BJW impacts their perception of informal caregivers' suffering through the attribution of fewer secondary emotions (dehumanization) of informal caregivers (see Figure 5.4.). These results demonstrated that the higher the participants' BJW and the less they attribute secondary emotions to informal caregivers, the more they minimize the perception of informal caregivers' suffering. When considering secondary emotions in the path between participants' BJW to their perception of informal caregivers' suffering (the indirect effect), the direct path between participants' BJW to their perception of informal caregivers' suffering (direct effect) is no longer significant (β = -.16, *p* = .05, 95% CI [0.01, -0.27]), which indicates a mediation effect.

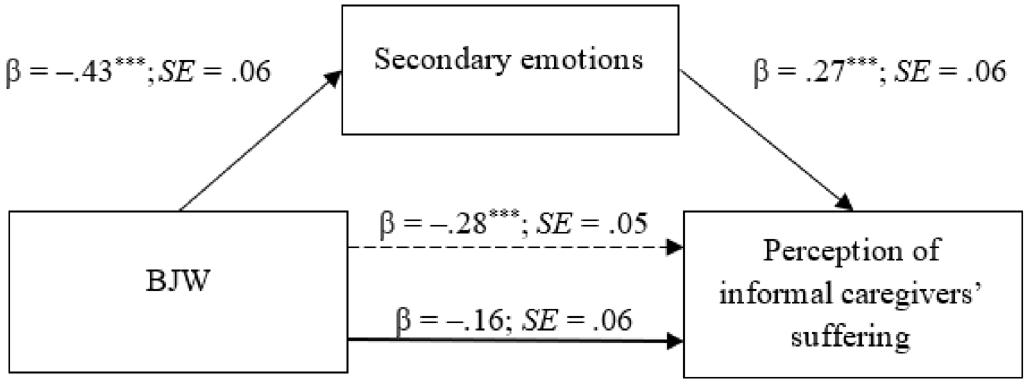

Figure 5.4. Test of the Indirect Effect of BJW on the Perception of Informal Caregivers' Suffering through Dehumanization of Informal Caregivers (Study 2).

Note. The dotted line shows coefficient weights for the relationship before mediation by the attribution of secondary emotions to informal caregivers (total effect). β = nonstandardized coefficients; *SE* = standard error.
*** *p* < .001.

9. Discussion

This study aimed to build upon the findings of Study 1 by examining the moderating impact of participants' BJW on the dehumanization of informal caregivers. Additionally, we aimed to examine the predictive impact of participants' BJW and the dehumanization of informal caregivers on the participants' perception of informal caregivers' suffering, while controlling for sociodemographic and individual variables. As in Study 1, we also explored whether the targets' gender impacts the dehumanization effect.

As expected, our findings replicated the findings of Study 1 by showing that individuals dehumanize informal caregivers, thus supporting our Hypothesis 1. In line with Study 1, our results also provided additional support for the over-attribution of primary emotions to informal caregivers, suggesting that informal caregivers are relegated to a lower and more primitive order of humanity, as primary emotions are more rapidly associated with animals than with humans (Demoulin et al., 2004). Moreover, our results also showed that the dehumanization of informal caregivers occurred regardless of the gender of informal caregivers.

We also extended these findings by showing that the dehumanization of informal caregivers was moderated by participants' BJW endorsement. Specifically, while participants with lower BJW did not differ on the attribution of primary and secondary emotions to informal caregivers, participants with higher BJW attributed them more primary than secondary emotions, supporting our Hypothesis 2. These findings suggest that individuals with higher BJW are more likely to dehumanize informal caregivers, possibly as a defensive mechanism when confronted with the challenging life conditions faced by informal caregivers, serving to restore their BJW.

Moreover, our findings also revealed the predictive impact of participants' religiosity, participants' BJW, and the dehumanization of informal caregivers on the participants' perception of informal caregivers' suffering. These findings support our Hypotheses 3 and 4 and suggest that higher participants' religiosity, higher participants' BJW, and the lower attribution of secondary emotions (dehumanization) to informal caregivers predicted the participants' minimization of the perception of informal caregivers' suffering.

Furthermore, we tested the possible indirect effect of participants' BJW on the participants' minimization of the perception of informal caregivers' suffering through the attribution of fewer secondary emotions (dehumanization) to informal caregivers. Notably, we found that the dehumanization of informal caregivers was an underlying process between participants' BJW and their minimization of the perception of informal caregivers' suffering.

10. General discussion

Our studies address for the first time the dehumanization of informal caregivers and the conditions in which this phenomenon seems to occur.

Results from Study 1 showed that informal caregivers were dehumanized, as they were perceived as experiencing fewer secondary emotions compared to non-caregivers. Study 2 while not directly comparing informal caregivers and non-caregivers, still showed a consistent pattern of attributing fewer secondary emotions to informal caregivers. This aligns with prior research on the dehumanization of stigmatized groups facing difficult conditions, like disabled individuals, elderly individuals, women, and low-status occupational groups (e.g., Boudjemadi et al., 2017; Fiske et al., 2002; Volpato et al., 2017), which share similarities with the profile and role of informal caregivers. Indeed, informal care is mostly performed by women who provide care without monetary compensation to dependent elderly or disabled individuals, often dehumanized and facing challenging conditions. Moreover, the caregiving role involves emotional involvement, nurturing, and sensitivity, characteristics often associated with animals. Furthermore, perceiving informal caregivers as less than human may lead to their social devaluation and invisibility in society, despite their crucial contributions. Indeed, dehumanization has the potential to result in reduced opportunities for intergroup engagement (Haslam & Loughnan, 2014), reduced empathy for others' suffering (e.g., Čehajić et al., 2009; Nagar & Maoz, 2017), reduced prosocial behavior (e.g., Andrighetto et al., 2014; Cuddy et al., 2007), and reluctance to support for welfare policies (e.g., Sainz et al., 2020).

Surprisingly, in both studies, informal caregivers were attributed with more primary than secondary emotions, suggesting an attempt to differentiate them from the non-caregivers. At this point, only a few studies have identified a similar over-attribution of primary emotions to outgroups (e.g., Leyens et al., 2001, Study 1; Rodrigues et al., 2018; Rohmann et al., 2009; Viki & Calitri, 2008). Because caring is an integral part of women's identity (e.g., Erreguerena, 2015; Esplen, 2009; United Nations, 2019), we could perceive the over-attribution of primary emotions to informal caregivers as a simple reflection of the traditional stereotype by which women are perceived (e.g., emotional, warm, and affectionate). However, the same pattern of results was not found for the female non-caregiver, which suggests that this effect is not driven by the target's gender but by the characteristics associated with the informal caregiving role. We believe that the over-attribution of primary emotions to informal caregivers and the tendency to associate this group more closely with animals than with humans (Demoulin et al., 2004), may suggest a devaluation of their role and a reduced social status.

In addition to this, both studies contribute to understanding the impact of informal caregivers' gender on their dehumanization. Specifically, the results reveal no significant difference in the attribution of secondary emotions based on the gender of informal caregivers. This suggests that perceiving informal caregivers as less human is more influenced by their caregiving status than their gender.

Moreover, the results of Study 2 further reveal that individuals' BJW endorsement plays a role in the dehumanization of informal caregivers. Specifically, participants with higher BJW were more likely to dehumanize informal caregivers as they attributed them more primary than secondary emotions. In contrast, participants with lower BJW showed no difference in the attribution of primary and secondary emotions to informal caregivers. This supports previous research indicating that dehumanization is a strategy employed by those with higher BJW to cope with injustices in the world (e.g., DeVaul-Fetters, 2014; Gillmor et al., 2014). The dehumanization of victims may serve as another form of secondary victimization used by individuals motivated to perceive the world as just. Considering that the highly demanding nature of informal caregiving has the potential to threaten participants' sense of justice, it is plausible that the dehumanization of victims represents another form of secondary victimization, especially by those individuals more motivated to perceive the world as a just place.

Study 2 also highlights for the first time the relationship between BJW, dehumanization, and the perception of suffering. Indeed, we aimed to test the predictive impact of participants' BJW and the dehumanization of informal caregivers on the participants' perception of informal caregivers' suffering. Moreover, we included individual variables such as participants' religiosity and participants' cognitive empathy as control variables in the analysis. Our findings suggest that higher participants' religiosity, higher participants' BJW, and the dehumanization of informal caregivers contributed to the participants' minimization of the perception of informal caregivers' suffering. This suggests that the dehumanization of informal caregivers may be considered a functional and adaptive mechanism for individuals with higher BJW to cope with the distress linked to witnessing others' suffering.

Additional analysis indicated that the association between participants' BJW and the participants' minimization of the perception of informal caregivers' suffering was mediated by the dehumanization of informal caregivers. This finding not only adds to previous literature on the association between BJW endorsement and dehumanization in minimizing others' suffering but also establishes a theoretical connection between these three areas of research. It emphasizes the importance of recognizing and valuing the unique emotional experiences of informal caregivers and the potential harm caused by their dehumanization.

10.1. Strengths and limitations

The strengths inherent in our studies are evident through several key aspects. Firstly, in Study 1, we presented vignettes of a paraplegic spouse accompanied by a picture of a woman or a man depending on the experimental condition, while in Study 2, we presented vignettes of a spouse with dementia without accompanying pictures. Even though there was this difference in the experimental manipulations, getting similar results in both studies strengthens the validity of the findings. This suggests that the observed effects are not dependent on specific details of the experimental manipulation or context, but rather represent a robust and generalizable phenomenon.

Another strength is related to the dehumanization measures used. It is reasonable to expect that using both absolute and relative measures to assess the degree of dehumanization of informal caregivers could lead to different results (Dawtry et al., 2018). In Study 1 participants assessed the dehumanization of the target without making comparisons to anyone else (absolute measure; from 1 = *Not at all* to 6 = *A lot*). In Study 2 participants were asked to assess the dehumanization of the target in comparison to others (relative measure; from 1 = *Much less than the average person* to 5 = *Much more than the average person*). Relative measures are less susceptible to the impact of social norms and may provide a more precise understanding of the underlying motivation driving derogatory behavior towards victims compared to absolute measures. However, our investigation produced consistent results across both objective and relative measures of dehumanization.

However, it is important to recognize certain limitations that might have affected the scope and generalizability of our findings. One major limitation is the use of convenience sampling, which may have restricted the representativeness and generalizability of our findings. Moreover, most of our participants were women, who might generally show more empathy and willingness to help others compared to men (MacGeorge et al., 2003). Additionally, the limited age range of our sample may have limited the generalizability of our conclusions to other age groups, as they may have had less contact with informal caregivers. To improve the external validity of our studies, future research should aim to recruit a more diverse sample in terms of gender and age.

Furthermore, while previous studies examining adverse situations have only assessed dehumanization through negative emotions (e.g., Cuddy et al., 2007; Gillmor et al., 2014), it is possible that considering positive emotions might yield different results. To disentangle this possibility, future research could build on our findings by investigating the dehumanization of informal caregivers using both positive primary and secondary emotions. Moreover, future studies should extend our results and investigate other forms of dehumanization of informal caregivers using for example other subtle measures of dehumanization (e.g., attribution of uniquely human and human nature personality traits; Haslam, 2006), or an explicit and direct blatant dehumanization measure (e.g., Ascent of Human measure; Kteily et al., 2015). Future studies should also seek to understand how these forms of dehumanization might influence not only the perception of informal caregivers' suffering but also prosocial behavior towards them. Lastly, future studies should examine the self-dehumanization of informal caregivers and should seek to understand the actual implications of such dehumanization for their psychological and physical well-being.

Another limitation relates to the use of self-reported measures for all predictors and outcome variables in the linear regression raises concerns about potentially shared method variance, which could lead to an overestimation of the associations between them.

One final limitation concerns the mediation analysis. Even though the direct effect between participants' BJW and the participants' perception of the informal caregivers' suffering is no longer significant, caution is needed in interpreting the causal relationship between the dependent and mediator variables since the association is correlational in nature (Pirlott & MacKinnon, 2016).

11. Conclusion

To the best of our knowledge, our research is pioneering in examining whether and under which conditions informal caregivers are dehumanized. This investigation contributes to the literature by revealing that informal caregivers are dehumanized, regardless of their gender. Indeed, informal caregivers were attributed fewer secondary emotions compared to non-caregivers. Moreover, this effect was moderated by participants' BJW endorsement, as participants with higher BJW were more likely to dehumanize informal caregivers. Furthermore, our results showed that the dehumanization of informal caregivers serves as an underlying process in the relationship between participants' BJW and the minimization of the perception of informal caregivers' suffering. We hope that these results open a new avenue for the study of informal caregivers because they offer both theoretical and practical insights for addressing the dehumanization processes that take place toward informal caregivers.

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CHAPTER 6.

Deepening the understanding of the dehumanization of informal caregivers: Considering two trait-based measures of dehumanization and the impact of informal caregivers' socioeconomic status

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Romão, Â., & Correia, I. Deepening the understanding of the dehumanization of informal caregivers: Considering two trait-based measures of dehumanization and the impact of informal caregivers' socioeconomic status.

1. Abstract

Previous studies have shown that informal caregivers are stigmatized and dehumanized. Building upon the recent research by Romão and Correia (2024), who found evidence of the dehumanization of informal caregivers using an emotion-based measure, we conducted two experimental studies to further examine (a) whether informal caregivers are also dehumanized when two trait-based measures are used; (b) and the impact of informal caregivers' socioeconomic status (SES) on this dehumanization effect. In Study 1 ($N = 155$; $M_{\text{age}} = 29.80$, $SD = 10.47$) and Study 2 ($N = 188$; $M_{\text{age}} = 24.77$, $SD = 9.14$), participants were randomly assigned to read one of eight descriptions of a target (Study 1: female informal caregiver *vs.* female non-caregiver; Study 2: male informal caregiver *vs.* male non-caregiver) that varied across different SES levels (high-SES *vs.* middle-SES *vs.* low-SES *vs.* control). Afterward, participants assessed the target's humanity by attributing to it non-uniquely and uniquely human traits. The results consistently showed the expected dehumanization effect, with participants attributing fewer uniquely human and more non-uniquely human traits to informal caregivers than to non-caregivers. Conversely, non-caregivers were perceived as fully human. Interestingly, this dehumanization effect tended to occur regardless of the informal caregivers' SES. Overall, this research replicated the original findings using two trait-based measures of dehumanization and extended our understanding of the potential impact of informal caregivers' SES on this phenomenon.

Keywords: dehumanization, informal caregivers, socioeconomic status

2. Introduction

Informal caregivers provide unpaid assistance to individuals with chronic illnesses and disabilities (Cipolletta et al., 2020; Schulz et al., 2020). They play a central role in supporting families, societies, and healthcare systems as their support increases the well-being of those in need of care and generates substantial cost savings for governments (Peña-Longobardo & Oliva-Moreno, 2022; Revenson et al., 2015). It would be reasonable to expect governments to adequately prioritize the safety, health, and well-being of informal caregivers, and to recognize and support them for their crucial contributions. However, there is evidence suggesting that informal caregivers are not only stigmatized (e.g., Kinnear et al., 2016; Yip & Chan, 2022; Zwar et al., 2020) but also dehumanized (e.g., Romão & Correia, 2024).

Considering the similarities between the profile and work environment of informal caregivers – unpaid work, predominantly performed by women with low-SES, who care for individuals with disabilities – with those of disadvantaged groups (e.g., individuals with disabilities, Martinez et al., 2011; the elderly, Boudjemadi et al., 2017; traditional women, Fiske et al., 2002; and low-income occupational groups, Volpato et al., 2017), who are often dehumanized by being attributed fewer uniquely human (secondary) emotions (e.g., optimism) and uniquely human traits (e.g., competence), it would be reasonable to expect informal caregivers to be perceived as lacking those attributes.

This hypothesis was originally tested by Romão and Correia (2024) in two experimental studies. They asked participants to randomly read a description of an informal caregiver target or a non-caregiver target and then attribute non-uniquely (primary) and uniquely human (secondary) emotions to the target. The descriptions varied regarding the target's gender (female or male). Consistent with their hypothesis, participants attributed fewer uniquely human and more non-uniquely human emotions to informal caregivers than non-caregivers. Results were independent of the informal caregivers' gender, suggesting that the informal caregiver role was the most important factor in their dehumanization.

Despite their findings, Romão and Correia (2024) acknowledge the limited applicability of an emotion-based measure of dehumanization as a limitation. We built upon the original research and examined whether informal caregivers are also dehumanized when two trait-based measures are used. Furthermore, although they have analyzed how informal caregivers' gender impacts their dehumanization, they have not examined the impact of socioeconomic status. Therefore, our research aimed to examine the impact of informal caregivers' SES on this dehumanization effect.

Indeed, previous research has shown that both low-SES and high-SES individuals/groups tend to be stereotyped and dehumanized (e.g., Sainz et al., 2018). Specifically, low-SES individuals/groups are often perceived as warm but incompetent and, therefore, subjected to animalistic dehumanization, while high-SES individuals/groups are often perceived as competent but cold and, therefore, subjected to mechanistic dehumanization (Durante et al., 2017; Fiske et al., 2007; Sainz et al., 2018). The perception of low-SES individuals as less evolved justifies income inequality and often results in indifference and blame towards them (Sainz et al., 2019, 2020; Waytz & Schroeder, 2014). Conversely, perceiving high-SES individuals as cold and rigid leads to negative attitudes (Horwitz & Dovidio, 2017) and reduced prosocial behaviors toward them (Van Doesum et al., 2017).

2.1. Theoretical models of dehumanization

Dehumanization, defined as the denial of human traits and characteristics to certain individuals and groups (Haslam & Loughnan, 2014), has received extensive attention in social psychology in the last decades (Haslam, 2021; Haslam & Loughnan, 2014, for reviews). Initially examined in extreme contexts such as explicit intergroup conflict and violence (Kelman, 1976), research over the past two decades has substantially expanded the understanding of dehumanization as an everyday, subtle, and pervasive phenomenon (Bastian et al., 2014; Leyens et al., 2001). The most influential theoretical models of dehumanization include the Infrahumanization Theory (Leyens et al., 2000, 2001), the Dual Model of Dehumanization (Haslam, 2006), and the Stereotype Content Model (Fiske et al., 2002).

The Infrahumanization Theory (Leyens et al., 2000, 2001) conceptualizes dehumanization as the denial of specific emotions to others. According to this theoretical framework, individuals dehumanize members of an outgroup by attributing them fewer secondary emotions, which are uniquely human and require higher levels of cognition and morality (e.g., hope, shame), while usually attributing primary emotions, shared with other animals and requiring lower processing levels (e.g., pain, pleasure) equally to ingroup and outgroup members (Demoulin et al., 2004; Leyens et al., 2000, 2001).

The Dual Model of Dehumanization (Haslam, 2006) defines dehumanization as the denial of specific personality traits to others. Haslam (2006) proposes two distinct dimensions of humanness: Human Uniqueness, which refers to the traits that distinguish humans from other animals (e.g., civility, rationality); and Human Nature, which refers to the traits that distinguish humans from objects or machines (e.g., emotional depth, cognitive openness). Denying uniquely human traits to others leads to animalistic dehumanization, with people being perceived and treated as primitive and irrational, like animals. On the other hand, denying human nature traits to others leads to mechanistic dehumanization, with people being perceived and treated as cold and heartless objects or machines. Haslam (2006) suggests that infrahumanization (Leyens et al., 2001) is linked to animalistic dehumanization since the outgroup is perceived as close to animals.

The Stereotype Content Model (SCM; Fiske et al., 2002) suggests that people evaluate others based on two dimensions: warmth and competence. Warmth reflects perceived cooperation and friendliness, while competence captures the perceived status, intelligence, and general ability of groups. Different combinations of these dimensions elicit different emotions and behavioral responses. Previous research on SCM (e.g., Harris & Fiske, 2006, 2011) has shown that groups low in competence and warmth are particularly vulnerable to dehumanization. However, more recently, Fiske (2021) has argued that dehumanization extends to other quadrants of SCM, with different forms of dehumanization varying based on the combination of different levels of warmth and competence (Fiske, 2021, for a review).

Li et al. (2014) proposed the integration of these theoretical models, suggesting that they all fall under the same umbrella of dehumanization, which can be divided into two main dimensions: (1) competence and uniquely human traits, and (2) warmth and human nature traits. Indeed, previous studies (e.g., Kuljian & Hohman, 2022; Loughnan & Haslam, 2007; Rodríguez-Pérez et al., 2021) have shown an evident parallel between these dimensions, with individuals/groups high on human uniqueness but low in human nature being perceived as competent but cold, while the reverse is true for those high human nature but low human uniqueness (Loughnan & Haslam, 2007). Thus, according to Li et al. (2014), animalistic dehumanization corresponds to perceiving others as lacking uniquely human (secondary) emotions, competence, and uniquely human traits, while mechanistic dehumanization corresponds to perceiving others as lacking warmth and human nature traits (Li et al., 2014).

2.2. The present research

We built upon the original research by Romão and Correia (2024) by conducting two experimental studies. Due to the similarities between the theoretical models of dehumanization (e.g., Li et al., 2014), we aimed to examine whether informal caregivers are also dehumanized when two trait-based measures are used (based on the Dual Model of Dehumanization, Haslam, 2006; and the Stereotype Content Model, Fiske et al., 2002). Specifically, in Study 1, participants were randomly presented with a description of a female informal caregiver or a female non-caregiver, accompanied by a picture of a woman identified with the fictitious name of "Mary"; in Study 2, participants were randomly presented with a description of a male informal caregiver or a male non-caregiver and a picture of a man identified with the fictitious name of "Joseph". Following the original findings, we expected participants to animalistically dehumanize informal caregivers, i.e., to attribute fewer competence and uniquely human traits and more warmth and human nature traits to informal caregivers than to non-caregivers (H_1).

In their original research, Romão and Correia (2024) did not consider how informal caregivers' SES impacts their dehumanization. Therefore, we extended their findings by examining, in both studies, the impact of informal caregivers' SES on the dehumanization effect. For that, we manipulated the target's SES by pairing each target with different education levels and occupations (high-SES *vs.* middle-SES *vs.* low-SES *vs.* control). As we expected the animalistic dehumanization of informal caregivers, we predicted a three-way interaction between the type of trait, the type of target, and the SES of the target, with participants attributing fewer competence and uniquely human traits and more warmth and human nature traits to informal caregivers than to non-caregivers, regardless of their SES level (H_2).

Studies 1 and 2 were very similar, differing only in the target's gender: in Study 1 the target was female, while in Study 2 the target was male.

3. Study 1

In the present study, we aimed to examine whether the female informal caregiver was animalistically dehumanized by being attributed fewer competence and uniquely human traits and more warmth and human nature traits, than the female non-caregiver. We also examined the impact of informal caregivers' SES on this dehumanization effect.

3.1. Method

3.1.1. Participants and design

The sample comprised 155 participants (77.4% female) aged between 19 and 64 years (*M* = 29.80, *SD* = 10.47). Participants were from all regions of Portugal, but mostly resided in the Metropolitan Area of Lisbon (54.2%). Most participants had a graduate degree (76.2%) and were employed (54.2%). As far as income was concerned, 22.6% of the participants referred it was easy to live with their present income, 55.5% considered their present income as being enough to live, 12.9% stated that it was difficult to live with their present income and 9% referred it was very difficult to live with their present income.

This study used a 2 (Stereotypical dimensions: warmth *vs.* competence) X 2 (Humanness dimensions: human nature *vs.* human uniqueness) X 2 (Target type: female informal caregiver *vs.* female non-caregiver) X 4 (Target SES: high-SES *vs.* middle-SES *vs.* low-SES *vs.* control) experimental design, with the first two factors as within-participants and the two other factors as between-participants.

3.1.2. Procedure

This study followed the ethical guidelines of the Scientific Commission of the Research Centre where it was conducted and followed the principles outlined in the Declaration of Helsinki. Participants were invited to take part in an online survey created on the Qualtrics® platform (Qualtrics, Inc.; Provo, UT, USA) about person perception. Fifty-six participants completed the study as part of a course requirement.

After providing informed consent, participants were randomly assigned to one of the eight conditions that defined the experimental design (see Figure 6.1.). Specifically, participants were randomly presented with a description of a female informal caregiver target or a female non-caregiver target, with variations based on SES levels (high-SES *vs.* middle-SES *vs.* low-SES *vs.* control). Following the scenario used by Romão and Correia (2024), participants in the female informal caregiver condition read a fictitious description of the name, age, and daily tasks of an informal caregiver responsible for caring for a spouse who became paraplegic and suffered a brain injury after a car accident; participants in the female non-caregiver condition simply read a fictitious description of the name and age of the married female. Participants were informed that the descriptions in the vignettes were real and, to preserve the person's anonymity, the fictitious name "Mary" was used.

The manipulation of the target's SES followed the procedure applied by Bernardes et al. (2021). Specifically, descriptions varied across four SES levels (high-SES *vs*. middle-SES *vs*. low-SES *vs*. control), which were based on different indicators of SES, namely, level of education and occupation (see Figure 6.1.[11]). To check the effect of the experimental manipulation of the target's SES, participants were asked to recall the target's occupation after reading the description. Participants in the SES control condition were asked to recall the target's age. To increase the perception of realism in the descriptions, the written vignettes were paired with a picture of a woman, perceived as ambiguous in terms of SES, previously pre-tested by Romão and Correia (2024) (see Appendix A).

Next, participants were asked to complete the dependent measures and to provide demographic information (e.g., age, education, residence). At the end of the survey, participants were thanked, debriefed about the purpose of the study, and provided with the contact of the main researcher.

3.1.3. Measures

Stereotypical Dimensions. To assess the attribution of stereotypical traits, participants were asked to freely associate five characteristics that best applied to the target (Free Association Task)[12]. The analysis included only those words that appeared four or more times in the dataset. The characteristics attributed to each target were categorized as dimensions of warmth or competence based on Fiske et al. (2002) and Cuddy et al. (2008) (see Appendix C). The categorizations of characteristics were performed by two researchers. Disagreements were addressed and settled through a mutual agreement.

Humanness Dimensions. To assess the attribution of humanness traits, participants were asked to rate the target on six items assessing the attribution of human nature and uniquely human traits, adapted from Bastian and Haslam (2010). These included three items associated with the human nature dimension ("I feel that Mary is emotional, she is responsive and warmth", "I feel that Mary

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[11] The alternative wording is highlighted in bold.

[12] Words directly stating the target's characteristics in the descriptions, such as age or occupation, were omitted to ensure that the analysis was solely based on inferences drawn beyond the presented information.

is superficial like she has no depth” (reversed), “I feel that Mary is mechanical and cold, like a robot” (reversed); α = .76) and three items associate with the human uniqueness dimension (“I feel like Mary is refined and cultured”, “I feel that Mary is rational and logical, she is intelligent”, “I feel that Mary is unsophisticated” (reversed); α = .68). Responses were given on a 5-point scale (from 1 = *Totally disagree* to 5 = *Totally agree*).

Experimental conditions	
Female informal caregiver	**Female non-caregiver**
Picture of a woman “This is Mary a 45-year-old woman that has a **doctoral degree and is a judge (high-SES)/twelfth grade and is a secretary (middle-SES)/ninth grade and is a factory worker (low-SES)/no information (control-SES)** and started taking care of her 47-year-old husband who became paraplegic and with a brain injury after a car accident (…) She was forced to quit work to take care of him full-time, as he has a permanent disability level of 93% (…) Currently, her husband spends a significant part of the day either bedridden or in a wheelchair (…) Her daily tasks involve bathing and dressing her husband, changing his diapers several times a day, dressing him, giving him food, managing his daily medication, and cleaning the house (...) She cannot maintain a social network or take a vacation.”	**Picture of a woman** “This is Mary a 45-year-old married woman that has a **doctoral degree and is a judge (high-SES)/twelfth grade and is a secretary (middle-SES)/ninth grade and is a factory worker (low-SES)/no information (control-SES)**”.

Figure 6.1. Vignettes Describing the Eight Experimental Conditions (Study 1).

3.2. Analytic plan

Our hypotheses were tested in two separate repeated measures ANOVAs. One ANOVA was conducted for each dependent variable: Stereotypical dimensions (warmth *vs.* competence) and Humanness dimensions (human nature *vs.* human uniqueness). Each ANOVA had a 2 (Target type: female informal caregiver *vs.* female non-caregiver) X 4 (Target SES: high-SES *vs.* middle-SES *vs.* low-SES *vs.* control) factorial design. Both analyses controlled for participants' SES. When differences between conditions were found, pairwise comparisons with Bonferroni correction were examined. The analyses were conducted using IBM SPSS Statistics 28.0.

4. Results

Manipulation Check. The manipulation check was successful, as all participants correctly attributed an occupation to the target that corresponded to their SES condition; and all the participants in the SES control condition were able to correctly describe the target's age.

Attribution of stereotypical dimensions. Results showed a main effect of stereotypical dimensions, $F(1, 147) = 90.93$, $p < .001$, $\eta_p^2 = .38$, such that participants attributed more warmth ($M = 2.08$, $SD = 1.37$) than competence traits ($M = 0.75$, $SD = 0.96$) to the targets. There was a main effect of target type, $F(1, 147) = 25.02$, $p < .001$, $\eta_p^2 = .15$, such that participants attributed more stereotypical traits to the female informal caregiver ($M = 1.68$, $SD = 0.70$) than to the female non-caregiver ($M = 1.17$, $SD = 0.75$). Results also showed a main effect of target SES, $F(3, 147) = 5.28$, $p = .002$, $\eta_p^2 = .10$, such that participants attributed more stereotypical traits to the high-SES target ($M = 1.74$, $SD = 0.10$) than to the middle-SES target ($M = 1.33$, $SD = 0.10$), and to the control-SES target ($M = 1.19$, $SD = 0.09$). No differences between the other SES were found.

As expected, there was a two-way interaction between stereotypical dimensions and target type, $F(1, 147) = 57.78$, $p < .001$, $\eta_p^2 = .28$. Pairwise comparisons with Bonferroni correction showed that participants attributed fewer competence traits to the female informal caregiver ($M = 0.54$, $SD = 0.68$) than to the female non-caregiver ($M = 1.00$, $SD = 1.16$), $p = .001$. In contrast, participants attributed more warmth traits to the female informal caregiver ($M = 2.82$, $SD = 1.13$) than to the female non-caregiver ($M = 1.26$, $SD = 1.14$), $p < .001$ (see Figure 6.2.).

Furthermore, in this same two-way interaction, pairwise comparisons with Bonferroni correction showed that participants attributed more warmth ($M = 2.82$, $SD = 1.13$) than competence

(*M* = 0.54, *SD* = 0.68) traits to the female informal caregiver, *F*(1,147) = 156.57, $p < .001$. In contrast, participants did not differently attribute warmth (*M* = 1.26, *SD* = 1.14) and competence (*M* = 1.00, *SD* = 1.16) traits to the female non-caregiver, *F*(1, 147) = 1.76, $p = .187$.

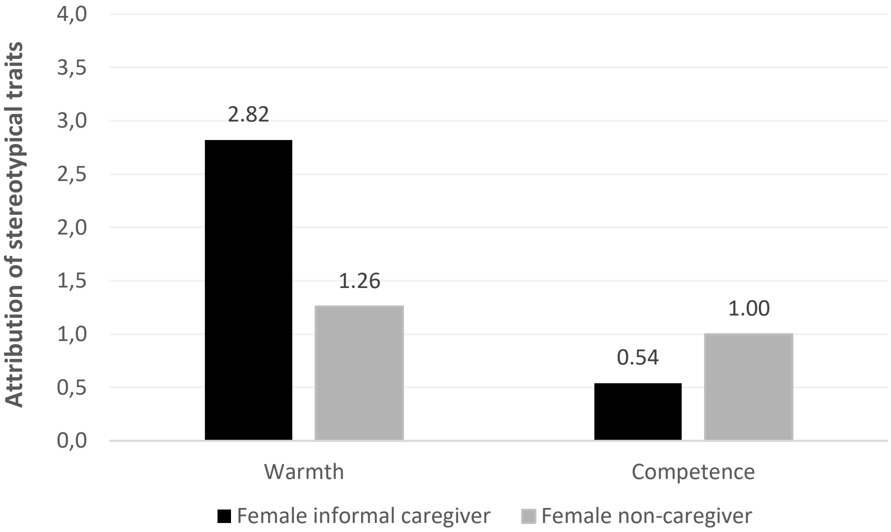

Figure 6.2. Attribution of Warmth and Competence Traits According to Type of Target (Female Informal Caregiver *vs.* Female Non-Caregiver) (Study 1).

Moreover, results showed an interaction between target type and target SES, *F*(3, 147) = 3.70, $p = .013$, $\eta_p^2 = .07$. Pairwise comparisons with Bonferroni correction showed that participants in the female non-caregiver condition attributed more stereotypical traits to the high-SES target (*M* = 1.67, *SD* = 0.14), than to the control-SES target (*M* = 0.71, *SD* = 0.13), $p < .001$, and the middle-SES target (*M* = 1.00, *SD* = 0.14), $p = .010$. In contrast, participants did not differently attribute stereotypical traits to female informal caregiver across different SES levels, all *ps* = 1.00 (see Figure 6.3.).

The two-way interaction between stereotypical dimensions and target SES, *F*(3, 147) = 1.02, $p = .386$, $\eta_p^2 = .02$, and the three-way interaction between stereotypical dimensions, target type, and target SES, *F*(3, 147) = 0.65, $p = .586$, $\eta_p^2 = .01$, were not significant.

Participants' SES was used as a covariate in the analysis and had no significant effect.

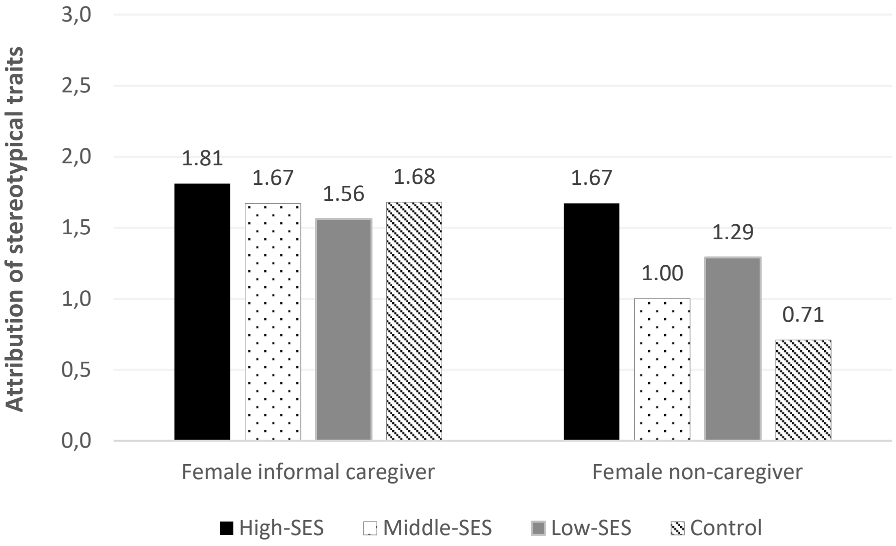

Figure 6.3. Attribution of Stereotypical Traits to Female Informal Caregiver and Female Non-Caregiver According to Target SES (high *vs.* middle *vs.* low *vs.* control) (Study 1).

Attribution of humanness dimensions. Results showed a main effect of humanness dimensions, $F(1, 147) = 71.53$, $p < .001$, $\eta_p^2 = .33$, such that participants attributed more human nature ($M = 3.84$, $SD = 0.80$) than uniquely human traits ($M = 3.29$, $SD = 0.65$) to the targets. There was a main effect of target type, $F(1, 147) = 43.02$, $p < .001$, $\eta_p^2 = .23$, such that participants attributed more humanness traits to the female informal caregiver ($M = 3.83$, $SD = 0.57$) than to the female non-caregiver ($M = 3.28$, $SD = 0.60$). There was no main effect of target SES, $F(3, 147) = 1.46$, $p = .227$, $\eta_p^2 = .03$.

As expected, there was a two-way interaction between humanness dimensions and target type, $F(1, 147) = 40.42$, $p < .001$, $\eta_p^2 = .22$. However, contrarily to what was predicted, pairwise comparisons with Bonferroni correction showed that participants did not differently attribute uniquely human traits to the female informal caregiver ($M = 3.37$, $SD = 0.67$) and the female non-caregiver ($M = 3.21$, $SD = 0.63$), $p = .105$. In contrast, participants attributed more human nature traits to the female informal caregiver ($M = 4.28$, $SD = 0.55$) than to the female non-caregiver ($M = 3.35$, $SD = 0.75$), $p < .001$ (see Figure 6.4.).

Furthermore, in this same two-way interaction, pairwise comparisons with Bonferroni correction showed that participants attributed more human nature ($M = 4.28$, $SD = 0.55$) than uniquely human ($M = 3.37$, $SD = 0.67$) traits to the female informal caregiver, $F(1, 147) = 117.02$,

$p < .001$. In contrast, participants did not differently attribute uniquely human (M = 3.21, SD = 0.63) and human nature (M = 3.35, SD = 0.75) traits to the female non-caregiver, F(1, 147) = 2.075, p = .152.

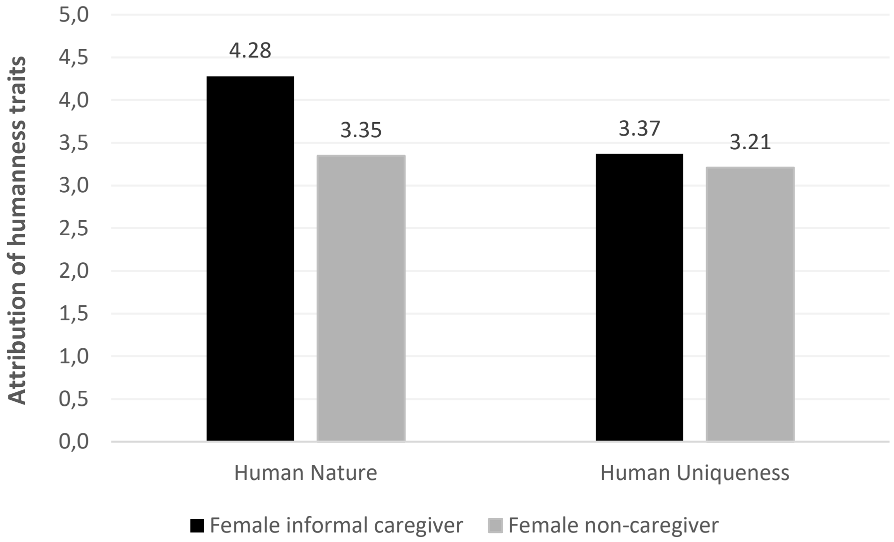

Figure 6.4. Attribution of Human Nature and Human Uniqueness Traits According to Type of Target (Female Informal Caregiver *vs.* Female Non-Caregiver) (Study 1).

Moreover, results showed a two-way interaction between humanness dimensions and target SES, $F(3, 147) = 12.65$, $p < .001$, $\eta_p^2 = .21$. Pairwise comparisons with Bonferroni correction showed that participants attributed more uniquely human traits to the high-SES target ($M = 3.76$, $SD = 0.44$) than to the other SES targets, all *ps* < .001. In contrast, participants did not differently attribute human nature traits across different SES levels, $p = .259$ (see Figure 6.5.).

The two-way interaction between target type and target SES, $F(3, 147) = 0.28$, $p = .840$, $\eta_p^2 = .01$, and the three-way interaction between humanness dimensions, target type, and target SES, $F(3, 147) = 0.77$, $p = .515$, $\eta_p^2 = .02$, were not significant.

Participants' SES was used as a covariate in the analysis and had no significant effect.

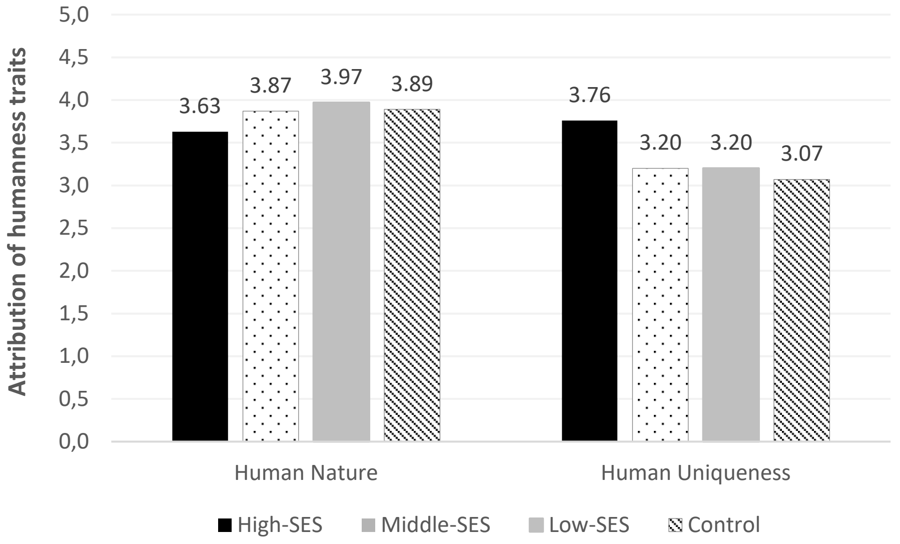

Figure 6.5. Attribution of Human Nature and Human Uniqueness Traits According to Target SES (high *vs.* middle *vs.* low *vs.* control) (Study 1).

5. Discussion

In this first study, we aimed to empirically examine whether the female informal caregiver was animalistically dehumanized by being attributed fewer competence and uniquely human traits and more warmth and human nature traits, than the female non-caregiver. Moreover, we aimed to examine the impact of informal caregivers' SES on this dehumanization effect.

As expected, the female informal caregiver was attributed fewer competence traits than the female non-caregiver. However, it is important to note that this pattern of results did not extend to uniquely human traits. Moreover, participants attributed more warmth and human nature traits to the female informal caregiver than to the female non-caregiver, thus supporting Hypothesis 1.

A more detailed examination of the attribution of each trait separately revealed that while the female informal caregiver was attributed with more warmth and human nature traits than competence and uniquely human traits, the female non-caregiver was perceived as fully human as she was not differently attributed those traits. These findings provide some support for the hypothesis of the animalistic dehumanization of the female informal caregiver, expressed through denial of competence and an over-attribution of warmth and human nature traits. This result aligns with those found by Romão and Correia (2024) with an emotion-based measure.

Our results also demonstrated that the dehumanization of the female informal caregiver was independent of her SES. We did not find significant differences in the attribution of competence and uniquely human traits between the female informal caregiver and the female non-caregiver of different SES levels, thus not supporting Hypothesis 2. However, we found a higher attribution of uniquely human traits to the high-SES targets compared to the low-SES targets, which extends the findings of previous studies about the association between high-SES and mechanistic dehumanization and low-SES and animalistic dehumanization (e.g., Loughnan et al., 2014, 2017; Sainz et al., 2018, 2019),

This study was conducted only with a female target, which does not allow us to extend the findings to a male target. Therefore, to broaden our understanding of the dehumanization phenomenon, we conducted Study 2 by replicating the methodology of Study 1 but using a male target.

6. Study 2

This study aimed to replicate the methodology and findings of Study 1 but using a male target. Indeed, we examined whether the male informal caregiver was animalistically dehumanized by being attributed fewer competence and uniquely human traits and more warmth and human nature traits, than the male non-caregiver. We also examined the impact of informal caregivers' SES on this dehumanization effect.

6.1. Method

6.1.1. Participants and design

The sample comprised 188 participants (88.3% female) aged between 17 and 62 years (*M* = 24.77, *SD* = 9.14). Participants were from all regions of Portugal, but mostly resided in the Metropolitan Area of Lisbon (73.9%). Most participants had an undergraduate degree (61.2%) and were students (42.6%). As far as income was concerned, 26.6% of the participants referred it was easy to live with their present income, 51.1% considered their present income as being enough to live, 17.6% stated that it was difficult to live with their present income and 4.8% referred it was very difficult to live with their present income. None of these participants completed the previous study.

This study used a 2 (Stereotypical dimensions: warmth *vs.* competence) X 2 (Humanness dimensions: human nature *vs.* human uniqueness) X 2 (Target type: male informal caregiver *vs.* male non-caregiver) X 4 (Target SES: high-SES *vs.* middle-SES *vs.* low-SES *vs.* control) experimental design, with the first two factors as within-participants and the two other factors as between-participants.

6.1.2. Procedure

In Study 2 the same ethical procedures of Study 1 were followed. This study differed from Study 1 only concerning the target's gender presented to participants. Specifically, in this study, participants were randomly presented with a description of a male informal caregiver target or a male non-caregiver target, with variations based on SES levels (high-SES *vs.* middle-SES *vs.* low-SES *vs.* control). The written vignettes were paired with a picture of a man identified with the fictitious name of "Joseph", perceived as ambiguous in terms of SES, previously pre-tested by Romão and Correia (2024) (see Appendix B). One hundred and twenty-seven participants completed the study as part of a course requirement.

6.1.3. Measures

Participants were presented with a written description accompanied by a picture of the target and were asked to complete the same dependent measures described in Study 1[13]. In this study, the measure of humanness dimensions (Bastian & Haslam, 2010) included a total of five items: the same three items of the human nature dimension used in Study 1 (α = .76); and two of the three items of human uniqueness dimension used in Study 1 ("I feel like Joseph is refined and cultured", "I feel that Joseph is rational and logical, he is intelligent"; α = .68).

6.2. Analytic plan

The data analysis procedures were the same as described in Study 1.

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[13] The warmth and competence characteristics attributed to the targets can be seen in Appendix D.

7. Results

Manipulation Check. The manipulation check was successful, as all participants correctly attributed an occupation to the target that corresponded to their SES condition; and all the participants in the SES control condition were able to correctly describe the target's age.

Attribution of stereotypical dimensions. Results showed a main effect of stereotypical dimensions, $F(1, 180) = 150.76$, $p < .001$, $\eta_p^2 = .46$, such that participants attributed more warmth ($M = 2.22$, $SD = 1.43$) than competence traits ($M = 0.88$, $SD = 1.01$) to the targets. There was a main effect of target type, $F(1, 180) = 16.20$, $p < .001$, $\eta_p^2 = .08$, such that participants attributed more stereotypical traits to the male informal caregiver ($M = 1.75$, $SD = 0.70$) than to the male non-caregiver ($M = 1.35$, $SD = 0.70$). Results also showed a main effect of target SES, $F(3, 180) = 3.68$, $p = .013$, $\eta_p^2 = .06$, such that participants attributed more stereotypical traits to the high-SES target ($M = 1.82$, $SD = 0.10$) than the control-SES target ($M = 1.37$, $SD = 0.96$), $p = .010$. No differences between the other SES levels were found.

As expected, there was a two-way interaction between stereotypical dimensions and target type, $F(1, 180) = 159.98$, $p < .001$, $\eta_p^2 = .47$. Pairwise comparisons with Bonferroni correction showed that participants attributed fewer competence traits to the male informal caregiver ($M = 0.39$, $SD = 0.53$) than to the male non-caregiver ($M = 1.38$, $SD = 1.15$), $p < .001$. In contrast, participants attributed more warmth traits to the male informal caregiver ($M = 3.08$, $SD = 1.19$) than to the male non-caregiver ($M = 1.32$, $SD = 1.06$), $p = .006$ (see Figure 6.6.).

Furthermore, in this same two-way interaction, pairwise comparisons with Bonferroni correction showed that participants attributed more warmth ($M = 3.08$, $SD = 1.19$) than competence ($M = 0.39$, $SD = 0.53$) traits to the male informal-caregiver, $F(1,180) = 311.98$, $p < .001$. In contrast, participants did not differently attribute warmth ($M = 1.32$, $SD = 1.06$) and competence ($M = 1.38$, $SD = 1.15$) traits to the male non-caregiver, $F(1,180) = 0.07$, $p = .794$.

The two-way interaction between stereotypical dimensions and target SES, $F(3, 180) = 1.976$, $p = .120$, $\eta_p^2 = .03$, and the two-way interaction between target type and target SES, $F(3, 180) = 1.04$, $p = .378$, $\eta_p^2 = .02$, as well as the three-way interaction between stereotypical dimensions, target type, and target SES, $F(3, 180) = 1.873$, $p = .136$, $\eta_p^2 = .03$, were not significant.

Participants' SES was used as a covariate in the analysis and had no significant effect.

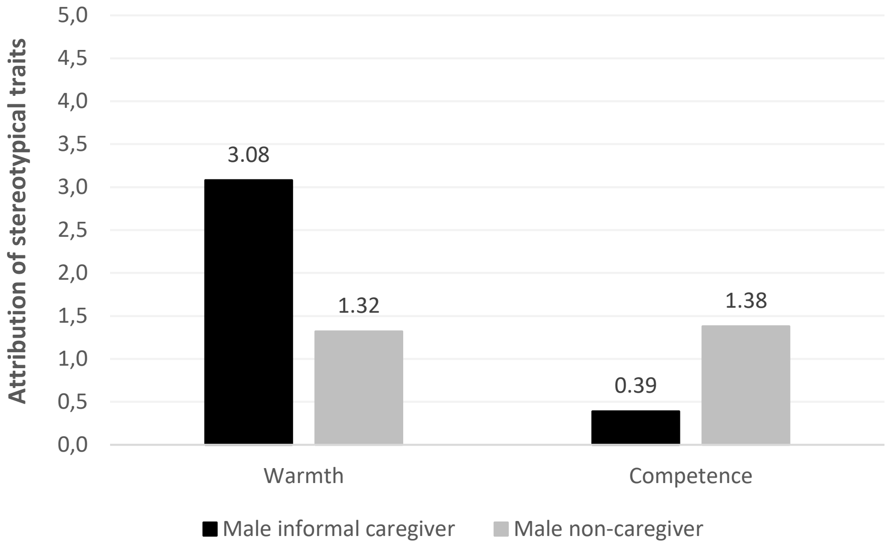

Figure 6.6. Attribution of Warmth and Competence Traits According to Type of Target (Male Informal Caregiver *vs.* Male Non-Caregiver) (Study 2).

Attribution of humanness dimensions. Results showed a main effect of humanness dimensions, $F(1, 180) = 36.433$, $p < .001$, $\eta_p^2 = .17$, such that participants attributed more human nature ($M = 3.82$, $SD = 0.83$) than uniquely human traits ($M = 3.44$, $SD = 0.68$) to the targets. There was a main effect of target type, $F(1, 180) = 22.005$, $p < .001$, $\eta_p^2 = .11$, such that participants attributed more humanness traits to the male informal caregiver ($M = 3.80$, $SD = 0.51$) than to the male non-caregiver ($M = 3.47$, $SD = 0.51$). Results also showed a main effect of target SES, $F(3, 180) = 3.215$, $p = .024$, $\eta_p^2 = .05$, such that participants attributed more humanness traits to the high-SES target ($M = 3.78$, $SD = 0.75$) than to the control-SES target ($M = 3.49$, $SD = 0.70$). No differences between the other SES levels were found.

As expected, there was a two-way interaction between humanness dimensions and target type, $F(1, 180) = 109.716$, $p < .001$, $\eta_p^2 = .38$. Pairwise comparisons with Bonferroni correction showed that participants attributed fewer uniquely human traits to the male informal caregiver ($M = 3.27$, $SD = 0.64$) than to the male non-caregiver ($M = 3.61$, $SD = 0.68$), $p < .001$. In contrast, participants attributed more human nature traits to the male informal caregiver ($M = 4.31$, $SD = 0.57$) than to the male non-caregiver ($M = 3.32$, $SD = 0.78$), $p < .001$ (see Figure 6.7.).

Furthermore, in this same two-way interaction, pairwise comparisons with Bonferroni correction showed that participants attributed more human nature ($M = 4.31$, $SD = 0.57$) than uniquely human (*M* = 3.27, *SD* = 0.64) traits to the male informal caregiver, *F*(1, 180) = 136.880, *p* < .001. In contrast, participants attributed more uniquely human (*M* = 3.61, *SD* = 0.68) than human nature (*M* = 3.32, *SD* = 0.78) traits to the male non-caregiver, *F*(1, 180) = 9.809, *p* = .002.

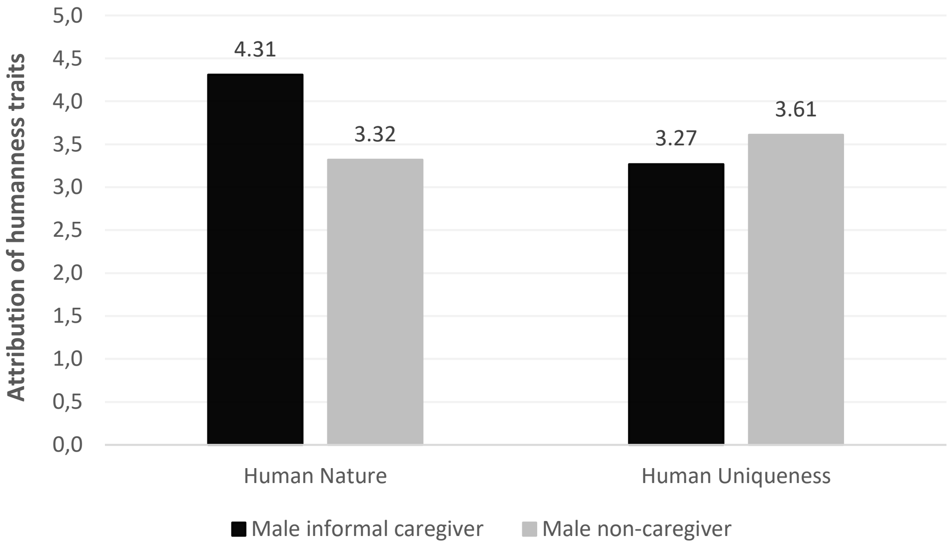

Figure 6.7. Attribution of Human Nature and Human Uniqueness Traits According to Type of Target (Male Informal Caregiver *vs.* Male Non-Caregiver) (Study 2).

Moreover, results showed a two-way interaction between humanness dimensions and target SES, *F*(3, 180) = 2.874, *p* = .038, η_p^2 = .05. Pairwise comparisons with Bonferroni correction showed that participants attributed more uniquely human traits to the high-SES target (*M* = 3.73, *SD* = 0.76) than to the middle-SES target (*M* = 3.34, *SD* = 0.67), *p* = .039, and the control-SES target (*M* = 3.34, *SD* = 0.61), *p* = .045. In contrast, participants attributed more human nature traits to the low-SES target (*M* = 4.03, *SD* = 0.79) than to the control-SES target (*M* = 3.67, *SD* = 0.84), *p* = .029 (see Figure 6.8.).

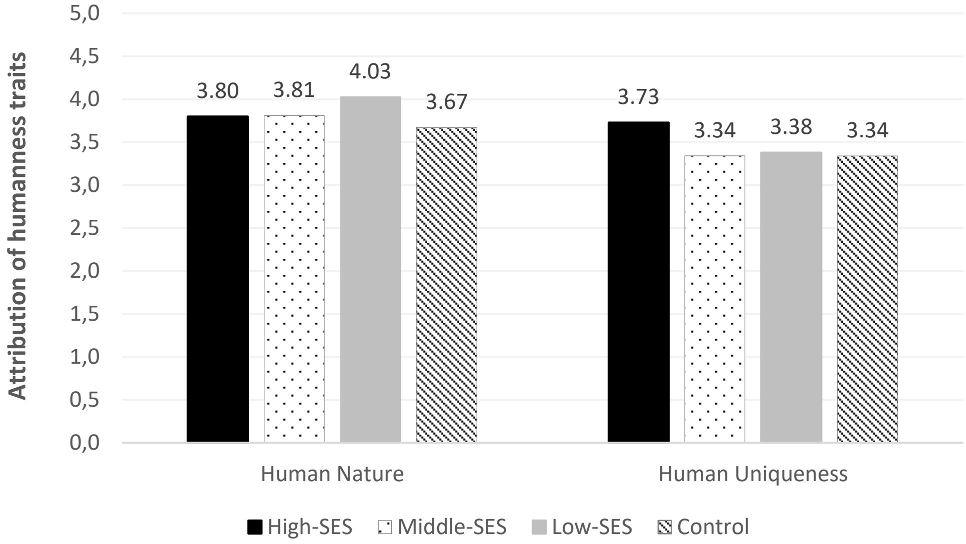

Figure 6.8. Attribution of Human Nature and Human Uniqueness Traits According to Target SES (high *vs.* middle *vs.* low *vs.* control) (Study 2).

Results also showed a three-way interaction between humanness dimensions, target type, and target SES, *F*(3, 180) = 3.589, *p* = .015, η_p^2 = .06 (see Table 6.1.). Pairwise comparisons with Bonferroni correction showed that participants attributed fewer uniquely human traits to the male informal caregiver of high-SES (*M* = 3.38, *SD* = 0.69) than to the male non-caregiver of the same SES (*M* = 4.04, *SD* = 0.71), *p* = .001. For all other SES levels, no differences were found in the attribution of uniquely human traits to the male informal caregiver and the male non-caregiver. Moreover, participants attributed more human nature traits to the male informal caregiver across different SES levels than the male non-caregiver of the same SES levels, *all ps* < .001.

Furthermore, participants attributed more uniquely human traits to the male non-caregiver of high-SES target (*M* = 4.04, *SD* = 0.71) than to the middle-SES target (*M* = 3.50, *SD* = 0.61), *p* = .024, control-SES target (*M* = 3.46, *SD* = 0.66), *p* = .014, and low-SES target (*M* = 3.43, *SD* = 0.60), *p* = .010. In contrast, participants attributed more human nature traits to the male non-caregiver of low-SES (*M* = 3.65, *SD* = 0.81) than to the control-SES (*M* = 3.12, *SD* = 0.77), *p* = .046. No differences were found in the attribution of uniquely human, *F*(3, 180) = 0.405, *p* = .750, and human nature traits, *F*(3, 180) = 1.546, *p* = .204, to the male informal caregiver across different SES levels.

Moreover, participants attributed more human nature than uniquely human traits to the male informal caregiver across different SES levels, all *ps* < .001. In contrast, no differences were found in the attribution of uniquely human and human nature traits to the male non-caregiver, apart from the high-SES target who was attributed with more uniquely human (*M* = 4.04, *SD* = 0.71) than human nature (*M* = 3.16, *SD* = 0.70) traits, *p* < .001.

Table 6.1.

Means of Human Nature and Human Uniqueness Traits Attributed Per Experimental Condition (Study 2)

	Male informal caregiver				**Male non-caregiver**			
	High SES	**Middle SES**	**Low SES**	**Control**	**High SES**	**Middle SES**	**Low SES**	**Control**
Human Nature	4.53	4.22	4.41	4.15	3.16	3.37	3.65	3.12
Human Uniqueness	3.38	3.19	3.32	3.23	4.04	3.50	3.43	3.46

The two-way interaction between target type and target SES, *F*(3, 180) = .176, *p* = .913, η_p^2 = .00, was not significant. Participants' SES was used as a covariate in the analysis and had no significant effect.

8. Discussion

This study aimed to replicate the findings of Study 1 but using a male target. Indeed, we aimed to provide evidence of the animalistic dehumanization of the male informal caregiver, by being attributed fewer competence and uniquely human traits and more warmth and human nature traits, than the male non-caregiver. Additionally, as in Study 1, we aimed to examine the impact of informal caregivers' SES on this dehumanization effect.

As expected, our findings replicated those of Study 1 and aligned with those found by Romão and Correia (2024). Specifically, participants animalistically dehumanized the male informal caregiver by attributing him fewer competence and uniquely human traits than the male non-caregiver. We also observed the same pattern of over-attribution of warmth and human nature traits to the male informal caregiver that we found in Study 1, thus supporting Hypothesis 1. Specifically, the male informal caregiver was attributed with more warmth and human nature traits than the non-caregiver and, at the same time, was attributed with more warmth and human nature traits than competence and uniquely human traits. In contrast, the male non-caregiver was attributed with more uniquely human than human nature traits, aligning with the findings of Cuddy et al. (2004, 2008) and Fiske et al. (2002), who identified the stereotypical view of traditional men as competent and cold. Together, these findings may suggest a tendency to associate the male informal caregiver with a loss of social status and masculinity due to his animalistic nature and the feminized care work that he performs (Hanlon, 2012; Haslam, 2006).

Regarding the second aim of this study, the results partially confirmed Hypothesis 2. Specifically, the male informal caregiver of high-SES was perceived with fewer uniquely human traits than the male non-caregiver of the same SES. However, no significant differences in the attribution of uniquely human traits were found between the male non-caregiver and the male informal caregiver of other SES levels. Interestingly, the results also showed a higher attribution of human nature traits to the male informal caregiver of all SES levels compared to the male non-caregiver of the same SES levels.

A more detailed examination of the attribution of each humanness trait separately revealed noteworthy differences. The male non-caregiver of high-SES was attributed with more uniquely human traits than those of lower-SES levels, whereas the reverse was true for the attribution of human nature traits, which is in line with the literature that showed that the low-SES individual/groups are animalistically dehumanized (e.g., Loughnan et al., 2014; Sainz et al., 2018, 2019). However, this pattern was not observed for the male informal caregiver across all SES levels, as they were not differently attributed with uniquely human and human nature traits. These findings further reinforce the perception of the male informal caregiver as animal-like, potentially reflecting their perceived lower social status. Furthermore, they suggest that being an informal caregiver was more salient than his SES in determining the dehumanization of the target.

9. General discussion

The main aim of this research was to build upon the limitations identified by Romão and Correia (2024) and extend their findings by showing that informal caregivers were dehumanized not only with an emotion-based measure (Leyens et al., 2001) but also when two trait-based measures are used. Moreover, we aimed to examine the impact of informal caregivers' SES on this dehumanization effect. To manipulate the target's SES, the level of education and occupation varied across the experimental conditions.

Our results showed that the dehumanization of informal caregivers is not restricted to emotions (e.g., Leyens et al., 2000, 2001) but also occurs in relation to personality traits (Fiske et al., 2002; Haslam, 2006). Indeed, in line with our predictions, informal caregivers were attributed fewer competence and uniquely human traits than non-caregivers. For the female target, this trend was observed only with the measure of stereotypical traits.

Moreover, while non-caregivers tended to be perceived as fully human, informal caregivers were perceived as more animal-like, as they were attributed with more warmth and human nature than competence and uniquely human traits. Results from Study 2 suggest a higher differentiation between the male informal caregiver and the male non-caregiver with the measure of stereotypical traits. Specifically, while the male non-caregiver was attributed more competence than warmth traits, the male informal caregiver was attributed with more warmth than competence traits, contradicting traditional stereotypes of men (Fiske et al., 2002; Glick & Fiske, 1999). One possible explanation for this finding is the loss of masculinity of the male informal caregiver due to their involvement in counter-normative, feminized care work role. This involvement may lead to their perception as acting outside their traditional gender role (Hanlon, 2012).

Furthermore, both studies expanded existing knowledge by demonstrating, across both genders, and using two trait-based measures of dehumanization, an over-attribution of warmth and human nature traits to informal caregivers, compared to non-caregivers. While initially appearing positive, attributing greater warmth and human nature traits to informal caregivers may elicit a paternalistic prejudice, reinforce denial of fair treatment and authority, promote exclusion from social participation, and lead to social devaluation (Bastian & Haslam, 2011; Cuddy et al., 2004, Fiske et al., 2002), hindering them from obtaining necessary assistance.

Lastly, we examined the impact of informal caregivers' SES on the dehumanization effect. While Study 1 showed no variation in the attribution of uniquely human traits based on the type and SES of the target, Study 2 revealed a significant difference in the attribution of uniquely human traits between the male informal caregiver and the male non-caregiver of high-SES. Specifically, the male informal caregiver of high-SES was perceived with fewer uniquely human traits than the male non-caregiver of the same SES. Additionally, regardless of SES level, the male informal caregiver was attributed with more human nature traits than the male non-caregiver.

Taken together, these findings seem to reinforce that the dehumanization of informal caregivers is restricted to its animalistic form and does not extend to the mechanistic one. Our results also suggest that being an informal caregiver elicits a higher impact on an individual's dehumanization than their SES.

9.1. Limitations and future research

We must acknowledge some limitations in this research. One major limitation is the use of convenience sampling, which may have restricted the representativeness and generalizability of our findings. Most of our participants were women, who generally exhibit more empathy and willingness to assist others than men (MacGeorge et al., 2003). Therefore, results might have been different if more men made inferences about the targets, and thus, generalizations need to be made cautiously.

Furthermore, while the studies included both male and female targets, the target gender was not manipulated, as participants in each study were presented with either a female target (Study 1) or a male target (Study 2). Although Romão and Correia (2024) found no significant impact of the informal caregivers' gender on their dehumanization using an emotion-based measure, future studies should consider manipulating the informal caregivers' gender using trait-based measures, similar to the ones used in our studies.

Given the descriptions of the informal caregivers as caring for their spouses, our findings may be restricted to this specific subgroup of caregivers, and not necessarily generalize to other types of informal caregivers, such as those caring for children or elderly individuals. Future research should aim to broaden the scope of our findings by examining other categories of informal caregivers.

Another limitation relates to the pictures paired with the descriptions of the targets. Despite the pretests conducted by Romão and Correia (2024) indicating that both the man and the woman targets depicted in the pictures were perceived as middle-aged and ambiguous for SES, there is a possibility that some other factors may have influenced participants' perceptions of the targets' humanness.

Moreover, while this research supports the view that measures of dehumanization through dimensions of human nature and human uniqueness dimensions (Dual Model of Dehumanization, Haslam, 2006) and warmth and competence (Stereotype Content Model, Fiske et al., 2002) are interrelated (e.g., Li et al., 2014), it is important to recognize that other measures of dehumanization could yield different results. To address this possibility, future studies should replicate and extend our findings by investigating other forms of dehumanization, namely explicit and direct blatant dehumanization measures (e.g., Ascent of Human measure; Kteily et al., 2015). Moreover, as research consistently has shown that intergroup contact and positive attitudes toward a target group can buffer the dehumanization of that group (e.g., Prati et al., 2023), future research should include a measure of contact with informal caregivers to analyze the impact of this variable on dehumanizing perceptions towards informal caregivers. Taking a step further, future studies should also seek to disentangle the actual implications of such dehumanization for the psychological and physical well-being of informal caregivers, as well as its impact on support behavioral intentions toward them.

10. Conclusion

This research replicated the finding that informal caregivers, compared to non-caregivers, are animalistically dehumanized, expressed through denial of competence and uniquely human traits and an over-attribution of warmth and human nature traits. Perceiving them as more primitive and less evolved than others may serve to justify the social inequalities, social exclusion, and discrimination they face. Moreover, this research further extends our understanding of the potential impact of informal caregivers' SES on the dehumanization effect. We found that being an informal caregiver seems to have a greater impact than their SES. By showing that informal caregivers were also dehumanized when using two trait-based measures, this research aims to enhance our understanding of the social devaluation of informal caregivers. Moreover, it suggests potential courses of action to reduce their dehumanization, ultimately aiming to improve their quality of life.

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SECTION III.

Theoretical and practical implications

CHAPTER 7.

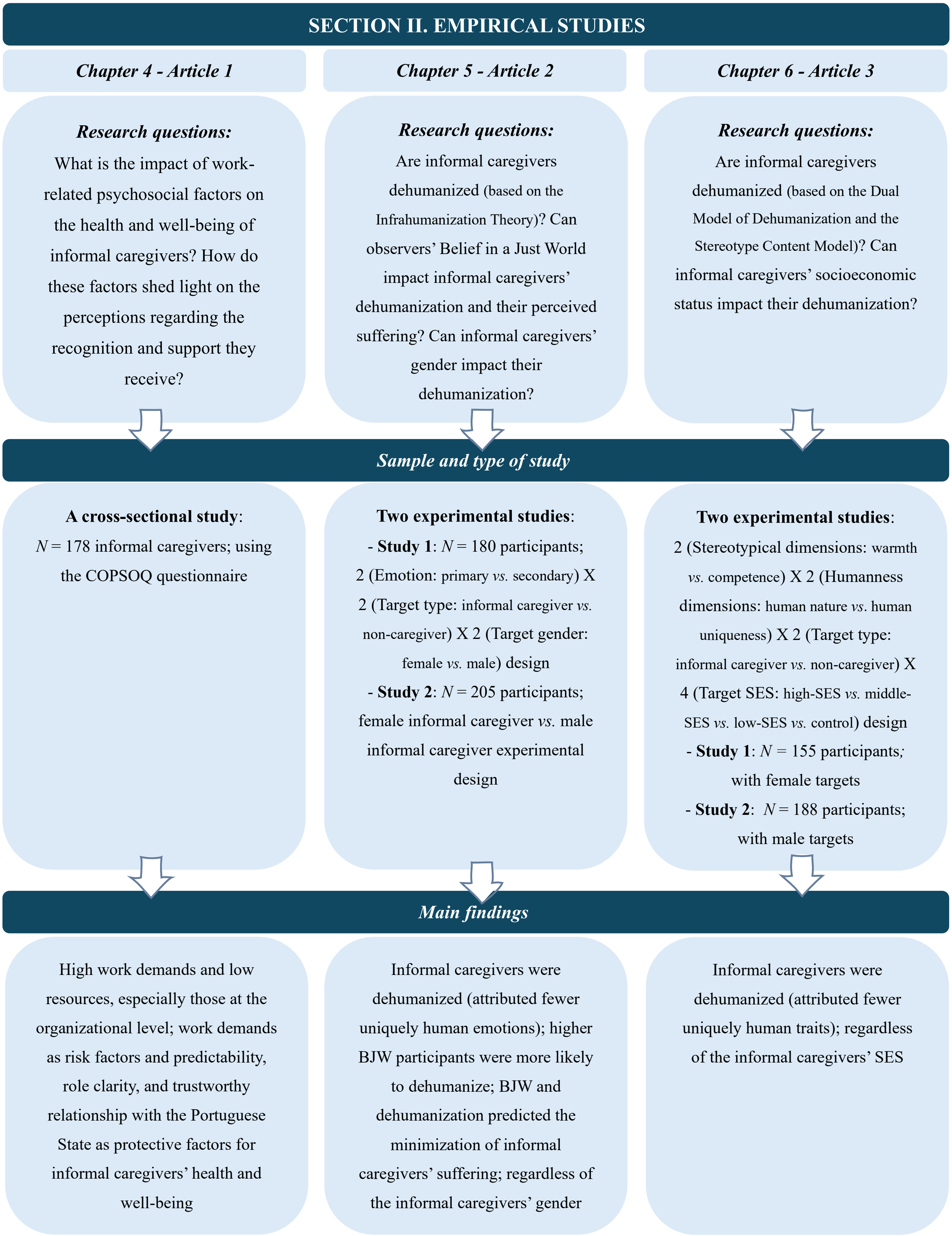
General Discussion

The general aim of this thesis was to increase the understanding of the factors contributing to the social devaluation of informal caregivers. Firstly, we identified the work-related psychosocial factors affecting Portuguese informal caregivers (e.g., work-family conflict, recognition, cognitive demands, and justice and respect) and tested their impact on their health and well-being. Secondly, we examined the dehumanization of informal caregivers using various measures based on different theoretical models (i.e., the Infrahumanization Theory, Leyens et al., 2001; Dual Model of Dehumanization, Haslam, 2006; and the Stereotype Content Model, Fiske et al., 2002). Lastly, we analyzed potential factors influencing the dehumanization and the perceived suffering of informal caregivers, specifically focusing on the informal caregivers' gender and SES, as well as observers' perceptions of justice.

In summary, this thesis aimed to address the following questions:

- What is the impact of work-related psychosocial factors on the health and well-being of informal caregivers? How do these factors shed light on the perceptions regarding the recognition and support they receive? (**Chapter 4**/**Article 1**)
- Are informal caregivers dehumanized (based on the Infrahumanization Theory)? Can observers' Belief in a Just World impact informal caregivers' dehumanization and the perception of their suffering? Can informal caregivers' gender impact their dehumanization? (**Chapter 5**/**Article 2**)
- Are informal caregivers dehumanized (based on the Dual Model of Dehumanization and the Stereotype Content Model)? Can informal caregivers' socioeconomic status impact their dehumanization? (**Chapter 6**/**Article 3**)

To address these questions, we conducted five studies presented across three chapters in Section II - Empirical Studies. Multiple methodologies were used (correlational and experimental approaches). Figure 7.1. summarizes the main conclusions of these studies.



SECTION II. EMPIRICAL STUDIES		
Chapter 4 - Article 1	***Chapter 5 - Article 2***	***Chapter 6 - Article 3***
Research questions: What is the impact of work-related psychosocial factors on the health and well-being of informal caregivers? How do these factors shed light on the perceptions regarding the recognition and support they receive?	***Research questions:*** Are informal caregivers dehumanized (based on the Infrahumanization Theory)? Can observers' Belief in a Just World impact informal caregivers' dehumanization and their perceived suffering? Can informal caregivers' gender impact their dehumanization?	***Research questions:*** Are informal caregivers dehumanized (based on the Dual Model of Dehumanization and the Stereotype Content Model)? Can informal caregivers' socioeconomic status impact their dehumanization?
Sample and type of study		
A cross-sectional study: *N* = 178 informal caregivers; using the COPSOQ questionnaire	**Two experimental studies**: - **Study 1**: *N* = 180 participants; 2 (Emotion: primary *vs.* secondary) X 2 (Target type: informal caregiver *vs.* non-caregiver) X 2 (Target gender: female *vs.* male) design - **Study 2**: *N* = 205 participants; female informal caregiver *vs.* male informal caregiver experimental design	**Two experimental studies**: 2 (Stereotypical dimensions: warmth *vs.* competence) X 2 (Humanness dimensions: human nature *vs.* human uniqueness) X 2 (Target type: informal caregiver *vs.* non-caregiver) X 4 (Target SES: high-SES *vs.* middle-SES *vs.* low-SES *vs.* control) design - **Study 1**: *N* = 155 participants; with female targets - **Study 2**: *N* = 188 participants; with male targets
Main findings		
High work demands and low resources, especially those at the organizational level; work demands as risk factors and predictability, role clarity, and trustworthy relationship with the Portuguese State as protective factors for informal caregivers' health and well-being	Informal caregivers were dehumanized (attributed fewer uniquely human emotions); higher BJW participants were more likely to dehumanize; BJW and dehumanization predicted the minimization of informal caregivers' suffering; regardless of the informal caregivers' gender	Informal caregivers were dehumanized (attributed fewer uniquely human traits); regardless of the informal caregivers' SES

Figure 7.1. Overview of the Problem, Research Questions, and Studies.

In general, the results of the five studies conducted within this thesis have enhanced our comprehension of the factors contributing to the social devaluation of informal caregivers. The findings of each study were discussed in their respective chapters/articles. Therefore, in this general discussion, we move beyond the individual studies to focus on the research questions, highlighting their theoretical and practical implications. Finally, we will discuss the overall limitations of this thesis and suggest future avenues for research.

- ***What is the impact of work-related psychosocial factors on the health and well-being of informal caregivers? How do these factors shed light on the perceptions regarding the recognition and support they receive?***

In Chapter 4/Article 1, we conducted a cross-sectional study with 178 Portuguese informal caregivers to identify the psychosocial risk and protective factors related to their work (e.g., work-family conflict, recognition, justice and respect, and cognitive demands) and to test their impact on their health and well-being.

To identify the levels of demands (risk factors) and resources (protective factors) to which Portuguese informal caregivers are exposed, we used the COPSOQ II questionnaire (Silva et al., 2012). A "traffic light" approach indicated the impact of each factor on health: green (a health-friendly situation), yellow (an intermediate health situation), and red (a health risk situation). Moreover, we used regression analysis to compare the predictive and unique impact of these psychosocial factors and some individual variables on the health and well-being of informal caregivers.

Several important conclusions emerged from this study. Firstly, most psychosocial factors represented an intermediate situation for the health of informal caregivers. Moreover, high levels of demands (risk factors) were observed, particularly in cognitive and emotional aspects, as well as in work-family conflict. Conversely, the levels of resources (protective factors) were low, especially in terms of recognition, quality of leadership, social support from supervisors, and justice and respect. Furthermore, the most available resources were related to development possibilities, meaning of work, role clarity, and offensive behaviors. Additionally, there was a concerning level of symptoms related to health and well-being, especially in general health and burnout. Moreover, only a few predictors had a unique impact on the health and well-being of informal caregivers: work demands as risk factors, and predictability, role clarity, and vertical trust as protective factors.

These findings suggest that the role of informal caregivers is highly demanding, characterized by multiple responsibilities, continuous care, and exposure to others' suffering. Unfortunately, their efforts are often neither recognized nor valued by the Portuguese State, resulting in a perception of being without respect. The protective factors identified predominantly relate to intrinsic motivational aspects of caregiving rather than organizational support influenced by the Portuguese State's intervention. These findings are in line with previous research (e.g., Cès et al., 2019; Henriques et al., 2022; Tranberg et al., 2021), highlighting the challenging and unpredictable nature of informal caregiving coupled with inadequate formal support, recognition, and appreciation. Moreover, despite all of these factors being correlated with the health and well-being of informal caregivers, our results emphasize the importance of prioritizing interventions that address work demands, predictability, role clarity, and vertical trust.

It is concerning that, despite their crucial role in improving the health and well-being of the elderly, people with disabilities, and chronically ill individuals, as well as reducing healthcare costs and contributing to the country's economy, Portuguese informal caregivers perceive a lack of recognition and support from the Portuguese State.

- ***Are informal caregivers dehumanized according to different theoretical models of dehumanization?***

After examining how Portuguese informal caregivers perceive the demands of their role and the lack of recognition and the support they receive (Chapter 4/Article 1), Chapters 5/Article 2 and 6/Article 3 investigated how the Portuguese population perceives informal caregivers. Specifically, we adopted an experimental approach and conducted four studies - two in each chapter/article to analyze whether being an informal caregiver contributes to their dehumanization. Drawing from theories of dehumanization, we hypothesized that informal caregivers would be animalistically dehumanized, by being attributed fewer uniquely human emotions and traits compared to non-caregivers.

We assessed perceptions of (de)humanization using distinct measures based on various theoretical models of dehumanization and using diverse experimental scenarios. In Chapter 5/Article 2, we used an emotion-based measure based on the Infrahumanization Theory (Leyens et al., 2001). In Chapter 6/Article 3, we used two trait-based measures based on the Dual Model of Dehumanization (Haslam, 2006), and the Stereotype Content Model (Fiske et al., 2002).

The results were consistent across the four experimental studies: informal caregivers were dehumanized when both emotion-based and trait-based measures were used. Specifically, Chapter 5/Article 2 showed that informal caregivers were attributed fewer uniquely human emotions compared to non-caregivers. Chapter 6/Article 3 replicated these findings, showing that they were also attributed fewer uniquely human traits. Interestingly, the results also showed that informal caregivers were attributed more non-uniquely human emotions and traits than non-caregivers.

Although initially attributing greater non-uniquely human characteristics to informal caregivers may seem positive, it can still be detrimental. For example, by recognizing these aspects of their humanity (e.g., warmth), observers can reduce their perception of being prejudiced toward informal caregivers. However, it is the attribution of uniquely human characteristics that truly contributes to the full humanization of others (Formanowicz et al., 2018; Haslam et al., 2005, 2008).

Therefore, the findings of these chapters suggest that informal caregivers are animalistically dehumanized, as they are perceived not only as less human but also more animal-like. This result is consistent with previous research on groups with similar characteristics to informal caregivers such as individuals with disabilities, elderly people, traditional women, and low-SES individuals who are often animalistically dehumanized and consequently targets of discrimination and social devaluation (e.g., Boudjemadi et al., 2017; Fiske et al., 2002; Volpato et al., 2017). Therefore, it is reasonable to suggest that the lack of recognition and support for informal caregivers can be attributed to their animalistic dehumanization.

• *Can observers' Belief in a Just World impact informal caregivers' dehumanization and the perception of their suffering? Can informal caregivers' gender and socioeconomic status impact their dehumanization?*

Chapters 5/Article 2 and 6/Article 3 expanded on the dehumanization of informal caregivers and focused on analyzing potential factors to explain this phenomenon. Drawing on previous research suggesting a relationship between the dehumanization of individuals, sociodemographic and intra-individual factors, and the minimization of the suffering of dehumanized individuals (e.g., Fiske et al., 2002; Lerner, 1980; Sainz et al., 2020), we examined whether informal caregivers' gender and SES, as well as observers' perceptions of justice, impact the dehumanization and perceived suffering of informal caregivers.

Specifically, Chapter 5/Article 2 further examined the moderating impact of participants' BJW on the dehumanization of informal caregivers (Study 2), the predictive impact of BJW and the dehumanization of informal caregivers on the perception of informal caregivers' suffering (Study 2), and the impact of informal caregivers' gender (female *vs.* male) on dehumanization process (Studies 1 and 2). Chapter 6/Article 3 further examined the impact of informal caregivers' SES (high-SES *vs.* middle-SES *vs.* low-SES *vs.* control) on the dehumanization process.

These studies showed several key findings: individuals with higher BJW were more likely to dehumanize informal caregivers; not only participants' BJW and the dehumanization of informal caregivers predicted the minimization of the perception of informal caregivers' suffering, but also the dehumanization of informal caregivers mediated the relationship between participants' BJW and their minimization of the perception of informal caregivers' suffering; and the dehumanization of informal caregivers occurred regardless of their gender and SES.

Our results suggest that being an informal caregiver has a greater impact on their dehumanization than their gender and SES. Specifically, the results of the studies showed that the dehumanization of informal caregivers occurred regardless of their gender or SES, except for the high-SES male informal caregiver who was attributed fewer uniquely human traits compared to the non-caregiver with the same SES. Interestingly, individuals seem to perceive high-SES male informal caregiver as challenging social norms or expectations and losing their masculinity, which is often associated with human uniqueness. Indeed, high-SES males are often expected to pursue high-status careers and avoid engaging in traditional, low-status, feminine roles.

Moreover, our results align with previous research (e.g., DeVaul-Fetters, 2014; Gillmor et al., 2014) by showing that the dehumanization of informal caregivers is a strategy employed by individuals who strongly believe in a just world. Moreover, they support previous research (e.g., DeVaul-Fetters, 2014; Gillmor et al., 2014) by showing that the dehumanization of informal caregivers can be both helpful and hurtful: is a functional and adaptive strategy employed by those who struggle to cope with others' suffering and are more motivated to perceive the world as a just place, and at the same time, leads to the devaluation of the perceived informal caregivers' suffering.

These findings are important as they provide insights into the factors contributing to the lack of social recognition and support of informal caregivers in society.

1. Theoretical and practical implications of the present findings

The results of Chapter 4/Article 1 constitute important theoretical contributions. Indeed, while many studies have documented the consequences of caregiving (e.g., Schulz et al., 2020), to our knowledge, no research has especially sought to identify the impact of the work-related psychosocial factors on informal caregivers' health and well-being. This work allows us to better understand which are the perceptions of Portuguese informal caregivers about their demands and resources and what are the key predictors of their health and well-being.

Moreover, while previous studies focused on analyzing the impact of a limited number of risk and protective factors on the health and well-being of informal caregivers, our study assessed a broader range of factors. These factors included the characteristics of the caregiver and the care recipient, the sociocultural environment (Gérain & Zech, 2019; Schulz et al., 2020), as well as the characteristics of their work. Furthermore, our study makes an innovative contribution to the literature as it is the first to analyze a wide range of work-related psychosocial factors outside formal occupational settings. In addition to this, these factors were assessed using the COPSOQ, a measure commonly used in formal work environments (Kristensen et al., 2005). Indeed, despite informal caregiving being a form of work, informal caregivers are often referred to as the "invisible workforce" because their work is not legally recognized as such (UNECE, 2019).

These findings are also valuable for practical applications. The identification of the most important predictors of the health and well-being of informal caregivers is essential for developing measures that promote their health and well-being and, consequently, increase the quality of care they provide. Interventions aimed at improving the health and well-being of informal caregivers should, therefore, focus on the significant predictors rather than all psychosocial factors and individual variables correlated with their health and well-being. This because while some variables may appear important predictors due to their correlation with health and well-being, when considered with other predictors in regression analysis they lost their impact.

Therefore, intervention programs should aim to reduce work demands and increase predictability, role clarity, and trust in the Portuguese State. Reducing work demands and increasing the predictability of caregiving is challenging, as caregivers often face demanding and traumatic situations beyond their control. However, the Portuguese government must reduce reliance on informal caregivers, ensuring alternative solutions exist, and that informal care is provided out of choice. Furthermore, since role clarity and vertical trust are relatively malleable, interventions should include informal caregivers in decision-making processes and provide input on decisions (Leventhal, 1980). We strongly recommend the effective implementation of the Informal Caregiver Statute. Although the Statute encompasses almost all necessary support for Portuguese informal caregivers and represents a crucial step in acknowledging their unpaid contributions, most informal caregivers do not make use of the rights and benefits, because it is very difficult to access this support (Gaspar et al., 2023; Henriques et al., 2022). Its fragmented and uneven implementation has led to a breakdown in trust between informal caregivers and the Portuguese State (Alves et al., 2020; Gaspar et al., 2023). Additionally, informal caregivers should be treated with respect and dignity by the Portuguese State and health and social technicians.

These strategies are not only crucial in minimizing the psychosocial risk factors associated with informal caregiving tasks but also in improving caregivers' health and well-being and perceptions of the value, recognition, and support they receive.

Chapters 5/Article 2 and 6/Article 3 also provide important theoretical contributions by examining the dehumanization of informal caregivers, the conditions under which this phenomenon occurs, and its potential consequences. Specifically, these chapters add considerable knowledge to the existing literature on the stigmatization of informal caregivers by demonstrating, for the first time, that informal caregivers are also subjected to dehumanization. The choice of this sample represents a strength of this work and an advancement in dehumanization research, which has predominantly focused on other groups (Haslam & Loughnan, 2014, for a review).

Our research reveals that informal caregivers are perceived as less evolved and more primitive than those who do not assume this role. This finding not only supports previous studies on the animalistic dehumanization of groups with similar characteristics (e.g., individuals with disabilities, elderly people, traditional women, low-SES individuals) (e.g., Boudjemadi et al., 2017; Fiske et al., 2002; Volpato et al., 2017) but also sheds light on the social devaluation faced by informal caregivers. Indeed, animalistic dehumanization reflects the perceived lower status of groups, leading to their devaluation and exploitation for various purposes (Haslam et al., 2008; Martínez et al., 2012).

Moreover, the high consistency of these results across different measures of dehumanization – both emotion-based and traits-based – and across diverse caregiving scenarios (e.g., caring for individuals with paraplegia and dementia), suggests that the dehumanization of informal caregivers is restricted to its animalistic form and does not extend to mechanistic dehumanization. Moreover, it shows that this phenomenon is pervasive and not limited to specific experimental conditions or measures.

Another important theoretical contribution of this work is the inclusion of multiple individual variables related to informal caregivers and participants of the studies. The results of the studies showed that among the variables considered – informal caregivers' gender and SES, and participants' BJW – only participants' BJW significantly influenced the dehumanization of caregivers. Therefore, it seems that that this effect is not driven by the gender or SES of the informal caregivers, but rather by the characteristics associated with the caregiving role (i.e., exposure to traumatic events, suffering, and demanding care routines) which pose a threat to individuals with stronger perceptions of justice. This is an important contribution since, unlike the existing literature which rarely considers the impact of such variables on the dehumanization of individuals, our findings suggest that the attribution of fewer uniquely human emotions and traits to informal caregivers results not from the characteristics of the informal caregivers but more from the conditions they find themselves. Therefore, the dehumanization of informal caregivers could be linked to the perceived suffering they face and the denial of human dignity and human rights, i.e., a denial of recognition, respect, and dignified living (and already mentioned in Chapter 4/Article 1) (Formanowicz et al., 2018; Murrow & Murrow, 2015; Zlobina et al., 2023).

Related to this, this work contributes to a better understanding of the relationship between variables not usually studied together: BJW, dehumanization, and perceptions of suffering. Although researchers have found direct effects between these variables (e.g., Cuddy et al., 2007; DeVaul-Fetters, 2014; Gillmor et al., 2014; Sakalaki et al., 2017), to our knowledge, this is the first attempt to examine the relationships between these variables in a single study. Our results suggest that denying the humanity and the daily challenges faced by informal caregivers serves as a defensive mechanism for individuals with higher BJW, possibly as a way to justify the disadvantaged situation in which caregivers find themselves.

Indeed, as previous studies have supported the protective impact of dehumanization on the well-being of observers (e.g., Capozza et al., 2016; Haslam, 2006; Vaes & Muratore, 2013) and the proper functioning of society (Bastian et al., 2014), we propose that minimizing the perceived suffering of informal caregivers helps those with higher BJW to avoid the personal costs and distress associated with recognize the caregivers' difficulties. However, legitimizing informal caregivers' suffering and the challenges resulting from the caregiving role through their dehumanization worsens the situation in which informal caregivers find themselves.

These findings also offer interesting insights for applied domains, highlighting the need for interventions and policies to reduce the dehumanization of informal caregivers and increase recognition of their challenges. These strategies may include education and training, promoting direct or indirect intergroup contact, improving real-life situations, and changing perceptions of animals (e.g., Prati et al., 2023; Vezzali et al., 2021, 2022), as we explain next.

Educational programs must emphasize the crucial role of informal caregivers in society and encourage empathetic and fair attitudes so that their rights and social status are recognized. Public information campaigns can also demonstrate that caregiving is not just a family issue but a responsibility of communities, governments, and society as a whole.

Promoting direct and indirect intergroup contact, such as positive face-to-face interactions with informal caregivers and learning about their experiences, were found to contribute to the humanization of outgroups (Bruneau et al., 2021; Capozza et al., 2017; Falvo et al., 2015; Vezzali et al., 2022). One mechanism through which contact can promote humanization is by reducing the salience of group boundaries and promoting a common identity (Capozza et al., 2013). Indeed, studies have consistently shown that both direct and indirect contact with a member of a dehumanized group can promotes their humanization by increasing empathy, reduce anxiety, support human rights (Albarello et al., 2018; Falvo et al., 2015), and encourage prosocial behaviors toward dehumanized groups (Prati et al., 2016).

As mentioned before, the effective implementation of the Informal Caregiver Statute will recognize the real difficulties and needs of informal caregivers and increase their value within society.

Encouraging challenges to conceptions of human superiority over animals (Costello & Hodson, 2010; Vezzali et al., 2022) may be another strategy to reduce the dehumanization of informal caregivers. Animalistic dehumanization stems from humans feeling superior and holding negative perceptions toward animals (e.g., animals are disregarded or exploited and considered deserving of less protection and rights). Increasing perceived similarities between the two species can effectively increase the humanization of informal caregivers (Hodson & Dhont, 2023; Prati et al., 2023; Vezzali et al., 2022).

These interventions can help mitigate the negative effects of dehumanization, significantly improve the health and well-being of informal caregivers, and promote a fairer and more equitable society where the work of informal caregivers is properly recognized and valued.

2. Limitations and suggestions for future research

This work provides valuable information about the factors that contribute to the social devaluation of informal caregivers from a comprehensive perspective (i.e., covering the perspective of the caregivers themselves and the general population). It also integrates relevant theories of dehumanization (i.e., the Infrahumanization Theory, Leyens et al., 2001; the Dual Model of Dehumanization, Haslam, 2006; and the Stereotype Content Model, Fiske et al., 2002). However, several limitations must be addressed, and new avenues for investigation are suggested.

Firstly, the convenience sampling of Chapter 4/Article 1 may have restricted the representativeness and generalizability of our findings. The sample does not fully represent the population of informal caregivers in Portugal, nor can it be generalized globally. Given that the survey was distributed through associations that are often involved in advocating for better living conditions for informal caregivers (e.g., better working conditions, and social recognition), it likely attracted more informal caregivers who were dissatisfied with their situation.

Furthermore, conducting the survey online during the COVID-19 pandemic limited the sample to caregivers with higher digital literacy and internet access – factors that disadvantage the population of elderly informal caregivers in Portugal. Therefore, the results found may underestimate the real demands faced by caregivers. Despite these limitations, we believe that our results provide a basis for future research on the well-being of informal caregivers, although caution is needed when applying them broadly. Moreover, the sample for Chapters 5/Article 2 and 6/Article 3 included predominantly women and university students. Given that women tend to demonstrate higher levels of empathy than men (MacGeorge et al., 2003), any generalizations should be made cautiously. The limited age range of participants also limits the breadth with which we can apply our findings, particularly to age groups that have lower exposure or are involved in caregiving. Future studies should target more diverse participant groups in terms of gender and age to improve the validity of the results.

Secondly, the methodologies presented here are quantitative (correlational and experimental). Although these methods allow us to draw important and consistent conclusions, they do not have the depth of qualitative methods necessary to access specific details related to the content of the constructs. Future studies could benefit from combining qualitative and quantitative approaches to gain a more comprehensive understanding of the social devaluation of informal caregivers.

Furthermore, the cross-sectional design of Chapter 4/Article 1 does not allow us to establish direct cause-and-effect relationships between predictor and outcome variables, which limits the nature of the conclusions that can be drawn about causality. Therefore, longitudinal studies could be carried out to test the direction of causality of our study variables. It is also important to note that we did not include the variable "occupation" in the correlational and regression analyses. The fact that 41% of the sample of caregivers reported being employed may have implications for how the results are discussed. This is because the demands and resources related to their paid job and the difficulty in balancing both responsibilities can significantly impact the health and well-being of informal caregivers.

Thirdly, although there is a clear link between the dimensions of humanity proposed by theoretical models of dehumanization (i.e., Dual Model of Dehumanization, Haslam, 2006; Stereotypical Content Model, Fiske et al., 2002) (Li et al., 2014), it is important to recognize that alternative dehumanization measures may produce divergent results. For example, future studies could explore other forms of dehumanization using explicit and direct measures (e.g., Ascent of Human measure, Kteily et al., 2015) or distinct methodological approaches (e.g., metaphor-based approach) to examine the direct association between informal caregivers and animals, building on studies by Goff et al. (2008) and Loughnan and Haslam (2007). Moreover, it should be noted that although warmth combines sociability and morality (Brambilla et al., 2021), in Chapter 6/Article 3 we did not consider this distinction when evaluating the warmth traits extracted from the Free Association Task. According to Rodríguez-Pérez et al. (2021), the differentiation between sociability and morality is relevant for forming impressions and attributing humanity. Given that moral characteristics are typically viewed as uniquely human (Formanowicz et al., 2023; Rodríguez-Pérez et al., 2021), and in our studies, participants attribute some of these traits to informal caregivers (e.g., honesty, sincerity, tolerance), future research should replicate and expand upon our findings by considering the moral component of warmth in judgments regarding the humanity of informal caregivers.

Furthermore, future research should explore the phenomena of self-dehumanization (when individuals see themselves in a dehumanized way) and meta-dehumanization (the experience of being dehumanized by others) among informal caregivers, aiming to understand the real implications of such dehumanization for their health and well-being. Recent studies have shown that self-dehumanization and meta-dehumanization can lead to various cognitive, emotional, and behavioral consequences, such as more feelings of shame and guilt (e.g., Bastian & Haslam, 2011), decreased job satisfaction and well-being (e.g., Demoulin et al., 2021), increased conformity to the opinions of others (e.g., Andrighetto et al., 2018), and high levels of anxiety, depression, and burnout (e.g., Fontesse et al., 2021). In line with this, it can be speculated that the self-dehumanization and meta-dehumanization of informal caregivers may have a similar impact on their behaviors and emotions, leading them to feel reluctance to seek support and social recognition.

One more limitation concerns the mediation analysis in Chapter 5/Article 2. Caution is necessary when interpreting the causal relationship between the variables since the association is correlational (Pirlott & MacKinnon, 2016). Future studies should also investigate how these perceptions of dehumanization of informal caregivers influence intentions of prosocial behaviors toward them.

Finally, although we suggest that the dehumanization of informal caregivers is a functional and adaptive strategy employed by observers with higher BJW (Chapter 5/Article 2), we did not investigate its impact on observers' well-being. Exploring this dynamic could have been an interesting direction to pursue, especially in light of previous research (e.g., Bartholomaeus et al., 2023; Correia et al., 2009) that has shown that BJW can significantly influence individuals' subjective well-being.

3. Concluding remarks

Overall, this thesis provides a comprehensive overview of the factors contributing to the social devaluation of Portuguese informal caregivers. Specifically, the research shows that informal caregivers face high demands from their work and perceive a lack of resources in terms of recognition, quality of leadership, social support from supervisors, and justice and respect. Importantly, it also reveals that the dehumanization of informal caregivers and observers' perceptions of justice may contribute to their lack of recognition and support. Indeed, this work shows that informal caregivers are dehumanized, by being attributed fewer uniquely human emotions and traits compared to non-caregivers. This effect occurred regardless of their gender and socioeconomic status. Moreover, we found that dehumanization and the minimization of their suffering were more pronounced among observers with a stronger belief in a just world. This highlights that it is not the characteristics of the informal caregivers themselves that contribute to their dehumanization, but rather the characteristics and suffering associated with informal caregiving. This paradoxical dynamic suggests that believing in a just world, which is meant to promote fairness, can inadvertently lead to minimizing the challenges and difficulties faced by informal caregivers. The current work highlights the urgency of treating informal caregivers with respect and dignity in order to improve their health and well-being. It will be extremely difficult to meet the increasing care needs of an aging population without acknowledging the vital role played by millions of informal caregivers.

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Appendix A

Pre-test of the women's pictures (Chapter 5/Article 2 and Chapter 6/Article 3)

This study aimed to pre-test three pictures of women to explore how they are perceived in terms of age, socioeconomic status, educational level, profession, body weight, and attractiveness.

The women in the pictures voluntarily and legally consented to have their personal images used in the study. Although the pictures were authorized for publication, we did not include the selected picture due to privacy concerns.

Method

Participants

The pictures were pre-tested with a Portuguese sample of 20 participants (50% women), aged between 24 and 47 years (*M* = 29.1, *SD* = 4.78). In terms of education level, participants ranged between 12 and 17 years of schooling (*M* = 15.85, *SD* = 1.84). At the time of the study, 15% were students, and 85% were employed.

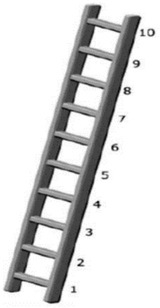
Measures

1. To assess age, we asked participants to indicate in an open question how old they believed the women were.

How old do you believe this woman is? ___ years old

2. To assess socioeconomic status, we asked participants to rate on the MacArthur Scale of Subjective Social Status (Adler et al., 2000) how they would evaluate the women's socioeconomic status.

> *"Imagine that this ladder shows how your society is set up. At the top of the ladder are the people who are the best off – they have the most money, the highest amount of money, the highest amount of schooling, and the jobs that bring the most respect. At the bottom are the people who are the worst off – they have the least money, little or no education, no jobs or jobs no one wants or respects.*
>
> *Now think about this woman. Please tell us where you think this woman would be on this ladder."*



3. To assess education level, we asked participants to evaluate the women's education level by choosing from a range between 4th grade and PhD.

Which education level do you believe this woman has?

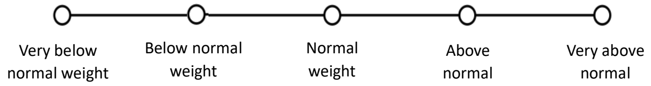
1. ☐ 4th grade
2. ☐ 6th grade
3. ☐ 9th grade
4. ☐ 12th grade
5. ☐ Bachelor
6. ☐ Master
7. ☐ PhD

4. To assess profession, we asked participants to indicate in an open question what profession they believe the women could have.

What profession do you believe this woman has? ________________________________

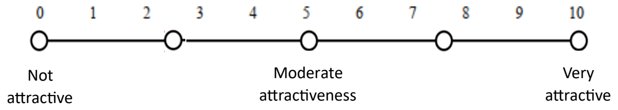
5. To assess body weight, we asked participants to evaluate the women's body weight by indicating if it was below, normal, or above the normal weight.

How would you rate her body weight?



6. To assess attractiveness, we asked participants to rate on a ten-point scale how they would rate the women's physical attractiveness between not attractive and very attractive.

How would you rate her attractiveness?



Procedures

Participants were recruited via Facebook and LinkedIn and invited to participate in an online study about impression formation. The participants started with a first page where they could learn more about the study and then give their consent to collaborate. Therefore, participants were presented with the main measures, namely, they rated each woman in terms of perceived age, socioeconomic status, education level, profession, body weight, and attractiveness. The professions that participants believed each woman could have, were categorized by the researchers as low or middle/high SES based on the Portuguese Professions Classification Index (2011). The pictures' presentation order was randomized and for each page, only one woman was rated in the items. Finally, socio-demographic information was collected. Questionnaires were individually administrated, taking an average of 10 minutes to complete.

Results

Picture 1

Picture of a woman

Age: ranged between 38 and 55 years old (*M* = 45.1, *SD* = 4.76)

Socioeconomic status: ranged between 3 and 7 (*M* = 5.4, *SD* = 0.99)

Education level: ranged between 9 and 15 (*M* = 12, *SD* = 2.38)

Body weight: 70% perceived as above the normal weight (N = 14) and 30% as normal weight (N = 6).

Attractiveness: perceived between 0 and 6 (*M* = 3.2, *SD* = 1.54).

Professions:

Higher scores on socioeconomic status and/or educational level:	Police officer; Researcher; Teacher
Lower scores on socioeconomic status and/or educational level:	Secretary; Cook; Factory worker; Supermarket clerk; Hairdresser; Housemaid; Shoemaker; Telephone operator; Shopkeeper

Picture 2

Picture of a woman

Age: ranged between 40 and 55 years old (*M* = 46.8, *SD* = 4.05)

Socioeconomic status: ranged between 4 and 9 (*M* = 5.5, *SD* = 1.15)

Education level: ranged between 9 and 15 (*M* = 12.9, *SD* = 2.19)

Body weight: 90% perceived as above the normal weight (*N* = 18) and 10% as normal weight (*N* = 2).

Attractiveness: perceived between 1 and 6 (*M* = 3.65, *SD* = 1.53).

Professions:

Higher scores on socioeconomic status and/or educational level:	Teacher
Lower scores on socioeconomic status and/or educational level:	Administrative; Caregiver; Secretary; Education assistant; Telephone operator; Housemaid; Baker

Picture 3

Picture of a woman

Age: ranged between 40 and 52 years old (*M* = 45.2, *SD* = 4.23)

Socioeconomic status: ranged between 4 and 8 (*M* = 6.2, *SD* = 1.11)

Education level: ranged between 12 and 21 (*M* = 14.2, *SD* = 2.29)

Body weight: 95% perceived as above the normal weight (*N* = 19) and 5% as below the weight (*N* = 1).

Attractiveness: perceived between 0 and 7 (*M* = 5, *SD* = 1.75).

Professions:

Higher scores on socioeconomic status and/or educational level:	Teacher; Engineer; Accountant; University teacher; State employee
Lower scores on socioeconomic status and/or educational level:	Administrative; Secretary; Shopkeeper; Taxi driver

Conclusion

Based on the pre-test findings, picture 3 was selected for inclusion in the vignettes because the woman showed the highest variability in results. Specifically, she was perceived as middle-aged, of normal weight, and ambiguous in terms of SES, as she could be perceived as either having a low or a moderate/high SES.

Appendix B

Pre-test of the men's pictures (Chapter 5/Article 2 and Chapter 6/Article 3)

This study aimed to pre-test four pictures of men to explore how they are perceived in terms of age, socioeconomic status, educational level, profession, body weight, and attractiveness.

The pictures of the men were sourced from a website (https://www.alamy.com) and were paid for. However, the selected picture was only authorized to be shown to participants and not for publication.

Method

Participants

The pictures were pre-tested with a Portuguese sample of 22 participants (72,7% women), aged between the ages of 25 and 59 years (*M* = 36,32, *SD* = 10,71). In terms of education level, participants ranged between 9 and 17 years of schooling (*M* = 13,73, *SD* = 2,25). At the time of the study, 90,9% were employed.

Measures

1. To assess age, we asked participants to indicate in an open question how old they believed the men were.
How old do you believe this man is? ___ years old

2. To assess socioeconomic status, we asked participants to rate on the MacArthur Scale of Subjective Social Status (Adler et al., 2000) how they would evaluate the men's socioeconomic status.

> *"Imagine that this ladder shows how your society is set up. At the top of the ladder are the people who are the best off – they have the most money, the highest amount of money, the highest amount of schooling, and the jobs that bring the most respect. At the bottom are the people who are the worst off – they have the least money, little or no education, no jobs or jobs no one wants or respects.*
>
> *Now think about this man. Please tell us where you think this man would be on this ladder."*

3. To assess education level, we asked participants to evaluate the men's education level by choosing from a range between 4th grade and PhD.

Which education level do you believe this man has?

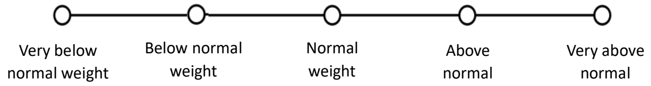
1. ☐ 4th grade
2. ☐ 6th grade
3. ☐ 9th grade
4. ☐ 12th grade
5. ☐ Bachelor
6. ☐ Master
7. ☐ PhD

4. To assess profession, we asked participants to indicate in an open question what profession they believe the man could have.

What profession do you believe this man has? ________________________________

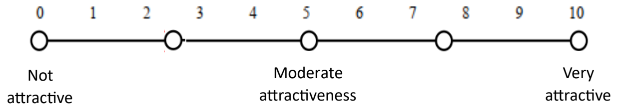
5. To assess body weight, we asked participants to evaluate the men's body weight by indicating if it was below, normal, or above the normal weight.

How would you rate his body weight?



6. To assess attractiveness, we asked participants to rate on a ten-point scale how they would rate the men's physical attractiveness between not attractive and very attractive.

How would you rate his attractiveness?



Procedures

Participants were recruited via Facebook and LinkedIn and were invited to participate in an online study about impression formation. The participants started with a first page where they could learn more about the study and then give their consent to collaborate. Therefore, participants were presented with the main measures, namely, they rated each man in terms of perceived age, socioeconomic status, education level, profession, body weight, and attractiveness. The professions that participants believed each man could have, were categorized by the researchers as low or middle/high SES based on the Portuguese Professions Classification Index (2011). The pictures' presentation order was randomized and for each page, only one man was rated in the items. Finally, socio-demographic information was collected. Questionnaires were individually administrated, taking an average of 10 minutes to complete.

Results

Picture 1

Picture of a man

Age: ranged between 48 and 70 years old (*M* = 57.36, *SD* = 5.70)

Socioeconomic status: ranged between 4 and 9 (*M* = 6.36, *SD* = 1.29)

Education level: ranged between 4 and 20 (*M* = 11.90, *SD* = 4.02)

Body weight: 82% perceived as above the normal weight (*N* = 18), 9% as normal weight (*N* = 2), and 9% as very above the normal weight (*N* = 2).

Attractiveness: perceived between 0 and 6 (*M* = 3.18, *SD* = 1.59).

Professions:

Higher scores on socioeconomic status and/or educational level:	Businessman; Physical education teacher; Lawyer; Nurse; Supervisor; Banker; Actor
Lower scores on socioeconomic status and/or educational level:	Mechanic; Factory worker; Trucker; Farmer; Plumber; Administrative; Driver

Picture 2

Picture of a man

Age: ranged between 38 and 57 years old (*M* = 48.90, *SD* = 5.23)

Socioeconomic status: ranged between 4 and 9 (*M* = 5.95, *SD* = 1.25)

Education level: ranged between 6 and 15 (*M* = 11.04, *SD* = 2.83)

Body weight: 91% perceived as normal weight (*N* = 20) and 9% as above the normal weight (*N* = 2).

Attractiveness: perceived between 1 and 8 (*M* = 4.90, *SD* = 1.68).

Professions:

Higher scores on socioeconomic status and/or educational level:	Businessman; Lawyer; Teacher;
Lower scores on socioeconomic status and/or educational level:	Factory worker; Administrative; Housebuilder; Hairdresser; Bricklayer; Driver; Seller; Painter; Baker; Mechanist; Electrician; Woodworker

Picture 3

Picture of a man

Age: ranged between 36 and 60 years old (*M* = 48.31, *SD* = 6.25)
Socioeconomic status: ranged between 4 and 9 (*M* = 6.68, *SD* = 1.08)
Education level: ranged between 9 and 20 (*M* = 14.81, *SD* = 2.48)
Body weight: 91% perceived as normal weight (*N* = 20), 5% below the normal weight (*N* = 1) and 5% as above the normal weight (*N* = 1).
Attractiveness: perceived between 2 and 10 (*M* = 5.77, *SD* = 1.66).
Professions:

Higher scores on socioeconomic status and/or educational level:	Teacher; Doctor; Businessman; Manager; Advertising; IT developer; Lawyer; Architect
Lower scores on socioeconomic status and/or educational level:	Cashier; Painter; Store manager; Administrative

Picture 4

Picture of a man

Age: ranged between 42 and 60 years old (*M* = 50.04, *SD* = 4.87)
Socioeconomic status: ranged between 4 and 10 (*M* = 6.63, *SD* = 1.46)
Education level: ranged between 6 and 20 (*M* = 13.90, *SD* = 4.39)
Body weight: 51% perceived as normal weight (*N* = 21) and 5% below the normal weight (*N* = 1).
Attractiveness: perceived between 1 and 10 (*M* = 4.22, *SD* = 2.04).

Professions:

Higher scores on socioeconomic status and/or educational level:	State employee; Doctor; Accountant; Businessman; Engineer; IT developer; Psychologist; Teacher
Lower scores on socioeconomic status and/or educational level:	Seller; Merchant; Woodworker; Unemployed; Electrician; Warehouse operator; Mechanic; Farmer

Conclusion

Based on the pre-test findings, picture 4 was selected for inclusion in the vignettes because the man showed the highest variability in results. Specifically, he was perceived as middle-aged, of normal weight, and ambiguous in terms of SES, as he could be perceived as either having a low or a moderate/high SES.

Appendix C

Characteristics attributed to the female targets categorized as dimensions of warmth or competence (Chapter 6/Article 3)

	Competence	**Warmth**
Altruistic		X
Burdened		X
Competent	X	
Courageous		X
Curious		X
Dedicated		X
Demanding	X	
Extrovert		X
Fair		X
Faithful		X
Fighter		X
Hard-working	X	
Honest		X
Intelligent	X	
Isolated		X
Modest		X
Organized	X	
Partner		X
Persevering	X	
Professional	X	
Rational	X	
Relaxed		X
Resigned		X
Resilient	X	
Responsible	X	
Rigid		X
Sad		X
Secure	X	
Shy		X
Warm		X
Worried	X	

Appendix D

Characteristics attributed to the male targets categorized as dimensions of warmth or competence (Chapter 6/Article 3)

	Competence	**Warmth**
Altruistic		X
Burdened		X
Competent	X	
Courageous		X
Curious		X
Dedicated		X
Demanding	X	
Determined	X	
Extrovert		X
Fair		X
Faithful		X
Fighter		X
Happy		X
Hard-working	X	
Honest		X
Intelligent	X	
Isolated		X
Modest		X
Nervous		X
Organized	X	
Partner		X
Passionate		X
Persevering	X	
Professional	X	
Rational	X	
Relaxed		X
Resigned		X
Resilient	X	
Responsible	X	
Rigid		X
Sad		X
Secure	X	
Warm	X	
Worried	X	