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Gender Identity-Based Biases in Judgments of Social Pain

Camilla Vieira de Figueiredo

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Tese apresentada ao Programa de Pós-Graduação em Psicologia Social da Universidade Federal da Paraíba por Camilla Vieira de Figueiredo, sob orientação do Prof. Dr. Cicero Roberto Pereira, como requisito para obtenção do grau de Doutor em Psicologia Social.

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Abstract

Adverse social experiences pose a threat to health and well-being by eliciting social pain in individuals. Previous research has indicated biases in social pain judgments toward members of different social groups. These findings suggest that socially valued ingroups are perceived as more sensitive to social pain compared to socially devalued outgroups. However, this effect raises a critical question, as pain is a negative attribute and individuals avoid painful situations. Thus, attributing more social pain to the ingroup challenges individuals' motivation for positive distinctiveness (i.e., the tendency to provide positive attributes to the ingroup). This suggests that social pain may encompass different meanings depending on the dimensionality of social comparison present in intergroup relations. Building on this premise, we developed a research program to address the hypothesis of the multiple meanings of social pain and its influence on social pain judgments regarding cisgender and transgender individuals. Our thesis posits that cisgender individuals will attribute more social pain to transgender targets than to cisgender targets when the social comparison dimension between these groups is based on the social value of identity belongings. In this dimension, social pain is expected to assume its originally negative symbolic meaning, reflecting the social devaluation of transgender identity (i.e., the symbolic dimension of social pain). Paradoxically, when the social comparison dimension involves obtaining resources for addressing social pain (e.g., receiving professional mental health assistance), cisgender individuals will attribute less social pain to transgender targets (vs. cisgender targets). In this case, social pain is expected to serve a utilitarian function in securing greater access to support resources for the ingroup (i.e., the utilitarian dimension of social pain). In addition to providing a literature review on social pain and biases in social pain judgments in hierarchized intergroup relations, we discuss the implications of social pain meanings in the dynamics of cisgender-transgender relationships, a relatively understudied area in social psychology (Chapter 1). Our research program includes four empirical studies organized into four empirical chapters (Chapters 2-5). Initially, we assessed the attribution of social pain to cisgender and transgender targets in a symbolic dimension. We demonstrated that cisgender individuals attribute more social pain to transgender individuals (vs. cisgender individuals), especially transgender women (Chapter 2), and that this attribution is related to the social devaluation of transgender identity (Chapter 3). When we increased (vs. decreased) the social value of transgender identity, we observed a reduction in social pain bias (Chapter 4). We found that the

social pain bias occurs exclusively for targets with male-assigned birth sex (i.e., transgender women and cisgender men) and provided evidence that social pain can serve as a mechanism to express the stigmatization of transgender women. In Chapter 5, we added evidence to the hypothesis of the variable meanings of social pain by investigating whether the attribution of social pain to transgender women and cisgender men is influenced by the social comparison dimension (symbolic vs. utilitarian) in which social pain is assessed. We also examined the relationship between social pain and the attribution of professional support to targets. Overall, the results supported our hypothesis, revealing greater attribution of pain and support to transgender women only when health assistance resources were not salient (i.e., in the symbolic condition). Finally, in Chapter 6, we provide a general discussion and concluding remarks on the research conducted in this thesis, including the limitations of our research program and suggestions for future investigations in this line of research. This research program provides the first experimental evidence that social pain can assume different meanings in the context of hierarchized intergroup relations. The social pain bias may potentially impact mental health support for stigmatized outgroup members, such as transgender women. These findings contribute to the investigation of social pain by presenting unexplored mechanisms and functions of social pain, particularly in the complex landscape of gender identity-based intergroup relations. They help understand the dynamics of these relationships and have potential implications for intervention and treatment of social pain in transgender individuals.

Keywords: social pain, gender identity, social value, transgender, social comparison.

Resumo

Experiências sociais aversivas ameaçam a saúde e o bem-estar ao provocar nos indivíduos dor social. Pesquisas anteriores apontaram a existência de vieses nos julgamentos de dor social de membros de diferentes grupos sociais. Essas descobertas indicam que endogrupos socialmente valorizados são considerados mais sensíveis à dor social em comparação com exogrupos socialmente desvalorizados. Contudo, esse efeito levanta uma questão crítica, uma vez que a dor é um atributo negativo e os indivíduos evitam situações dolorosas. Assim, atribuir mais dor social ao endogrupo desafia a motivação dos indivíduos para a distinção positiva (i.e., a tendência de fornecer atributos positivos ao endogrupo). Isso sugere que a dor social pode abranger diferentes significados dependendo da dimensão de comparação social presente nas relações intergrupais. Com base nesta premissa, desenvolvemos um programa de pesquisa para abordar a hipótese dos múltiplos significados da dor social e sua influência nos julgamentos de dor social em relação a indivíduos cisgêneros e transgêneros. Nossa tese é de que pessoas cisgênero atribuirão mais dor social a alvos transgêneros do que a alvos cisgênero quando a dimensão de comparação social entre esses grupos se basear no valor social das pertencas identitárias. Nessa dimensão, a dor social deve assumir o seu significado simbólico originalmente negativo e refletir a desvalorização social da identidade transgênero (i.e., dimensão simbólica da dor social). Paradoxalmente, quando a dimensão de comparação social envolver a obtenção de recursos para tratamento da dor social (e.g., receber assistência profissional em saúde mental), os cisgêneros atribuirão menos dor social aos alvos transgêneros (vs. cisgêneros). Nesse caso, a dor social deve assumir uma função utilitária de garantir o maior acesso a recursos assistenciais para o endogrupo (i.e., dimensão utilitária da dor social). Nessa tese, além de apresentar uma revisão da literatura sobre dor social e vieses nos julgamentos de dor social em relações intergrupais hierarquizadas, discutimos os significados da dor social implicados na dinâmica das relações cisgênero-transgênero, uma dinâmica relativamente pouco explorada na psicologia social (Capítulo 1). Nosso programa de investigação inclui quatro estudos empíricos organizados em quatro capítulos empíricos (Capítulos 2-5). Inicialmente, avaliamos a atribuição de dor social a alvos cisgêneros e transgêneros numa dimensão simbólica. Demonstramos que os cisgêneros atribuem mais dor social a transgêneros (vs. cisgêneros), especialmente a mulheres transgênero (Capítulo 2), e que essa atribuição está relacionada à desvalorização social da identidade transgênero (Capítulo 3). Quando aumentamos (vs. diminuímos) a valoração social da identidade transgênero, observamos uma redução do

viés em relação à dor social (Capítulo 4). Descobrimos que o viés de dor social ocorre exclusivamente para alvos com sexo masculino atribuído no nascimento (i.e., mulheres transgênero e homens cisgênero) e fornecemos evidências de que a dor social pode servir como um mecanismo para expressar a estigmatização das mulheres transgênero. No Capítulo 5, adicionamos evidências à hipótese dos significados variáveis da dor social, investigando se a atribuição de dor social às mulheres transgênero e aos homens cisgênero é influenciada pela dimensão de comparação social (simbólica vs. utilitária) em que a dor social é avaliada. Analisamos também a relação entre dor social e atribuição de suporte profissional aos alvos. Em geral, os resultados apoiaram nossa hipótese, revelando uma maior atribuição de dor e de suporte à mulher transgênero apenas quando os recursos de assistência à saúde não estavam salientes (i.e., na condição simbólica). Finalmente, no Capítulo 6, apresentamos uma discussão geral e observações finais sobre a pesquisa realizada nessa tese, incluindo as limitações do nosso programa de pesquisa e sugestões para futuras investigações nesta linha de pesquisa. Esse programa de investigação fornece a primeira evidência experimental de que a dor social pode assumir diferentes significados no contexto de relações intergrupais hierarquizadas. O viés de dor social pode, potencialmente, impactar o suporte em saúde mental a membros de exogrupos estigmatizados, como mulheres transgênero. Essas descobertas contribuem para a investigação da dor social ao apresentar mecanismos e funções da dor social ainda inexplorados, particularmente no complexo cenário das relações intergrupais baseadas na identidade de gênero. Elas ajudam a compreender a dinâmica dessas relações e têm implicações potenciais para a intervenção e tratamento da dor de pessoas transgênero.

Palavras-chave: dor social, identidade de gênero, valor social, transgênero, comparação social.

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Imagine a person who is a newcomer to a social meeting, such as a company, university, or neighborhood. She attends her first group-wide meeting in the hope of making social connections with her colleagues. During the meeting, she tries to strike up a conversation and get to know the members of her group. As a result, some of her colleagues invite her to lunch, involve her in discussions, and even compliment her on her contributions. She begins to feel included and valued and to feel that she belongs to her social environment in the ingroup. This positive social interaction not only makes her feel good emotionally but also has potential benefits for her physical and mental health. She is less stressed, more motivated at work, and more satisfied overall. However, let us look at a different scenario. In this case, she is excluded from group conversations during interactions, her colleagues in the group often ignore her, and sometimes they make critical comments about her behavior. She feels rejected, disrespected, and isolated in her social environment at work. These negative social experiences cause her considerable emotional distress. She becomes stressed, anxious, and even begins to doubt her abilities and self-worth.

In this example, the process of building social relationships and avoiding painful experiences becomes clear as a basic human need with survival implications (Leary & Baumeister, 1995). Feeling included, belonging, and valued in one's social environment has far-reaching benefits for physical and mental health (Regan et al., 2022). On the other hand, unpleasant social experiences such as rejection, exclusion, non-inclusion, disrespect, embarrassment, injustice, critical questioning, and other negative forms of social interaction lead to significant emotional suffering (MacDonald & Leary, 2005). This psychological suffering which affects a person's sense of social connectedness is called social pain (Eisenberger & Lieberman, 2004).

The Nature of the Critical Phenomenon to be analysed: Meaning and Characteristics of Social Pain in Socially Devalued Outgroups

The definition of social pain is broad and is associated with multiple aversive social experiences. As in our imaginary example, social pain can arise from experiences where a person feels excluded from desired relationships (e.g., being excluded by friends at a party), devalued as a relational partner (e.g., when a romantic partner ends the relationship), wronged by the loss of a significant protective bond (e.g., through the loss of loved ones and pets), or embarrassed in real or imagined situations where they believe their failures will result in significant social or relational losses (e.g., failing an exam) (Hudd & Moscovitch, 2021). Previous research has shown that social pain stemming from these situations has profound negative effects on self-esteem, emotional well-being, and overall quality of life, potentially compromising existential meaning, promoting psychopathological conditions, and eliciting maladaptive behavioral changes (Cacioppo & Cacioppo, 2014). The effects of social pain are so potent that they are considered equivalent to those observed for physical pain, especially because these two types of pain share common neural mechanisms (Eisenberger, 2012).

Due to continuous exposure to circumstances potentially conducive to social pain, members of stigmatized groups, such as Black individuals, non-heterosexual individuals, and transgender individuals, experience higher levels of social pain compared to their counterparts from socially esteemed groups (Deska et al., 2020; Winter et al., 2009). Specifically, transgender individuals, those who identify, express, and/or present with a gender non-conformity with the sex assigned to them at birth (Downing & Przedworski, 2018), are at an increased risk of developing psychological issues and suicidal ideation due to discrimination and social disconnection they encounter compared to cisgender individuals (i.e., individuals whose gender identity aligns with the sex assigned at birth) (Rood et al., 2015; Testa et al., 2017). Stigma and

the consequent social devaluation of transgender identity create extreme conditions of vulnerability for the transgender population, manifesting in a lack of resources, marginalization, and experiences of discrimination in broad and specific social contexts such as education, work, and health (Grossman & D'Augelli, 2006).

Research on this topic has found that, despite being more susceptible to painful social experiences, members of devalued social groups (e.g., Black individuals, people with low socioeconomic status) are perceived as less sensitive to social pain than members of valued social groups (e.g., White individuals, people with high socioeconomic status) (Madeira et al., 2022; Summers et al., 2021). Research on race and class-based biases in pain judgments in medical and clinical contexts has shown a consistent pattern of attributing more pain to privileged ingroup members, resulting in a greater allocation of healthcare resources to manage the effects of pain for them relatively to devalued outgroups (e.g., reduced wait time for medical assistance, increased pain relief prescriptions, provision of more intensive and specialized mental health treatments), as demonstrated by Deska et al. (2020) and Johnson et al. (2023). Given that pain is essentially a negative attribute in a more symbolic dimension, where people actively act to avoid it and dissociate it from their ingroup (MacDonald et al., 2011), this evidence suggests that in more utilitarian contexts (e.g., medical and clinical settings), where attributing more pain implies allocating more and better resources for pain management, the primarily negative symbolic meaning of pain is relativized in favor of its functionality/utility in securing resources for the privileged ingroup.

The Still Unsolved Research Problem

This evidence raises a fundamental and unexplored theoretical question in recent research on social pain bias. It is about understanding how cisgender individuals evaluate ingroup cisgender and outgroup transgender social pain across different intergroup social comparison dimensions. In particular, the current research program

covers situations with a more symbolic dimension, which focuses on the social value of group membership, and a more utilitarian dimension, in which the recognition of pain means devoting more material resources to the ingroup compared to the outgroup. Our analysis focuses primarily on the symbolic dimension of identity and delves into the study of the meaning and consequences of recognizing social pain when identity aspects are more prominent, contrasting them with situations where more utilitarian elements are present. We address this critical gap by investigating biases in social pain judgments within an intergroup context that prominently emphasizes identity-based social comparisons. Specifically, we examine the processes involved in evaluating the social pain of cisgender and transgender target individuals by cisgender individuals, thus focusing on an intergroup scenario where identity membership holds significant symbolic meaning.

A Social Identity Approach to Social Pain

Drawing on existing literature on utilitarian biases in social pain judgments within the context of hierarchical intergroup relations, and grounded in the postulates of social identity theory (SIT; Tajfel & Turner, 1979), we propose a social identity approach to understanding social pain. We propose that social pain can assume symbolic meanings (i.e., maintaining the primarily negative symbolic meaning) or utilitarian meanings (i.e., a utilitarian meaning relativized in favor of the cisgender ingroup) depending on the context of social comparison implied in the cisgender-transgender dynamics. SIT predicts that individuals actively seek to maintain positive self-esteem and, in doing so, compare their group with relevant outgroups to positively differentiate themselves. As a result, they exhibit a bias in favor of the ingroup and tend to discriminate against outgroups in socially relevant dimensions, thus strengthening their self-esteem and positive social identity. With this theoretical postulate, we can

predict that cisgender individuals evaluate members of the cisgender ingroup more positively than members of the transgender outgroup (Outten et al., 2019).

Applying this reasoning to contexts of social pain evaluation, it is expected that when the social comparison between these groups involves a more symbolic social comparison dimension (i.e., when the context foregrounds identity membership, and when the social value of groups constitutes the primary component of social comparison), social pain assumes its primary meaning so that cisgender individuals will tend to attribute more social pain to the transgender outgroup member than to the cisgender ingroup member, thus affirming the social value of their cisgender identity and the social devaluation of transgender identity (Lima & Pereira, 2022). On the other hand, if social comparison occurs in a context that emphasizes the need to allocate more instrumentally utilitarian resources to deal with social pain to members of these groups, social pain can lose its primarily symbolic meaning and take on a latent utilitarian meaning (and thus, a positive outcome in these scenarios), thereby being more prominently attributed to socially valued ingroup members to ensure their enhanced access to these resources (Summers et al., 2021). In this scenario, social pain should function as a fundamental mechanism to legitimize unequal access to healthcare resources and perpetuate intergroup differentiation in favor of the socially privileged cisgender ingroup.

Specific Research Questions and Thesis Proposal

Within the framework of SIT, the current thesis aims to investigate gender identity-based biases in judgments of social pain by addressing these more specific research questions: In what ways do cisgender individuals evaluate the social pain of cisgender ingroup members and transgender outgroup members? Does the social value of cisgender and transgender identity categories impact the evaluation of social pain for these targets? Does the evaluation of social pain for these targets differ when the

implied intergroup social comparison context is more symbolic (vs. utilitarian)? In what ways does the evaluation of social pain for these targets impact the attribution of professional psychological support to manage the effects of social pain? Answering these questions has significant implications for research on social pain and anti-transgender bias, allowing us to deepen our understanding of a specific aspect of cisgender-transgender relational dynamics, a dynamic still underexplored in current research in social psychology.

This thesis presents a research program aimed at providing empirical evidence for our proposal of the variable meanings of social pain and its influence on biases in social pain judgments and the attribution of professional support to cisgender and transgender individuals. Our general hypothesis is that biases in gender identity-based social pain judgments are contextually determined, such that social pain encompasses symbolic or utilitarian meanings applicable to hierarchical relationships between cisgender and transgender individuals. More specifically, we hypothesize that cisgender individuals will attribute more social pain to transgender targets (considered a socially devalued outgroup) than to cisgender targets (considered a socially valued ingroup) when identity belonging is central to social comparison. When a more utilitarian dimension is involved in the social comparison, for example, by emphasizing the need to mobilize psychological resources for managing social pain, cisgender individuals will attribute more social pain to cisgender ingroup targets (vs. transgender outgroup targets). This leads us to expect that the greater attribution of social pain to transgender targets (vs. cisgender) in the symbolic condition reflects the perception of social devaluation of transgender identity. Concurrently, the higher attribution of social pain to cisgender targets (vs. transgender) in a utilitarian condition represents the utilitarian motivation for favoring the cisgender ingroup.

Overview of the Current Thesis

This work is organized as follows: In Chapter 1, we provided a literature review on social pain, presented previous research on biases in the judgment of social pain in socially hierarchical groups, and discussed our theoretical framework to propose an investigation of gender identity-based biases in judgments of social pain. We then conducted four experimental studies to test our hypotheses (Chapters 2-5). In Chapter 2, we conducted an initial investigation of the phenomenon by testing whether cisgender participants would perceive transgender targets as more sensitive to social pain compared to cisgender targets. In Chapter 3, we explore the possible relationship between the greater attribution of social pain to transgender (compared to cisgender) targets and the social devaluation of transgender identity. In Chapter 4, we sought to deepen this understanding by manipulating positive (vs. negative) aspects of transgender identity to assess their impact on social pain bias. We expected that increasing (or decreasing) social valuation of transgender identity would reduce the bias of social pain. In all of these studies (Chapters 2-5), we examined how social pain bias would manifest in scenarios in which gender identity was the primary element of social comparison. Thus, we assessed social pain from its symbolic dimension.

In Chapter 5, we go one step further and test our hypothesis of the variable meanings of social pain in intergroup relations. We examine whether the judgments of social pain are influenced by the dimension (symbolic vs. utilitarian) of social comparison in which social pain is assessed in the context of cisgender-transgender social comparisons. In this study, we also analyze the relationship between social pain and the attribution of professional pain management support to targets. Finally, we present a general discussion and concluding remarks on the research conducted in this thesis, including the limitations of our research program. We also make suggestions for future research in this area of research.

**CHAPTER 1. GENDER IDENTITY AND RECOGNITION OF SOCIAL PAIN
OF TRANSGENDER INDIVIDUALS**

Aversive social experiences that threaten an individual's social value and interpersonal relationships are psychologically distressing. These experiences, which may involve rejection, exclusion, disrespect, embarrassment, injustice, and loss of valued relationships, promote a type of psychological suffering that has been named social pain (MacDonald & Leary, 2005). Social pain is still a relatively unstudied concept that refers to the emotional distress and discomfort experienced by individuals when they perceive that they have been rejected, excluded, or ostracized by relevant others in their social network (Deska et al., 2020)¹.

Given the importance of social connection for human survival, the definition of social pain is broad and includes multiple experiences associated with real or potential damage to the individual's sense of connection or social value (Eisenberger & Lieberman, 2004). Thus, social pain may result from experiences in which a relationship is threatened or broken because the self is devalued (e.g., being excluded by friends at a party), from experiences in which a protective bond is lost, although the individual is not involved (e.g., loss of loved ones and pets), or may occur without explicit relational devaluation (e.g., receiving negative feedback, failing an exam) when the individual imagines that their failures will bring them important social or relational losses (Hudd & Moscovitch, 2021). The social pain that emerges from these situations has detrimental effects on emotional well-being, life satisfaction, and self-esteem (Cacioppo & Cacioppo, 2014). As a result, individuals experiencing social pain require effective social support to halt or alleviate their suffering.

The psychosocial consequences of social pain have been widely studied (e.g., Eisenberger et al., 2003; Riva et al., 2011). Previous research has shown that various attributes of the target person, such as their membership in socially disadvantaged

¹ This chapter is part of the manuscript titled 'Gender Identity-based Biases in Judgments of Social Pain', which has been submitted to the Journal of Experimental Social Psychology.

categories like race and gender, as well as personal features of their facial expression (e.g., width-to-height ratio), can influence how others perceive their social pain (Deska & Hugenberg, 2018). For example, studies have shown that individuals from disadvantaged groups who frequently experience social mistreatment, such as Black people and individuals of low socioeconomic status, are particularly vulnerable to biases in how their pain is judged (Deska et al., 2020; Summers et al., 2021). They are often perceived as less sensitive to situations that potentially cause social pain than members of dominant groups such as white individuals and people of high socioeconomic status. That is, people tend to associate a critical negative attribute – *pain* – with these advantaged social groups. This phenomenon raises an intriguing and unresolved theoretical problem regarding the psychological interpretation of social pain in the context of intergroup relations. The fact that a disadvantaged outgroup is perceived as less sensitive to social pain than an advantaged ingroup suggests that the meaning of social pain may differ from the explicit manifestations observed in previous studies, depending on the social comparison dimensions elicited in the context of intergroup relations.

Indeed, the consequence of the lesser recognition of pain in disadvantaged external groups may indicate that what is truly biased in favor of the ingroup are the resources needed to alleviate that pain. Previous research on the perception of social pain has primarily focused on examining biases in judgments of social pain in medical and clinical contexts (for example, Bernardes et al., 2021; Deska et al., 2020), demonstrating that members of privileged groups, such as white individuals and those with higher socioeconomic status, are perceived as more sensitive to social pain than members of socially disadvantaged groups (e.g., Black individuals, people with low socioeconomic status) (Anderson et al., 2009; Summers et al., 2021). As a result, members of privileged groups are granted more and better health resources to alleviate

pain, as these studies have shown (Heins et al., 2006; Hoffman et al., 2016). An unanswered question so far is the meaning of pain attribution in such a social comparison context where the perception of pain means acting to alleviate it by providing a higher-valued resource to individuals expressing pain. In these cases, the lesser recognition of pain signifies a lower provision of social and professional support for coping with pain (see Deska et al., 2020). Accordingly, a possible latent meaning of pain can be inferred from its effect on intergroup behavior, as people provide more useful resources to ingroup members by offering them more relevant tools to cope with pain. In this utilitarian context, social pain serves as a primary negative cue in a symbolically based dimension of the intergroup relationship that overlays a secondary evaluative dimension of positive resources those individuals tend to reserve for the ingroup. Recognizing that ingroup members are more sensitive to social pain could therefore be a way of allocating more functional resources to the ingroup than to the outgroup in the latent utilitarian dimension. However, we still do not know what social pain means and how it arises when social comparison involves a more symbolic dimension focussing only on identity-based group membership and not confounded with a latent utilitarian dimension of comparison.

In this chapter, we aim to theorize on this critical issue, examining how the social pain bias would occur within an intergroup context that prominently emphasizes identity-based social comparisons. Specifically, we will examine the processes involved in recognizing social pain experienced by cisgender and transgender individuals, an intergroup scenario in which group membership holds significant symbolic meaning. We aim to theorize on how cisgender individuals would perceive social pain of both their cisgender group members and members of a transgender outgroup. We also examine the role that (de)valuation of transgender identity plays in judgments of social pain between these groups. These aspects are unexplored in the literature on social pain,

and their inclusion in the transgender field may shed light on critical questions about understanding symbolically-based intergroup relations.

We analyze these issues within the framework of social identity theory (Tajfel & Turner, 1979) and propose a new explanation for interpreting judgments of social pain in intergroup behavior. Given that social pain is essentially a negative attribute in a more symbolic dimension (Eisenberger & Lieberman, 2004; MacDonald et al., 2011), in which people act to maximize pleasure and avoid pain (Fernando et al., 2013; Higgins, 1997), it is likely that its recognition is an important element for marking positive distinctiveness between the cisgender ingroup and transgender outgroup, especially because this dimension of social comparison highlights the social value of categories and is not confounded with more utilitarian dimensions, such as those involved in intergroup scenarios marked by socioeconomic and racial inequalities.

Gender Identity and Recognition of Social Pain of Transgender Individuals

The concept of gender identity challenges traditional notions of gender as a binary construct tied to biological sex. The term transgender serves as an inclusive umbrella that encompasses diverse social identities (Buck, 2016). Transgender individuals are those who identify with a gender different from the one assigned to them at birth (Norton & Herek, 2013). For example, in the current societal-cultural system, individuals assigned male at birth, based on having a penis and XY chromosomes, are considered male. When their gender identity aligns with the cultural expectations and behavioral norms associated with their assigned gender, they are categorized as cisgender, indicating that their gender identity matches their assigned sex at birth. Conversely, if their gender identity deviates from the socially expected gender role and behavioral norms associated with their assigned sex at birth, they are classified as transgender. In this context, an individual assigned male at birth but identifying as a woman would be considered a transgender woman (Dias et al., 2021).

In addition, the term transgender, given its diversity, can also encompass individuals who do not identify with specific genders (e.g., agender, bigender), reject the male and female categories (e.g., non-binary), or experience fluidity in their gender identities over time or along the gender spectrum (e.g., genderfluid) (Simmons & White, 2014). In this thesis, we specifically focused on categorizations related to cisgender men (i.e., individuals assigned male at birth who identify as men), cisgender women (i.e., individuals assigned female at birth who identify as women), transgender men (i.e., individuals assigned female at birth who identify as men and seek social and legal recognition as men), and transgender women (i.e., individuals assigned male at birth who identify as women and seek social and legal recognition as women) (Winter et al., 2009). We investigated whether these categorizations could influence how individuals perceive and evaluate the social pain experienced by these different groups.

Social identity theory (Tajfel & Turner, 1979) provides a valuable and comprehensive framework for gaining insight into the mechanisms underlying the recognition of social pain associated with gender identity categorization. According to this theory, individuals actively seek to maintain positive self-esteem by emphasizing the positive distinctiveness of their ingroup in comparison to outgroups. Consequently, they exhibit bias towards the ingroup and discriminate against the outgroup on socially relevant dimensions to secure a positive social identity. The theory also posits that ingroup bias underlies prejudice and discrimination against various social groups, particularly socially disadvantaged outgroups, and substantial empirical evidence supports this claim (see Broussard & Warner, 2019; Cameron, 2001; Figueiredo & Pereira, 2021). As a result, it would be predicted, for example, that cisgender individuals are motivated to evaluate cisgender individuals more favorably than transgender individuals on evaluative dimensions that contribute to maintaining their

advantageous position within the social hierarchy (Lima & Pereira, 2022; Outten et al., 2019).

This bias against transgender people has been widely demonstrated in previous studies, as transgender people are the target of prejudice and discrimination in all cultures where empirical data on transphobia is available (e.g., Johnson III et al., 2020; Konopka et al., 2020; Uluboy & Husnu, 2022). The stigmatization surrounding their identity and the low social value attributed to their category makes them particularly vulnerable to adverse conditions such as family rejection, extreme poverty, unemployment, violence, illness, and survival sex (Grant et al., 2011). These conditions systematically compromise their health and well-being, leading to higher rates of anxiety, depression, and suicide risk compared to the cisgender population (Tebbe & Moradi, 2016; White-Hughto et al., 2015).

Transgender individuals are especially at risk for these detrimental outcomes because the relative position of their category within the framework of social relations reflects the extent to which this group membership is undesired and stigmatized (Craig et al., 2020; Gazzola & Morrison, 2014). By embracing this gender identity, transgender individuals strongly challenge historically established norms such as gender binarism (Buck, 2016), beliefs about traditional gender roles (Norton & Herek, 2013), religious fundamentalism, and social conventions regarding moral behavior (Nagoshi et al., 2008). Transgressions of these norms lead to severe social retaliation, which can include discrimination, allocation of fewer resources to their group, support for public policies that maintain distance between cisgender and transgender individuals, and the devaluation of the social and symbolic worth of the transgender category (Lima & Pereira, 2022; Tajfel & Turner, 1986).

Although there is currently no empirical evidence for a direct relationship between transgender people's perceived low social value and the recognition of their

social pain, research on culturally embedded stereotypes about transgender people provides indirect supportive evidence for this relationship (Howansky et al., 2021; Wesselmann et al., 2022). For example, beliefs that label transgender persons as “mentally ill”, “abnormal”, or “born in the wrong body” have been observed to be consistent elements of prejudice against transgender persons across cultures (Winter et al., 2009). Moreover, Gazzola and Morrison (2014) found that these beliefs are widely held as cultural stereotypes about transgender men and women and are associated with feelings of pity toward these individuals.

Furthermore, transgender individuals evoke feelings of pity due to their perceived vulnerability to passive forms of harm, such as neglect and social marginalization (Gazzola & Morrison, 2014). Studies exploring the experiences of families coping with the discovery that their child is transgender have corroborated this perception (von Doussa et al., 2020). Frequently cited concerns include the anticipation that a transgender child would likely endure a lifetime of loneliness and unhappiness, be unable to have children, face rejection from other family members, be at higher risk of sexually transmitted infections, and endure daily harassment and discrimination (Norwood, 2013). These prevailing beliefs about transgender persons are indicative of widespread societal devaluation of transgender identity (Wesselmann et al., 2022). This evidence supports the reasoning that cisgender individuals are more likely to attribute more social pain to transgender individuals compared to their cisgender counterparts. Consequently, it is plausible that negative evaluation of transgender identity leads to increased recognition of the social pain experienced by transgender individuals.

Following this reasoning, one might expect that in intergroup contexts where social comparison is essentially symbolic, i.e., in which the bias for favoring the ingroup over the outgroup results from the identity-based social value of group membership and not from utilitarian material resources, social groups that are perceived

as more socially valuable are less affected by social pain than groups with lower value. Because cisgender men occupy a privileged position in the social hierarchy, they are likely to be perceived as less vulnerable to social pain than cisgender women and transgender individuals – groups that occupy a hierarchically lower status and face greater social challenges (Ridgeway & Correll, 2004). Previous research has consistently shown that men are indeed rated as less sensitive to social pain than women (e.g., Deska et al., 2020; Studies 2a and 2b). Our prediction is consistent with previous studies that examined gender stereotypes related to differences in resilience, sensitivity, and stoicism in relation to experiences of physical pain (Bernardes et al., 2008; Sanford et al., 2002).

In terms of attitudes toward transgender women and transgender men, atypical gender behavior is far less accepted among those who were assigned a male gender at birth (Grossman & D’augelli, 2006) and may therefore lead transgender women to be viewed as more vulnerable to social pain than transgender men. By relinquishing a historically valued social status associated with those assigned male at birth and adopting a socially devalued female gender identity (Feinman, 1981, 1984), transgender women experience a double descent in the social hierarchy first because they are transgender and then because they are women (Gazzola & Morrison, 2014). This makes them more vulnerable to violent reprisals, particularly by heterosexual cisgender men, and contributes to their greater marginalization and disenfranchisement compared to other transgender people (Brown et al., 2018). Global data on transphobic violence confirms these assessments and indicates that transgender women are the primary target of lethal attacks within the transgender community worldwide (Balzer et al., 2012).

The Meaning of Social Pain depends on the Valuable Resources Available in the Context of Intergroup Social Comparison

The literature on biases in judgments of physical and social pain suggests that, in intergroup settings involving resource allocation (e.g., medical and clinical contexts), people tend to perceive members of their ingroup as more sensitive to pain and thus in greater need of social and professional support to cope with their suffering (e.g., Anderson et al., 2009; Madeira et al., 2022; Trawalter et al., 2012). For instance, Heins et al. (2006) analyzed 868 medical records of patients with musculoskeletal pain and found that the prescription of analgesics and opioids was influenced by the patients' racial characteristics, with white doctors prescribing fewer medications to Black patients compared to White patients due to the perception that Black individuals are more resistant to pain. Similarly, Deska et al. (2020) demonstrated that white individuals perceive white targets as more sensitive to social pain than black targets, leading them to believe that black individuals require fewer resources and coping strategies to deal with their psychological suffering. The allocation of analgesics and access to psychological assistance for pain management reflect a utilitarian dimension in which the availability of resources for these groups is a relevant issue in the decision-making process (e.g., Hoffman et al., 2016). In such a context, minimizing the physical and social pain experienced by devalued outgroup individuals serves a utilitarian function by legitimizing the denial of socioeconomic resources to them and perpetuating intergroup differentiation in favor of favored ingroup individuals (Deska & Hugenberg, 2018).

In intergroup contexts based primarily on gender identity, the perception of social pain among cisgender and transgender individuals does not involve the utilitarian dimension of social comparison that is typically examined in studies on social judgments of pain (e.g., Anderson et al., 2009; Bernardes et al., 2021). However, these

contexts may highlight another important psychological dimension that contributes to the positive social identity of the cisgender group: the social value of cisgender and transgender identities. Within this social comparison dimension, being cisgender serves as a protective factor against psychological and social suffering (Anderson, 2018), whereas transitioning to the transgender outgroup represents negative social mobility as individuals move from a valued ingroup to a socially devalued outgroup. This transition is undesirable and leads to painful social consequences (Tate et al., 2015). In this process, social pain takes on its primarily negative meaning. As a result, cisgender individuals are more likely to attribute social pain to transgender individuals, thus positively differentiating the cisgender ingroup from the transgender outgroup. We think it is possible that the bias in attributing social pain to transgender persons serves a functional purpose in that it reinforces the value of cisgender identity and enables cisgender individuals to derive self-esteem benefits from their gender identity. Thus, it is likely that by perceiving transgender individuals as experiencing more social pain, cisgender individuals may reaffirm and enhance the significance of their cisgender identity, thus bolstering their self-esteem.

Based on this reasoning, it is conceivable that in contexts in which identity belonging is the primary focus of social comparison (i.e., contexts in which social pain get its primarily negative symbolic meaning) between cisgender and transgender groups, cisgender individuals attribute more social pain to transgender targets than to cisgender targets. We believe that this attribution results from a negative and stigmatising perspective towards transgender people, which is influenced by the negative evaluation of their social value. Paradoxically, in social comparison contexts where there is a need to allocate materially valuable resources for coping with social pain to socially valued ingroup members and socially devalued outgroup members (i.e, in contexts where more utilitarian elements are present for hierarchical groups), social

pain may lose its original symbolic meaning and take on a latent utilitarian meaning (and thus a positive one in these scenarios), ascribing it more strongly to socially valued ingroup members to ensure their improved access to these resources (Summers et al., 2021).

Although contemporary pain literature increasingly recognises the need for a multidimensional approach that considers the complex biological, psychological and social components of pain (Olivier, 2022), research in this area has predominantly examined biases in the assessment of social pain using experimental paradigms that evoke access to healthcare (e.g., shortened waiting times for medical help, increased prescriptions for pain medication, more intensive and specialised psychological treatments), thereby emphasising a utilitarian dimension of pain (e.g., Deska et al., 2020; Heins et al., 2006; Summers et al., 2021). However, exploring these biases in the judgments of social pain based on gender identity is still an unexplored field. It is within this context that our research fits, aiming to fill a gap in the literature on social pain and anti-transgender prejudice by introducing the notion that social pain may encompass symbolic and utilitarian meanings that fulfill different functions in the realm of established hierarchical social relations between cisgender and transgender individuals. Specifically, we propose that the meanings of the dimension in which social pain is evaluated may shape perceptions of social pain in cisgender and transgender individuals and influence the allocation of professional support for pain management, favoring the cisgender ingroup.

Chapter Summary

The abundant evidence of bias in the assessment of social pain across groups reveals a critical gap in the literature on social pain. It suggests that the association of social pain with ingroup and outgroup members may take on different meanings depending on the nature of the prevailing social comparison dimensions in the context

of hierarchized intergroup relations. In this chapter, we take up this idea for the first time and argue for the existence of a more symbolic meaning of social pain alongside a more utilitarian dimension of social pain that is often evoked in the experimental scenarios of previous research. In the present dissertation, we hypothesize how biases in the evaluation of social pain would occur within these dimensions (symbolic vs. utilitarian), considering the dynamics of intergroup relations between cisgender and transgender individuals. We also position the perceived social value of these groups in the impact of the proposed social pain bias. We propose hypotheses that have the potential to renew research on social pain and anti-transgender bias.

In the upcoming chapters, we present specific hypotheses to operationalize this proposal. We conducted an initial study to test the hypothesis that cisgender participants would perceive transgender targets as more sensitive to social pain compared to cisgender targets (Chapter 2). Subsequently, we explored the potential relationship between the higher attribution of social pain to transgender targets (vs. cisgender targets) and the social devaluation of transgender identity (Chapter 3). In Chapter 4, we sought to deepen this understanding by manipulating positive (vs. negative) aspects of transgender identity to assess their impact on social pain bias. In Chapter 5, we take a step further and examine whether judgments of social pain are influenced by the dimension of social comparison (symbolic vs. utilitarian) in which social pain is assessed within the context of cisgender-transgender social comparisons. In this study, we also analyze the relationship between social pain and the attribution of professional support for the treatment of the targets' pain.

**CHAPTER 2. GENDER IDENTITY-BASED BIASES IN JUDGMENTS OF
SOCIAL PAIN**

This chapter presents our first study, which aimed to conduct an initial experiment to test our hypothesis that cisgender participants would perceive transgender targets as more susceptible to social pain compared to cisgender targets. In this study, participants were presented with a scenario involving a fictional victim who experienced an online intimate photo leak. The victim's gender identity (cisgender vs. transgender) and the assigned sex at birth (male vs. female) were manipulated to examine the potential influence of these characteristics on perceptions of social pain experienced by the victim.²

Method

Participants and Experimental Design

To determine the required sample size, we used WebPower (Zhang & Yuan, 2018) and specified an expected small effect size ($f = .20$) and a significance level of .05 with a desired test power of .80. Based on our experimental design, a minimum sample size of 200 participants was required to test main and interaction effects. However, given the eligibility criteria, which included only cisgender individuals, we opted for a larger sample. A total of 276 Brazilian participants took part in the study. However, 53 participants were deemed ineligible for the sample, either because they identified as not being cisgender ($n = 5$) or because they gave incorrect responses on the manipulation checks ($n = 48$). Thus, the final sample consisted of 223 cisgender Brazilians with a majority of women (53.4%) and heterosexual individuals (65.0%). The mean age of the participants was 30.4 years ($SD = 10.5$). The research design was a factorial between-subjects design with 2 (gender identity of the victim: cisgender vs. transgender) $\times$ 2 (sex assigned to the victim at birth: male vs. female). Thus, participants were randomly

² This study is part of the manuscript titled 'Gender Identity-based Biases in Judgments of Social Pain', which has been submitted to the Journal of Experimental Social Psychology.

allocated to one of four conditions: transgender woman ($n = 57$), cisgender woman ($n = 54$), transgender man ($n = 66$), and cisgender man ($n = 46$).

Manipulation of Victim's Gender Identity and Assigned Sex at Birth

A target's gender identity (cisgender or transgender) and assigned sex at birth (male or female) were manipulated through a fictional news article presented as if it had been published in an online newspaper. The article depicted a scenario in which a person named João [vs. Joana], a cisgender [vs. transgender] man [vs. woman], had his [vs. her] intimate photos leaked after giving his/her cell phone to a technical assistance company. In the situation where the victim was portrayed as cisgender, the following news article was used:

“João [/Joana], a 25-year-old, sent his [/her] cell phone to tech support. After a few days, he [/she] noticed that intimate photos were leaked on social media, and he [/she] started receiving disturbing messages. João [/Joana] is taking legal action to hold the company accountable for the emotional damage caused by the photo leak.”

In the condition where the victim was presented as transgender, the news article was as follows:

“João [/Joana], a 25-year-old transgender man [vs. transgender woman], sent his [/her] cell phone to tech support. After a few days, he [vs. she] noticed that intimate photos were leaked on social media, and he [/she] started receiving disturbing messages. João [/Joana] is taking legal action to hold the company accountable for the emotional damage caused by the photo leak.”

Measures

Social Pain Measure. To assess participants' perception of the victim's social pain, we used a modified version of the ten social pain items proposed by Deska et al. (2020). After reading the news article about the target, participants were asked to rate

the degree to which they believed each situation described would be painful for that person. The items depicted stressful events that reflect social pain and are commonly experienced by many people (e.g., “João [/Joana] invites friends over to celebrate their birthday and no one comes”; “João [/Joana]’s romantic partner asks for some space”; “Strangers laugh at João [/Joana]’s haircut”). Ratings were on a scale of 1 (not painful at all) to 4 (extremely painful), with higher scores indicating higher attribution of social pain. We conducted an exploratory factor analysis to examine the factor structure of this measure, and the results supported a single-factor solution that accounted for 32.3% of the variance (Kaiser-Meyer-Olkin [KMO] = .82, Bartlett’s p-test <.05, eigenvalue = 4.19, loadings = .36 to .71, α = .82). Participants rated this measure on a scale of 1 to 4, with a mean of 2.80 and a standard deviation of .45.

Manipulation Check. Participants were asked to indicate the assigned sex at birth (0 = male, 1 = female) and gender identity of the target individual presented in the news article (1 = cisgender man, 2 = cisgender woman, 3 = transgender man, 4 = transgender woman).

Procedures and Data Analysis

Data were collected using a survey conducted on the Qualtrics platform (<https://www.qualtrics.com>). Participants were recruited through social media channels. All participants provided informed consent in accordance with the guidelines of the Declaration of Helsinki and the American Psychological Association. The data and materials used in this and the subsequent studies are publicly available through the Open Science Framework (https://osf.io/uegky/?view_only=d2a8627613bb4d8c8844b6914f97eb51).

Data analysis was performed using SPSS software (IBM Corp. Released, 2020). We performed an analysis of variance (ANOVA) applying a 2 (gender identity of the victim: cisgender vs. transgender) $\times$ 2 (sex assigned to the victim at birth: male vs.

female) to social pain scores, using a between-subjects design. In this and the subsequent studies R-Studio (R Core Team, 2022) and Jamovi (The Jamovi Project, 2023) were used for the preparation of the figures.

Results

Estimated parameters of the ANOVA are presented in Table 1, while Figure 1 illustrates the density distributions of social pain attributed to each victim. The main effects of gender identity and of the assigned sex at birth did not reach statistical significance. However, we found a significant interaction effect between these factors. Simple effects analysis revealed that participants perceived the transgender woman as more susceptible to social pain than cisgender man, $F(1, 219) = 8.893, p = .01, \eta^2p = .04$. A marginal difference in social pain was found when contrasting cisgender woman with transgender man. Cisgender woman was perceived as more sensitive to social pain compared to transgender man, although this result was not statistically significant, $F(1, 219) = 2.775, p = .09, \eta^2p = .01$.

Furthermore, when the victim was cisgender, participants perceived the cisgender woman as more vulnerable to social pain than the cisgender man, $F(1, 219) = 8.216, p = .001, \eta^2p = .03$. When the victim was identified as transgender, participants considered the transgender woman to be more sensitive to social pain than the transgender man, although this effect was only marginally significant, $F(1, 219) = 3.163, p = .07, \eta^2p = .01$. This interaction effect also implies that the effect of gender identity (i.e., social pain bias) depends on who performed the gender transition. More specifically, social pain bias was more pronounced when a male individual transitioned into a transgender woman than when a female individual adopted a transgender man identity (Figure 2).

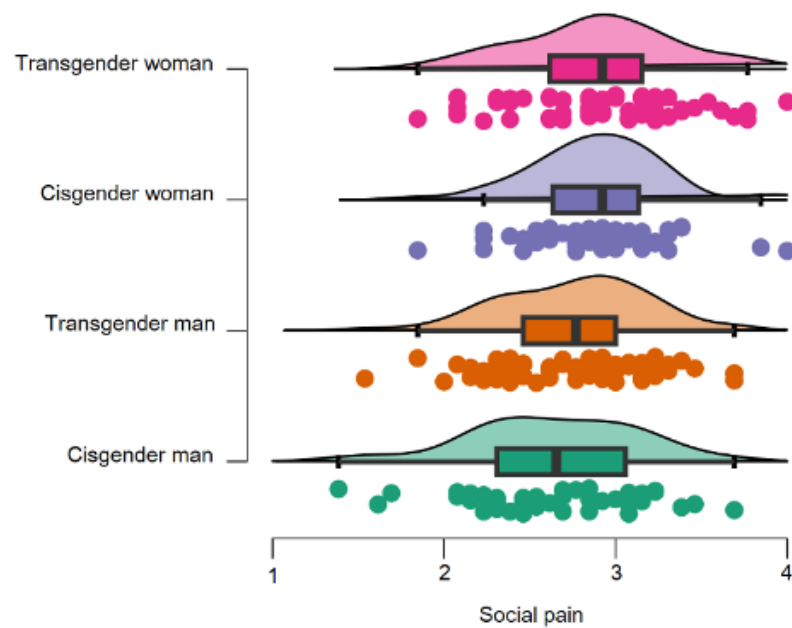
Table 1

Means and standard deviations (in parentheses) and inferential estimates for social pain by gender identity and assigned sex at birth of victims (Study 1)

	Assigned Sex at Birth			ANOVA				
	Male	Female	Total	Effect	<i>F</i> ratio	<i>df</i>	<i>p</i>	Eta ² _p
Cisgender	2.63 (.06)	2.89 (.06)	2.76 (.04)	Gender Identity	1.12	1, 219	.29	.00
Transgender	2.90 (.06)	2.75 (.05)	2.82 (.04)	Assigned Sex at Birth	0.88	1, 219	.34	.00
Total	2.76 (.04)	2.82 (.04)	2.79 (.03)	Interaction	11.02	1, 219	.001	.05

Figure 1

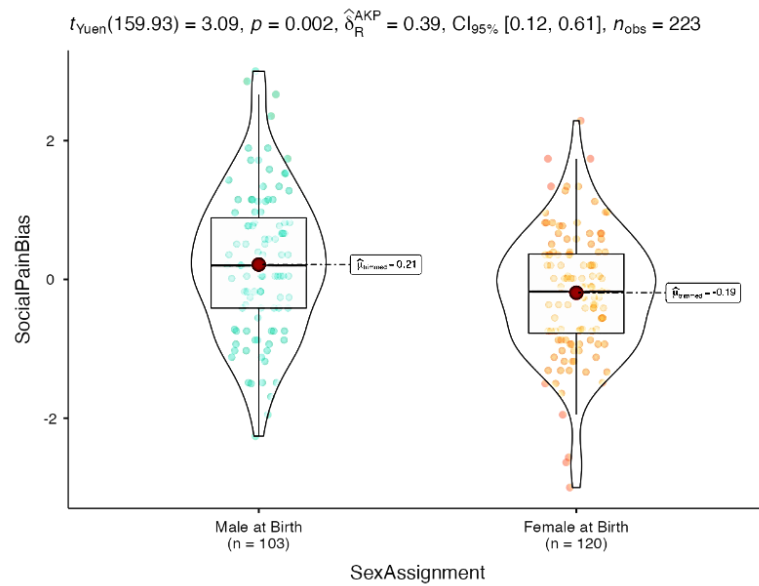
Boxplots with density distributions of social pain attributed to each victim (Study 1)



Note. The figure shows the distribution of social pain for each victim, and the boxplot illustrates the median of the central tendency estimates.

Figure 2

Boxplots with density distributions for social pain bias according to assigned sex at birth of victims (Study 1)



Note. The social pain bias = the standardized estimate of the gender effect (transgender vs. cisgender). The figure illustrates how manipulating information about the victim's birth sex affects social pain bias, with a more pronounced effect observed when participants were informed that the victim was assigned a male sex at birth.

Chapter Summary

In this study, we manipulated the gender identity and the assigned sex of birth of a fictitious victim to assess participants' perception of social pain. Our results showed that the transgender woman was perceived as more sensitive to social pain than the cisgender man, whereas the transgender man was perceived as less sensitive to pain than the cisgender woman. These results partially support our hypothesis and provide evidence that social pain in the social comparison dimension of gender identity is viewed as a trait reserved for members of socially devalued groups. Remarkably, the primary differences in pain attribution were observed among victims with male sex assigned at birth (i.e., the contrast between cisgender man and transgender woman), which reflects the deeper inequalities in the social status of the groups (Wilchek-Aviad et al., 2020). Among other victims, cisgender man was perceived as least sensitive to

situations that trigger social pain. This tendency may be attributed to the doubly privileged social position associated with this category (i.e., being cisgender and male). Cisgender men are less likely to face adverse social circumstances and less vulnerable to the harmful effects of such situations than members of other groups (Umberson et al., 1996). Conversely, we argue that transgender woman experiences greater social pain because of their doubly marginalized social status (i.e., being transgender and being female). Transgender women are constantly subjected to oppression, violence, and social exclusion, which sets them apart from other groups, both cisgender and transgender (Anderson, 2018; Benevides & Nogueira, 2020).

Interestingly, when comparing pain perceptions between victims with female sex assigned at birth (i.e., the contrast between cisgender woman and transgender man), we observed that more social pain was attributed to cisgender woman. This finding suggests that gender as a social marker is as important as gender identity in the process of pain recognition. It is possible that within a dimension of social comparison that activates the symbolic meaning of social pain, gender (i.e., being man, even if transgender) led to a relative valorization of transgender man, resulting in more pain being attributed to cisgender woman, who represent a group considered devalued in most societies (Kray et al., 2017). Thus, the results of Study 1 provide evidence that social pain is a negative attribute (MacDonald et al., 2011) in the domain of gender identity-based relationships and is attributed to socially devalued groups (Tajfel & Turner, 1979).

To directly examine this phenomenon using a more neutral scenario than intimate photo leaks, we conducted Study 2. The stimuli used in Study 1 may have elicited stereotypical information associated with women, as they are more likely to be victims of revenge pornography (Ruvalcaba & Eaton, 2019) and are judged more harshly than men in similar situations (Milhausen & Herold, 1999). Therefore, in Study

2, we used a generalized scenario and within-participant design with increased statistical power to examine whether perceptions of group social value may moderate attributions of social pain to targets. Specifically, we tested the hypothesis that higher attribution of social pain to transgender individuals, particularly transgender women, compared with cisgender individuals, is associated with perceptions of transgender identity as having low (or high) social value.

**CHAPTER 3. DOES THE SOCIAL DEVALUATION OF TRANSGENDER
IDENTITY INFLUENCE THE SOCIAL PAIN BIAS EFFECT?**

While in Chapter 2 we addressed for the first time the social pain bias effect, in the current chapter we went further by exploring the possible relationship between perceptions of transgender individuals, particularly transgender women, as more sensitive to social pain compared to cisgender individuals and the social devaluation of transgender identity. To test this hypothesis, we used a collection of photographs from the Chicago Face Database (Ma et al., 2015) that depicted individuals with neutral facial expressions. Participants were provided with information about the gender identity and the assigned sex at birth of the individuals depicted in the photographs. In addition to assessing participants' perceptions of the social pain experienced by each target person, we also assessed their perceptions of the social value of transgender people.

Building on previous research, we expected to find an interaction between the target's gender identity (cisgender vs. transgender), the sex assigned to the target at birth (male vs. female), and individual differences in transgender individuals' perceptions of social value in relation to attributions of social pain. Specifically, we hypothesized that the stronger attribution of social pain to transgender persons, particularly transgender women, compared to cisgender persons would be more pronounced among participants who perceive transgender persons as a socially devalued group. If our hypothesis is confirmed, this would provide initial evidence that the attribution of social pain may vary depending on the context of social comparison. Within the intergroup dynamic between cisgender and transgender individuals, transgender individuals' greater recognition of social pain would reflect the stigmatization of transgender identity.³

Method

Participants and Experimental Design

³ This study is part of the manuscript titled 'Gender Identity-based Biases in Judgments of Social Pain', which has been submitted to the Journal of Experimental Social Psychology.

Similar to Study 1, we determined the required sample size for testing main effects and interactions with WebPower (Zhang & Yuan, 2018). With an expected small effect size ($f = .20$), a significance level of .05, and a test power of .80, our experimental design required a minimum sample size of 244 participants. We collected data beyond this quantity to account for possible responses from ineligible participants. Our study focused specifically on cisgender individuals who completed the questionnaire in full, and so we collected data from 410 participants. However, 135 were excluded from the analysis because they did not meet the participation criteria. These were 5 individuals who did not identify as non-cisgender and 130 individuals who did not provide complete responses to the dependent measures. Thus, the final sample consisted of 275 cisgender Brazilians, predominantly women (63.6%) and heterosexual (81.5%), with a mean age of 32.1 years ($SD = 11.6$). The research design used a within-participants factorial design with a 2 (gender identity of the target: cisgender vs. transgender) $\times$ 2 (sex assigned to the target at birth: male vs. female) configuration.

Manipulation of Target's Gender Identity and Assigned Sex at Birth

We used 20 neutral facial expressions from the Chicago Face Database (Ma et al., 2015) and specifically selected images of white individuals, including 10 female and 10 male faces⁴. Participants were presented with these faces, which depicted both males and females. They were given information about the assigned sex at birth (male vs. female) and gender identity (cisgender vs. transgender) of each target. Using the Social Pain Measure, participants were then asked to rate the amount of social pain they experienced from each target. To minimize potential order effects and bias, we

⁴ To exclude possible confounding factors, we used only images of white individuals for our studies. In doing so, we took into account the results of previous studies that have highlighted the influence of the target's skin color on ratings of social pain (e.g., Deska et al., 2020). By using only images of white individuals, we aimed to minimize the effects of racial and ethnic variables on our measures of social pain attribution.

randomized the order of presentation of faces to participants and varied gender assignment within each trial.

Measures

Social Pain Measure. To assess social pain, we used the same measure as in Study 1. Participants rated items on a 4-point scale ranging from 1 (not at all painful) to 4 (extremely painful). The measure showed strong internal consistency across all four experimental conditions: cisgender men ($\alpha = .88$), cisgender women ($\alpha = .88$), transgender men ($\alpha = .88$), and transgender women ($\alpha = .89$).

Social Value of Transgender Identity. Participants were asked to assess the level of social value they believed Brazilian society placed on women, men, and transgender individuals. They provided their responses on a 5-point scale, ranging from 1 (not valued at all) to 5 (highly valued), with higher scores indicating a greater perceived social value of the group. Participants perceived higher value for men ($M = 4.35$, $SD = .76$), followed by women ($M = 2.79$, $SD = 1.00$), and the lowest value for transgender individuals ($M = 1.68$, $SD = .67$). The ANOVA revealed a significant main effect of group, $F(1.87, 497.53) = 679.756$, $p = .001$. Post-hoc comparisons indicated statistically significant differences between all groups at $p < .05$.

Procedures and Data Analysis

Data were collected via an online survey using the Qualtrics platform. Participants were recruited through various social media platforms and instructed to provide their responses based on their own beliefs, with no right or wrong answers. All participants provided informed consent in accordance with the guidelines of the Declaration of Helsinki and the American Psychological Association.

Data analysis was performed using SPSS software (IBM Corp. Released, 2020). To analyze social pain scores, an ANOVA with a 2 (gender identity of the target: cisgender vs. transgender) $\times$ 2 (sex assigned to the target at birth: male vs. female)

within-participant design was conducted. To further deepen the interpretation of the effects found, a mixed model regression with random intercept and slope was also performed.

Results

Estimated parameters of the ANOVA are presented in Table 2, while Figure 3 illustrates the distribution of scores and the median central tendency of social pain in each target group. The main effects of target's gender identity and assigned sex at birth were statistically significant. These results indicated that participants perceived transgender targets as more sensitive to social pain compared to cisgender targets. In addition, participants perceived female targets as more sensitive to social pain compared to male targets. We also found an interaction effect between these factors. Simple effects revealed that participants perceived transgender women to be more sensitive to social pain than cisgender men, $F(1, 274) = 169.176, p = .001, \eta^2p = .38$. Participants perceived targets identified as cisgender women as more sensitive to social pain than targets identified as transgender men, $F(1, 274) = 13.899, p = .001, \eta^2p = .05$.

In addition, participants perceived cisgender women as more sensitive to social pain than cisgender men, $F(1, 274) = 205.435, p = .001, \eta^2p = .43$. Even when the target was transgender, participants perceived transgender women as more sensitive to social pain than transgender men, albeit to a lesser extent, $F(1, 274) = 10.520, p = .001, \eta^2p = .04$. Consistent with Study 1, the reliable interaction shows that social pain bias, as manifested in the impact of gender identity, depends on the sex assigned at birth to the targets who underwent gender reassignment. Participants showed greater social pain bias when a male individual transitioned into a transgender woman than when a female individual adopted a transgender man identity (Figure 4).

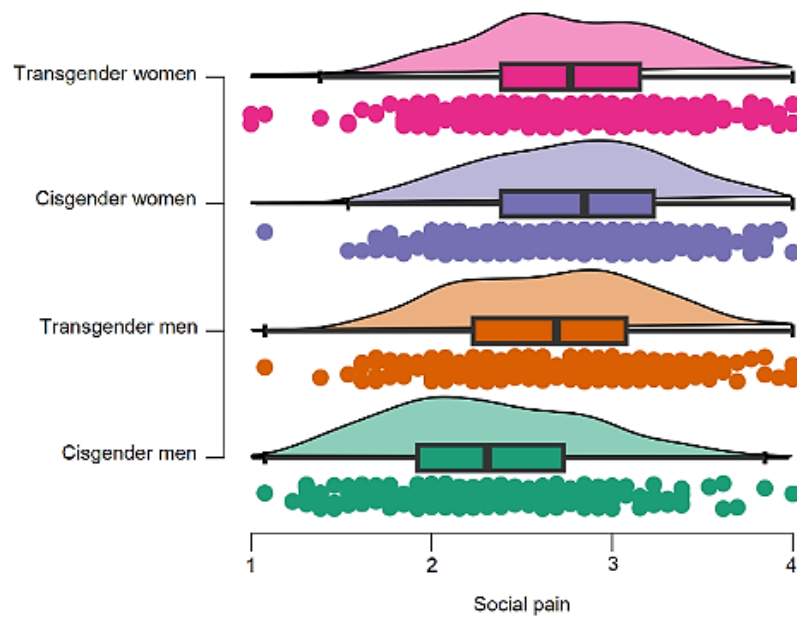
Table 2

Means and standard deviations (in parentheses) and inferential estimates for social pain by gender identity and assigned sex at birth of targets (Study 2)

	Assigned Sex at Birth			ANOVA				
	Male	Female	Total	Effect	<i>F</i> ratio	<i>df</i>	<i>p</i>	Eta ² _p
Cisgender	2.31 (.03)	2.79 (.03)	2.55 (.03)	Gender Identity	61.80	1, 274	.001	.18
Transgender	2.77 (.03)	2.68 (.03)	2.72 (.03)	Assigned Sex at Birth	107.34	1, 274	.001	.28
Total	2.54 (.03)	2.73 (.03)	2.64 (.03)	Interaction	144.95	1, 274	.001	.34

Figure 3

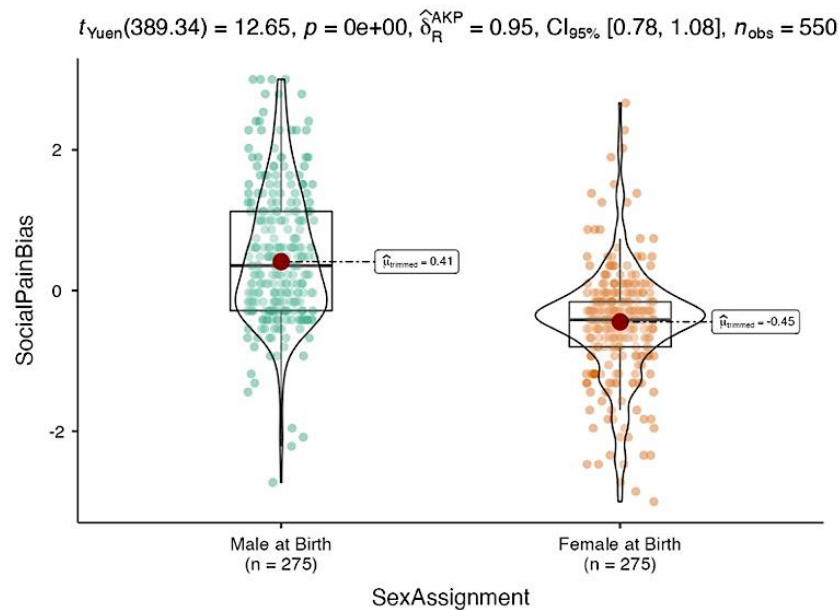
Boxplots with density distributions of social pain attributed to each target (Study 2)



Note. The figure shows the distribution of social pain for each target, and the boxplot illustrates the median of the central tendency estimates.

Figure 4

Boxplots with density distributions for social pain bias according to assigned sex at birth of targets (Study 2)



Note. The social pain bias = the standardized estimate of the gender effect (transgender vs. cisgender). The figure illustrates how manipulating information about the target's birth sex affects social pain bias, with a more pronounced effect observed when participants were informed that the target was assigned a male sex at birth.

Social Pain Bias as a Function of the Social Value of Transgender Identity

Results have indicated that participants attribute higher levels of social pain to transgender targets, particularly transgender women, than to cisgender targets. We hypothesized that this effect is likely due to perceptions of social devaluation associated with the transgender category. To further explore this relationship, we examined the association between attribution of social pain to targets and individual differences in perceptions of social value across groups.

We found negative correlations between individual differences in social value attributed to transgender individuals and attribution of social pain for transgender women ($r = -.31, p = .01$) and transgender men ($r = -.25, p = .01$). These results suggest that the more participants recognized transgender individuals as a socially devalued

group, the more they perceived them as sensitive to social pain. However, we found no significant correlations between individual differences in women's social value and attribution of social pain to the cisgender women or transgender women. Similarly, correlations between men's social value and attribution of social pain to the cisgender men and transgender men were not significant (see Supplementary Table 1 in the supplementary materials – Appendix C).

To gain deeper insight into the potential relationship between individual differences in social value and the attribution of social pain to targets, we estimated a mixed model regression with random intercept and slope (see Table 3) to predict social pain using a 2 (gender identity of the target: cisgender vs. transgender) $\times$ 2 (sex assigned to the target at birth: male vs. female) within-factor design with individual differences in transgender social value as covariates (Grandmean-centered). Similar to the previous results from ANOVA, the estimated parameters showed significant main effects of both the target's gender identity and the target's sex assigned at birth, and a significant interaction effect between sex assigned at birth and gender identity. Importantly, we found a significant interaction between target's gender identity and individual differences in transgender persons' social value. Figure 5a illustrates the pattern of this interaction, suggesting that attribution of higher social pain to transgender targets decreases as the perceived social value of transgender individuals increases. Specifically, the gender effect is observed from 1 to 2.55 on the social value scale and does not become significant beyond this point.

In addition, we found a significant three-way interaction between the social value of transgender individuals, the target's gender identity, and target's sex, suggesting that the role of the social value of transgender individuals on the gender identity effect depends on target's assigned sex at birth. Figure 5b illustrates this interaction by estimating the social pain bias between transgender women and cisgender

men, while Figure 5c contrasts transgender men and cisgender women. Comparing the interaction patterns depicted in these figures, we found that individual differences in social value of transgender people are reliably associated with the social pain bias when transgender women are contrasted with cisgender men, but not when transgender men are contrasted with cisgender women. The supplementary material contains the estimated marginal means for each experimental condition for participants with higher and lower perceived social value of transgender people (see detailed results of Study 2 in the supplementary materials – Appendix C).

We also estimated the moderating role of individual differences in the perceived social value of men and women on the attribution of social pain to the targets. However, the results of the three-way interactions between the social value of these groups, the gender identity of the target, and the assigned sex at birth did not yield significant results for men or for women (see details in the supplementary materials).

Table 3*Estimated parameters of the mixed regression model predicting social pain in Study 2*

Effects	Dependent Variable: Social Pain
Intercept	2.638*** (0.028)
Assigned Sex at Birth	0.198*** (0.021)
Gender Identity	0.169*** (0.021)
Social Value of Transgender Identity	-0.188*** (0.041)
Assigned Sex*Gender Identity	-0.553*** (0.043)
Assigned Sex*Socia Value	-0.038 (0.032)
Gender Identity*Socia Value	-0.101** (0.032)
Assigned Sex*Gender Identity*Socia Value	0.191** (0.063)
Number of Participants	275
Observations	1,064
Log Likelihood	-660,276
Akaike Information Criterion	1,340.552
Bayesian Information Criterion	1,390.250

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

Figure 5

Estimated gender identity effect on social pain as a function of individual differences in perceived social value of transgender people (Study 2)

Figure 5a (gender identity*social value interaction: $b = -.10$, $SE = .03$, $p < .01$, 95%CI: $-.16$; $-.04$)

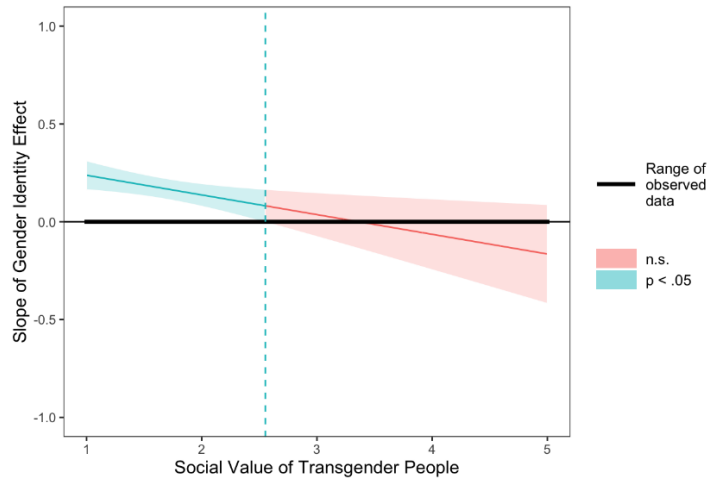


Figure 5b (contrast*social value interaction: $b = -.20$, $SE = .04$, $p < .001$, 95%CI: $-.28$, $-.11$)

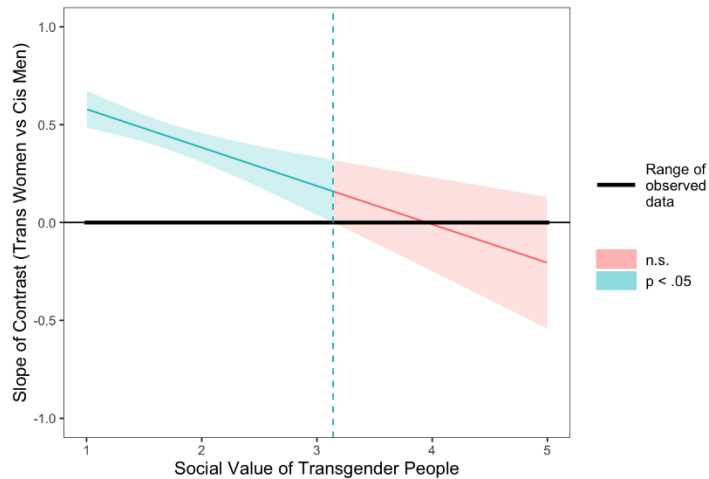
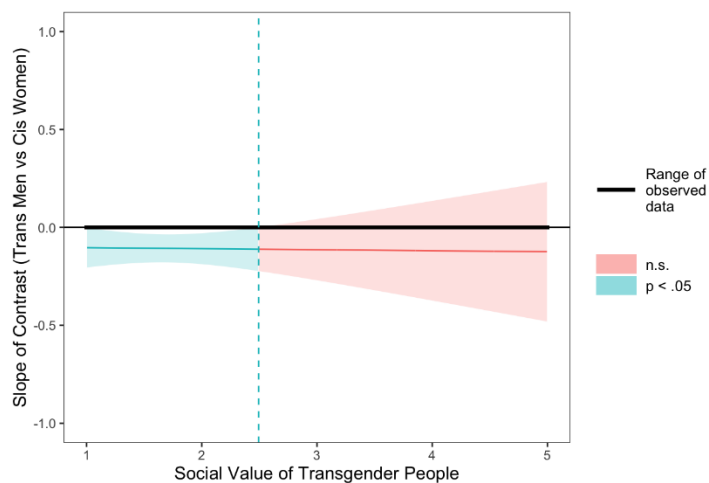


Figure 5c (contrast*social value interaction: $b = -.01$, $SE = .04$, $ns.$, 95%CI: $-.09$, $-.08$)



Note. The red shaded area indicates the region of nonsignificant effect of manipulation, whereas the green area represents the region of significant effect of manipulation based on 95% confidence intervals.

Chapter Summary

In this study, we aimed to examine the relationship between the attribution of social pain to the targets and the perceived social value of the groups to which they belong. Our results successfully replicated the findings from Study 1 and contributed to a new understanding by showing that the heightened recognition of social pain among transgender individuals, particularly transgender women, may indicate devaluation of transgender identity. Specifically, participants who viewed transgender persons as largely devalued in society attributed more social pain to women, both transgender and cisgender, than to men. Specifically, cisgender men were perceived as less sensitive to pain than all other targets. These findings provide further evidence of the dynamics of social relations between cisgender and transgender individuals.

These findings shed light on the complexity of social pain, indicating that social pain may carry different meanings depending on intergroup relations and dimensions of social comparison. In the context of cisgender and transgender dynamics, the social comparison dimension primarily revolves around identity and emphasizes the social value ascribed to the two categories. In the absence of utilitarian comparisons in this context, the focus shifts to the recognition of pain itself—a fundamentally negative attribute strongly associated with socially devalued outgroups (Tajfel et al., 1971). Consequently, women, particularly transgender women, are more likely to be perceived as suffering. Moreover, by recognizing transgender women as more sensitive to socially painful situations, cisgender individuals may maintain a symbolic dimension that reinforces their positive in-group identity while emphasizing the negative aspects associated with transgender group membership (Anderson, 2018; Tate et al., 2015). According to our interpretation, acknowledging the social pain experienced by transgender women becomes an important means of highlighting the positive

distinctiveness of cisgender persons-a crucial process for maintaining a positive and distinct cisgender identity.

Although Study 2 contributes to our understanding of the phenomenon, it is important to acknowledge its limitations. First, we examined individual differences in the social value placed on transgender people as a general category (i.e., transgender persons), and further research is needed to determine whether there are differences in perceptions of social value between transgender women and transgender men. Furthermore, we did not experimentally manipulate the valence of transgender identity to examine whether transgender women's increased attribution of social pain is causally driven by the recognition of social devaluation. To address these concerns, Study 3 examines the role of salient negative (vs. positive) aspects of transgender identity in transgender individuals' perceptions of social value and in both transgender and cisgender individuals' attributions of social pain.

**CHAPTER 4. PERCEIVED SOCIAL VALUE OF TRANSGENDER IDENTITY
AS A MECHANISM FOR THE SOCIAL PAIN BIAS EFFECT**

In Chapter 3, we demonstrated initial evidence that the social pain bias effect is associated with the perception of social devaluation of transgender individuals. Now, we take a step further by conducting Study 3, in which we aim to provide more robust evidence to support the hypothesis that the social devaluation of transgender identity leads participants to attribute more social pain to transgender targets, especially transgender women, compared to cisgender targets. To achieve this, we employed a video manipulation that highlighted different attributes (negative vs. positive) associated with transgender identity in Brazilian society. In the negative salience condition, the video highlighted how transgender people are devalued in different social spheres. Conversely, under the condition of positive salience, the video emphasized that transgender persons are socially valued in the same dimensions. After the video manipulation, participants were asked to rate the social value of the targets' group membership and then to indicate the degree of social pain experienced by the four targets. We used the same photographs as in the previous study to represent the targets, and we provided information about their gender identity and their assigned sex at birth, in addition to assessing the social pain experienced by the targets.

Our main hypothesis, consistent with previous findings, is that participants in the negative valence condition (compared to the positive valence condition) of transgender identity would show greater differentiation in attributing social pain to cisgender and transgender targets. Specifically, we hypothesized that participants would attribute more social pain to transgender individuals, especially if the target was a transgender woman. Moreover, we predicted that this relationship would arise indirectly through the mediating effect of perceptions of social value attributed to the transgender category. In other words, the negative meaning of transgender identity would activate perceptions of the social devaluation associated with the category and subsequently lead to greater differences in the attribution of social pain to the targets. It was expected that

this effect would be particularly pronounced for the male gender dimension, especially when comparing a transgender woman to a cisgender man, because of the very different social value of these two categories (Wilchek-Aviad et al., 2020).⁵

Method

Participants and Experimental Design

We used WebPower (Zhang & Yuan, 2018) to determine the required sample size for our study. We specified an expected small effect size ($f = .20$), a significance level of .05, and a test power of .80. Based on these parameters and our experimental design, a minimum sample size of 275 participants was required to detect main effects and interactions. A total of 583 individuals accessed the questionnaires, but 158 did not provide complete responses. Of the remaining 425 participants, 117 were excluded because they did not meet the inclusion criteria: self-identification as non-cisgender ($n = 15$), failure to pass the attention check ($n = 47$), incorrect responses on the manipulation check ($n = 38$), or extreme outliers (more than 3 standard deviations from the mean) on the dependent measures ($n = 17$). Thus, the final sample for this study consisted of 308 cisgender Brazilians. Among the participants, most were women (50.6%) and heterosexual individuals (80.8%). The mean age of the participants was 31.7 years ($SD = 11.5$). The research design was a mixed factorial design that included a between-subjects factor of experimental condition (negative salience of transgender identity vs. positive salience of transgender identity) and within-subjects factors of target gender identity (cisgender vs. transgender) and sex assigned to the target at birth (male vs. female).

Manipulation of the Valence of Transgender Identity

⁵ This study is part of the manuscript titled 'Gender Identity-based Biases in Judgments of Social Pain', which has been submitted to the Journal of Experimental Social Psychology.

On the first page of the study, participants were given an informed consent form and the context of the study was explained. It was explained that the study focused on gender and social identity. Participants were instructed to watch a video highlighting the social position of transgender individuals in Brazilian society. They were informed that they would be asked to answer questions about the study based on their observations of the video. On the second page, the concepts of assigned sex at birth and gender identity were briefly explained. Participants were informed about how cisgender and transgender individuals perceive themselves in relation to their assigned sex at birth and their gender identity. They were encouraged to read and understand these concepts carefully as they were important to their participation in the study. On the third page, participants were presented with a 60-second video. The video manipulated the salience of negative or positive aspects of transgender identity. In the negative salience condition of transgender identity, the content of the video was as follows:

“Transgender people face barriers to accessing quality education, health care, and social support. They are prevented from succeeding economically and often find themselves in low-skilled and low-paying jobs. They are also rejected by Brazilian society and discriminated against by most of their family members. Their political participation is disregarded, and in the media, advertising, and social networks, they are often portrayed in roles that demean or ridicule them. Transgender people are excluded as inspirational role models for future generations, highlighting the extent of their social devaluation in our country.”

In the positive salience condition of transgender identity, the video conveyed the following information:

“In recent years, transgender people have widespread access to quality education and advanced health and social services. They enjoy economic success and occupy highly skilled and well-paid positions. They are also supported by

Brazilian society and fully accepted by most of their family members. Their political participation has increased significantly. They are consistently portrayed in prominent roles in the media, advertising, and social media. Transgender persons serve as an inspiration for future generations and underscore the social esteem in which they are held in our country.”

Measures

Social Pain Measure. Participants were asked to rate the extent to which each target person would perceive the situations described in the items of the Social Pain Measure painful. The faces used for the targets were the same as in Study 2, obtained from the Chicago Face Database (Ma et al., 2015), and their presentation was randomized across participants for each target. The Social Pain Measure, which had previously shown good internal consistency, was used again. Participants rated items on a 4-point scale ranging from 1 (not painful at all) to 4 (extremely painful). The measure demonstrated good internal consistency across the four experimental conditions: cisgender men ($\alpha = .91$), cisgender women ($\alpha = .89$), transgender men ($\alpha = .91$), and transgender women ($\alpha = .91$).

Measure of Social Group Value. Participants were asked to assess the degree to which they believed Brazilian society values cisgender men, cisgender women, transgender men, and transgender women. Ratings were provided on a 5-point scale, ranging from 1 (not valued at all) to 5 (highly valued), where higher scores indicated the greater social value of the group.

Manipulation Check. After completing the dependent measures, participants were asked to indicate how they perceived the portrayal of transgender people in Brazilian society in the video they watched. They were instructed to choose between two options: “The video shows a positive image of transgender people” or “The video

shows a negative image of transgender people”. Only participants who answered this question correctly were eligible for the sample.

Procedures and Data Analysis

Data were collected using the Qualtrics survey platform. Participants were recruited through social media channels and instructed to give their answers based on their own thoughts, with the assurance that there were no right or wrong answers. All participants provided informed consent in accordance with the guidelines of the Declaration of Helsinki and the American Psychological Association.

Data analysis was performed using SPSS software (IBM Corp. Released, 2020). We analysed data using factorial ANOVAs to estimate the main and interaction effects of manipulations and further estimated specific parameters using a mixed model regression with random intercept and slope. To test our mediation hypotheses, we used regression models estimated with the macro-PROCESS (Hayes, 2013). Bootstrap resampling with 5,000 iterations was used to estimate 95% confidence intervals.

Results

For a through comparison with the results of the first two studies, we first performed a within-participant factorial ANOVA with a 2 (gender identity of the target: cisgender vs. transgender) $\times$ 2 (sex assigned to the target at birth: male vs. female). The estimated parameters and descriptive statistics are shown in Table 4, while Figure 6 illustrates the distribution of scores and the median central tendency of social pain in each target group. Mirroring the pattern of results of previous studies, we found significant main effects for target gender identity and target assigned sex at birth. This indicates that participants perceived transgender targets as more sensitive to social pain than cisgender targets and that they also perceived female targets as more sensitive than male targets. We also found a significant interaction effect between these factors. Participants attributed greater social pain to transgender women than to cisgender men,

$F(1, 306) = 217.384, p < .001, \eta^2_p = .41$. In contrast, they attributed greater social pain to cisgender women than to transgender men, $F(1, 306) = 5.252, p = .02, \eta^2_p = .01$. Importantly, this interaction also replicated the findings of previous studies in terms of gender identity-based social pain bias, as this bias was greater when a male individual transitioned into a transgender woman than when a female individual assumed the identity of a transgender man (Figure 7).

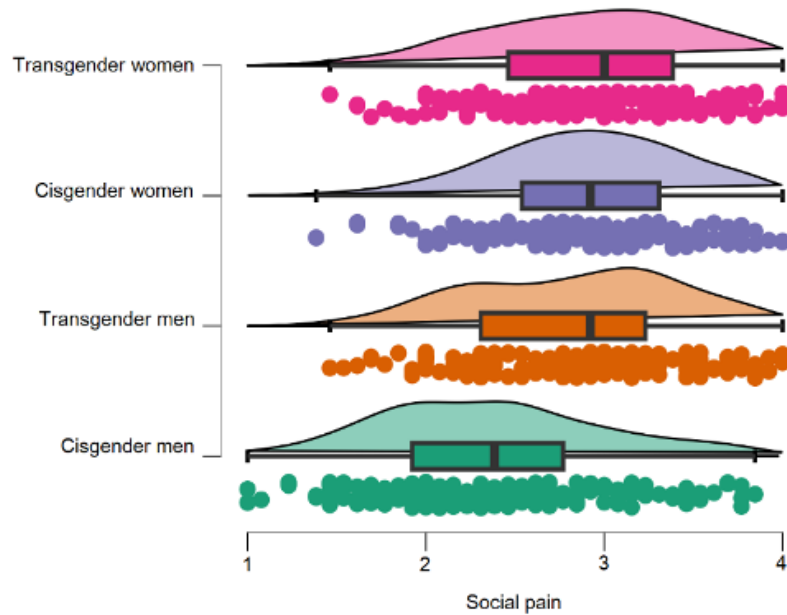
Table 4

Means and standard deviations (in parentheses) and inferential estimates for social pain by gender identity and assigned sex at birth of targets (Study 3)

	Assigned Sex at Birth			ANOVA				
	Male	Female	Total	Effect	<i>F</i> ratio	<i>df</i>	<i>p</i>	Eta ² _p
Cisgender	2.40 (.03)	2.87 (.03)	2.63 (.03)	Gender Identity	93.54	1, 307	.001	.23
Transgender	2.90 (.03)	2.81 (.03)	2.85 (.03)	Assigned Sex at Birth	113.00	1, 307	.001	.27
Total	2.65 (.03)	2.84 (.03)	2.74 (.03)	Interaction	212.39	1, 307	.001	.41

Figure 6

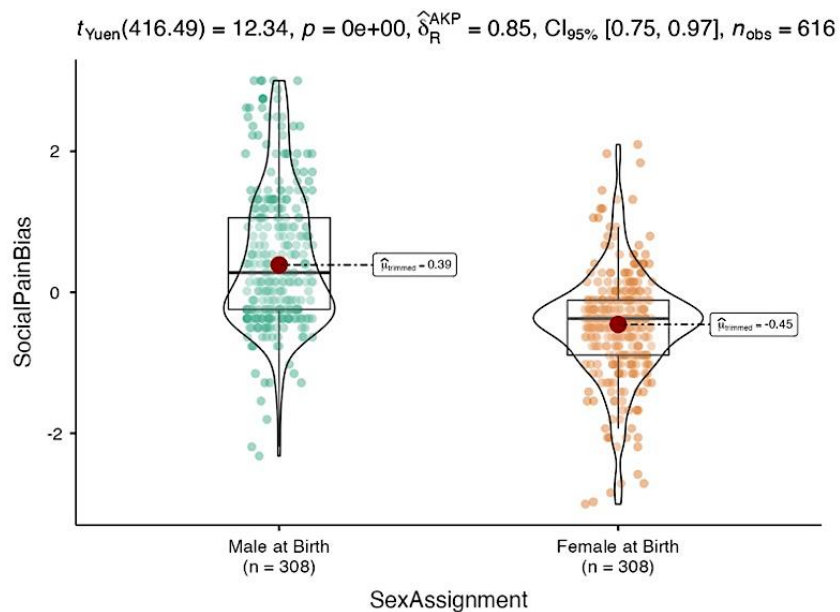
Boxplots with density distributions of social pain attributed to each target (Study 3)



Note. The figure shows the distribution of social pain for each target, and the boxplot illustrates the median of the central tendency estimates.

Figure 7

Boxplots with density distributions for social pain bias according to assigned sex at birth of targets (Study 3)



Note. The social pain bias = the standardized estimate of the gender effect (transgender vs. cisgender). The figure illustrates how manipulating information about the target's birth sex affects social pain bias, with a more pronounced effect observed when participants were informed that the target was assigned a male sex at birth.

Pain Bias as a Function of the Social Value of Transgender Identity

As in Study 2, we estimated a mixed regression model with random intercept and slope to analyze the role that individual differences in social value of transgender individuals play on the influence of gender identity and target sex assigned at birth (see Table 5). The estimated parameters showed a significant main effect of target sex assigned at birth and target gender identity. We also found a significant interaction effect between these factors. Importantly, as in Study 2, we found a significant interaction between target gender identity and individual differences in transgender people's social value. Figure 8a illustrates the pattern of this interaction, showing that the effect of gender identity on social pain decreased how much the individual difference in transgender people's perceived social value increased. More specifically, the gender effect attributing more pain to transgender individuals than to cisgender individuals was significant on the social value scale from 1 to 2.76, became non-significant between 2.77 and 4.20, and reversed the direction of the effect for individuals who rated the social value of transgender individuals higher than 4.20, i.e., they attributed less social pain to transgender individuals than to cisgender individuals.

Furthermore, a significant three-way interaction emerged involving individual differences in social value of transgender people, the target's gender identity, and the target's sex. This finding replicates previous evidence from Study 2 suggesting that the impact of transgender people's social value on gender identity effect depends on the target's sex assigned at birth (see Table 3 in Chapter 3). Figure 8b provides a visual representation of this interaction and illustrates the bias in social pain between transgender women and cisgender men. Conversely, Figure 8c illustrates the contrast between transgender men and cisgender women. When comparing the patterns of interaction depicted in these figures, we found a consistent relationship between individual differences in social value attributed to transgender persons and social pain

bias when comparing transgender women and cisgender men. However, this relationship was not evident when comparing transgender men and cisgender women.

Table 5

Estimated parameters of the mixed regression model predicting social pain in Study 3

Effects	Dependent Variable: Social Pain
Intercept	2.748*** (0.030)
Assigned Sex at Birth	0.196*** (0.020)
Gender Identity	0.220*** (0.020)
Social Value of Transgender Identity	-0.087* (0.039)
Assigned Sex*Gender Identity	-0.559*** (0.040)
Assigned Sex*Socia Value	-0.051 (0.026)
Gender Identity*Socia Value	-0.149*** (0.026)
Assigned Sex*Gender Identity*Socia Value	0.172** (0.052)
Number of Participants	308
Observations	1,232
Log Likelihood	-800.173
Akaike Information Criterion	1,620.345
Bayesian Information Criterion	1,671.509

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

Figure 8

Estimated gender identity effect on social pain as a function of individual differences in perceived social value of transgender people (Study 3)

Figure 8a (gender identity*social value interaction: $b = -.15$, $SE = .04$, $p < .001$, 95%CI: $-.20$; $-.10$)

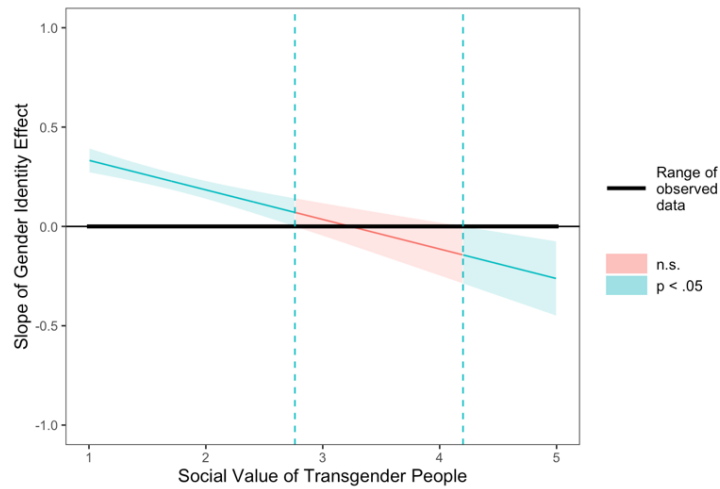


Figure 8b (contrast*social value interaction: $b = -.23$, $SE = .04$, $p < .001$, 95%CI: $-.31$, $-.16$)

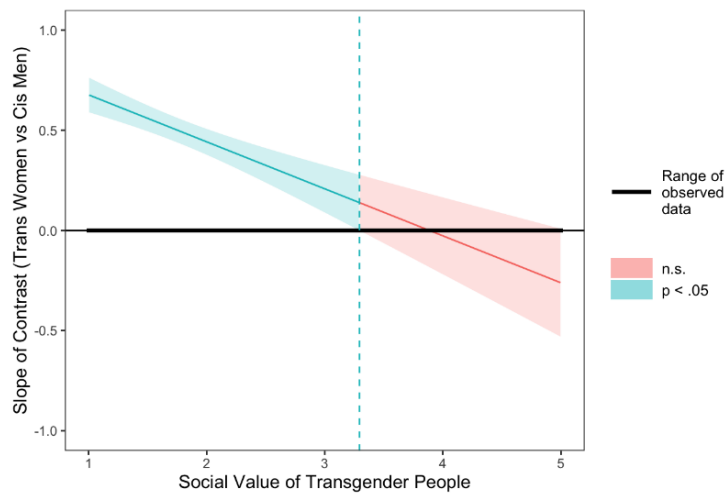
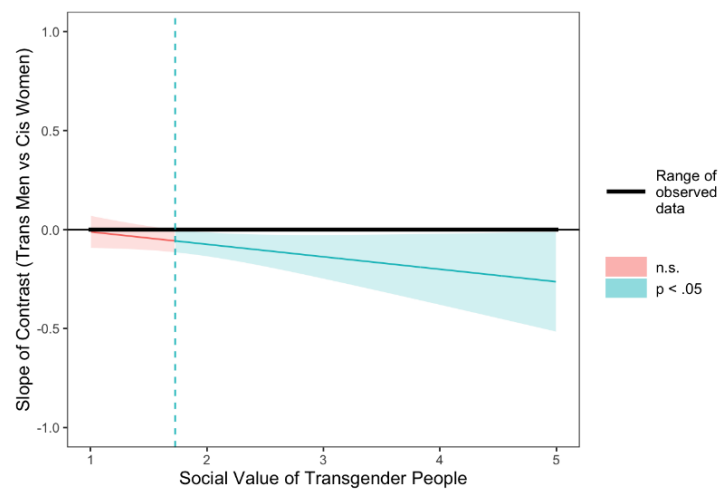


Figure 8c (contrast*social value interaction: $b = -.06$, $SE = .04$, $ns.$, 95%CI: $-.14$, $-.01$)



Note. The red shaded area indicates the region of nonsignificant effect of manipulation, whereas the green area represents the region of significant effect of manipulation based on 95% confidence intervals.

The Effect of Manipulated Transgender Identity Valence

We took a more comprehensive approach by conducting a full mixed-factorial design ANOVA as described in Table 6, which also provides an overview of descriptive statistics, main effects, and interactions. Of greatest importance to our hypotheses is the three-way interaction between the experimental manipulation of transgender identity valence (positive vs. negative), gender identity of the target, and sex assigned to the target at birth. To better understand this interaction, we examined the impact of the manipulated transgender identity valence on social pain bias (i.e., the contrast effect: transgender vs. cisgender) based on the target's sex assigned at birth (see Figure 9). It is evident that the manipulation of transgender identity valence influences social pain bias as a function of the target's sex assigned at birth. Specifically, when the target's sex assigned at birth was male, participants in the positive transgender identity condition showed significantly lower social pain bias than participants in the negative transgender identity condition (Figure 9a). When the target's sex assigned at birth was female, the transgender identity manipulation had no significant effect on social pain bias (Figure 9b).

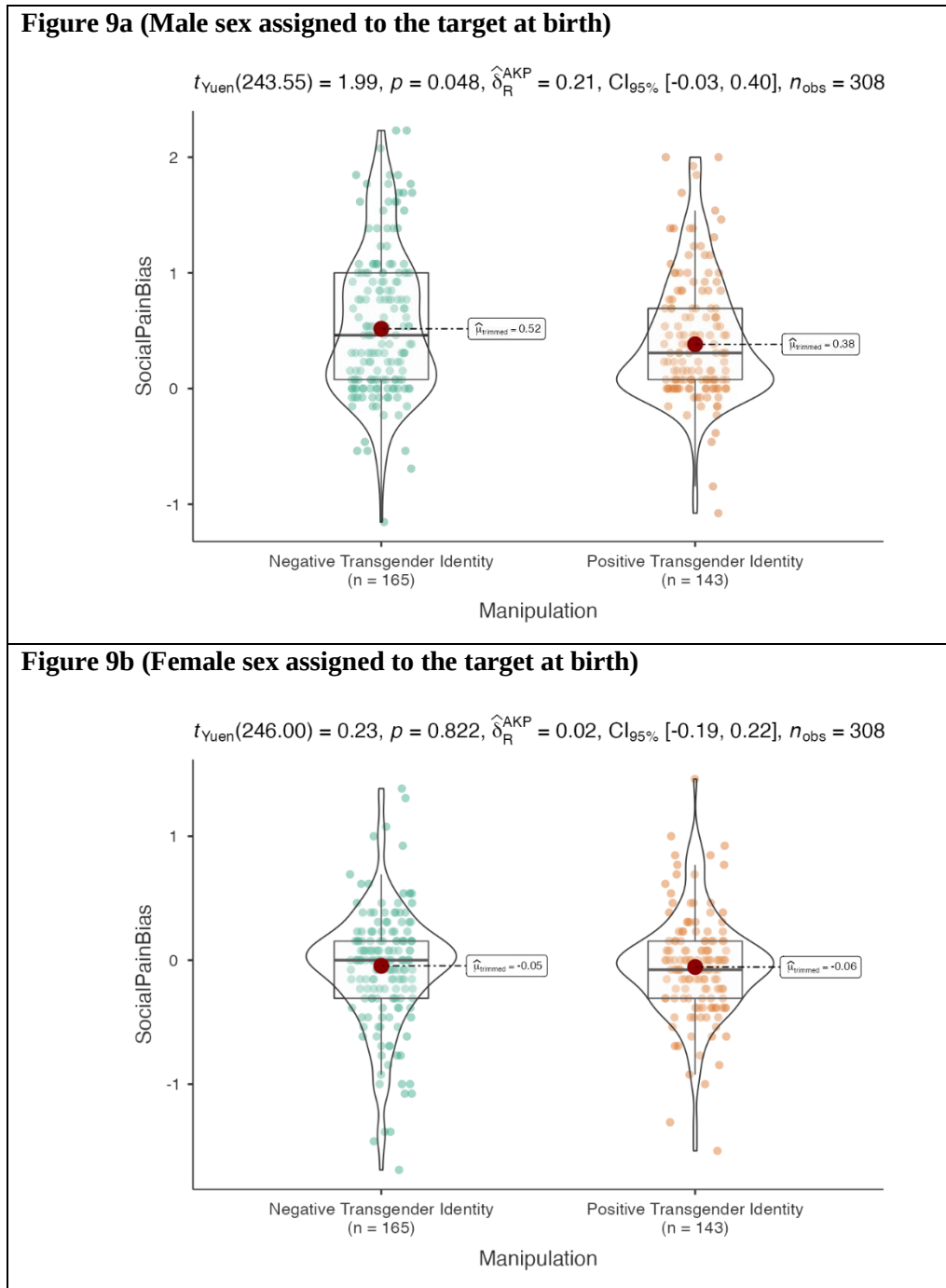
Table 6

Descriptive and inferential statistics for social pain as a function of gender identity (cisgender vs. transgender), assigned sex at birth (male vs. female), and the valence (positive vs. negative) of transgender identity (Study 3)

	Gender Identity		Assigned Sex at Birth		Gender Identity*Assigned Sex at Birth				Total
	Cisgender	Transgender	Male	Female	Cisgender Men	Transgender Women	Cisgender Women	Transgender Men	
Positive transgender identity	2.64 (.04)	2.83 (.05)	2.65 (.04)	2.81 (.04)	2.43 (.05)	2.86 (.05)	2.84 (.04)	2.79 (.05)	2.73 (.04)
Negative transgender identity	2.63 (.04)	2.88 (.04)	2.64 (.04)	2.87 (.04)	2.36 (.05)	2.92 (.04)	2.90 (.04)	2.83 (.05)	2.76 (.04)
ANOVA Full Design Effects									
Effects	<i>F ratio</i>		<i>df</i>		<i>p</i>		Effect size (η^2p)		
Experimental Manipulation (M)	.159		(1, 306)		.69		.00		
Gender Identity (I)	91.554		(1, 306)		.001		.23		
Assigned Sex at Birth (S)	110.559		(1, 306)		.001		.26		
M*I	1.449		(1, 306)		.23		.00		
M*S	2.784		(1, 306)		.09		.01		
I*S	209.181		(1, 306)		.001		.40		
M*S*I	3.700		(1, 306)		.05		.01		

Figure 9

Boxplots with density distributions for social pain bias as a function of manipulated transgender identity valence (Study 3)



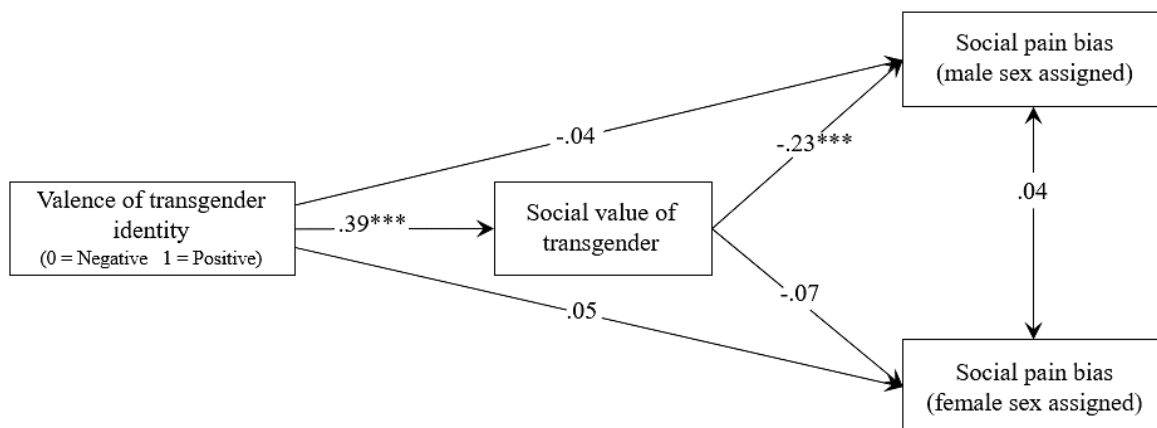
Note. The social pain bias = the unstandardised estimate of the gender effect (transgender vs. cisgender). The figure illustrates how manipulating the valence of transgender identity affects social pain bias. The influence of the manipulation was only significant when participants were informed that the target had been assigned a male sex at birth, as participants in the positive valence condition expressed less pain bias than participants in the negative condition.

Mediation Analysis

Previous findings have shown that social pain bias was concentrated in targets who were assigned a male sex at birth, i.e., the bias between cisgender men and transgender women. To explore this point further, we examined two mediation hypotheses to determine whether manipulating the valence of transgender identity could predict individual differences in the social value of transgender people and lead to bias in the attribution of social pain. We aimed to determine whether highlighting positive aspects of transgender identity would lead participants to perceive transgender persons as a socially valued group, resulting in less bias in the attribution of social pain, particularly between cisgender men and transgender women compared to cisgender women and transgender men. We tested our mediation hypotheses using the macro-PROCESS (Hayes, 2013) with Model 4. Figure 10 shows the estimated parameters.

Figure 10

The influence of the manipulation of transgender identity valence on social pain bias mediated by individual differences in the social value of transgender people (Study 3)



Note. The parameters are unstandardized regression coefficients. *** $p = .001$

As expected, we found a significant influence of highlighting positive aspects of transgender identity on individual differences in social value of transgender persons

($b = .39$, $SE = .08$, $t = 4.60$, 95% CI [.22, .55]). Participants perceived transgender persons as more socially valuable when their positive aspects of identity were emphasized ($M = 1.96$, $SE = .89$) compared to negative aspects ($M = 1.57$, $SE = .55$). In addition, there was a significant relationship between the social value of transgender persons and the discrepancy in attributing social pain to transgender women and cisgender men. This suggests that the social pain bias decreases when transgender persons are perceived as a socially valued group ($b = -.23$, $SE = .04$, $t = -5.18$, 95% CI [- .31, -.14]). These results indicate that perceptions of transgender people's social value act as a mediator for the effect of manipulating transgender identity valence on attributions of social pain to transgender women (indirect effect = $-.09$, 95% CI [- .14, -.04]). However, this mediated effect was not observed when accounting for the difference in attribution of social pain to targets with female sex assigned at birth, specifically the distinction between cisgender women and transgender men (indirect effect = $-.03$, 95% CI [- .06, .00]).

Chapter Summary

In this study, we manipulated the valence of transgender identity to examine its effects on the social value of transgender individuals and on the attribution of social pain to targeted individuals. Overall, our results are consistent with previous studies and consistently show certain patterns. In the condition highlighting negative aspects of transgender identity, participants attributed greater social pain to transgender women than to cisgender men, while attributing less social pain to transgender men compared to cisgender women. These results confirm previous findings and highlight how the social pain experienced by these targets is perceived in the cultural context of social relations, where transgender identity is widely devalued (Benevides & Nogueira, 2020).

Conversely, in the condition in which the positive aspects of transgender identity were emphasized, we observed a higher attribution of social pain among transgender

women compared to cisgender men. Although the mean difference in social pain attributed to these groups was smaller than in the other experimental condition, it remained statistically significant. This suggests that even with the possible improvement in the social value of the transgender category, transgender women are still perceived as more vulnerable to painful social situations compared to cisgender men. Our mediation model supports this finding and suggests that this perception operates indirectly through the social value attributed to the transgender category. Thus, despite the positive attributes attributed to transgender individuals, the social value of these groups likely remains asymmetrical, resulting in a differential valuation of the social pain experienced by these targets with male sex assigned at birth.

The bias in the attribution of social pain was specific to these targets, as no differences in attribution of social pain were observed for the targets with female sex assigned at birth in the condition in which the positive aspects of transgender identity were emphasized. It appears that in this condition the mutual devaluation of the social value statuses of cisgender women and transgender men suppressed the influence of the social value of transgender men on the attribution of social pain to this category. Taken together, these findings provide further evidence that the attribution of social pain in this intergroup context reflects an anti-transgender bias related to perceptions of inequalities between the social value of cisgender and transgender groups. This bias is particularly pronounced when dealing with members of these groups who had male sex assigned at birth.

In the research program presented so far, we have investigated how the bias against social pain manifests in scenarios that evoke only the symbolic dimension of social pain. Thus, we have not yet examined how this bias manifests in a more instrumental-utilitarian context, where the focus is on the target's need to expend support resources to cope with their social pain. To explore this point, we conducted

Study 4, in which we manipulated the symbolic and utilitarian dimensions of social pain and examined their effects on attributions of social pain and professional support for pain management in cisgender and transgender targets.

**CHAPTER 5. THE SYMBOLIC AND UTILITARIAN MEANING OF SOCIAL
PAIN SHAPES PSYCHOLOGICAL SUPPORT FOR CISGENDER AND
TRANSGENDER INDIVIDUALS**

The studies we have conducted so far consistently demonstrated the presence of gender identity-based biases in the assessment of social pain in cisgender and transgender targets (Chapters 2-4). In summary, our research found that cisgender individuals attribute higher levels of social pain to transgender targets (outgroup) compared to cisgender targets (ingroup). This differential attribution of social pain primarily reflects the social devaluation of transgender identities (Chapter 2-3). Across all studies, we consistently observed that these effects were highly dependent on the target's sex assigned at birth. Specifically, cisgender participants perceived transgender women as more susceptible to social pain than cisgender men (i.e., targets assigned a male gender at birth), groups characterized by highly asymmetrical social statuses (Wilchek-Aviad et al., 2020). However, no such difference in the attribution of social pain is observed between transgender men and cisgender women (i.e., targets assigned female at birth), groups that are perceived as socially undervalued and therefore exhibit greater symmetry in terms of social status (Clements et al., 2022).

These findings are groundbreaking as they demonstrate that in intergroup contexts characterized by more symbolic and identity-based social comparisons, attribution of social pain may serve as a mechanism to express stigmatization of minority identities, such as transgender women, and reinforce the positive and distinctive social identity of cisgender individuals. However, it remains unclear how cisgender people would evaluate the social pain of cisgender and transgender targets, especially cisgender men and transgender women, when a more utilitarian dimension of social pain is considered. In this chapter, we analyze this issue by suggesting that cisgender individuals might bias their evaluations of the social pain of cisgender versus transgender people depending on whether a more symbolic or utilitarian dimension of resource allocation is in demand.

In Study 4, we manipulated the symbolic and utilitarian dimensions of social pain and examined their effects on attributions of social pain and professional support for pain management in a cisgender man and a transgender woman. As previous studies have shown that the effect of social pain bias is centered on the difference between transgender women and cisgender men, we only considered these targets in Study 4. To activate the symbolic dimension of social pain, we used an experimental scenario in which the target's gender identity was emphasized as the underlying element of social comparison. In this condition, we presented a short narrative about a fictional character confronted with trivial challenges related to aspects of her subjectivity – her gender identity – without requiring any materials on the topic of social pain. On the other hand, to activate the utilitarian dimension of social pain, we used a scenario in which a fictional character suffers from psychological problems and has to spend material resources on specialized, professional psychological help.

Based on the literature reviewed and the results of our previous studies, we tested the general hypothesis that cisgender participants would attribute more social pain to the transgender woman (vs. cisgender man) when the symbolic dimension of social pain is emphasized. Under this condition, the pain is interpreted from its originally negative symbolic meaning and is therefore attributed more to the member of the stigmatized outgroup. In contrast, when a more utilitarian dimension of social pain is foregrounded (i.e., when the context emphasizes the need to allocate more instrumentally utilitarian resources to the target to cope with pain), we expect participants to attribute more social pain to the cisgender man (compared to the transgender woman) to provide him with better opportunities to cope with the negative effects of painful circumstances. We expect social pain to be positively related to attributions of professional support for the target individuals. Therefore, participants

should attribute more support to the transgender woman in the symbolic social pain condition and more support to the cisgender man in the utilitarian social pain condition.

Method

Participants and Experimental Design

We determined the required sample size for testing main effects and interactions with WebPower (Zhang & Yuan, 2018). With an expected small effect size ($f = .20$), a significance level of .05, and a test power of .80, our experimental design required a minimum sample size of 198 participants. We collected data from 602 cisgender Brazilians, predominantly women (70.1%) and heterosexual individuals (74.1%), with a mean age of 30.8 years ($SD = 11.7$). The research design used a between-participants factorial design with a 2 (target: cisgender man vs. transgender woman) $\times$ 2 (dimension of social pain: symbolic dimension vs. utilitarian dimension) configuration. Thus, participants were randomly allocated to one of four conditions: cisgender man/symbolic dimension ($n = 138$), cisgender man/utilitarian dimension ($n = 152$), transgender woman/symbolic dimension ($n = 161$), and transgender woman/utilitarian dimension ($n = 151$).

Procedures

The data were collected via an online survey using the Qualtrics platform. Participants were recruited through social media channels and instructed to provide their answers based on their own thoughts, with the assurance that there were no right or wrong answers. On the first page of the study, participants were presented with an informed consent form, and the study's context was explained. It was clarified that the study focused on mental health. On the second page, participants were instructed to read a story about a person. They were informed that they would be asked to answer questions about the study based on their observations of the narrative. They were

encouraged to read and understand this narrative carefully, as it was crucial for their participation in the study. Then, they were directed to the study measures.

Manipulation of Social Pain Dimension and Pain Target

The dimension of social pain (symbolic vs. utilitarian) was manipulated through fictitious scenarios involving a specific target (cisgender man vs. transgender woman). For the symbolic condition of social pain, we presented a generic narrative concerning the life and subjectivity of a character named João (i.e., a cisgender man) or Joana (i.e., a transgender woman). For symbolic condition of social pain, the following text was employed:

“João [/Joana] is a 29-year-old man [/transgender woman]. João [/Joana] feels good about his [/her] life. Occasionally, he [/she] faces complex situations in life and in his [/her] relationships that he [/she] has struggled to understand. This has led him [/her] to question some things in his [/her] life. People close to João [/Joana] have commented that his [/her] situation is related to his [/her] way of being.”

For the utilitarian condition of social pain, we employed a fictional narrative in which the target exhibited signs of persistent sadness, leading to the recommendation to seek professional mental health assistance. For this condition, the text used was as follows:

“João [/Joana] is 29 years old man [/a transgender woman]. In the last few weeks, he [/she] has been feeling very sad. João [/Joana] doesn't have the energy to do anything and can no longer see meaning in his [/her] life. The things that used to make him [/her] happy no longer do. He [/She] feels alone. João [/Joana] thinks he's [/she's] ugly and believes this has made it difficult for his [/her] relationships. He [/She] feels unhappy for not being the person he wanted to be and thinks that the only solution to his [/her] problems is to die. João [/Joana]

went to an initial outpatient appointment at a Health Center, and it was recommended to him [/her] to seek specialized mental health services.”

Measures

Social Pain Measure. To assess participants’ perception of the target’s social pain, we used a modified version of the ten social pain items proposed by Deska et al. (2020). After reading the narrative about the target, participants were asked to rate the degree to which they believed each situation described would be painful for that person. The items depicted stressful events that reflect social pain and are commonly experienced by many people (e.g., “João [/Joana] invites friends over to celebrate their birthday and no one comes”; “João [/Joana]’s romantic partner asks for some space”; “Strangers laugh at João [/Joana]’s haircut”). Ratings were on a scale of 1 (not painful at all) to 4 (extremely painful), with higher scores indicating higher attribution of social pain. We conducted an exploratory factor analysis to examine the factor structure of this measure, and the results supported a single-factor solution that accounted for 35.7% of the variance (Kaiser-Meyer-Olkin [KMO] = .87, Bartlett’s p-test <.05, eigenvalue = 4.19, loadings = .43 to .72, α = .84). Participants rated this measure on a scale of 1 to 4, with a mean of 2.87 and a standard deviation of .53.

Professional Support Measure. We utilized two items to assess the extent to which participants agree that the subject of the narrative should seek professional assistance for their mental health. Specifically, we employed the items “João [/Joana] should seek psychological/psychotherapeutic assistance” and “João [/Joana] should seek psychiatric assistance”, which participants responded to on a scale from 1 (Strongly disagree) to 5 (Strongly agree). Participants rated this measure on a scale of 1 to 5, with a mean of 4.00 and a standard deviation of .80.

Data Analysis

We used the software SPSS, version 27, for data analysis (IBM Corp. Released, 2020). We performed an ANOVA applying a 2 (target: cisgender man vs. transgender woman) $\times$ 2 (dimension of social pain: symbolic dimension vs. utilitarian dimension) to social pain and professional support scores, using a between-subjects design. A set of regression analyses also tested whether (a) the social pain mediates the effect of the target on professional support and (b) this mediation is moderated by the social pain dimension (that is, experimental manipulation). The mediation-moderation underlying these hypotheses was analyzed using the macro-PROCESS with which we estimated the parameters by applying Model 59 (Hayes, 2013). Thus, we specified professional support as the dependent variable, target as the independent variable, social pain as the mediating variable, and manipulation of the dimension of social pain as the moderating variable. Accordingly, we assigned codes to the conditions of the target (that is, cisgender man = -.5; transgender woman = .5) and to the conditions of the dimension of social pain (that is, symbolic dimension = -.5; utilitarian dimension = .5). The social pain and professional support scores was centered on their average. Then, interaction terms were created by multiplying the manipulation of the target by the manipulation of the social pain dimension (Target $\times$ Symbolic/Utilitarian dimension). Bootstrap resampling with 5,000 iterations was used to estimate 95% confidence intervals.

Results

Social Pain

We performed an ANOVA applying a 2 (target: cisgender man vs. transgender woman) $\times$ 2 (dimension of social pain: symbolic dimension vs. utilitarian dimension) to social pain scores, using a between-subjects design. Table 7 shows the inferential and descriptive statistics for the estimated parameters of ANOVA, while Figure 11 shows the density distributions of social pain attributed to each target. The main effects of the experimental manipulation and the target were significant. Participants attributed more

social pain to the transgender woman than to the cisgender man, and the highest pain attribution occurred in the utilitarian condition compared to the symbolic condition. Importantly, we found a significant interaction between these factors. Analysis of simple effects revealed that in the symbolic pain condition, participants attributed more social pain to the transgender woman than to the cisgender man, $F(1, 589) = 23.608$, $p = .001$, $\eta^2_p = .04$. However, they did not differentiate the attribution of social pain to the targets in the utilitarian condition, although the mean pain attributed to the cisgender man was slightly higher, $F(1, 589) = 2.295$, $p = .13$, $\eta^2_p = .00$. Indeed, the manipulated dimension influenced social pain bias towards transgender woman, as its estimated parameter was positive in the symbolic condition, while it was negative in the utilitarian condition, with the difference between conditions being significant (Figure 13a).

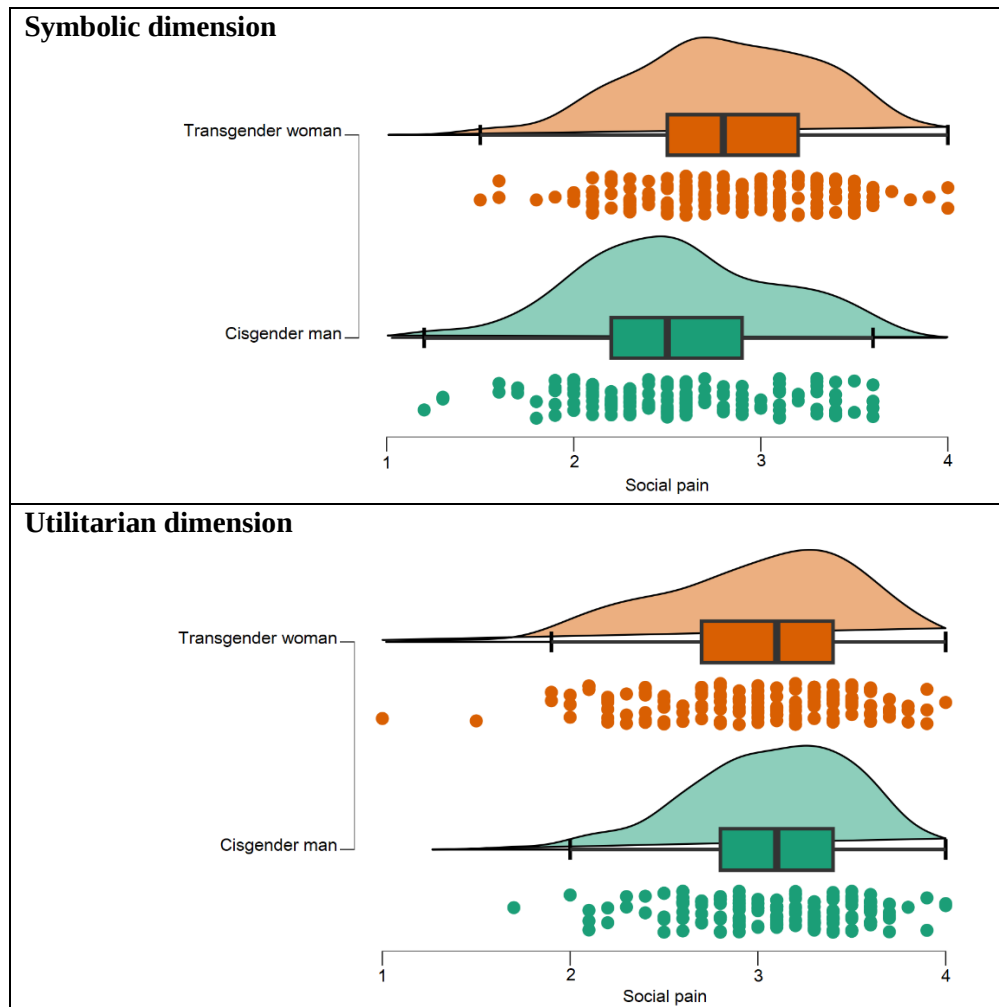
Table 7

Means and standard deviations (in parentheses) and inferential estimates for social pain and professional support by experimental manipulation of dimension of social pain and target gender identity (Study 4)

	Target			ANOVA				
	Transgender Woman	Cisgender Man	Total	Effect	<i>F</i> ratio	<i>df</i>	<i>p</i>	Eta ² _p
Social Pain								
Symbolic	2.83 (.04)	2.54 (.04)	2.69 (.03)	Dimension	71.01	1, 589	.01	.11
Utilitarian	2.99 (.04)	3.10 (.04)	3.04 (.03)	Target	5.53	1, 589	.01	.01
Total	2.91 (.03)	2.81 (.03)	2.86 (.02)	Interaction	20.25	1, 589	.00	.03
Professional Support								
Symbolic	3.55 (.05)	3.55 (.05)	3.55 (.04)	Dimension	276.24	1, 598	.00	.31
Utilitarian	4.39 (.05)	4.51 (.05)	4.45 (.04)	Target	1.04	1, 598	.30	.00
Total	3.97 (.04)	4.03 (.04)	4.00 (.02)	Interaction	1.12	1, 598	.29	.00

Figure 11

Box plots with density distributions of social pain attributed to each target by dimension
(Study 4)



Note. The figure shows the distribution of social pain for each target by dimension, and the boxplot illustrates the median of the central tendency estimates.

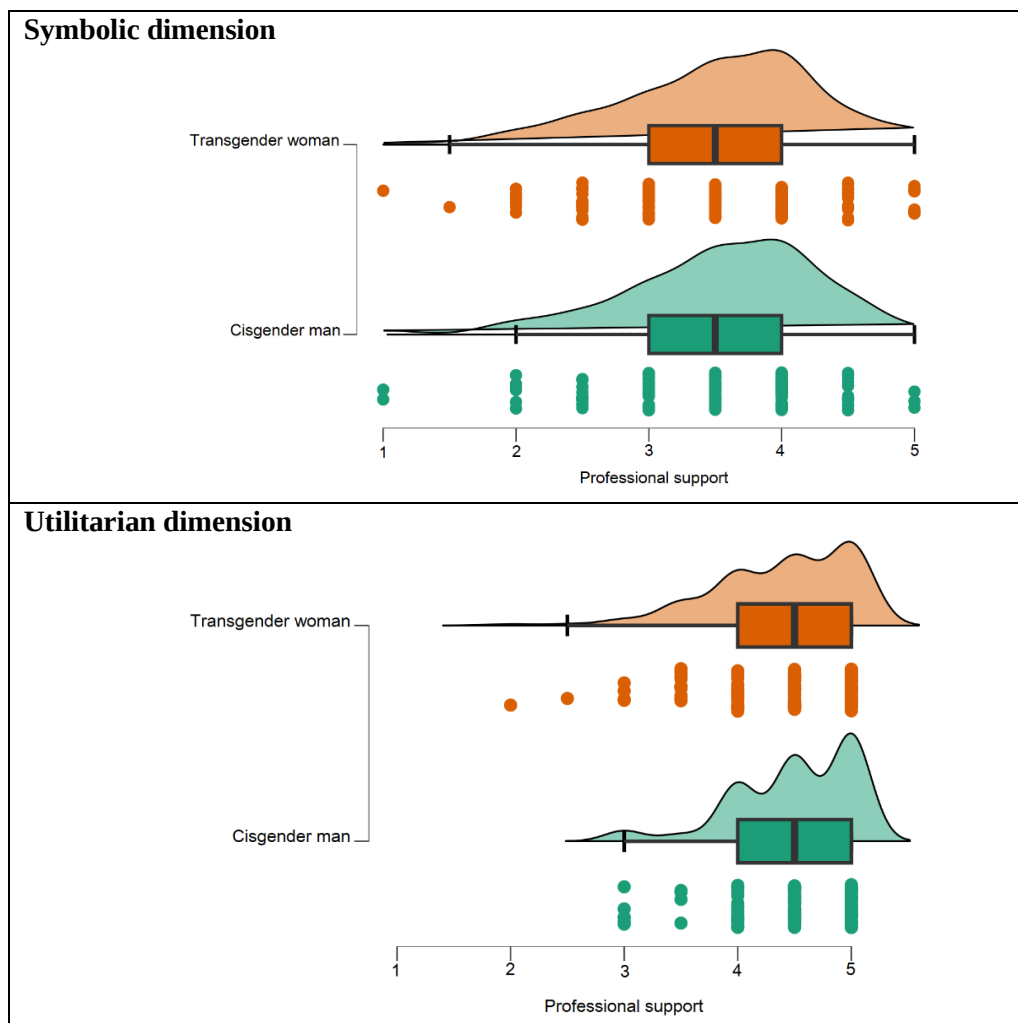
Professional Support

We conducted an ANOVA with the same design applied to the professional support scores. Figure 12 shows the density distributions of professional support attributed to each target. The main effect of the experimental manipulation was significant. Participants attributed more professional support to the targets in the utilitarian condition than in the symbolic condition. However, the main effect of the target and the interaction effect between the factors were not significant. We found that in the utilitarian condition, the mean professional support attributed to the cisgender

man was higher than that attributed to the transgender woman, but this effect was not significant, $F(1, 589) = 2.188, p = .14, \eta^2p = .00$. In the symbolic condition, the mean score of professional support for the targets was also identical, $F(1, 589) = .001, p = .97, \eta^2p = .00$. Indeed, professional support for the transgender bias was not affected by the manipulation of the dimensions of social bias assessment (see Figure 13b).

Figure 12

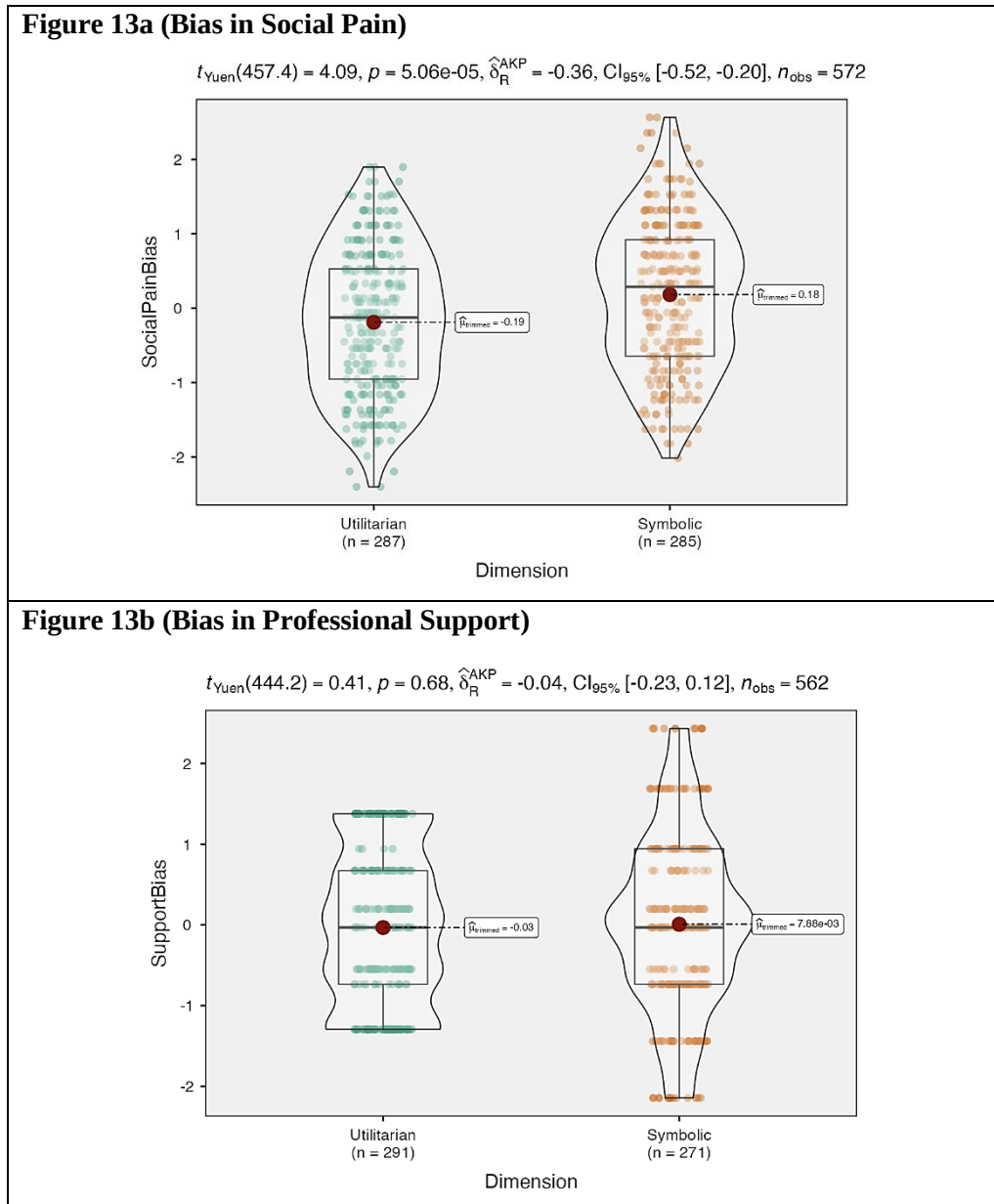
Box plots with density distributions of professional support attributed to each target by dimension (Study 4)



Note. The figure shows the distribution of professional support for each target by dimension, and the boxplot illustrates the median of the central tendency estimates.

Figure 13

Violin and box plots of bias in social pain and professional support target by dimension
(Study 4)



Note. The figure shows that the social comparison dimension influences bias for social pain, but not for professional support. Estimated parameters using robust standard errors.

Mediation Analysis

We tested a moderated mediation hypothesis to determine if the dimension of social pain shapes the attribution of social pain and professional support to the targets. We examined this hypothesis using the macro-PROCESS with Model 59 (Hayes, 2013).

The analyses were divided into three steps, and the estimated parameters are outlined in Table 8. In the first step, the target did not significantly predict professional support ($b = -.09$, $SE = .05$, $t = -1.62$, 95% CI $[-.19, .02]$). In the second step, we found that the target significantly predicted social pain ($b = .10$, $SE = .04$, $t = 2.39$, 95% CI $[.02, .18]$). Participants attributed more social pain to the transgender woman than to the cisgender man. Importantly, the interaction between the target and the manipulation of the social pain dimension was significant ($b = -.37$, $SE = .08$, $t = -4.50$, 95% CI $[-.53, -.21]$). The effect of the target on the attribution of social pain was significant in the symbolic dimension of social pain ($b = .28$, $SE = .06$, $t = 4.86$, 95% CI $[.17, .40]$), but not in the utilitarian dimension of social pain ($b = -.09$, $SE = .06$, $t = -1.51$, 95% CI $[-.20, .03]$). This result demonstrates that participants attributed more social pain to the transgender woman, but only when the distribution of mental health support resources was not highlighted. Results from the third step showed a significant main effect of social pain on the attribution of professional support: the higher the attribution of social pain, the higher the attribution of professional support ($b = .34$, $SE = .05$, $t = 6.49$, 95% CI $[.24, .45]$).

The significant interaction observed in the second step is crucial for testing the proposed hypothesis of moderated mediation. To better understand this effect, we tested the mediation in each experimental condition (see Figure 14). The results indicated that in the symbolic dimension of social pain, the effect of the target on the attribution of professional support was mediated by social pain (indirect effect = $.09$, $SE = .03$, 95% CI $[.04, .16]$). Mediation did not occur in the utilitarian condition of social pain, where we highlighted the need to seek professional mental health assistance (indirect effect = $-.03$, $SE = .02$, 95% CI $[-.08, .01]$). The index of moderated mediation confirmed that the mediated effect was significantly stronger in the symbolic condition compared to the utilitarian condition of social pain (Index = $-.12$, $SE = .04$, 95% CI $[-.20, -.05]$).

Table 8

Predicting professional support: the mediating role of the social pain in target, moderated by manipulation of the social pain dimension (Study 4)

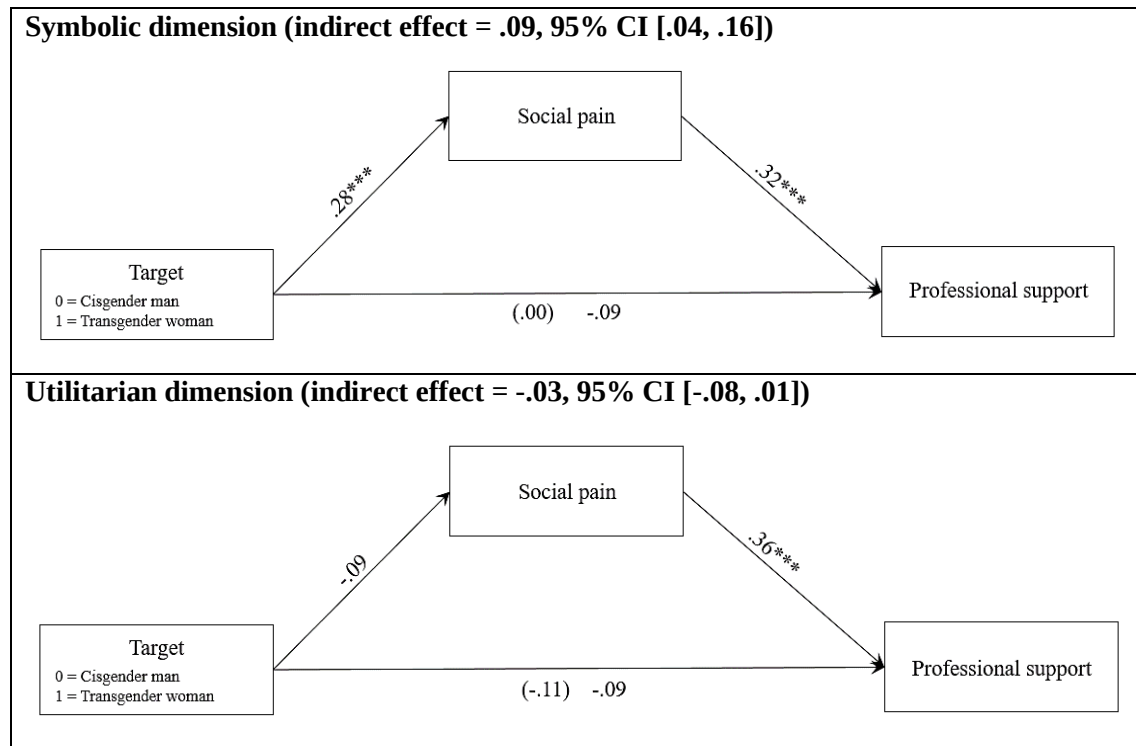
Predictors	Criterion variables		
	Step 1: Professional support	Step 2: Social pain	Step 3: Professional support
	<i>b</i>	<i>b</i>	<i>b</i>
Intercept	4.03	.00	3.99
Target (T)	-.06	.10*	-.09
SPD	.96***	.34***	.77***
T × SPD	-.11	-.37***	.00
Social pain (SP)			.34***
SP × SPD			.04
Model information	<i>R</i> = .56 <i>R</i> _{adj} ² = .32 <i>F</i> (3, 598) = 93.11 <i>p</i> < .001	<i>R</i> = .37 <i>R</i> _{adj} ² = .14 <i>F</i> (3, 589) = 31.00 <i>p</i> < .001	<i>R</i> = .60 <i>R</i> _{adj} ² = .36 <i>F</i> (5, 587) = 65.37 <i>p</i> < .001

Note. *b* = unstandardized coefficients; SPD = manipulation of the social pain dimension.

p* < .05. **p* < .001.

Figure 14

Effect of target on professional support mediated by social pain in each dimension of social pain (symbolic vs. utilitarian) (Study 4)



Note. Parameters are unstandardized regression coefficients. *** $p = .001$.

Chapter Summary

In this study, we manipulated the symbolic and utilitarian dimensions of social pain to examine their impact on the attribution of social pain and professional support for pain management to a cisgender man and a transgender woman. In general, our results support our hypothesis regarding the contextual meanings of social pain and its influence on social pain judgments of cisgender and transgender target individuals. They expand the results previously observed by demonstrating a higher attribution of pain to transgender women (vs. cisgender men) when social pain was assessed from its symbolic dimension. In this context, the perceived social value of cisgender and transgender group memberships is expected to determine the evaluation of the social pain of the targets. In a symbolic dimension, where social pain is interpreted as a

negative attribute, it was more strongly attributed to transgender women by cisgender individuals for being a member of a socially devalued outgroup. This interpretation is consistent with predictions from social identity theory (Tajfel & Turner, 1979), which emphasizes that in the quest to maintain positive self-esteem, individuals tend to attribute more positive characteristics to ingroup members than to outgroup members, thus ensuring a positive social identity for the ingroup. Therefore, in its symbolic dimension, the greater attribution of social pain to transgender women may confer self-esteem benefits to the cisgender ingroup and express the devaluation of the transgender outgroup.

When social pain was assessed from its utilitarian dimension, we observed that participants did not attribute social pain differently to the targets, although the mean of social pain attributed to cisgender man was slightly higher than that attributed to transgender woman. These results are interesting as they suggest an ingroup favoritism motivation through the reinterpretation of the meaning of social pain. Cisgender participants attributed more social pain to cisgender man in this condition (vs. symbolic condition) because the attribution of pain may have been interpreted as an important mechanism to secure psychological support resources for the ingroup member. Thus, the negative meaning of social pain may have been relativized in favor of its utility in ensuring resources for cisgender man. It is also likely that we did not observe a significant difference in the attribution of social pain to the targets in this utilitarian dimension because cisgender men are generally perceived as less sensitive to painful situations compared to other targets (Bernardes et al., 2008), are less exposed to adverse social conditions (Brescoll & Uhlmann, 2008), and tend to seek less professional support to deal with their pains compared to women (Addis & Mahalik, 2003). These aspects may have dampened the attribution of social pain to cisgender man in this

condition. This is an issue that needs to be further explored in future studies by including other targets as reference points in the experimental scenarios.

Consistent with our interpretation, we also observed a slightly higher average attribution of professional support for cisgender man (vs. transgender woman) when the utilitarian dimension of social pain was salient. Although we did not obtain a significant interaction effect between the target and the manipulation of the social pain dimension for the attribution of professional support, this result reinforces our interpretation of the contextual meanings of social pain and its role in cisgender ingroup favoritism. Our mediation model indicated that participants attributed more social pain to transgender woman than to cisgender man, but only when the distribution of mental health support resources was not salient. Consequently, the higher attribution of social pain led to a greater attribution of professional support to transgender woman only when social pain was assessed from its symbolic dimension. The meaning of this attribution of professional psychological support, however, can only be clarified through further studies. Taken together, our findings shed light on the complexity of social pain and its biases in cisgender-transgender intergroup relations, as well as open new avenues of research on the relationship between social pain and the treatment of social pain for transgender women.

Socially painful events are a common aspect of human experience and directly shape fundamental markers of human functioning, such as health and well-being (Cacioppo & Patrick, 2008). Despite members of stigmatized groups experiencing socially painful circumstances more often than members of non-stigmatized groups (Umberson et al., 1996), the way and intensity in which their pain is perceived can vary based on the contextual meaning attributed to social pain. In this thesis, we conducted a systematic investigation across four experiments to examine biases in judgments of social pain toward cisgender and transgender individuals based on their gender identity. Based on the notion that asymmetries in groups' social value influence group members evaluations, our primary hypothesis is that cisgender participants would perceive transgender individuals as a highly stigmatized outgroup (Verbeek et al., 2020) and as more vulnerable to social pain compared to cisgender targets. Given the inherently negative nature of social pain (MacDonald & Leary, 2005), we expected that participants would perceive transgender targets as more vulnerable to social pain. We named this phenomenon social pain bias.

In Studies 1-3, we examined how the social pain bias would manifest in scenarios where gender identity was the primary element of social comparison. Thus, in these studies we assessed social pain from its *symbolic dimension* (Chapters 2-4). In Study 1, we manipulated the gender identity (cisgender vs. transgender) and the assigned sex at birth (male vs. female) of a fictitious victim. Results showed that participants perceived transgender individuals as more vulnerable to social pain than cisgender individuals, but this effect was observed specifically in transgender women. Building on these findings, Study 2 replicated the results of Study 1 and showed that transgender women's greater attribution of social pain was related to the social devaluation of the transgender category. In Study 3, we manipulated the valence of transgender identity and found that emphasizing negative (vs. positive) aspects of

transgender group membership influenced social devaluation within the transgender category. This, in turn, resulted in an increased bias in the attribution of social pain, but only among individuals with male sex assigned at birth (i.e., transgender women compared to cisgender men). Overall, these findings confirm that in intergroup dynamics between cisgender and transgender individuals, where the social value of categories plays a central role in social comparisons, social pain is indeed seen as a very negative experience. However, it is important to note that the expected effect is not uniform, as social pain was primarily attributed to transgender women.

In Study 4, we went a step further by examining how social pain bias would manifest in two scenarios that experimentally differ in emphasizing more utilitarian elements or more symbolic aspects of intergroup relation (Chapter 5). In this study, we explore the idea that social pain is a construct that can take on different connotations, i.e., symbolic or utilitarian, depending on the salient social comparison scenario in the cisgender-transgender intergroup relationship. Consequently, we also analyze if the meaning of the dimension in which social pain is assessed could influence the attribution of professional support for the management of pain for cisgender men and transgender women, who are the targets for whom the social pain bias primarily presented itself.

Specifically, we tested the hypothesis that cisgender individuals would attribute more social pain to a transgender woman than to a cisgender man when the social comparison scenario primarily emphasized the symbolic dimension of social pain. Alternatively, since in clinical contexts ingroup members are considered more sensitive to pain and thus receive more resources of professional support (e.g., Hoffman et al., 2016; Summers et al., 2021), we also predicted that participants would attribute more social pain to the cisgender man than to the transgender woman when the experimental scenario emphasized the need for the target to obtain assistance resources for pain

treatment. In this scenario, social pain would be interpreted from the *utilitarian dimension*, which carries more weight in the intergroup context. Social pain would take on the underlying utilitarian meaning of such a context and would therefore be more attributed to the cisgender man, which could eventually justify a greater allocation of professional support for this target, representing a legitimizing process predicted by the justified discrimination theory (Pereira et al., 2018).

In general, the results of Study 4 supported our hypothesis regarding the variable meanings of social pain and its influence on social pain judgments of cisgender and transgender target individuals. They reinforce previous results by demonstrating a higher attribution of pain to transgender woman (vs. cisgender man) when social pain was assessed from its symbolic dimension. In this context, the perceived social value of cisgender and transgender group memberships is expected to determine the evaluation of the social pain of the targets. In a symbolic dimension, where social pain is interpreted as a negative attribute, it was more strongly attributed to transgender women by cisgender individuals for being a member of a socially devalued outgroup. This interpretation is consistent with predictions from social identity theory (Tajfel & Turner, 1979), which emphasizes that in the quest to maintain positive self-esteem, individuals tend to attribute more positive characteristics to ingroup members than to outgroup members, thus ensuring a positive social identity for the ingroup (Jetten et al., 2004). Therefore, in its symbolic dimension, the greater attribution of social pain to transgender women may confer self-esteem benefits to the cisgender ingroup and express the devaluation of the transgender outgroup.

When assessing social pain through its utilitarian dimension, we observed that participants did not attribute social pain differently to the targets (Study 4). Nonetheless, it is noteworthy that the average attribution of social pain to cisgender man slightly surpassed that directed toward transgender woman. These results are interesting as they

suggest a motivation rooted in ingroup favoritism and positive ingroup distinctiveness (Figueiredo & Pereira, 2021; Harrison & Michelson, 2017; Jetten & Spears, 2003), wherein the reinterpretation of the significance of social pain becomes apparent. Within this context, cisgender participants exhibited a heightened attribution of social pain to cisgender men in comparison to the symbolic condition. This proclivity may be construed as an acknowledgment of the attribution of pain serving as a pivotal mechanism to secure psychological support resources for the ingroup member. Consequently, the unfavorable connotation of social pain appears to have been relativized, emphasizing its utility in ensuring resources for cisgender man.

Taken together, our results support our prediction that within gender identity-based intergroup relations, asymmetries in social value between cisgender and transgender groups lead to differences in the attribution of social pain to members of these groups. We consistently observed that the primary differences in attribution of social pain centered on targets with male sex assigned at birth, in line with pronounced group social status inequalities when comparing transgender women and cisgender men (Wilchek-Aviad et al., 2020). Given that cisgender men hold more social power and privilege while being protected from social pain (Case et al., 2014; Kray et al., 2017), it was expected that they would be perceived as less vulnerable to the negative effects of aversive situations compared to other targets across studies.

Conversely, transgender women were consistently perceived as more vulnerable to these negative effects in all studies, supporting the extensive evidence of the stigma they face in various contexts (e.g., Schilt, 2006; Winter et al., 2009) and compared to other transgender individuals (e.g., Anderson, 2018; Grossman & D'Augelli, 2006). Male-to-female transition is primarily seen by cisgender men as a decline in the social hierarchy and a threat to their masculinity (Ching, 2021). Consequently, when transgender women give up the social recognition associated with cisgender male

identity and feminize, the intensity of anti-transgender stigma intensifies, making them more vulnerable to invisibility, loss of status, discrimination, and psychological and social distress (Verbeek et al., 2020).

Drawing upon the premises of social identity theory (Tajfel & Turner, 1979), the greater attribution of social pain to transgender women serves to maintain a positive and distinct social identity within the cisgender ingroup, particularly for cisgender men.

Some research suggests that cisgender men tend to attribute more negative characteristics to transgender women compared to transgender men, and this tendency is more pronounced compared to cisgender women (Anderson, 2018; Nagoshi et al., 2008). They also exhibit more anti-transgender prejudice to compensate for the masculinity threatened by transgender individuals and to restore their positive ingroup identity (Ching, 2021). Overall, our results also suggest that greater attribution of social pain to transgender women not only promotes ingroup favoritism but also reinforces the maintenance of the cisnormative system by discouraging gender transition suggesting that such transition leads to pain, especially in the male-to-female context (Winter et al., 2009).

While we assumed that cisgender women would experience some degree of social pain due to the historical devaluation of their group status and societal expectations associated with female gender roles (Kray et al., 2017; Sanford et al., 2002), we were surprised to discover significant differences in the attribution of social pain between cisgender women and transgender men in Studies 1-3. The results suggest that transgender men tend to minimize social pain, indicating some form of acceptance of these men by avoiding associating them with such primarily negative emotions as pain. One plausible explanation for this finding relates to possible changes in the social value of transgender men after their transition. For example, Schilt (2006) found that some transgender men reported an increase in authority, prestige, and respect in the

workplace after their transition, even if they had not acquired new or improved job skills. Similarly, a recent study by Clements et al. (2022) found that gender transition among transgender men improved self-perceptions of confidence, competence, and freedom from traditional gender expectations associated with femininity. These findings suggest that transitioning from female to male may improve transgender men's perceptions of social value and bring them closer to that of cisgender women, although the latter remains undervalued. Consequently, participants who viewed transgender individuals as socially valuable (Study 2) and received positive information about transgender identity (Study 3) may have been influenced by the importance of the social value associated with transgender identity, resulting in a reduction in bias when attributing social pain to transgender men.

Based on this framework, our results provide robust experimental support for the prediction that social pain attribution reflects an anti-transgender bias, as they also indicate the presence of a misogynistic or anti-women bias in this context. Interestingly, we did not expect to observe identical patterns of attribution of social pain between cisgender women and transgender women in our current research (Studies 1-3). Thus, our data show a significant overlap between gender and gender identity in terms of perceptions of social value and evaluations of social pain.

Gender is an important determinant of a group's social value (Feinman, 1981, 1984). Although cisgender women are generally more socially valued than transgender women due to the normative nature of their gender identity, both groups may experience similar levels of social pain. This may be due to the social oppression imposed on cisgender women by the female gender role, resulting in psychological, relational, and social distress (Umberson et al., 1996). Consequently, the attribution of social pain as an expression of identity stigma may also apply to cisgender women. Alternatively, the significant expansion of gender discourse, focusing particularly on

male privilege and the struggle for women's empowerment, may have contributed to the significant attribution of social pain to cisgender women. This could be seen as recognition of the suffering that results from the injustice of their social situation. In this context, attribution of social pain may serve as a means for participants to highlight the problem of gender inequality and advocate for the establishment of equality between men and women (Keddie, 2020). Further studies are needed to provide more clarity on these complex dynamics.

Implications and Alternative Explanations

Accurate recognition of the pain of others is of great functional importance for both individuals who experience pain and those who assess it (Deska & Hugenberg, 2018). Perceiving the social pain of others has been established as a critical component of empathy (Nordgren et al., 2011) and plays a role in determining resource allocation to help victims cope with socially painful events (Deska et al., 2020). However, the extent to which perceptions of social pain function within hierarchically structured intergroup relations as a mechanism for stigmatizing minority identities, such as transgender women, was previously unknown. Therefore, the present thesis makes a seminal contribution to our understanding of social pain in intergroup contexts, particularly in the cisgender-transgender relationship, which has received little attention in previous research.

This thesis has significant implications for understanding the multifaceted nature of social pain in intergroup relationships. Research on the perception of social pain has predominantly focused on exploring biases based on race and socioeconomic status in the assessment of pain (e.g., Deska et al., 2020; Summers et al., 2021), while biases related to gender identity remain an open question. Existing literature has shown that members of dominant ingroups are attributed greater social pain, suggesting that social pain can serve as a useful resource (and is therefore valued positively in these scenarios)

to legitimize unequal access to healthcare, leading to greater availability of resources for privileged ingroups (Deska & Hugenberg, 2018). Previous research has also shown that recognition of pain has practical implications for ingroup valuation. For example, in the medical context, recognizing that a White person is in more pain than a Black person may result in the White patient receiving faster treatment and better pain medication than the Black patient (Heins et al., 2006). The symbolic recognition of social pain seen in cis-trans relationships has practical implications that legitimize exclusion. It conveys the message to transgender individuals that their identity is the source of their suffering, and that gender reassignment will result in social retaliation (Norwood, 2013).

With our studies, we have significantly expanded the boundaries and scope of research on this topic by providing evidence that social pain encompasses multiple meanings. Apart from the imminent utilitarian bias, social pain is fundamentally perceived as a negative attribute that people actively avoid (Eisenberger, 2012; Fernando et al., 2013). Consequently, people tend to deny its existence within the socially valued ingroup, while associating it more strongly with the experiences of the stigmatized outgroups. Our findings are innovative because they show that when intergroup comparisons involve less utilitarian and more symbolic and identity-related dimensions, such as evaluating the social value of groups, the attribution of social pain can serve as a means of expressing the stigmatization of the outgroup's identity.

In addition, this research has implications for the study of gender identity and transgender prejudice. Although previous studies on prejudice against transgender women and transgender men have been empirically inconsistent (e.g., Gerhardstein & Anderson, 2010; Winter et al., 2009), our findings suggest that transgender women experience greater social devaluation. This finding suggests that biases against transgender women are indeed stronger than those against transgender men (Benevides & Nogueira, 2020). Existing literature indicates that the expression of prejudice toward

different groups and the degree of acceptance of such expressions vary depending on the social value attributed to each group (Brito & Pereira, 2020). The more a group is socially devalued, the more acceptable and normative the expression of prejudice toward that group becomes (see Crandall et al., 2002, for a discussion of the normativity and expression of prejudice).

Our research makes an important contribution to this literature by demonstrating that the higher attribution of social pain to transgender individuals reflects the low social value placed on transgender identity. In Study 3, manipulating the valence of transgender identity and testing a fundamental aspect of social identity theory (Tajfel & Turner, 1979), we demonstrated that the positive valence associated with transgender identity increases the social value of transgender men (but not necessarily transgender women) and decreases bias in the perception of their social pain. This suggests that different approaches are needed to increase the social value of and reduce bias against these transgender groups. The consistently observed interactions between gender and gender identity in our findings underscore the complexity of understanding the processes that govern perceptions of social pain in cisgender women, cisgender men, transgender women, and transgender men. Moreover, these interactions suggest that specific gender-related issues may present significant barriers to the valuation and advancement of these groups in society (Kray et al., 2017). This underscores the importance of our study's findings, which may open new avenues for exploring the role of social pain in gender relations. This research may help clarify whether the stigmatization of transgender women is primarily due to their gender (i.e., being a woman) or their gender identity (i.e., being transgender).

Some alternative interpretations should be considered to better understand the utilitarian meaning of social pain in the cis-trans intergroup scenario. For instance, the significant disparity in the valence of the experimental conditions in Study 4 may have

influenced the evaluation of pain and the attribution of professional support to the targets in the utilitarian condition (Patrick et al., 2015). To manipulate this dimension, we presented a narrative emphasizing the acute symptoms of mental distress and the need to mobilize psychological resources to manage this distress. The intensity of the psychological symptoms presented may have influenced the increased attribution of social pain and psychological support to the transgender woman. Concurrently, this critical scenario may have triggered an urgency effect on mental health treatment for both targets (Wheeler et al., 2010). Although these valence and urgency effects need to be better controlled in future research addressing the utilitarian dimension of social pain, the results obtained reinforce our interpretation of the utilitarian mechanism in the situation.

By demonstrating the relationship between social pain and the attribution of professional support in Study 4, we also provide contributions to the research on the assessment of social pain among members of different groups in clinical mental health contexts. Most research in this field has investigated utilitarian biases in professional support assessment for physical pain (e.g., Bernardes et al., 2021; Madeira et al., 2022), and this relationship has not been explored considering cisgender and transgender groups. With caution, it is important to note that since we used generic items to evaluate the attribution of psychological support to the targets, we cannot clearly state the meaning of the professional support intended for each target by the participants. Beliefs of cisgender individuals that transgender identity can be reversed through psychological treatments have been documented in the literature (e.g., Flores et al., 2020; Wright et al., 2018). This makes it possible that the professional support attributed to the transgender woman in the symbolic condition signifies support for the submission of this target to reassignment treatments for a cisgender identity. Similarly, the attribution of social pain to the cisgender man in the utilitarian dimension is likely to signify access

to psychotherapy resources to deal with subjective and interpersonal issues. This is a significant limitation of the current work, essential to be addressed in future studies.

Limitations and Future Directions

Despite the consistent evidence supporting our hypotheses, the results of this series of studies have limitations that may restrict the scope of the implications and raise questions that can only be answered in future research. First, unlike our approach to transgender identity, we did not manipulate cisgender identity valence to examine its influence on social value and attributions of social pain to targets. In Study 3, we operationalized the group-membership valence manipulation of transgender identity by highlighting positive or negative characteristics associated with that identity. It would be beneficial to compare the importance of these attributes in both group affiliations to allow for a more systematic assessment of the extent to which group social value influences the appraisal of social pain for targets.

In addition, our interpretation of the effects obtained encounters the unresolved issue of lower attribution of social pain among transgender men compared with cisgender women. Although our results consistently show differences in attribution of social pain based on the assigned sex at birth of the targets, we did not collect data that would explain the reasons for these differences. It is important to further explore this aspect by examining the role of target and participant sex in social group appraisal and its association with social pain. For example, future studies may examine whether biases in social pain judgments vary as a function of the participant's self-identification with gender and their motivation for gender distinctiveness (see Hayes & Reiman, 2022; Outten et al., 2019). In addition, they may consider including individual differences variables as concurrent moderators in the relationship between the participant's gender and attribution of social pain to transgender individuals. Variables such as gender essentialism (Ching & Xu, 2018), endorsement of traditional gender beliefs, right-wing

ideologies (Makwana et al., 2018), belief in a just world (Thomas et al., 2016), and system justification (Suppes et al., 2019) are important explanatory factors for gender differences in prejudice toward transgender persons and are likely to contribute to a better understanding of the biases in attributing social pain to transgender persons.

It is noteworthy that Study 4 has significant limitations. Firstly, we emphasize the importance of refining the experimental manipulation by activating more specific circumstances of social pain because of explicit devaluation (see, for example, MacDonald & Leary, 2005). While social pain occurs without explicit relational devaluation, for example, when the individual perceives themselves as an unpleasant companion or imagines that their failures will bring them social or relational losses (see Hudd & Moscovitch, 2011), it is possible that participants would assess the transgender woman as even more sensitive to social pain in a symbolic condition if we more directly activated the social exclusion of this target due to the social devaluation of their transgender identity.

Similarly, the attribution of social pain to the cisgender man could be lower than that observed in our results due to the privileges derived from cisgender male membership (Ridgeway & Correll, 2004). As people tend to allocate more pain to the ingroup in circumstances that directly threaten their resources (Chang et al., 2016; Cui et al., 2023), we would also likely observe a higher attribution of social pain and professional support to the cisgender man if we activated the idea of a threat to cisgender resources by transgender individuals (for example, using news indicating that transgender individuals are receiving more specialized assistance than cisgender individuals in mental health clinics). These ideas provide paths for future research aiming to deepen the investigation of the multidimensionality hypothesis of social pain.

Secondly, in addition to not having explored the meaning of professional support attributed to our targets, we assessed this support based on two items. Future

studies need to consider more robust measures to evaluate this variable, including items of agreement with supposed gender identity reassignment treatments. It is possible that the greater attribution of social pain to transgender woman in the symbolic condition could signify support for the idea of transgender identity reversal, given that cisgender individuals often equate gender transitions with mental illness and believe that transgender individuals are confused about their gender identity, requiring therapy to resolve this confusion (for a discussion of culturally shared stereotypes about transgender individuals, see Gazzola & Morrison, 2014).

It is also critical to extend this research to other recognized stigmatized groups that show less bias toward the intersection of gender and gender identity, such as Roma (compared to non-Roma) and immigrants (compared to natives). According to our interpretation, in social comparison contexts that are essentially symbolic and identity-based and involve these groups, social pain is seen as a negative resource and is therefore more strongly associated with members of devalued outgroups, namely Roma and immigrants. Conversely, when the dimension of comparison is more utilitarian (e.g., in the distribution of socioeconomic resources), the meaning of social pain may change, leading to its stronger association with members of socially valued ingroups, i.e., non-Roma and natives. Exploring these different dimensions in hierarchically structured intergroup relations would enrich the literature on social pain.

Finally, in all our studies we measured social pain using a ten-point scale that describes socially painful situations experienced by most people (Deska et al., 2020). Despite the good reliability of the scale and the consistent pattern of results obtained, future research should replicate our procedures using alternative instruments to assess social pain. Common approaches to measuring social pain include pain face scales, in which participants view a series of animated faces showing varying degrees of pain (Nordgren et al., 2011), threatened needs scales, which assess psychological needs that

may be affected by socially painful experiences (e.g., belonging, self-esteem, control, and meaningful existence; Williams et al., 2000), and measures of social anxiety, distress, pain, and/or negative affect (see Hudd & Moscovitch, 2021). These different measurement approaches highlighted in the literature illustrate the multidimensional nature of contemporary conceptualizations of social pain, encompassing physical, psychological, and emotional aspects. Thus, it is critical for future research on bias in pain assessment to employ instruments that capture these different features of social pain.

Conclusions

As research at the intersection of health and gender identity shows, transgender individuals experience social pain more frequently than cisgender individuals, and this chronic pain contributes to mental health disparities between these groups (e.g., Brown et al., 2018; Grant et al., 2011). With this work, we provide robust experimental evidence for biases in social pain appraisal among cisgender and transgender individuals and demonstrate the relationship between these biases and the social value ascribed to these categories. The current work represents a significant advance in the field of social pain research, as it highlights mechanisms and functions of social pain that have not been previously explored, particularly in the complex scenario of intergroup relations based on gender identity. The findings presented here help to understand the dynamics of these relationships and have potential implications for the intervention and treatment of pain in transgender individuals.

Our findings underscore the urgent need to address systemic stigma and discrimination against transgender people, particularly in contexts where their rights and well-being are at risk, such as in Brazil. The contributions of our research go beyond academic discourse and have significant implications for social policy, advocacy, and interventions aimed at promoting inclusion and reducing bias against transgender

people. By shedding light on bias in the attribution of social pain, we hope to contribute to the development of policies that promote empathy, understanding, and support for the transgender community and ultimately work towards a more equitable society. In addition, our research invites further investigation to explore the complexity of intergroup dynamics and expand our understanding of how bias in the attribution of social pain manifests in different cultural contexts around the world.

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Appendix A. Materials used in Study 1 (Chapter 2)

Manipulation of Victim's Gender Identity and Assigned Sex at Birth

- Cisgender Man:



João, 25 anos, enviou seu aparelho de celular para a assistência técnica. Dias depois ele teve fotos íntimas divulgadas nas redes sociais e passou a receber mensagens constrangedoras. João pede na justiça que a empresa pague uma indenização por danos morais porque foi a responsável pelo vazamento.

- Cisgender Woman:



Joana, 25 anos, enviou seu aparelho de celular para a assistência técnica. Dias depois ela teve fotos íntimas divulgadas nas redes sociais e passou a receber mensagens constrangedoras. Joana pede na justiça que a empresa pague uma indenização por danos morais porque foi a responsável pelo vazamento.

- Transgender Man:

30/09/2014 09h43 - Atualizado em 30/09/2014 09h45

FOTOS ÍNTIMAS DE CLIENTE SÃO VAZADAS POR EMPRESA DE CELULAR

No início da semana cliente teve suas fotos íntimas vazadas após enviar o celular para a assistência técnica

09h50 PM

 Tweetar 161

 Recomendar 5

João, 25 anos, homem transexual, enviou seu aparelho de celular para a assistência técnica. Dias depois ele teve fotos íntimas divulgadas nas redes sociais e passou a receber mensagens constrangedoras. João pede na justiça que a empresa pague uma indenização por danos morais porque foi a responsável pelo vazamento.

- Transgender Woman:

30/09/2014 09h43 - Atualizado em 30/09/2014 09h45

FOTOS ÍNTIMAS DE CLIENTE SÃO VAZADAS POR EMPRESA DE CELULAR

No início da semana cliente teve suas fotos íntimas vazadas após enviar o celular para a assistência técnica

09h50 PM

 Tweetar 161

 Recomendar 5

Joana, 25 anos, mulher transexual, enviou seu aparelho de celular para a assistência técnica. Dias depois ela teve fotos íntimas divulgadas nas redes sociais e passou a receber mensagens constrangedoras. Joana pede na justiça que a empresa pague uma indenização por danos morais porque foi a responsável pelo vazamento.

Social Pain Measure

Até que ponto você acha que **João** consideraria dolorosos os seguintes eventos?

Use a legenda abaixo para indicar o quão doloroso você acredita que seria cada evento para João. Quanto maior for o número assinalado, maior será o nível de dor.

1	2	3	4
Nada doloroso	Doloroso	Muito doloroso	Extremamente doloroso

1. O melhor amigo de João se muda para o outro lado do país.	1	2	3	4
2. João se deu conta de que sua roupa íntima estava à mostra durante uma caminhada que fez pela rua.	1	2	3	4
3. Estranhos riem do corte de cabelo de João.	1	2	3	4
4. O melhor amigo de João fofoca sobre ele pelas costas.	1	2	3	4
5. Um amigo tira sarro de João na frente dos outros.	1	2	3	4
6. João convida amigos para comemorar seu aniversário e ninguém vem.	1	2	3	4
7. João ouve um colega de trabalho falando sobre sua incompetência no trabalho.	1	2	3	4
8. O animal de estimação da família de João morre.	1	2	3	4
9. João tropeça e cai e as pessoas riem dele.	1	2	3	4
10. O parceiro(a) romântico(a) de João pede um espaço.	1	2	3	4

Até que ponto você acha que **Joana** consideraria dolorosos os seguintes eventos?

Use a legenda abaixo para indicar o quão doloroso você acredita que seria cada evento para Joana. Quanto maior for o número assinalado, maior será o nível de dor.

1	2	3	4
Nada doloroso	Doloroso	Muito doloroso	Extremamente doloroso

1. O melhor amigo de Joana se muda para o outro lado do país.	1	2	3	4
2. Joana se deu conta de que sua roupa íntima estava à mostra durante uma caminhada que fez pela rua.	1	2	3	4
3. Estranhos riem do corte de cabelo de Joana.	1	2	3	4
4. O melhor amigo de Joana fofoca sobre ela pelas costas.	1	2	3	4

5. Um amigo tira sarro de Joana na frente dos outros.	1	2	3	4
6. Joana convida amigos para comemorar seu aniversário e ninguém vem.	1	2	3	4
7. Joana ouve um colega de trabalho falando sobre sua incompetência no trabalho.	1	2	3	4
8. O animal de estimação da família de Joana morre.	1	2	3	4
9. Joana tropeça e cai e as pessoas riem dele.	1	2	3	4
10. O parceiro(a) romântico(a) de Joana pede um espaço.	1	2	3	4

Participant's Sociodemographic Data

Finalmente, gostaríamos de saber um pouco mais sobre você.

1. Idade: _____ anos

2. Sexo:

☐ Masculino ☐ Feminino

3. Identidade de gênero:

☐ Homem cisgênero ☐ Mulher cisgênero ☐ Homem transgênero ☐ Mulher transgênero

☐ Travesti ☐ Não-binário ☐ Outra (Especifique:_____)

4. Orientação sexual:

☐ Heterossexual ☐ Homossexual ☐ Bissexual ☐ Assexual ☐ Outra (Especifique:_____)

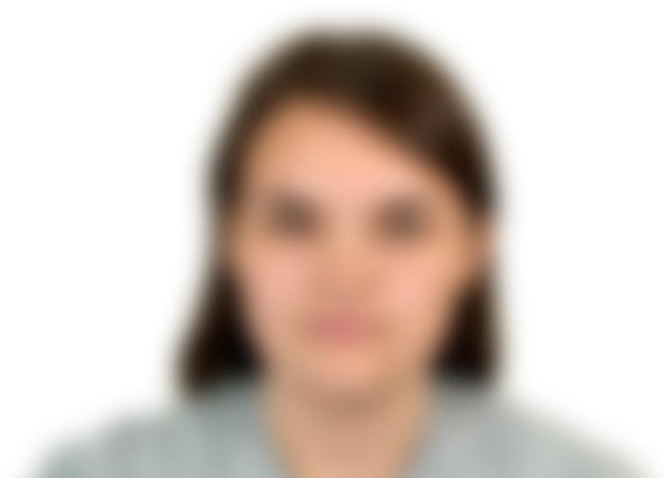
Appendix B. Materials used in Study 2 (Chapter 3)

Manipulation of Target's Gender Identity and Assigned Sex at Birth

The photographs used in the research were taken from the Chicago Face Database (Ma et al., 2015).

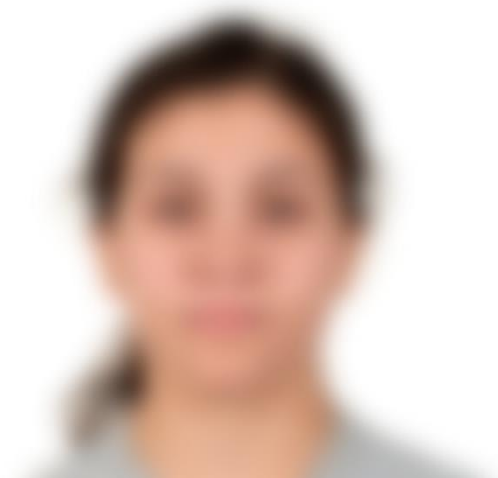
Cisgênero

Sexo biológico: Feminino
Identidade de gênero: Mulher



Transgênero

Sexo biológico: Masculino
Identidade de gênero: Mulher



Cisgênero

Sexo biológico: Masculino
Identidade de gênero: Homem



Transgênero

Sexo biológico: Feminino
Identidade de gênero: Homem



Social Pain Measure

Até que ponto você acha que essa pessoa consideraria dolorosos os seguintes eventos?

Use a legenda abaixo para indicar o quão doloroso você acredita que seria cada evento para essa pessoa. Quanto maior for o número assinalado, maior será o nível de dor.

1	2	3	4
Nada doloroso	Doloroso	Muito doloroso	Extremamente doloroso

1. O melhor amigo dessa pessoa se muda para o outro lado do país.	1	2	3	4
2. Essa pessoa se deu conta de que sua roupa íntima estava à mostra durante uma caminhada que fez pela rua.	1	2	3	4
3. Estranhos riem do corte de cabelo dessa pessoa.	1	2	3	4
4. O melhor amigo dessa pessoa fofoca sobre ela pelas costas.	1	2	3	4
5. Um amigo tira sarro dessa pessoa na frente dos outros.	1	2	3	4
6. Essa pessoa convida amigos para comemorar seu aniversário e ninguém vem.	1	2	3	4
7. Essa pessoa ouve um colega de trabalho falando sobre sua incompetência no trabalho.	1	2	3	4
8. O animal de estimação da família dessa pessoa morre.	1	2	3	4
9. Essa pessoa tropeça e cai e as pessoas riem dela.	1	2	3	4
10. O parceiro(a) romântico(a) dessa pessoa pede um espaço.	1	2	3	4

Measure of Social Value of Groups

Pedimos que indique, utilizando a escala de resposta abaixo, **o quanto você acha que a sociedade brasileira valoriza pessoas pertencentes a esses grupos.**

1	2	3	4	5
Nada	Pouco	Nem muito nem pouco	Muito	Muitíssimo

1. Pessoas transgêneros	1	2	3	4	5
2. Mulheres	1	2	3	4	5
3. Homens	1	2	3	4	5

Participant's Sociodemographic Data

Finalmente, gostaríamos de saber um pouco mais sobre você.

1. Idade: _____ anos

2. Sexo:

☐ Masculino ☐ Feminino

3. Identidade de gênero:

☐ Homem cisgênero ☐ Mulher cisgênero ☐ Homem transgênero ☐ Mulher transgênero

☐ Travesti ☐ Não-binário ☐ Outra (Especifique:_____)

4. Orientação sexual:

☐ Heterossexual ☐ Homossexual ☐ Bissexual ☐ Assexual ☐ Outra (Especifique:_____)

Appendix C. Supplementary materials for Study 2 (Chapter 3)

Table 1 (Supplementary)

Correlations between perceived social value of groups and attribution of social pain to targets

Perceived Social Value	Social pain			
	Transgender women	Cisgender women	Transgender men	Cisgender men
Social value of transgender people	-.31**	-.25**	-.25**	-.08
Social value of women	-.09	-.09	-.04	-.04
Social value of men	.25**	.16**	.24**	.05

Note. ** $p < .01$

Supplementary Results

Planned comparisons further revealed significant differences in how participants perceived the target's social pain depending on whether they considered transgender individuals to be socially undervalued (-1SD below the midpoint of the scale) or socially highly valued (+1SD above the midpoint of the scale).

When transgender individuals are devalued. Participants who perceived transgender individuals as a socially devalued group attributed higher sensitivity to social pain to transgender women ($M = 2.67$, $SE = .04$) than to cisgender men ($M = 2.29$, $SE = .04$), $F(1, 264) = 102.844$, $p = .001$, $\eta^2p = .28$. In contrast, they perceived cisgender women ($M = 2.72$, $SE = .03$) as more sensitive to pain than transgender men ($M = 2.61$, $SE = .03$), $F(1, 264) = 11.650$, $p = .001$, $\eta^2p = .04$ (see Supplementary Figure 2a). Participants also perceived cisgender women to be more sensitive to pain than cisgender men, $F(1, 264) = 135.664$, $p = .001$, $\eta^2p = .34$. Similarly, transgender women

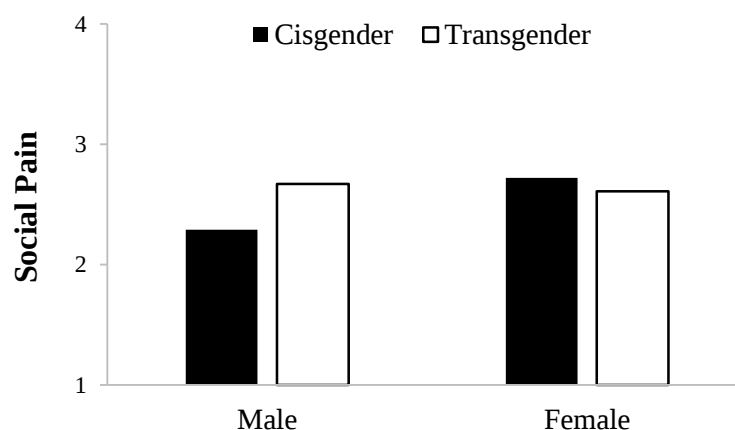
were perceived to be more sensitive to social pain than transgender men, $F(1, 274) = 4.097$, $p = .04$, $\eta^2p = .01$.

When transgender individuals are valued. We observed a distinct pattern among participants who considered transgender individuals to be a highly valued group. Participants who viewed transgender persons as highly valued perceived no significant difference in social pain between cisgender men ($M = 2.15$, $SE = .12$) and transgender women ($M = 2.14$, $SE = .12$), $F(1, 264) = .006$, $p = .94$, $\eta^2p = .00$. Similarly, when targets were female, participants did not differentiate between the pain experienced by cisgender women ($M = 2.31$, $SE = .11$) and transgender men ($M = 2.19$, $SE = .12$), $F(1, 264) = 1.342$, $p = .25$, $\eta^2p = .00$ (see Supplementary Figure 2b). Participants did not differentiate between social pain experienced by cisgender women and cisgender men, $F(1, 264) = 1.909$, $p = .17$, $\eta^2p = .00$. When targets were transgender, no significant differences were observed in attribution of pain between transgender women and transgender men, $F(1, 264) = .337$, $p = .56$, $\eta^2p = .00$.

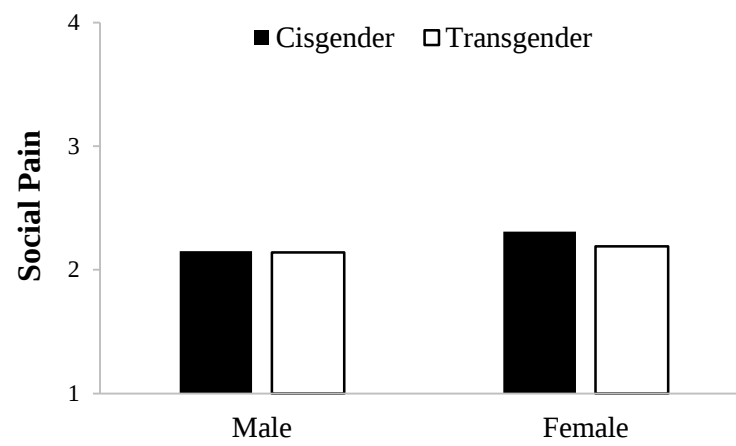
Figure 1 (Supplementary)

Social pain as a function of gender identity (cisgender vs. transgender), assigned sex at birth (male vs. female) of the victim and social value of transgender individuals

a) Low social value of transgender individuals (-1SD)



b) High social value of transgender individuals (+1SD)



Note. The figure illustrates the estimated marginal means for each condition of the factorial design.

Appendix D. Materials used in Study 3 (Chapter 4)

Manipulation of Target's Gender Identity and Assigned Sex at Birth

The photographs used in the research were taken from the Chicago Face Database.

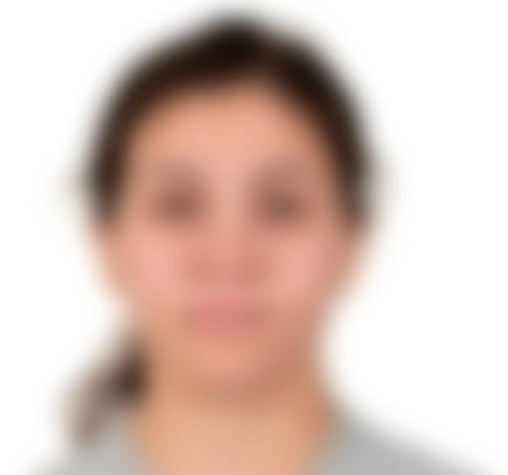
Cisgênero

Sexo biológico: Feminino
Identidade de gênero: Mulher



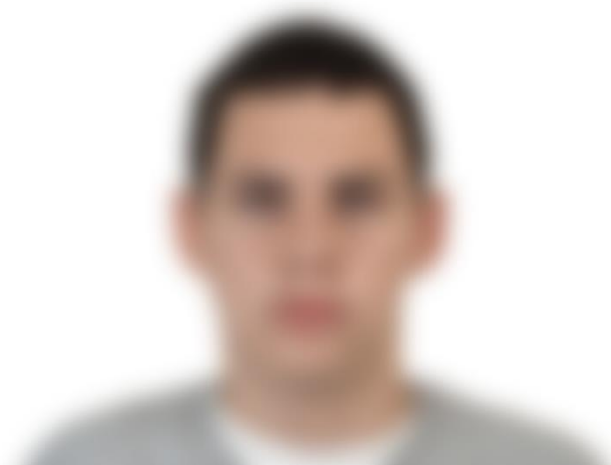
Transgênero

Sexo biológico: Masculino
Identidade de gênero: Mulher



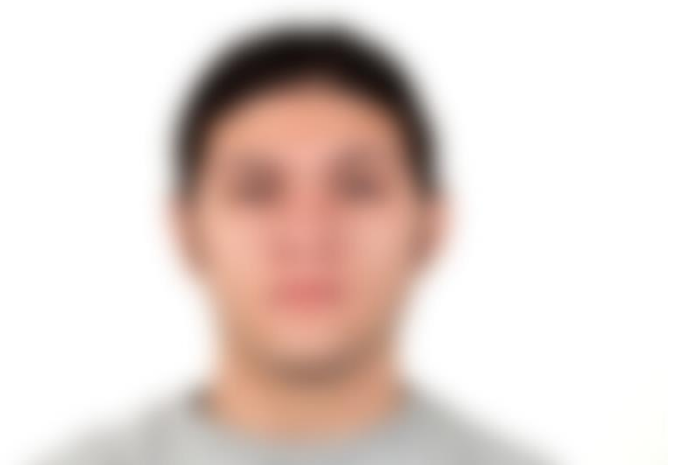
Cisgênero

Sexo biológico: Masculino
Identidade de gênero: Homem



Transgênero

Sexo biológico: Feminino
Identidade de gênero: Homem



Manipulation of the Valence of Transgender Identity

The videos used in the experimental manipulation of transgender identity valence are available on the Open Science Framework and can be viewed through the link:

https://osf.io/uegky/?view_only=d2a8627613bb4d8c8844b6914f97eb51

Social Pain Measure

Até que ponto você acha que essa pessoa consideraria dolorosos os seguintes eventos?

Use a legenda abaixo para indicar o quão doloroso você acredita que seria cada evento para João. Quanto maior for o número assinalado, maior será o nível de dor.

1	2	3	4
Nada doloroso	Doloroso	Muito doloroso	Extremamente doloroso

1. O melhor amigo dessa pessoa se muda para o outro lado do país.	1	2	3	4
2. Essa pessoa se deu conta de que sua roupa íntima estava à mostra durante uma caminhada que fez pela rua.	1	2	3	4
3. Estranhos riem do corte de cabelo dessa pessoa.	1	2	3	4
4. O melhor amigo dessa pessoa fofoca sobre ela pelas costas.	1	2	3	4
5. Um amigo tira sarro dessa pessoa na frente dos outros.	1	2	3	4
6. Essa pessoa convida amigos para comemorar seu aniversário e ninguém vem.	1	2	3	4
7. Essa pessoa ouve um colega de trabalho falando sobre sua incompetência no trabalho.	1	2	3	4
8. O animal de estimação da família dessa pessoa morre.	1	2	3	4
9. Essa pessoa tropeça e cai e as pessoas riem dela.	1	2	3	4
10. O parceiro(a) romântico(a) dessa pessoa pede um espaço.	1	2	3	4

Measure of Social Value of Groups

Pedimos que indique, utilizando a escala de resposta ao lado de cada grupo, **o quanto você acha que a sociedade brasileira valoriza pessoas pertencentes a esses grupos.**

1	2	3	4	5
Nada	Pouco	Nem muito nem pouco	Muito	Muitíssimo

1. Mulheres cisgênero	1	2	3	4	5
2. Homens cisgênero	1	2	3	4	5
3. Mulheres transgênero	1	2	3	4	5
4. Homens transgênero	1	2	3	4	5

Manipulation Check

De que maneira o vídeo que você assistiu abordou as pessoas transgênero na sociedade brasileira? Assinale a opção correspondente.

☐	0. O vídeo abordou as pessoas transgênero como um grupo socialmente valorizado.
☐	1. O vídeo abordou as pessoas transgênero como um grupo socialmente desvalorizado.

Participant's Sociodemographic Data

1. Idade: _____ anos

2. Sexo:

☐ Masculino ☐ Feminino

3. Identidade de gênero:

☐ Homem cisgênero ☐ Mulher cisgênero ☐ Homem transgênero ☐ Mulher transgênero

☐ Travesti ☐ Não-binário ☐ Outra (Especifique:_____)

4. Orientação sexual:

☐ Heterossexual ☐ Homossexual ☐ Bissexual ☐ Assexual ☐ Outra (Especifique:_____)

Appendix E. Materials used in Study 4 (Chapter 5)

Manipulation of Social Pain Dimension and Pain Target

The dimension of social pain (symbolic vs. utilitarian) was manipulated through fictitious scenarios involving a specific target (cisgender man vs. transgender woman). For symbolic condition of social pain, the following text was employed:

“João [/Joana] is a 29-year-old man [/transgender woman]. João [/Joana] feels good about his [/her] life. Occasionally, he [/she] faces complex situations in life and in his [/her] relationships that he [/she] has struggled to understand. This has led him [/her] to question some things in his [/her] life. People close to João [/Joana] have commented that his [/her] situation is related to his [/her] way of being.”

For the utilitarian condition of social pain, the text used was as follows:

“João [/Joana] is 29 years old man [/a transgender woman]. In the last few weeks, he [/she] has been feeling very sad. João [/Joana] doesn't have the energy to do anything and can no longer see meaning in his [/her] life. The things that used to make him [/her] happy no longer do. He [/She] feels alone. João [/Joana] thinks he's [/she's] ugly and believes this has made it difficult for his [/her] relationships. He [/She] feels unhappy for not being the person he wanted to be and thinks that the only solution to his [/her] problems is to die. João [/Joana] went to an initial outpatient appointment at a Health Center, and it was recommended to him [/her] to seek specialized mental health services.”

Social Pain Measure

Até que ponto você acha que **João** consideraria dolorosos os seguintes eventos?

Use a legenda abaixo para indicar o quão doloroso você acredita que seria cada evento para João. Quanto maior for o número assinalado, maior será o nível de dor.

1	2	3	4
Nada doloroso	Doloroso	Muito doloroso	Extremamente doloroso

1. O melhor amigo de João se muda para o outro lado do país.	1	2	3	4
2. João se deu conta de que sua roupa íntima estava à mostra durante uma caminhada que fez pela rua.	1	2	3	4
3. Estranhos riem do corte de cabelo de João.	1	2	3	4
4. O melhor amigo de João fofoca sobre ele pelas costas.	1	2	3	4
5. Um amigo tira sarro de João na frente dos outros.	1	2	3	4
6. João convida amigos para comemorar seu aniversário e ninguém vem.	1	2	3	4
7. João ouve um colega de trabalho falando sobre sua incompetência no trabalho.	1	2	3	4
8. O animal de estimação da família de João morre.	1	2	3	4
9. João tropeça e cai e as pessoas riem dele.	1	2	3	4
10. O parceiro(a) romântico(a) de João pede um espaço.	1	2	3	4

Até que ponto você acha que **Joana** consideraria dolorosos os seguintes eventos?

Use a legenda abaixo para indicar o quão doloroso você acredita que seria cada evento para Joana. Quanto maior for o número assinalado, maior será o nível de dor.

1	2	3	4
Nada doloroso	Doloroso	Muito doloroso	Extremamente doloroso

1. O melhor amigo de Joana se muda para o outro lado do país.	1	2	3	4
2. Joana se deu conta de que sua roupa íntima estava à mostra durante uma caminhada que fez pela rua.	1	2	3	4
3. Estranhos riem do corte de cabelo de Joana.	1	2	3	4
4. O melhor amigo de Joana fofoca sobre ela pelas costas.	1	2	3	4

5. Um amigo tira sarro de Joana na frente dos outros.	1	2	3	4
6. Joana convida amigos para comemorar seu aniversário e ninguém vem.	1	2	3	4
7. Joana ouve um colega de trabalho falando sobre sua incompetência no trabalho.	1	2	3	4
8. O animal de estimação da família de Joana morre.	1	2	3	4
9. Joana tropeça e cai e as pessoas riem dele.	1	2	3	4
10. O parceiro(a) romântico(a) de Joana pede um espaço.	1	2	3	4

Professional Support Measure

Utilizando a escala abaixo, indique o quanto você acha que João [/Joana] deveria:

1	2	3	4	5
Discordo muito	Discordo	Não concordo nem discordo	Concordo	Concordo muito

	Buscar acompanhamento psicológico/psicoterapêutico.
	Buscar acompanhamento psiquiátrico.

Participant's Sociodemographic Data

1. Idade: _____ anos

2. Sexo:

☐ Masculino ☐ Feminino

3. Identidade de gênero:

☐ Homem cisgênero ☐ Mulher cisgênero ☐ Homem transgênero ☐ Mulher transgênero

☐ Travesti ☐ Não-binário ☐ Outra (Especifique:_____)

4. Orientação sexual:

☐ Heterossexual ☐ Homossexual ☐ Bissexual ☐ Assexual ☐ Outra (Especifique:_____)