

Universidade Federal da Paraíba



Centro de Ciências, Humanas, Letras e Artes

Departamento de Psicologia

Programa de Pós-Graduação em Psicologia Social

Grupo de Pesquisa em Comportamento Político

Mestrado em Psicologia Social

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Do Brazilians See the Way Things Are as They Should Be?

A New System Justification Scale

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Será que os Brasileiros veem a forma em que as coisas estão como aquilo que realmente deve ser? Uma Nova Escala de Justificativa do Sistema

Dissertação submetida ao Programa de Pós-Graduação em Psicologia Social da Universidade Federal da Paraíba como requisito parcial para a obtenção do título de Mestre em Psicologia Social.

Orientador: Prof. Dr. Cicero Roberto Pereira.

Instituição financiadora: Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq: 133072/2019-3).

João Pessoa

S586s Silva, Washington Allysson Dantas.

Será que os brasileiros veem a forma em que as coisas estão como aquilo que realmente deve ser? Uma nova Escala de Justificativa do Sistema / Washington Allysson Dantas Silva. - João Pessoa, 2021. 65 f. : il.

Orientação: Cicero Roberto Pereira. Dissertação (Mestrado) - UFPB/CCHLA.

1. Psicologia social. 2. Comportamento político. 3. Justificação do Sistema. 4. Desigualdades sociais. 5. Mensuração - percepção de justiça. I. Pereira, Cicero Roberto. II. Título.

UFPB/BC CDU 316.6(043)

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Dissertação de Mestrado avaliada em 22/03/2021 com conceito APROVADA

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Agradecimentos

Desde pequeno entendi que não conseguiria caminhar sozinho – seja no sentido literal ou figurado da expressão. Precisei de ajuda para aprender a andar, falar, pensar e construir meu conceito de "mundo". Assim, a ajuda, o apoio e a boa vontade daqueles que foram surgindo ao meu caminho têm me acompanhado durante toda a minha trajetória. Eu nada seria se não tivesse contado com diferentes outros. Não seria diferente com relação a este trabalho. Tentarei ser justo e lembrar de todos aqueles que contribuíram para a realização desta dissertação. São muitos nomes, muitos rostos, mas um só sentimento: a *gratidão*.

Diante de um desejo pela busca de algo novo, de novas descobertas pessoais, o destino me trouxe para João Pessoa, especificamente para a Universidade Federal da Paraíba (PB), e aqui tenho vivido os melhores dias da minha vida. Isso me faz lembrar que a maior parte dos projetos que tenho planejado nesses 26 anos de existência não têm saído nos moldes como desejado. Rascunho, desenho e escrevo, mas nada seria tão perfeito e minimamente coerente se não houvesse a intervenção do acaso. Por isso, sou grato à *vida* e ao *destino* por me trazer até aqui.

Sou grato às mulheres de minha família. Agradeço a minha mãe (*Rosiclei*) pelo dom da existência, pela alegria incontestável (mesmo nos momentos mais difíceis) e pela força de vontade de lutar por dias melhores. Ela, que assumiu diferentes papéis nessa trajetória para educar a mim e o meu irmão da melhor forma, sem nos deixar faltar amor, carinho e zelo. Mãe, com você tenho aprendido que os desafios da vida são menores que os nossos sonhos. Obrigado por tudo! Agradeço a minha avó (*Dona Socorro*) por todo o seu amor, acolhimento e força. Com a senhora aprendo que a vida se torna melhor quando a tratamos de forma leve. Obrigado por me ensinar a ver alegria em lugares onde impera a dificuldade. Eu nada seria se não tivesse seus cuidados em minha vida. Agradeço a minha tia *Roseane* que, com sensatez, coerência e docilidade, assume posição materna em diferentes etapas de minha vida. Com a senhora aprendo a ser justo, a amar mais o próximo e a ter um coração despojado e sem reservas. Obrigado por todo o seu apoio e torcida.

Sou grato a *Lucas*, meu companheiro de vida. Todos os dias consigo me surpreender positivamente com a sua leveza e sua lealdade. Obrigado por todo o suporte e companheirismo durante esses sete anos. Obrigado por compreender minha ausência, mesmo estando a poucos metros de distância. Você foi essencial para a construção deste trabalho: desde a torcida pela aprovação no mestrado até ir tirar xerox na copiadora de Fagner/Jane, você nunca hesitou em ajudar. Seu espírito de entrega e sua curiosidade latente em descobrir o mundo lhe levarão a

lugares lindos e incríveis. Espero estar sempre ao seu lado, aplaudindo e vibrando o seu sucesso quando isso chegar.

Sou grato ao professor *Cicero Roberto Pereira*, a quem tenho orgulho de chamar de orientador. Por trás das perguntas sobre "qual é o seu problema de pesquisa?" ou "qual a variável independente e dependente do estudo?" encontramos alguém preocupado com a formação qualificada dos seus alunos e com o pleno desenvolvimento do pensamento crítico diante dos fenômenos do mundo. Nós, enquanto orientandos e orientadas, somos agraciados com a sua condução sensata e honesta durante nosso processo formativo. O senhor nos inspira a querer lutar por um mundo menos desigual! Obrigado por seu tempo, por sua dedicação em querer nos ver sempre no melhor caminho e também por sua paciência durante esses anos de trabalho em conjunto. De forma particular, o seu jeito humano de encarar a Academia sempre me ensina, mesmo no silêncio diante de certos acontecimentos. Sem sombra de dúvidas, o seu exemplo, enquanto pessoa e profissional, me faz desejar honrar esse chamado tão simbólico, mas potente, que é o de ser "professor".

Sou grato ao meu irmão (*Neto*) por ser exemplo de pai, amigo e família para mim. *Ethan* e *Kamila* são agraciados com seu amor e dedicação. Obrigado por sua alegria fraterna em minha vida.

Sou grato às minhas amigas e aos meus amigos. Temo ser injusto e esquecer do nome de alguém neste momento, por isso vou categorizá-los em relação aos meus ciclos sociais. Primeiro, preciso agradecer aos amigos de vida, aqueles que carregam comigo algumas bagagens e histórias que transcendem ao universo acadêmico, especialmente aos amigos da eterna 302.1M (Geologia e Mineração – IFRN – Turma de 2009) na figura de *Fabiana* e *Henrique*. Obrigado pelo vínculo formado desde os tempos do Ensino Médio e por se fazerem presentes mesmo a mais de 180km de distância.

Agradeço aos amigos da graduação e do mestrado, especialmente *Bruna*, *Heloise*, *Jady*, *Lina*, *Márcio*, *Osório*, *Pierre*, *Renã* e *Vinícius* (Graduação), bem como *Débora* e *Viviane* (Mestrado). Obrigado por regarem o solo árido dessa jornada com gotas de esperança, empatia e amizade.

Agradeço aos amigos de João Pessoa pelo acolhimento nesta cidade tão querida e enérgica, especialmente *Bruno*, *George*, *Gregório*, *Gustavo*, *Jefferson*, *Lara*, *Rafael*, *Thiego* e *Tony*, amigos com quem tenho desenvolvido nobres e felizes afetos.

Agradeço aos amigos do *Grupo de Pesquisa em Comportamento Político* (Amanda, Andreza, Bárbara, Emerson, Estela, Fernanda, Fran, Heitor, Jéssica, Kaline, Karla, Karol, Maianna, Marcos, Mariana, Nathália, Saulo, Suiane, Renan, Taciana, Tamyres e Tatiana) por

compartilharem o sonho de um mundo menos desigual e por tornarem essa jornada mais leve e feliz. Agradeço a *Camilla* e a *Michelly* por me acolherem tão bem no início de tudo ao ponto de me fazerem acreditar que o sonho do mestrado era possível antes mesmo de consultar o professor (saudades de nossas reuniões presenciais regadas de sorrisos e partilhas). De forma especial, agradeço a *Ádila* e a *Tátila* pela companhia nesses últimos anos. Obrigado pelo riso frouxo, por todos os almoços de domingo, por todos os sonhos e medos confidenciados, mas principalmente pela confiança e lealdade.

Sou grato pelos professores que passaram em minha vida. Agradeço à profa. *Deborah Cabral* pela primeira oportunidade de participar de um projeto PROLICEN enquanto bolsista. Diante de tantas dúvidas e dificuldades, você foi um fator determinante para a minha permanência no curso de Psicologia, bem como na UFPB. Agradeço às professoras *Ana Alayde*, *Fátima Catão* e *Miriane Santos* pela oportunidade do contato com a docência e com a pesquisa ainda durante a Graduação. Agradeço à professora *Shirley Simeão*, a quem tenho orgulho de chamar de "eterna supervisora". De forma assertiva (não poderia deixar de usar essa palavra), você me ensina a cada dia o valor de uma amizade construída sobre os alicerces da verdade e da confiança. Obrigado pelos ensinamentos que ultrapassam a esfera acadêmica.

Sou grato pela minha banca de avaliação da qualificação e da defesa do mestrado. Agradeço à professora *Luana Elayne Cunha de Souza* por inspirar coerência e retidão nas avaliações, mas sem deixar de lado o respeito e a empatia na forma de se comunicar com os alunos. Agradeço à professora *Patrícia Nunes da Fonsêca*, em primeiro lugar, por me acolher no Programa de Pós-Graduação em Psicologia Social (PPGPS/UFPB) enquanto Representante Discente e me fazer acreditar que mesmo diante de um processo tão doloroso vivenciado na Educação é possível conduzir uma gestão com organização e presteza como está sendo a sua à frente do PPGPS; em seguida, sou grato pelo cuidado na leitura de meus estudos e pela confiança depositada em meu trabalho.

Agradeço ao *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq) pelo apoio concedido à minha pesquisa na forma de concessão de bolsa de estudos. Agradeço aos *921 brasileiros* e *brasileiras* que colaboraram enquanto participantes com o conjunto de estudos a seguir apresentados.

Por fim, vou tentando dar sentido à existência e aos desafios vividos com o coração cheio de sonhos e com o desejo de gratidão. Sei que não posso mudar o mundo, mas enquanto tiver energia e ânimo firmo o meu compromisso de tentar ajudar a minar cada vez mais as pontes que ligam pessoas ao preconceito e à discriminação.

Sigo sendo grato!

Resumo

A teoria da justificação do sistema prevê que as pessoas são motivadas a considerarem os arranjos sociais, políticos e econômicos como sendo justos, legítimos e necessários. Uma questão importante é avaliar adequadamente as diferenças individuais nessa motivação, especialmente em um contexto cultural de profundas desigualdades sociais como o Brasil. Para respondermos esse problema de pesquisa, buscamos desenvolver e validar uma nova Escala de Justificação do Sistema (SJS). No Estudo 1, verificamos a validade semântica e de conteúdo da SJS por meio da análise de juízes (N = 5). No Estudo 2 (N = 305), exploramos a estrutura fatorial da nova medida, encontrando a emergência de um único fator. No Estudo 3 (N = 307), confirmamos essa estrutura fatorial e verificamos a invariância configural, métrica e escalar por gênero. No Estudo 4 (N = 204), avaliamos a validade convergente-discriminante e incremental da SJS, comparando-a com construtos correlatos. Finalmente, no Estudo 5 (N = 100), observamos o seu poder preditivo através da manipulação experimental de uma notícia sobre alta (vs. baixa) ameaça ao sistema brasileiro. No geral, os resultados demonstraram que a SJS apresenta índices satisfatórios de validade e de precisão. Além disso, sugerem importantes implicações na explicação sobre como as desigualdades sociais são legitimadas em contextos de profundas disparidades sociais.

Palavras-chave: justificação do sistema, desigualdade social, status quo, percepção de justiça.

Abstract

System justification theory contends that people are motivated to consider the social, political, and economic arrangements as just, legitimate and necessary. The adequate assessment of individual differences regarding this motivation is a critical issue in this field, especially in a cultural context of profound social inequalities like Brazil. We addressed this issue by developing a new scale to measure system justification (SJS) in extreme social inequality contexts. In Study 1, we explored the content validity of the SJS through expert analysis. In Study 2 (N = 305), we conducted exploratory factor analysis and found a single-factor structure. In Study 3 (N = 307), we confirmed this factorial structure and verified the configural, metric, and scalar invariance by gender. In Study 4 (N = 204), we estimated the convergent-discriminating and incremental validity of the SJS by comparing it with correlated constructs. Finally, in Study 5 (N = 100), we experimentally manipulated a news story about a high (vs. low) threat to the Brazilian system, and observed the predictive validity of the SJS. In general, the results showed that the SJS is a valid and reliable measure. Furthermore, they suggest SJS is a useful tool to measure individual differences in justification of social inequalities in a context of deep social disparities.

Keywords: system justification, social inequality, status quo, perception of justice.

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Introduction

Brazil is represented in the popular imagination as a country with many natural resources (e.g., diversity of Amazonian fauna and flora), affable culture (e.g., inferred from the value given to carnival festivities) and good performance in some collective sports (e.g., football, or soccer, and volleyball) (Da Matta, 1986). However, it is also recognized as having one of the largest levels of socioeconomic inequality in in the world (World Inequality Lab, 2018), where the wealth accumulated by the richest 1% is equivalent to that of the 100 million poorest people in the country. In this context, it is estimated that an ordinary worker needs work for 19 years uninterruptedly, without spending a cent during this period, to accumulate what a rich person earns in a month (IGBE, 2019). Undoubtedly, socioeconomic inequality is part of the reality of the Brazilian population, and even though it is understood as the root of most other problems (Moreira, 2019), it ironically causes strong resistance to social change (Jost, 2015). This resistance is rooted in the history of the cultural formation of the country, which has not yet been able to completely break with the slaveholding structure regulating social relations (Santos & Pereira, 2021). The social resistance to change of the Brazilian status quo may indicate that the slaveholding system that regulates social relations in Brazil is being legitimized by the population. This means that many Brazilians are motivated to justify the social system in which they live as being fair, legitimate and necessary, perceiving the social and economic reality in which they live as natural and immutable. That is, there are signs that Brazilians are motivated to justify the social system in which they live despite the great disparities.

This system justification is manifested in different ways in Brazil. A more illustrative example of this phenomenon occurred in the last presidential election. The voters massively supported and elected the candidate who more strongly defended conservation of the national status quo by promising to reinforce the social hierarchies

based on racial, homophobic, misogynistic and classist criteria, largely as a backlash against the huge corruption scandals under previous administrations and high violent crime rates (Bittencourt, 2020). In contrast, the voters strongly opposed any candidate that proposed change in the system of social hierarchies (Almeida, 2019; Franco, 2018). This example suggests the presence of a pattern of behavior that is consistent with the hypothesis of a motivation for system justification (Jost & Banaji, 1994; Jost & van der Toorn, 2012). The question we raise involves knowing how to measure individual differences in system justification in a social context characterized by extreme social inequalities, as observed in Brazil. This issue is crucial because the instruments available were not designed to measure phenomenon in such socially unequal environments. To address this issue, we conducted five studies aiming to develop and validate a measure of individual differences regarding system justification.

System Justification Theory

The system justification theory (SJT) proposes that individuals are motivated to justify and defend the social, political and economic system as fair, legitimate and necessary (Jost et al., 2019). The system justification is defined as "the psychological process by which existing social arrangements are legitimized, even at the expense of personal and group interest" (Jost & Banaji, 1994, p. 2). According to this theory, people are motivated to justify individual and collective phenomena through three different justifications or motives, specifically: the "ego justification" (e.g., Freud, 1923/1974), which motivates people to justify their actions to maintain positive self-image; the "group justification" (e.g., Tajfel & Turner, 1979), which motivates people to justify the actions and privileges of their groups to maintain a positive and distinctive ingroup social identity; and the "system justification" (e.g., Jost & van der Toorn, 2012), a psychological motivation that leads people to seek explanations/justifications about how the social system

is organized, which can legitimize social arrangements as natural and immutable. Although the three types of justification are interrelated, the system justification motive focuses on how people legitimize the status quo, and this has been explored in various studies in social psychology (for a review, see Jost, 2019).

The system justification tends to work differently for socially advantaged and disadvantaged group members (Jost & Hunyady, 2002). For advantaged social groups (e.g., Western, Educated, Industrialized, Rich and Democratic – WEIRD), the system justification is aligned with the preservation of positive self-image, which is consistent with the motivation for promoting positive distinctiveness (e.g., Tajfel & Turner, 1979). On the other hand, for members of disadvantaged social groups (e.g., non-WEIRD ingroups), the system justification makes people accept social inequality as a natural and inevitable process (Jost et al., 2004). In fact, there is consolidated evidence that members of minority groups also reinforce equally (e.g., Jost & Banaji, 1994) or even more the social system that disfavors them in comparison with majority groups (e.g., Jost et al., 2002). According to Jost and Hunyady (2002), system justification occurs when individuals use ideologies that function as palliatives that attenuate the dissonance caused by awareness of the low social value of the ingroup and the motivations of self-promotion and positive distinctiveness of the ingroup identity.

In this sense, the adoption of ideologies that justify the status quo (e.g., meritocracy, belief in a just world, conservatism, etc.) help individuals convince themselves that the world is controllable and just, where all people have the same opportunities for social ascension (Whitson et al., 2015), and use this ideology to maintain psychological well-being, since the threat to the system can impair cognitive balance. This process is called the palliative function of system justification and has been studied in more than 18 countries

around the world (Vargas-Salfate et al., 2018). These studies have both manipulated and measured individual differences in individuals' expression of system justification.

System Justification Measurement

System justification has been observed in experimental studies that place participants in situations that threaten the system (e.g., Kay et al., 2005) or suggest its stability (e.g., Kay et al., 2009, Study 1) and highlights its inflexibility to change (e.g., Laurin et al., 2010, Study 3). Individual differences in system justification can be also measured by means of a self-reported scale. The first and most used scale is the General System Justification Scale (GSJS; Kay & Jost, 2003). The GJSJ assess the extent to which people consider the general system (i.e., social, political and economic system) as fair, legitimate and necessary. It is composed of eight items answered in seven response categories (1 = totally agree and 7 = totally disagree). It was originally developed for the context of the United States and its validation study showed a unifactorial structure (e.g., system justification), with good internal consistency ($\alpha = .87$). Sample items include "In general, the American political system operates as it should," "Everyone has a fair shot at wealth and happiness," and "American society needs to be radically restructured." Recent studies have shown that this scale converges with social/cultural, economic (e.g., Badaan et al., 2020) and political attitudes (e.g., Kay & Jost, 2003; Jost et al., 2017), predicts negative attitudes towards black people (e.g., Phelan & Rudman, 2011) and homosexuals (e.g., Pacilli et al., 2011), as well as opposition to equality (e.g., Jost & Thompson, 2000), and high levels of obedience to the authorities (e.g., van der Toorn et al., 2011) and institutional trust (e.g., Tan et al., 2016), working to increase psychological well-being (e.g., Vargas-Salfate et al., 2018). These relationships have been observed in people with high and low social status.

In addition to this general measure, two other scales have been built to assess specific contexts of social inequality: the Economic System Justification Scale (ESJ; Jost & Thompson, 2000) and the Gender-Specific System Justification Scale (GSSJS; Jost & Kay, 2005). The ESJ is based on the meritocratic ideology, which hypothesizes that if people work hard, they almost always get what they want. It contains 17 items (e.g., "If people work hard, they almost always get what they want," and "Economic positions are legitimate reflections of people's achievements") that are answered in a 9-point Likert scale (1 = totally disagree and 9 = totally agree), aiming to assess individual differences in the justification of socioeconomic inequalities. It has a unifactorial structure, adequate internal consistency ($\alpha = .73$), and convergence with the GSJS. The ESJ related to the social dominance orientation measure (Martin et al., 2014) predicts negative attitudes towards economic equality policies (Jost & Thompson, 2000), and apathy towards social inequalities (Goudarzi et al., 2020).

The GSSJS, in turn, evaluates individual differences in endorsement of gender inequality, assuming that social relations between men and women are hierarchized and unfair. The scale has eight items (α = .65) based on the GSJS, so that the higher the respondents' scores, the greater the endorsement of social disparities between men and women (e.g., "In general, relations between men and women are fair," and "For women, the United States is the best country in the world to live"). The GSSJS is unifactorial and correlated with ambivalent sexism (e.g., Glick & Fiske, 1996), and predicts negative gender stereotypes used in legitimizing the status quo (e.g., Jost & Kay, 2005).

These scales are widely used to evaluate justification of the general, economic and social system (for a review, see Jost, 2019). However, the GJSJ is used the most, having been adapted to the contexts of a wide range of countries, such as Canada, Poland (Laurin et al., 2010), United Kingdom, Turkey, Israel (Jost et al., 2005), Germany (Ullrich &

Cohrs, 2007), Lebanon (Badaan et al., 2020), Italy (Mosso et al., 2013; Roccato et al., 2014), China (Li et al., 2019) and Hungary (Berkics, 2009; Jost & Kende, 2020). In addition, the GJSJ has also inspired other instruments, one of the most recent examples being the Democratic System Justification Scale (DSJS) for the Italian context (Rutto et al., 2013). The DSJS evaluates individual differences in endorsement of the democratic system of a country. As in the original scale, the higher the score is, the greater the personal motivation for the system justification is.

In sum, the GJSJ has been used in different countries and has become a starting point for the development of new scales to measure individual differences in system justification. However, previous studies carried out in countries where social inequality is lower have produced results indicating very good validity and reliability parameters, which has not occurred in more unequal or underdeveloped countries. When adapted for the United Kingdom (Zmigrod et al., 2018), for example, the measure has presented good internal consistency ($\alpha = .88$). On the other hand, when administered in Lebanon (Badaan et al., 2020), a country recognized for its highly unequal social system, the same coefficient is low ($\alpha = .67$). In Brazil, where social inequalities are extreme, Sousa et al. (2014) found a bifactorial structure of the GSJS, with internal consistency coefficients equal to .56, in contrast to the findings of studies using the original version (Kay & Jost, 2003). These discrepancies suggest that the GJSJ's items do not adequately measure individual differences in system justification in very asymmetric contexts such as Brazil. In contexts like that, the content of the items frequently used in the system justification scales are ambiguous and blatantly unrealistic. For example, items like "most policies serve the greater good" are completely unrealistic, which can cause ambiguities in individuals' responses and undermine the validity and reliability of the measure. For this reason, it is necessary to develop a more contextualized measure whose item contents are more realistic

in very unequal social contexts. Thus, we developed a new scale to measure individual differences in system justification of adult people from the general Brazilian population.

Overview of Studies

We conducted a set of five studies to gather evidence of construct validity and internal consistency of the System Justification Scale (SJS). In Study 1, we developed the scale's items and examined their content validity. In Studies 2 and 3, we analyzed the factor structure of the scale and confirmed its gender invariance. In Study 4, we analyzed the convergent-discriminant and incremental validity of the SJS, investigating its relationship with other measures that evaluate correlated constructs (convergent validity) and non-correlated constructs (discriminant validity), as well as its predictive effect of a criterion variable controlling for the effect obtained with other measures of system justification (incremental validity). Finally, in Study 5 we analyzed the predictive validity of the SJS, using an experimental manipulation of the threat to the Brazilian general system. The research protocol was approved by the local ethics committee of the first author's institution (protocol number 12868319.0.0000.5188). In all studies, the inclusion criteria for participants were: being a Brazilian citizen, residing in any region of the country, and being of legal age (older than 18). The data and materials are publicly available via the Open Science Framework.

Study 1. SJS Development and Content Validity

Brazil is a country with a slaveholding tradition of which vestiges endure to the present, resulting in a system of strongly hierarchical and deeply unequal social relations.

This social organization is a prologue to different strategies for justifying injustices, such as the socioeconomic gap between rich and poor and the hierarchization of social groups along racial, gender, sexual and social class systems. In view of the substantial inequality in

the Brazilian system, it is necessary for the new measure of system justification to contemplate these different facets of social disparities in the elaboration of its items.

Taking into account the social history of the formation of the Brazilian system in general, we followed the three steps recommended by Nunnally and Bernstein (1994) for the development of psychological instruments, namely: (1) identification of the psychological domain/construct, (2) generation of items, and (3) formalization of the initial version of the instrument. For the identification of the psychological construct (step 1), we considered the system justification theory (Jost & Banaji, 1994) and evaluation of existing measures of this construct. This theory assumes that the system justification motivates individuals to perceive the current social arrangements as just, legitimate and necessary. This definition and the original items of the GSJS (Kay & Jost, 2003) served as the basis for operationalization of the SJS items. Thus, we formulated a set of eight items (see Table 1), taking care to ensure that the content of the items addressed the peculiarities of the Brazilian social system (step 2), the items' wording was accessible to the target audience, the time required for application (average of 5 minutes) was acceptable, and the specificity of the tool (self-reported) was adequate. Finally, after development of the set of items, we structured the initial version of the new system justification measure (step 3). The SJS is structured with a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree), where the individuals' level of system justification is obtained by averaging the scores across the items. Thus, the higher the total score, the higher the respondent's system justification is.

Items' Comprehensibility

Before conducting the content validity analysis of the scale, we checked whether the items' wording was clearly understood by people of the target-population. For this, we asked seven adults from the general Brazilian population, with incomplete high school

education, fluent in Portuguese spoken in Brazil, to inform us of the level of understanding of each of the items. No participant indicated the need for wording alteration or any difficulty regarding understanding, signaling the possibility of continuing the SJS content validity analysis.

SJS Content Validity

For the content validity, we evaluated whether the content of the items indeed reflects the latent trait we seek to measure (Nunnally & Bernstein, 1994). In the case of SJS, the items must demonstrate that they adequately reflect the theoretical definition of the construct to be evaluated (Wynd et al., 2003), that is, the system justification. We submitted the set of items for evaluation by experts in the field of system justification theory, who evaluated the items according to three criteria: representativeness (the degree to which the item reflects the operationalized construct), relevance (importance of the items to explain the construct) and clarity (accessibility for comprehension) (Grant & Davis, 1997). At the end of the analysis, we verified the degree of agreement between the experts of each item, as well as the scale in general, by calculating the content validity coefficient (CVC). This procedure allowed us to obtain more reliable parameters about the analysis of the content validity of the measure. Thus, we expected the experts to evaluate the proposed items (and the overall scale) as representative, relevant and clear.

Method

Participants

We submitted the eight items to the analysis of five expert raters, aged between 30 and 57 years old (M = 39.00, SD = 5.54), three females and two males. All raters had PhDs in Social Psychology, with experience in the construction and validation of psychological instruments, besides being specialists in the study of justice perception and the processes of legitimization of social inequalities.

Measures (Supplementary Materials – Appendix A)

The content experts received the first version of the scale organized in a table containing the theoretical definition of system justification, the items proposed for the scale, and spaces to evaluate the representativeness, relevance and clarity of the items. The experts indicated how much each item measures each category in the 6-point rating scale, ranging from 0 (not representative; not relevant; not clear) to 5 (very representative; very relevant; very clear). Thus, the higher the score, the more representative and/or relevant and/or clear the item was considered to assess the construct.

Procedures

Initially, we selected experts by the analysis of their curriculum vitae (CV) in the Lattes Platform (Brazilian online résumé system). Specifically, we used the following selection criteria: (a) having a PhD; (b) being an active researcher in social psychology; (c) having knowledge about the process of constructing psychosocial assessment instruments; and (d) having knowledge about topics related to system justification. After analysis of the CV, we invited the content experts via e-mail, reporting the purpose of the scale. After acceptance, we forwarded both the informed consent form (ICF) and evaluation questionnaire with the eight-items proposed for the SJS.

Data Analysis

We analyzed the agreement of the experts through the judgment-quantification by the content validity coefficient (CVC, Aiken, 1980). Specifically, we calculated the CVC for each item (CVC_i), for each content expert's judgment (CVC_j), and for the total scale (CVCt). In all cases, we used $CVC \ge .80$ as the criterion for content validity (Aiken, 1985).

Results

As shown in Table 1, all CVC_i coefficients were above .80. Regarding the evaluated aspects, we found that the CVCs for representativeness, relevance and clarity were .90, .93

'and .84, respectively. Regarding the individual analysis of each expert on the overall quality of the scale, all CVC_j were greater than .80. This means that all experts considered the scale to be of good quality in their individual evaluations. The CVC_t was .90.

Table 1SJS Content Validity Coefficients

T4	CVC							
Items	Representativeness	Relevance	Clarity					
Come to think of it, our society is fair.	1.00	.90	.80					
Generally speaking, things in Brazil are as they should be.	.80	.80	.80					
Brazilian society should be completely restructured. (R)	1.00	1.00	.80					
Brazil is the best country in the world to live in.	.80	.80	.90					
Most things happen because it's the best thing for society.	1.00	1.00	.80					
Everyone has the same opportunities to seek wealth and happiness.	1.00	1.00	.90					
Our society is getting worse every year. (R)	1.00	1.00	.90					
The society is organized to people get what they deserve.	1.00	1.00	.90					

Note. (R) = Reversed item score. CVC = Content Validity Coefficient.

Discussion

In this study, we developed the initial version of the new system justification scale and found evidence of its content validity. The set of results showed that the eight items developed for the SJS were considered comprehensive by people of the target population and evaluated as representative, relevant and clear by experts. Thus, we concluded that the SJS presents initial evidence of content validity for measuring individual differences in system justification. However, despite the importance of this study for the development of a new measure, it concerns only the initial stage of the process of construction of a

psychological instrument, since it is limited to analyzing only one aspect of the set of procedures for scale validation (Kyriazos & Stalikas, 2018). So, we conducted additional studies to analyze the factorial structure of the scale in a Brazilian sample.

Study 2. Exploratory Factor Analysis of the SJS

In this study, we took a step forward, seeking to analyze the qualities of psychometric parameters of factorial validity and reliability of the SJS. We explored the factorial structure of the SJS and its internal consistency. We based our analysis on system justification theory, according to which justification is a general motivation for individuals to perceive things as just, legitimate and necessary. This suggests that the justification of the system can be evaluated in a single general dimension (e.g., Kay & Jost, 2003). Thus, we hypothesized that the SJS would have a unifactorial structure and good internal consistency.

Method

Participants

We defined the sample size based on the criterion of having at least 15 participants per item (Tabachnick & Fidell, 2007). Thus, three hundred five (N = 305) Brazilians from the general population participated of this study. Most of them were male (66.9%), aged between 18 and 58 years old (M = 27.18, SD = 7.23), and single (71.8%).

Measures (Supplementary Materials – Appendix B)

We administered a questionnaire composed of the eight-item version of SJS developed in Study 1. The participants indicated how much they agreed with each item using a response scale ranging from 1 (strongly disagree) to 6 (strongly agree). The higher average was, the greater was the motivation to justify the system.

Procedures

We collected data online using the *Qualtrics* platform. Participants were invited via posts on social media (Facebook, Instagram, Whatsapp, Twitter, etc.). Before starting the study, we presented to them the informed consent form (ICF), comprising information regarding the objective of the research, the voluntary nature of their participation, as well as the guarantee of confidentiality, anonymity and respect for ethical guidelines for research with human beings (World Medical Association, 2001).

Data Analysis

We analyzed the data using IBM SPSS (Statistical Package for the Social Sciences, version 24.0). For the SJS's factorial structure, we performed exploratory factor analysis (EFA) using the principal-axis factor extraction method. We adopted the Kaiser-Guttman criterion (Kaiser, 1960), which considers eigenvalues equal to or greater than 1.00 as retention factor. We considered as adequate factor loadings greater than or equal to .40 to retain the item on the scale (Hair et al., 2006). For internal consistency of the SJS, we calculated the coefficients Cronbach's Alpha (α) and McDonald's Omega (ω), assuming values equal to or greater than .70 as acceptable (Trizano-Hermosilla & Alvarado, 2016).

Results

The Kaiser-Meyer-Olkin (KMO = .82) and Bartlett's sphericity tests ($\chi^2_{(28)}$ = 645.15, p < .001) demonstrated the sample adequacy and the factorability of the correlation matrix. The EFA results showed the extraction of two factors, with eigenvalues of 3.23 and 1.21, which explained 55.35% of the variance. Most items had adequate factor loadings, except item 3 (factorial loading = .02) and item 7 (factorial loading = .33). These initial results indicated that two items had weak factor loadings. In cases like this, Hair et al. (2006) recommends that items whose factor loadings are unsatisfactory should be excluded and a new EFA should be performed. Thus, after discarding the two items, we conducted a new EFA and estimated the internal consistency coefficients. The results (Table 2) showed the

extraction of a single factor, with eingevalue of 3.23, and 53.84% of the explained variance. The factor loadings ranged from .44 (item 3) to .76 (items 4 and 6). Finally, the internal consistency coefficients showed strong reliability of the SJS, with both Cronbach's Alpha and McDonald's Omega greater than .80.

Table 2Standardized estimated parameters of SJS items by EFA and Internal Consistence Analysis

Items	Factor loading	h^2	
01. Come to think of it, our society is fair.	.67	.45	
02. Generally speaking, things in Brazil are as they should be.	.60	.36	
03. Brazil is the best country in the world to live in.	.44	.19	
04. Most things happen because they are the best thing for society.	.76	.59	
05. Everyone has the same opportunities to seek wealth and happiness.	.73	.54	
06. Society is organized for people to get what they deserve.	.76	.57	
Eingevalue	2.72		
Explained variance (%)	53.84		
Cronbach's Alpha	.81		
McDonald's Omega	.82		

Note. $h^2 = communality$.

Discussion

In this study we obtained preliminary evidence of the SJS's factor validity and reliability. The main results showed that the remaining six items of the SJS measure a single factor structure, with adequate psychometric indicators, aligned with previous research in system justification theory and the original scale of general system justification (Jost & Banaji, 1994; Kay & Jost, 2003). Also, the SJS had high internal consistency.

These results were an important step in the validation procedures of the SJS.

However, the approach we used here was mainly exploratory, so that the results needed to

be replicated using other procedures aiming at reinforcing the empirical evidence of the quality of this instrument for measuring individual differences in system justification. Thus, we conducted a new study seeking to confirm the one-dimensionality of the six items of the SJS, and also to explore its configurational, metric, and scalar invariance by gender of participants.

Study 3. Confirmatory Factor Analysis of the SJS and Gender Invariance

In the present study, we performed confirmatory factor analysis (CFA) of the SJS and tested its invariance by gender of participants. Evaluating gender invariance is a crucial aspect for any scale's quality since gender inequalities are large in different aspects of social life, especially in Brazilian society (Zanatta et al., 2016), making gender an important variable for the assessment of individual differences in system justification (Jost & Kay, 2005). The invariance analysis aims to ensure that a measure can be used to assess the differences between groups without confounding with any differences in instrumentation. This strategy has been used in different studies for validation of psychological scales (e.g., Silva, 2020) using the multigroup confirmatory factorial analysis (MGCFA) technique. Thus, we expected that the scale's unifactorial structure would have a good fit for the six SJS items, with adequate internal consistency, and that the structure (configurational invariance), factor loadings (metric invariance) and intercepts (scalar invariance) would be valid for both men and women.

Method

Participants

We defined the sample size *a priori* based on the criterion of having at least 15 participants per item (Tabachnick & Fidell, 2007). Thus, three hundred seven (N = 307) Brazilians from the general population participated of this study. Most of them were male (65.5%), aged between 18 and 60 years old (M = 28.12, SD = 8.15), and single (73.6%).

Measures (Supplementary Materials – Appendix C)

We administered a questionnaire composed of six SJS items, plus sociodemographic questions (e.g., gender, age, and marital status).

Procedures

We proceeded in the same way as in the Study 2 for data collection, organizing the instruments in an online questionnaire and inviting the participants through social media.

Data Analysis

We used IBM SPSS (version 24.0) to calculate descriptive statistics. We performed the CFA with Mplus (version 8.3, Muthén & Muthén, 2017) using the ML (maximum likelihood) as estimator, and stating the following criteria for evaluation of model fit: χ^2/df (ratio of chi-square and degrees of freedom) lower than 5; TLI (Tucker-Lewis Index) and CFI (comparative fit index) both greater than .90; and RMSEA (root mean square error of approximation) lower than .06 (Hu & Bentler, 1999). We calculated the gender invariance using JASP (version 0.14.1, JASP Team, 2020), applying the MGCFA, established under three analysis models: the configurational, metric, and scalar invariance. The configurational invariance tests whether the factorial structure of the scale is equivalent in both groups (e.g., men and women). The metric invariance tests whether the factor loadings are equivalent for groups. The scalar invariance analyzes whether the intercepts of the items are equivalent between the groups (Putnik & Bornstein, 2016). We used as parameters for invariance hypothesis rejection Delta CFI (Δ CFI \leq .01), and Delta RMSEA (Δ RMSEA \leq .01), as suggested by Chen (2007). We assessed the internal consistency of the SJS through the coefficients Cronbach's Alpha, McDonald's Omega and composite reliability (CC), considering the minimum value of .70 as acceptable (Trizano-Hermosilla & Alvarado, 2016; Hair et al., 2006). Also, we estimated the average variance extracted (AVE), establishing AVE greater than .50 as adequate (Fornell & Larcker, 1981).

Results

Initially, we performed the CFA by specifying a single factor model. The results indicated partial adjustment indices, such as $\chi^2/\text{df} = 5.58$, p < .05; TLI = .86; CFI = .91; RMSEA (CI 90%) = .12 (.09-.15). Three indices did not show adequate adjustment (χ^2/df , RMSEA and TLI), generating doubts about the factorial structure of the SJS. To investigate what had happened, we analyzed the modification indices (MI), which showed high covariance between the residuals of items 1 and 2 (MI = 41.15) and between items 2 and 3 (MI = 20.44). Thus, we decided to perform a new confirmatory factor analysis by calculating the errors related in the new model. Now, we obtained excellent goodness-of-fit indices for the unifactorial structure of the SJS, with: $\chi^2/\text{df} = 1.26$, p = .26; TLI = .99; CFI = .99; and RMSEA (CI 90%) = .02 (.00-.08). The factor loadings of items ranged from .49 (item 3) to .82 (item 6). Cronbach's Alpha, McDonald's Omega, CC and AVE values were .77, .75, .77 and .48, respectively.

Table 3

Goodness-of-fit indices for invariance analysis of the SJS single-factor model between gender groups

Model	χ^2	df	χ^2/df	p	CFI	ΔCFI	RMSEA (CI 90%)	ARMSEA
Configurational	2.33	14	1.45	.12	.988	-	.054 (.000–.100)	_
Men	14.25	7	2.03	.04	.983	_	.072 (.008–.125)	_
Women	6.082	7	.86	.53	1.000	_	.000 (.000110)	_
Metric	25.30	19	1.33	.42	.988	.000	.046 (.000–.090)	.008
Scalar	31.52	24	1.31	.28	.986	.002	.045 (.000–.080)	.001

Note. df = degrees of freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; CI = Confidence Interval. Δ CFI and Δ RMSEA show the difference between the models.

We then calculated the gender invariance by estimating the unifactorial model of the SJS (with related errors), as shown in Table 3. The MGCFA results demonstrated the configurational, metric and scalar invariance of the SJS between men and women (Δ CFI \leq .01 and Δ RMSEA \leq .01).

Discussion

The set of results here provided additional evidence of the factorial validity and internal consistency of the SJS. Specifically, our results demonstrated satisfactory adjustment indices of the unifactorial model of the SJS and good indicators of internal consistency. In addition, the results also demonstrated that this new measure presented configurational, metric and scalar invariance between the groups of men and women. This meant that the SJS is a tool that can be used to assess the levels of system justification motivation of people of both sexes.

However, we noted some noise resulting from residuals correlated between two sets of items, a very common phenomenon in the process of developing a new instrument (Marsh et al., 2009). Because of the semantic proximity of the items, we reasoned that participants may in their responses focus on the word "Brazil", causing us to think that people may have been led to assume a skewed attitude towards the country as a nation, not only its social system. Additionally, at the time of data collection, Brazil was passing through a sharp political transition, which caused strong sensitivity in different social groups, justifying our hypothesis. This political transition concerned the change in political ideology of the Brazilian government, which had been guided by a more egalitarian political position for a long time (leftist-led governments between 2002 and 2016), briefly shifting to a centrist stance with the impeachment of President Dilma Rousseff that year, and moving to a conservative, nationalist and neoliberal ideology with the election of a right-wing candidate, Jair Bolsonaro, in 2018. Nevertheless, we argue that this process did

not affect the properties of the scale, considering that the results presented here show its quality and accuracy.

In addition to this limitation, the value of AVE was lower than the established cutoff point. However, the literature indicates that this value can be considered acceptable, under conditions in which the value of CC is greater than .70 (Fornell & Lacker, 1981), as found in our results. Despite these limitations, the results indicated the SJS is an adequate and reliable instrument to measure individual differences in system justification. However, it is important to observe how the SJS can relate to other existing measures for the justification of the system and related constructs (e.g., social dominance orientation) and its predictive effect on a criterion variable (e.g., belief in a just world).

Study 4. Convergent-Discriminant and Incremental Validity of the SJS

In the previous studies, we found evidence of content and factorial validity of the SJS, confirming its unifactorial structure. In this study, we went further, seeking to find evidence of the measure's convergent-discriminant and incremental validity. For this, we analyzed the relation of the SJS and other constructs with which we expected correlated (i.e., convergent validity) and non-correlated constructs (i.e., discriminant validity). In addition, we analyzed whether the SJS predicted a criterion variable after controlling for other system justification measures (i.e., incremental validity).

Previous research has shown that system justification is related to the social dominance orientation (e.g., Vargas-Salfate et al., 2018) and belief in a just world (e.g., Schlenker et al., 2012), with implications for the support of economic system (e.g., Azevedo et al., 2017). But little is known about the relationship between the system justification and personality characteristics of individuals. In this sense, we reasoned that if the SJS really evaluates the system justification, it should then converge with the Economic System Justification Scale (ESJ, Jost & Thompson, 2000), the Global Belief in a Just World

Scale (GBJWS, Lipkus, 1991) and the Social Dominance Orientation Scale (SDO, Sidanius & Pratto, 1999). Moreover, since system justification is a basic psychological motivation that drives individuals to perceive social arrangements as being fair, legitimate and necessary, this motivation should be little related to individuals' idiosyncratic characteristics. For this reason, we expected the SJS to be little affected by personality traits because they represent individuals' enduring standard to behave in a similar way across different situations, which is different from the general tendency to perceive social arrangements as justifiable, legitimate and necessary. Thus, we analyzed the relationship between the SJS and the big five personality traits evaluated with the Ten-Item Personality Inventory (TIPI, Gosling et al., 2003). Finally, for incremental validity, we estimated a hierarchical regression model using the SJS, ESJ and SDO as predictors, and the GBJWS as criterion variable. We reasoned that if the SJS has incremental validity relative to previous system justification and justice perception measures, then it should predict the criterion over and above the effect of those existing measures.

Method

Participants

Two hundred and twenty-seven (N = 227) Brazilians from the general population participated of this study. Most of them were female (60.4%), aged between 18 and 64 years old (M = 28.66, SD = 8.44) and single (68.7%). We conducted sensitivity analysis with WebPower (Zhang & Yuan, 2018), which showed that this sample size had power of 1.00 to detect a main effect or interaction with effect size of r = .30 or higher (with p = .05, two-tailed).

Measures (Supplementary Materials – Appendix D)

We administered an online questionnaire composed of sociodemographic items (e.g., age, gender and marital status) and the following scales:

System Justification Scale (SJS). We used the 6-item version of the SJS used in Study 2 ($\alpha = .74$, $\omega = .78$).

Ten-Item Personality Inventory (TIPI, Gosling et al., 2003). It is a brief self-reported assessment of the Big Five personality dimensions (extraversion, agreeableness, conscientiousness, emotional stability and openness to experiences). The TIPI was adapted to the Brazilian context by Pimentel et al. (2014) and its 10 items are rated on a scale from 1 (strongly disagree) to 5 (strongly agree). Example items include, "I see myself as critical, quarrelsome" (Conscientiousness) and "I see myself as reserved, quiet" (extraversion).

Economic System Justification Scale (ESJ, Jost & Thompson, 2000).

Participants were asked to complete the ESJ, which assesses individual differences in justifying the economic system, that is, how people perceive the inequality of the economic system as fair, legitimate and necessary. The Brazilian version was adapted by Lima (2016), including 12 items structured in three dimensions, namely: social mobility (α = .77), naturalization of social differences (α = .70) and social change (α = .78). Items are rated on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). Example items include: "if people work hard, they almost always get what they want", and "it is virtually impossible to eliminate poverty". The ESJ showed high internal consistency (α = .88).

Global Belief in a Just World Scale (GBJWS, Lipkus, 1991). This is a unifactorial scale designed to measure individual differences of belief in a just world (BJW), that is, the motivation to believe that the world is a fair place. Participants were asked to complete the Brazilian adapted version (Gouveia et al., 2010). Example items included: "I feel that most people get what they are entitled to have", and "I basically feel that the world is a fair place". The participants rated the items on a scale ranging from 1 (totally disagree) to 6 (totally agree). Higher values indicate higher levels of BJW. The GBJWS showed high internal consistency ($\alpha = .91$).

Social Dominance Orientation Scale (SDO, Sidanius & Pratto, 1999). The scale was designed to measure individual levels of social dominance orientation. The Brazilian version was adapted by Fernandes et al. (2007), and includes 16 items structured in two dimensions – 8 items to "dominance" (e.g., "the higher groups should dominate the lower groups"; $\alpha = .84$) and 8 items corresponding to "egalitarianism" (e.g., "it would be good for all groups to be equal"; $\alpha = .90$). Items are rated on a scale ranging from 1 (totally disagree) to 7 (totally disagree). In this study the SDO scale showed high internal consistency ($\alpha = .90$).

Procedures

We proceeded as in the previous studies described above.

Data Analysis

We used IBM SPSS (version 24.0) to calculate the descriptive statistics, Pearson correlations and multiple ordinary least squares regressions. For the analysis of convergent-discriminant validity, we calculated the pairwise correlations of the SJS and TIPI, ESJ, GBJWS and SDO scales. For incremental validity, we estimated a hierarchical regression model establishing the GBJWS score as criterion variable and the ESJ, SDO and SJS scores as predictors. This procedure consisted of two steps. In step 1, we added to the model the existing scales (e.g., ESJ and SDO). In step 2, in addition to these scales, we inserted the SJS to analyze whether this scale predicted the criterion over and above the other measures.

Results

SJS correlated significantly and strongly with GBJWS (r = .66, p < .01), SDO (r = .57, p < .01) and ESJ (r = .60, p < .01), as summarized in Table 4. The results also showed correlations between SJS and social mobility factors (r = .59, p < .01), naturalization of social differences (r = .48, p < .01) and social change (r = .50, p < .01) of the ESJ. In addition, the SJS correlated with egalitarianism (r = -.51, p < .01) and dominance (r = .48, p

< .01) dimensions of the SDO. Thus, these results evidenced the convergent validity of the SJS. Concerning discriminant validity, the correlations between SJS and TIPI factors were non-significant, except for emotional stability (r = .16, p < .05). Therefore, this result showed a very low correlation, indicating they are different constructs, evidencing the discriminating validity of the SJS in relation to personality traits.

Finally, we analyzed the incremental validity of the SJS by predicting the GBJWS. When considering only the ESJ and SDO, 43% of the variance of the GBJWS was explained. When we inserted the SJS, the model had a significant improvement, increasing the variance explained to 53%. Moreover, the association of both the ESJ and SDO with the GBJWS decreased, while the effect of the SJS was the strongest, as demonstrated by the regression coefficients in Table 5. Thus, the results showed that the SJS provides an incremental explanatory effect of the GBJWS over and above the effects of the existing scales.

 Table 4

 Matrix correlations and descriptive statistics of variables

Variables		1	2	3	3A	3B	3C	4	4A	4B	5	5A	5B	5C	5D	5E
1. SJS		_														
2. GBJWS		.66**	_													
3. ESJ		.60**	.64**	_												
3A. Social Mobility		.59**	.72**	.81**	_											
3B. Naturalization of social diferences		.48**	.50**	.88**	.61**	_										
3C. Social change		.50**	.51**	.90	.59**	.70**	_									
4. SDO		.57**	.56**	.72**	.55**	.64**	.68**	_								
4A. Egalitarianism		51**	45**	69**	50**	58**	68**	88**	_							
4B. Dominance		.48**	.53**	.57**	.45**	.53**	.49**	.85**	51**	_						
5. TIPI																
5A. Extraversion		00	.07	.16*	.10	.15*	.16*	.07	03	.09	_	_				
5B. Agreeableness		07	04	.03	06	.10	.03	.13	07	.15*	_	.07	_			
5C. Conscientiousness		07	10	.06	05	.12	.08	.01	.03	.06	_	.11	.30**	_		
5D. Emotional Stability		.16*	.14*	.03	.06	.02	.13	.10	08	.09	_	11	22**	14*	_	
5E. Openness to Experience		.11	.13*	.26*	.22**	.28**	.19**	.15*	11	.15*	_	.12	01	.13	05	_
	M	1.63	2.12	2.58	2.89	2.40	2.54	1.97	6.04	2.00	-	3.16	2.29	2.60	2.74	2.16
	SD	.69	1.04	1.13	1.41	1.25	1.25	1.03	1.24	1.14	_	.97	.69	.87	1.00	.91

Note. N = 227. SJS = System Justification Scale; GBJWS = Global Belief in a Just World Scale; ESJ = Economic System Justification Scale; SDO = Social

Dominance Orientation Scale; TIPI = Ten-Item Personality Inventory. * p < .05, ** p < .01.

Table 5Hierarchical regression model for the incremental validity of SJS over GBJWS

	B (SE)	Beta	CI 95%
Step 1			
Intercept	.53 ^a (.13)		
ESJ	.45 (.06)	.49***	.3259
SDO	.20 (.07)	.20**	.0634
Step 2			
Intercept	.15 ^b (.13)		
ESJ	.31 (.06)	.34***	.18 – .44
SDO	.08 (.06)	$.08^{ns}$	05 – .22
SJS	.60 (.08)	.40***	.4378

^a F(2,224) = 87.10, p < .001, $R^2 = .43$ (R^2 adjusted = .43).

Discussion

The set of results provides evidence of convergent-discriminant and incremental validity of the new system justification scale. In fact, the SJS is positively and strongly associated with all the constructs we predicted it should be correlated with (e.g., belief in a just world, social dominance orientation and economic system justification). On the other hand, the SJS is not associated with most of the personality traits used for the analysis of discriminant validity. Still, when compared with the existing scales, the SJS predicted the criterion variable (i.e., GBJWS) even after controlling for the effect of the other measures.

Interestingly, we observed that the new system justification scale was weakly associated with the emotional stability trait of the personality measurement. The relationship itself was not strong enough to ascertain its discriminant validity, but it can be explained theoretically by the palliative function of system justification. It is possible that people use

^b $F(3,223) = 86.35, p < .001, R^2 = .53 (R^2 \text{ adjusted} = .53).$

^{**} *p* < .01, *** *p* < .001.

system justification as a mechanism for maintaining their emotional state (Harding & Sibley, 2013; Jost & Hunyady, 2002; Vargas-Salfate et al., 2018), so that the more individuals justified the system, the more emotional stability they reported.

In general, in the last four studies we found evidence that the SJS has content, factorial, convergent-discriminant and incremental validity, besides having good internal consistency. However, a new psychological instrument should also be evaluated in light of its sensitivity to capture the effect of factors that theoretically influence the construct to be measured. Indeed, this an essential step for the validation process of a scale. In particular, this is a special case of the predictive validity of a measure (Nunnally & Bernstein, 1994), which was examined in the following study.

Study 5. Experimental Predictive Validity of the SJS

In this study, we used a random-group experiment to manipulate social situations predicted to influence individuals' system justification. We relied on the results of previous research that has shown that threatening situations to the social, political or economic system motivate individuals to justify the system (Vargas-Salfate et al., 2018). That is, when the system is threatened, people tend to endorse the system more, to avoid psychological instabilities (Jost & van der Toorn, 2012). For example, in the American context, Kay et al. (2005) manipulated the threat to the status quo (i.e., the threat to the general system) and found that individuals, in the condition of a high (vs. low) threat system, exhibited higher levels of system justification. Thus, the threat to the system is predicted to be an antecedent of the motivation of individuals' engagement in system justification.

Accordingly, we reasoned that if the SJS really measures individuals' differences in system justification, participants should behave in a similar way to those of the study conducted by Kay and Jost (2003), i.e., they should demonstrate greater system justification when the system is under threat. To test this hypothesis, we manipulated the threat to the

Brazilian system in an experiment designed under two conditions (high vs. low threat). As in the study of Kay et al. (2005), participants were led to believe that Brazilians were disappointed (vs. satisfied) with the country's political, economic and social conditions, and therefore they were considering moving to other countries (vs. staying in Brazil). Thus, we expected the participants to have higher levels of system justification in the condition of high (vs. low) threat.

Method

Participants and Research Design

This was a unifactorial experimental study conducted between July and August 2019, in which we manipulated two news reports about the threat to the Brazilian system (high vs. low system threat). We defined the sample size beforehand using WebPower (Zhang & Yuan, 2018) by taking into account a low to moderate effect size (d = .30), standard parameters of $\alpha = .05$, and power = .80. Considering our experimental design, the sample size necessary to detect the predicted effect was 89 or higher. Thus, one hundred (N = 100) Brazilians from the general population participated in this study. Most of them were female (71%), aged between 18 and 63 years old (M = 27.15, SD = 8.74) and single (75%). Participants were randomly allocated in one of two experimental conditions: high system threat (n = 52) and low system threat (n = 48).

Measures

We used the six-item version of the SJS (α = .76, ω = .79). Items are rated on a scale ranging from 1 (strongly disagree) to 6 (strongly agree), and higher average scores are associated with higher the levels of system justification.

Procedures

As in the previous studies, we collected data online using the *Qualtrics* platform.

Participants were invited via posts on social media. For experimental manipulation, we used a

scenario similar to that of Kay et al. (2005) and Tan et al. (2016). Participants read a news report allegedly published in a national newspaper regarding the general Brazilian system (Supplementary Materials – Appendix E). Depending on the experimental condition, the news highlighted the high (vs. low) threat scenario. Specifically, participants read the following text (in italics is the low threat condition):

Nowadays, many people in Brazil feel disappointed with the nation (vs. Nowadays, despite the difficulties facing the country, most people in Brazil feel safer than in the past). It seems that many countries in the world are enjoying better social, economic and political conditions than Brazil (vs. It seems that, compared to other countries, Brazil's social, economic and political conditions are relatively good and stable). The number of Brazilians who wish to leave the country and start a new life elsewhere is increasing (vs. Few Brazilians express the desire to start a new life in other countries).

After reading the news, we then asked participants to write a sentence about the content of the news that served as a manipulation check. If the participants wrote the content of the manipulation acceptably, we evaluated their answer as correct and considered their responses as valid in the analyses. To prevent participants from returning to the news and/or returning to the start of the form, we disabled the "return" option of the online platform and configured the response option to accept only one response per IP (internet protocol) address (attribute provided by *Qualtrics*). All participants answered correctly the manipulation check. Finally, participants responded to the SJS. At the end of the questionnaire, we debriefed the participants by informing them about the objectives of the study and the fictional nature of the news about the Brazilian general system.

Results

The results showed a significant effect of the experimental manipulation on system justification [t (98) = -2.53, p = .013, d = -.51]. Participants in high threat condition expressed more system justification (M = 2.04, SD = .86) than those in the low threat condition (M = 1.68, SD = .50).

Discussion

The results confirm our hypothesis that SJS is sensitive to capture the effect of the threat to the system on individuals' differences in defending this system. In fact, we observed a significant effect of threat manipulation on system justification, so that participants scored higher in the SJS in the high system threat condition than those in the low threat condition. However, participants did not score above the midpoint of the scale in any of the experimental conditions, which leads us to think about alternative hypotheses for this effect. Initially, we need to take into account that the disappointment of the Brazilian population with living conditions in the country has been increasing in recent years, which has led many Brazilians to change countries in search of better conditions (Marcus, 2009). Thus, given this emigration flow, it is likely that the two experimental manipulation conditions were not strong enough to lead participants to assume extreme values on the SJS. Emigration to other countries is a desire of many Brazilians, which may have led participants to observe the content of the news not as a major threat to the Brazilian system, but as reality experienced in the country, which would explain the low rates of system justification in both experimental conditions. This result may also be signaling that, in extremely unequal contexts such as Brazil, that the content of the Kay and Jost (2003) paradigm is not as realistic in extremely unequal social contexts as it has been the case in other countries with greater equality.

However, even with this limitation, the scale was sensitive enough to capture the effect of system threat on individual difference in defending this system. The results of this

experiment demonstrate that the new measure has a special type of predictive validity, since the SJS scores corresponded to a criterion that acted as a causal antecedent of the construct intended to be measured (Nunnally & Bernstein, 1994). Thus, we gathered experimental data indicating that the SJS assesses system justification under different conditions of system threat.

General Discussion

Based on system justification theory (Jost, 2019; Jost & Banaji, 1994; Jost & van der Toorn, 2012), this paper presents the results of a research program in which we developed and validated a new measure of system justification – the System Justification Scale (SJS). During five empirical studies, we demonstrated evidence of content validity (Study 1), a unifactorial structure (Studies 2 and 3), gender-invariance between men and women (Study 3), convergent-discriminant and incremental validity (Study 4), and predictive validity (Study 5) of the SJS. In general, our results show satisfactory psychometric evidence of validity and reliability of the SJS to assess individual differences in system justification.

The content validity procedure (Study 1) is a crucial step of the hypothetical-deductive process of scale validation, in which we developed a set of items from which only the most representative of the construct were kept in the final version of the scale. In fact, we found in the content validity study that, from a theoretical point of view, each of the items corresponded to the concept of system justification, as proposed by Jost and Banaji (1994). The expert raters, after evaluating the written formulation of each item, considered them to be representative, relevant and clear to denote the system justification construct. This initial approach was a fundamental step for the SJS's development because it allowed proposing items coving the entire theoretical definition of the construct, as recommended in psychological assessment procedures (Grant & Davis, 1997).

The results also showed evidence of factor validity. Indeed, exploratory and confirmatory factor analyses (Studies 2 and 3, respectively) composed the second step in the process of evaluating the construct validity of the scale. Our findings provide the first empirical evidence that the scale captures the latent structure that it is proposed to evaluate (Nunnally & Bernstein, 1994). In fact, these findings indicate that the SJS's items loaded on a single factor that measure individual differences in system justification, confirming the conceptual proposition of system justification theory and the original latent structure proposed in the first scale to measure this construct (Kay & Jost, 2003). In addition, our results concerning the scale invariance demonstrate that the SJS can be used to measure individual differences in system justification in both genders. That is, taking into account gender disparities, we ensure that the factorial structure, the intercepts and the factor loadings of the items did not differ between men and women, guaranteeing the configurational, metric and scalar gender invariance.

In Study 4, we followed the validation process by investigating the relationship of the SJS with other existing scales. This step showed empirical evidence of convergent (i.e., association with related constructs), discriminant (i.e., low association with different constructs) and incremental validity (e.g., contribution of the scale to explain variance of a criterion variable beyond other scales that measure similar constructs). This step is important for developing a new scale because it is a theory-based evaluation that indicates the strength with which the score of a new measure converges or diverges in relation to data obtained from other instruments that the theory predicts should be more or less related, respectively. Importantly, incremental validity goes further, by showing the extent to which the new measure explains additional variance in a relevant criteria variable after controlling for the effect of similar measures (Hunsley & Meyer, 2003). Indeed, corroborating previous studies based on system justification theory (e.g., Jost, 2019), we found that the SJS was positively,

strongly and significantly correlated with measures of belief in a just world, economic system justification and social dominance orientation, but was not related to personality traits.

Moreover, the SJS explained substantial and additional variance of belief in a just world over and above the effect of these other variables.

Finally, in Study 5, the experimental test with random groups allowed us to demonstrate the sensitivity of the SJS to capture the effect of a variable that is predicted, by theory and previous studies, to influence individual differences in system justification, as is the case of system threat (Tan et al., 2016). In fact, individuals in the system threat condition exhibited more support for system justification as measured by the SJS than the participants in the system affirmation condition. In addition, along the five studies, our findings showed the SJS's reliability as indicated by the strong internal consistency coefficients. These results reinforced the empirical evidence of SJS consistency and accuracy to measure individual differences in system justification.

Theoretical Implications

While we have demonstrated that SJS is a valid and reliable instrument, the studies presented here represent an important step to overcome a gap in the literature: the measure of the system justification in contexts marked by profound social disparities. This is the case in Brazil, an emblematic country from the standpoint of social inequalities, where 5% of the population concentrates the same wealth as the remaining 95%, where women earn 38% less than men in equal positions, and where black people's salaries are usually 45% lower than those of whites (DIEESE, 2019). In this context, the new scale is adequate to measure individual differences in the perception of social arrangements as fair, legitimate and necessary (Jost & Banaji, 1994). In fact, existing measures have been developed in countries where these disparities are milder (e.g., USA). In contexts like Brazil, items such as "In general, the American [Brazilian] political system operates as it should" and "Most policies

serve the greater good" are not realistic and thus introduce noise and ambiguities in individuals' answers. In Brazil, for example, blatant corruption and the lack of egalitarian public policies mean that both items do not work as they should to assess individuals' support of the social system.

Moreover, while the motivation for system justification can contribute to maintaining gender differences between men and women (Jost et al., 2012), our results take this motivation one step further by demonstrating that the structure of the SJS is invariant between these groups. As far we know, no study has investigated whether these differences could affect the factorial structure of the construct, which might cause confounding of the gender effect on system justification (Jost & Kay, 2005) and on the economic system justification (Jost & Thompson, 2000). As far as we know, our study is the first to demonstrate gender invariance in a measure of system justification.

Last but not least, the SJS can be useful to assess the effectiveness of intervention programs that take into account individual positioning in the political, economic and social system (e.g., Costa-Lopes et al., 2013). In general, the use of the SJS can help find answers about the reasons why a portion of the Brazilian population resist social change strategies, such as opposition to social policies of equal access to health (e.g., National Health Service) and income transfers (e.g., *Bolsa Família* – Family Grant - program). Thus, the SJS can be a useful tool for the construction and implementation of public policies, in view of its ability to measure how people perceive the established social arrangements in the country.

Limitations, Future Directions, and Conclusions

Even though our results provide evidence of SJS's validity and internal consistency, our studies have some limitations. First, at the time the data were collected, between April and August 2019, Brazil was undergoing strong political and ideological tensions, given the election of a president with populist far-right orientation after 13 years of a populist left-wing

government. In the meantime, the political conception of most people was unstable, which may have influenced the participants' responses. That is, we did not control for the influence of contextual variations on the political position of the participants. Even though our studies did not deal specifically with the economy or rights of Brazilians, the scale items assess how people perceive the Brazilian social system, making us think that some participants may have answered the SJS based on their attitude towards Brazil as a nation, not specifically their justification of the system. Given this possibility, in Study 3 we tried to improve the model's adjustment by correcting some errors.

Another limitation concerns the predictive validity. Specifically, we did not use a behavioral criterion as being evaluated in the future. Instead, we focused on the experimental effect of a well-established predictor of individuals' endorsement of system justification. We have also a limitation concerning the reliability approach. In our studies we used only the internal consistency approach, which makes it necessary to evaluate reliability through other methods in future studies (e.g., test-retest, parallel forms). Another limitation corresponds to the sampling procedure. We used only convenience samples, which were not representative of all population, thus limiting generalization of the results. In addition, we did not collect detailed demographic information of the sample (e.g., social class, income, skin color, level of education), which did not allow us to verify the possible association between these variables and the SJS scores in each study. Future studies can investigate how these variables explain the individual differences in in system justification as measured by the SJS. We recommend that, in addition to gender invariance, other sociocultural factors such as social class and income should be considered for additional invariance analysis, considering that these variables are the basis of social inequalities.

In this sense, because system threat can influence psychological well-being (Vargas-Salfate et al., 2018), a new study can analyze the mediating role of system justification in this

relationship, given their palliative effect in reducing anxiety and cognitive dissonance. Furthermore, given that system justifications are influenced by ideologies and political positions (e.g., Caricati, 2019), the SJS can assess the influence of threatening situations on individuals with different political leanings. Analyzing this influence is a critical aspect of system justification theory. This theory predicts a strong palliative effect on individuals in a disadvantaged social situation. This effect should be particularly prominent in cultural contexts where social inequality is extreme, such as Brazil. For instance, given that conservative individuals are happier than progressives (Newman et al., 2018), it is probable that the role played by system justification in psychological well-being depends on individuals' political orientation.

Despite the limitations highlighted here, the results we obtained are robust enough to conclude that the SJS is a valid and reliable measure to assess individual differences in system justification. The SJS can be useful to improve empirical evidence of predictions based on system justification theory, especially in cultural contexts with strong social inequalities. Finally, using the SJS can also contribute to further empirical studies aiming at analyzing the psychosocial mechanisms leading to maintenance of social inequalities in countries with great socioeconomic disparities like Brazil.

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Supplementary Materials (PT-BR)

Appendix A

8-item initial version of the System Justification Scale

Itens

- 1. Pensando bem, a nossa sociedade é justa.
- 2. De uma maneira geral, as coisas no Brasil são como devem ser.
- 3. A sociedade brasileira deveria ser totalmente reestruturada. (I)
- 4. O Brasil é o melhor país do mundo para se viver.
- 5. A maioria das coisas acontece por ser o melhor para a sociedade.
- 6. Todo mundo tem as mesmas oportunidades para buscar riqueza e felicidade.
- 7. Nossa sociedade está se tornando pior a cada ano. (I)
- 8. A sociedade está organizada para que as pessoas consigam o que merecem.

Nota. (I) = item com pontuação invertida.

Appendix B

Expert rater's analysis Questionnaire

Levando em consideração a definição do construto *Justificação do Sistema* (abaixo), solicitamos que o(a) juiz(a), ao ler cada item, atribua uma nota de 0 (zero) a 5 (cinco) de acordo com a sua compreensão acerca do grau de pertinência, clareza e de relevância do item para o construto em questão. Por favor, aponte sugestões quando necessário.

Justificação do Sistema (definição constitutiva)

A Justificação do Sistema diz respeito à motivação para aceitar o status quo da sociedade, baseada na crença de que o mundo é um lugar seguro e justo, o que leva à posição ideológica de justificativa da existência da ordem e das hierarquias sociais. Os indivíduos que endossam fortemente as crenças justificadoras do sistema tendem a apoiar a legitimidade do status quo, pois internalizam a desigualdade social e desconsideram possíveis visões de mundo alternativas.

Instruções

A seguir, você irá encontrar um conjunto de sentenças sobre o construto Justificação do Sistema. Cada item foi construído com base na realidade social e política do Brasil. Sua tarefa será analisar cada assertiva com relação aos critérios de pertinência, clareza e relevância para o construto (Justificação do Sistema). Utilize a tabela abaixo como referência para a análise.

Tabela de referência dos critérios em análise

Critérios de análise	Significado	Atribuição de nota
Critério de pertinência	Quanto o item se adequa ao	0= nenhuma adequação
	construto?	5= totalmente adequado
Critério de relevância	Quanto o item é relevante para o	0= nenhuma relevância
	construto?	5= totalmente relevante
Critério de clareza	Quanto o item é claro à	0= nenhuma clareza
	compreensão?	5= totalmente claro

Itens propostos

Por favor, assinale a sua avaliação atribuindo uma nota de 0 (zero) a 5 (cinco) a cada item, de acordo com os critérios elencados.

Escala de Justificação do Sistema (SJS)

	Itens	Avaliação Atribua uma nota de 0 a 5 em relação a cada critério					
		Critério de pertinência	Critério de relevância	Critério de clareza			
1.	Pensando bem, a nossa sociedade é justa.						
2.	De uma maneira geral, as coisas no Brasil são como devem ser.						
3.	A sociedade brasileira deveria ser totalmente reestruturada.						
4.	O Brasil é o melhor país do mundo para se viver.						
5.	A maioria das coisas acontece por ser o melhor para a sociedade.						
6.	Todo mundo tem as mesmas oportunidades para buscar riqueza e felicidade.						
7.	Nossa sociedade está se tornando pior a cada ano.						
8.	A sociedade está organizada para que as pessoas consigam o que merecem.						

Sugestões:	
Dados dos Juízes:	
Titulação: () graduação () especialização () mestrado () doutorado
Em caso de	doutorado, qual a área de estudo? Responda:
Área de atu	ação:
Tempo de a	tuação:
Idade:	anos

Appendix C

Final version of the System Justification Scale (6-item)

Instruções: Por favor, indique em que medida você concorda com os itens abaixo. Use a escala que varia de 1 (discordo muito) a 6 (concordo muito) de modo que quanto maior o número maior o seu grau de concordância.

1	2	3	4	5	6
Discordo	Discordo	Discordo	Concordo	Concordo	Concordo
muito	moderadamente			moderadamente	muito

01.	Pensando bem, a nossa sociedade é justa.	1	2	3	4	5	6
02.	De uma maneira geral, as coisas no Brasil são como devem ser.	1	2	3	4	5	6
03.	O Brasil é o melhor país do mundo para se viver.	1	2	3	4	5	6
04.	A maioria das coisas acontece por ser o melhor para a sociedade.	1	2	3	4	5	6
05.	Todo mundo tem as mesmas oportunidades para buscar riqueza e felicidade.	1	2	3	4	5	6
06.	A sociedade está organizada para que as pessoas consigam o que merecem.	1	2	3	4	5	6

Appendix D

Brazilian version of Ten-Item Personality Inventory (Gosling et al., 2003)

Adapted by Pimentel et al. (2014)

Instruções: Agora você encontrará traços de personalidade que pode dizer respeito a você em algum grau. Por favor, escreva um número ao lado de cada afirmação indicando em que medida você concorda ou discorda. Você deve avaliar em quem medida o par de traços se aplica a você, ainda que alguns se apliquem mais fortemente que outros.

1	2	3	4	5	6	7
Discordo	Discordo	Discordo	Nem	Concordo	Concordo	Concordo
fortemente	moderadamente	um	concordo	um pouco	moderadamente	fortemente
		pouco	nem			
			discordo			

Eu me vejo como alguém...

1	Extrovertido, entusiasta.
2	Crítico, briguento.*
3	Confiável, autodisciplinado.
4	Ansioso, que se chateia facilmente.*
5	Aberto a novas experiências, complexo.
6	Reservado, quieto.*
7	Simpático, acolhedor.
8	Desorganizado, descuidado. *
9	Calmo, emocionalmente estável.
10.	Convencional, sem criatividade.

Extroversão: 1, 6R; Agradabilidade: 2R, 7; Conscienciosidade: 3, 8R; Estabilidade

Emocional: 4R, 9; Abertura a Experiências: 5, 10R.

^{*}Itens invertidos (R).

Brazilian version of Economic System Justification Scale (Jost & Thompson, 2000) Adapted by Lima (2016)

Instruções: Por favor, indique em que medida você concorda com os itens abaixo. Use a escala que varia de 1 (discordo totalmente) a 7 (concordo totalmente) de modo que quanto maior o número maior o seu grau de concordância.

	1	2	3	4	5	6	7
Ī	Discordo	Discordo	Discordo	Nem	Concordo	Concordo	Concordo
	muito	moderadamente		discordo,		moderadamente	muito
				nem			
				concordo			

Se as pessoas trabalham duro, elas quase sempre conseguem o que querem.	1	2	3	4	5	6	7
As leis da natureza são responsáveis pelas diferenças na distribuição de riquezas na sociedade.	1	2	3	4	5	6	7
Existem muitas razões para pensar que o sistema econômico é injusto.	1	2	3	4	5	6	7
É praticamente impossível eliminar a pobreza.	1	2	3	4	5	6	7
As pessoas que não progridem na sociedade não devem culpar o sistema, elas só podem culpar a si mesmas.	1	2	3	4	5	6	7
A distribuição igualitária de recursos econômicos é uma possibilidade para a nossa sociedade.	1	2	3	4	5	6	7
Diferenças econômicas na sociedade refletem uma distribuição ilegítima de recursos econômicos.	1	2	3	4	5	6	7
As posições econômicas alcançadas pelas pessoas são reflexos legítimos de suas conquistas.	1	2	3	4	5	6	7
Se as pessoas quiserem, elas podem mudar o sistema econômico para que ele seja mais igualitário.	1	2	3	4	5	6	7
Não é natural que a distribuição dos recursos econômicos seja igualitária.	1	2	3	4	5	6	7
É injusto ter um sistema econômico que produz extrema riqueza e extrema pobreza ao mesmo tempo.	1	2	3	4	5	6	7
Não faz sentido tentar uma distribuição de renda mais igualitária.	1	2	3	4	5	6	7

Brazilian version of Global Belief in a Just World Scale (Lipkus, 1991)

Adapted by Gouveia et al. (2010)

Instruções: Por favor, indique em que medida você concorda com os itens abaixo. Use a escala que varia de 1 (discordo totalmente) a 6 (concordo totalmente) de modo que quanto maior o número maior o seu grau de concordância.

1	2	3	4	5	6
Discordo	Discordo	Discordo	Concordo	Concordo	Concordo
totalmente	moderadamente			moderadamente	totalmente

As pessoas recebem o que elas têm direito a ter.	1	2	3	4	5	6
Quando uma pessoa se esforça, ela é reconhecida e recompensada.	1	2	3	4	5	6
As pessoas ganham as recompensas e punições que merecem.	1	2	3	4	5	6
As pessoas se encontram com o infortúnio que elas mesmas trazem.	1	2	3	4	5	6
As pessoas conseguem o que merecem.	1	2	3	4	5	6
Penso que as recompensas e punições são atribuídas justamente.	1	2	3	4	5	6
Eu basicamente penso que o mundo é um lugar justo.	1	2	3	4	5	6

7

Concordo

Brazilian version of Social Dominance Orientation Scale (Sidanius & Pratto, 1999)

Adapted by Camino et al. (2007)

Instruções: Indique em que medida você concorda com os itens abaixo. Use a escala que varia de 1 (discordo muito) a 7 (concordo muito) de modo que quanto maior o número maior o seu grau de concordância. Utilize a tabela abaixo como referência para as suas respostas.

4

Nem

5

Concordo

6

Concordo

1

Discordo

2

Discordo

3

Discordo

muito	moderadamente	Biscordo	discordo, nem concordo	- Concorus	moderadamente					muito			
Alguns grupos têm, simplesmente, mais valor do que outros.						1	2	3	4	5	6	7	
Ao fazer o que o grupo quer, às vezes é necessário usar a força						1	2	3	4	5	6	7	
contra out	ros grupos.												
Os grupos superiores devem dominar os grupos inferiores.						1	2	3	4	5	6	7	
Para progredir na vida, às vezes, é necessário pisar os outros						1	2	3	4	5	6	7	
grupos.													
Se certos grupos permanecessem em seu devido lugar, teríamos						1	2	3	4	5	6	7	
menos pro	blemas.												
Provavelmente é bom que alguns grupos fiquem em cima e outros						1	2	3	4	5	6	7	
em baixo.													
Os grupos inferiores devem permanecer em seu lugar.						1	2	3	4	5	6	7	
Em certas ocasiões outros grupos devem ser mantidos em seu					seu	1	2	3	4	5	6	7	
lugar.													
Seria bom que todos os grupos pudessem ser iguais.						1	2	3	4	5	6	7	
A igualdade entre os grupos deve ser o nosso ideal.						1	2	3	4	5	6	7	
Todos os grupos devem ter as mesmas oportunidades na vida.						1	2	3	4	5	6	7	
Teríamos menos problemas se tratássemos os grupos diferentes de					s de	1	2	3	4	5	6	7	
forma igu	alitária.												
Deveríamos aumentar a igualdade social.						1	2	3	4	5	6	7	
Devemos fazer o que for possível para igualar as condições dos					1	2	3	4	5	6	7		
distintos g	grupos sociais.												
Devemo-nos esforçar para tornar os rendimentos mais iguais.						1	2	3	4	5	6	7	
Nenhum grupo deve dominar na sociedade.						1	2	3	4	5	6	7	

Appendix E

Manipulation of Brazilian System Threat



O número de Brasileiros que desejam mudar para outros países vem diminuindo a cada ano

Hoje em dia, apesar das dificuldades que o país enfrenta, a maior parte das pessoas no Brasil se sentem mais seguras do que em relação ao passado. Parece que, em comparação com outros países, as condições sociais, econômicas e políticas do Brasil são relativamente boas e estáveis. Poucos brasileiros expressam o desejo de começar uma nova vida em outras nações.



Figure 1. *Low system threat condition.*



O número de Brasileiros que desejam mudar para outros países vem aumentando a cada ano

Hoje em dia, muitas pessoas no Brasil se sentem desapontadas com a nação. Parece que muitos países do mundo estão desfrutando de melhores condições sociais, econômicas e políticas do que o Brasil. O número de brasileiros que desejam deixar o país e começar uma vida nova em outras nações vem aumentando cada vez mais.



Figure 2. High system threat condition.