Manipulations of perceived economic inequality:

A systematic review and meta-analysis

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Abstract

In recent years, there has been an exponential growth of research investigating the psychological consequences of economic inequality. More and more experimental manipulations of economic inequality have been used, allowing researchers to infer the causal effects of inequality on a wide range of psychosocial variables. We conducted a systematic review of research that has manipulated perceived economic inequality, followed by a meta-analysis examining (a) the effectiveness of different perceived economic inequality manipulations and (b) their impact on the different outcomes studied (e.g., descriptive norms). In total, 60 studies were included in the meta-analysis, with an average of 141 participants per group (total of 31,637 participants). The meta-analytic results showed that experimental manipulations affected inequality perceptions, yet there is large variability in their effectiveness. Although the type of paradigm used and characteristics of the manipulations accounted for some of this heterogeneity, much remains unexplained. Moreover, experimental manipulations of perceived economic inequality mostly influenced *descriptive norms* and *perceptions* followed, in order, by *stereotypes, belief systems, motivations/values, causal attributions*, and *social/economic comparison.* We discuss the implications of our findings and offer advice for researchers using paradigms to manipulate economic inequality.

Keywords: Perceived economic inequality, experimental paradigms, systematic review, meta-analysis, psychosocial outcomes.

Public significance statements

- This meta-analytic review reveals that manipulations of perceived economic inequality are effective, although there is a large variability in the effect sizes found.
- Additionally, further analyses indicate that these manipulations have a stronger impact on certain outcomes, such as descriptive norms and perceptions, compared to others, like causal attributions and social/economic comparisons

Manipulations of perceived economic inequality:

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According to the latest World Inequality Report 2022, the poorest 50% of the world population own only 2% of total net wealth, and the middle-wealth 40% own 22% of total net wealth, leaving the richest 10% in control of 76% of the wealth (Chancel et al., 2022). This high level of economic inequality has made it one of the most pressing issues of our time and reducing it has become one of the main goals of many political agendas (United Nations, 2015). Extensive research has demonstrated its significant psychosocial correlates, including status-focused behaviors and the salience and significance of economic social categories (see Peters & Jetten, 2023; Sommet & Elliot, 2023 for reviews).

Given this situation, unsurprising over the last three decades, there has been a growing interest in the academic study of economic inequality, its antecedents, and its consequences. According to SCOPUS, in 1991, 936 articles were published on the topic of economic/income inequality, whereas in 2023, there were 59,479 articles published on this topic—an increase of more than 6,000% over three decades. Beyond its scientific significance, economic inequality research also holds a central position in discussions across social media platforms. For instance, during a random week at the end of 2019, there were 30,600 tweets mentioning 'economic/income inequality' (Sánchez-Rodríguez & Moreno-Bella, 2021).

Research on economic inequality has predominantly been conducted within the fields of sociology, economics, epidemiology and political science. Studies from these disciplines typically use administrative data and tend to be more descriptive, focusing on patterns of economic inequality and its potential social, political, and economic consequences. Due to the nature of the data, much of this research is cross-sectional,

which limits the ability to infer causal relationships between economic inequality and various outcomes. Although some research has attempted to provide indirect evidence for this causal relationship (e.g., Pickett & Wilkinson, 2015), there remains a need for more direct evidence on this causal link.

To enhance the causal understanding of the relationship between economic inequality and their outcomes, a growing body of literature has added a psychological dimension. This research, has illuminated how people perceive economic inequality, identified the underlying psychological mechanisms driving its consequences, and examined who is affected by it and under what circumstances. To do so, several experimental paradigms have been developed whereby economic inequality is manipulated. This experimental approach, mostly employed by researchers in social psychology, has advanced our understanding of the causal pathways linking economic inequality to individual behaviors (see Jetten et al., 2021; Sánchez-Rodríguez et al., 2023). However, inequality has been manipulated in many different ways, and it is unclear whether each of these manipulations is equally effective and affects similarly. In this article, we review these various manipulations and meta-analytically test (a) the extent to which different paradigms are effective in manipulating perceived economic inequality, where effective manipulations are defined as experimental treatments that successfully change the degree to which individuals are aware of, or concerned about, economic disparities, and (b) their impact on a range of different outcomes. Although some previous studies have conducted literature reviews on the effects of manipulating economic inequality (Ciani et al., 2021), these have focused on specific paradigms (i.e., providing information about inequality) and specific effects (i.e., attitudes toward redistribution). Our review expands this type of research by considering the multiple

ways of manipulating inequality and its effect on a wide range of psychosocial outcomes such as social norms and stereotypes.

Operationalizing the manipulation of perceived economic inequality

We define economic inequality as a macroeconomic feature of society that reflects how resources are distributed among people (Piketty, 2014). Resources can be defined in terms of income and wealth (Chancel et al., 2022). Income refers to the value individuals receive from labor—specifically, the net income remaining after deducting taxes and other unavoidable expenses—and from financial assets such as deposits, stocks, bonds, and shares (ibid.). Wealth, on the other hand, encompasses the sum of consumer goods, including housing, owned by individuals (ibid.). Most commonly, the distribution of resources among people has been depicted in mainly two ways: (1) as the gap between those who have the most resources and those who have the least, typically operationalized by the 80/20, 90/10, or 90/50 indices; and (2) as the area between the line representing the perfect equality and the curve showing the actual distribution of resources, typically operationalized by the GINI index. To the extent that economic inequality is a shared reality, perceived by all members of a society, it functions as a structural element that has the potential to influence the behavior of the entire population (Uskul & Oishi, 2018).

Since some psychosocial effects of economic inequality require it to be perceived (Nishi et al., 2015), and the perception of economic inequality is more closely related to its psychosocial consequences (Willis et al., 2022), directly manipulating the perception of inequality has allowed for a closer look at its consequences (Jetten & Peters, 2019). We therefore refer to perceived economic inequality as an estimate of the extent of current economic inequality (Willis et al., 2022). Given that research has focused on manipulating perceived economic inequality, the main manipulation check

used to assess the manipulation consists of a measure of perceived economic inequality. However, there is a lack of consensus on how to measure that perception. An important distinction is to consider the difference between the perception/apprehension of economic inequality and attitudes towards economic inequality or beliefs about to what extent economic inequality is fair. For instance, Schmalor and Heine (2022) differentiate between perceived economic inequality (e.g., "Almost all the money that is earned goes to only a few people") and unfair beliefs about economic inequality (e.g., "It is not fair at all if there are large differences"). On the other hand, Valtorta et al., (2024) argue that both perceived economic inequality and beliefs about its fairness are part of the same underlying construct. Here, we will examine the different types of manipulation checks used in the literature and estimate the effectiveness of each type of manipulation on them.

As previously mentioned, the growing interest in economic inequality has spurred the development of multiple paradigms to manipulate perceived economic inequality, ranging from presenting newspaper stories (Côté et al., 2015) to asking participants to imagine themselves living in a fictitious society (Jetten et al., 2015; Sánchez-Rodríguez et al., 2019). However, there is evidence that some manipulations are less impactful than others. For instance, while Wang et al. (2022) produced large effects on manipulation checks in two experiments manipulating inequality in a fictitious society, they also reported in the Supplementary Materials that they conducted an additional study (Study S1) manipulating perceived economic inequality using newspaper articles, but the effect of this newspaper articles manipulation on the dependent variables they measured was not significant. Therefore, manipulations used to manipulate perceived economic inequality are diverse, and there is anecdotal evidence that some seem more effective than others.

The diversity in the literature on how to operationalize perceived economic inequality has been previously noted. Jachimowicz et al. (2023) argued that the field would benefit greatly from greater systematization of how to operationalize perceived economic inequality. Some papers have undertaken critical reviews systematizing how research has operationalized the perception of economic inequality (Castillo et al., 2022; Jachimowicz et al., 2023). However, while they rely on survey data or recent scales, they do not address experimental paradigms. The current research attempts to respond to this call addressing this gap by systematically reviewing the different experimental paradigms that have manipulated the perception of economic inequality, and by conducting a meta-analysis to examine the outcomes of manipulated perceived economic inequality.

Effects of perceptions of economic inequality

The growing number of studies using experimental manipulations of perceived economic inequality have provided evidence that economic inequality is the cause of many aspects of human psychology. Focusing exclusively on research that has manipulated perceptions of inequality, these studies show that, at the individual level, perceived economic inequality increases risk-taking (Payne et al., 2017), an independent self-construal (Sánchez-Rodríguez et al., 2019), pursuing pleasure (Hannay et al., 2021), status anxiety (Melita et al., 2021), desire for wealth and status (Wang et al., 2022), and social vigilance (Cheng et al., 2021). At the group level, perceived economic inequality affects stereotyping (Moreno-Bella et al., 2019; Tanjitpiyanond et al., 2022) and perception of the normative climate (Sánchez-Rodríguez et al., 2019, 2022). At the societal level, it influences political attitudes, such as increasing the desire for strong leaders (Sprong et al., 2019).

One of the aims of the current systematic review is to provide a broad and comprehensive overview of the psychosocial outcomes of perceived economic inequality when it is manipulated. We refer to psychosocial outcomes as the effects of economic inequality on psychological (e.g., attitudes) and social (e.g., norms) outcomes. Such a review helps to identify which aspects of economic inequality have been most and least studied, thus highlighting areas that may need further exploration. Therefore, by analyzing the types of manipulations used and their corresponding effects, researchers could better understand how different experimental paradigms causally influence psychosocial outcomes, and highlight which outcomes are more or less sensitive to inequality as well as potential gaps in the literature. This type of review is crucial given that some economic inequality paradigms are concerned with fictional settings, thereby limiting their ecological validity (e.g., Sánchez-Rodríguez et al., 2019). Having said this, it is worth keeping in mind that despite the limited ecological validity, some effects observed in fictional paradigms have been replicated in real-world studies. For example, economic inequality has been positively associated with competitiveness in fictional (Cheng et al., 2021; Sánchez-Rodríguez et al., 2019), correlational (Sommet et al., 2019), and longitudinal studies (Sommet & Elliot, 2022), which reinforces the validity of this effect. Given this, it is important to assess the effects of economic inequality manipulation in a diverse range of paradigms to examine whether effects are paradigm dependent.

The current research

In line with the call for a more systematic understanding of how economic inequality is addressed in psychological research, this article undertakes a systematic review and meta-analysis of studies that manipulate the level of perceived economic inequality. Employing a bottom-up approach, we identified different paradigms used to

manipulate perceived economic inequality and focused on the effects of manipulation checks to assess the efficacy of these paradigms. Building upon this groundwork and to enhance the utility of research exploring specific consequences of perceived economic inequality, we also examine the effect sizes provided by these experimental paradigms across different types of dependent variables.

We first carried out various categorization/codification processes to identify the paradigms, their defining features, the characteristics of the manipulation checks, and the type of outcome variables explored in these paradigms. We then tested meta-analytically the extent to which different paradigms used to manipulate perceived economic inequality are effective and the extent to which their results converge for different samples and features of the manipulations. Finally, we estimated the effect sizes of different types of dependent variables. To sum up, in the current research, we will answer the following set of questions:

1) Which paradigms are used to manipulate perceived economic inequality? Are they effective? Which paradigms are more effective?
2) What are the main features of these experimental paradigms? Which features are more effective?
3) What are the main manipulation checks used? Which manipulation checks show stronger effects?
4) What are the consequences of manipulated perceived economic inequality? Which psychosocial consequences are more affected by perceived economic inequality?

Method

Transparency and openness

We adhered to the PRISMA 2020 guidelines for systematic reviews (Page et al., 2021). All data and research materials, including our coding scheme, are available at https://osf.io/hjfd8/. This review was not preregistered.

Literature search

We identified studies in two ways. First, we conducted a systematic review of the literature to include all published studies in which perceived economic inequality was manipulated—i.e., deliberate alteration of perceived economic inequality with two or more conditions to which participants are randomly assigned. Studies were identified for inclusion by searching in ProQuest database using the keywords *economic inequality*, *income inequality*, or *wealth inequality*. The databases were focused on psychology included were APA PsycArticles (1894–2023), APA PsycINFO (1806–2023), Psychology Database, APA PsycTest, and Social Science Database. The date of the search was July 20, 2023. Moreover, we expanded this search during the review process on February 5, 2025, to include databases in sociology, political science, and economics (Sociology Database, Political Science Database, Business Market Research Collection, Accounting, Tax & Banking Collection, ABI/Inform Collection, Asian & European Business Collection). The search yielded a total of 9,672 documents in datasets. We applied a first automatic filter to include only scientific journals and dissertations, and only those studies that were written in English or Spanish, resulting in 4,436 papers. The remaining studies were evaluated in more detail by screening the title and abstract and, where necessary, the full text to include them if they included an experiment in which perceived economic inequality was manipulated. In order to do this, we divided the data sets between 13 researchers in such a way that each researcher

scrutinized around 341 records. This process resulted in a database of 38 eligible papers containing 91 experiments. Any disagreement was resolved by discussion and consensus between the researchers.

Secondly, we made an open call request for unpublished studies. To do this, we made a public request on the research forum of the European Association of Social Psychology to collect as many studies as possible for other labs. We also included our own studies in which we manipulated perceived economic inequality. The aim of this second approach was twofold. First, we collected those studies that were still in the process of being published (i.e., in preparation, under review, or in press). Second, we wanted to include file-drawer studies that had not been published for various reasons (e.g., Experimental manipulation was not successful). Following this request, we identified 55 additional experiments.

The total number of experiments found through this process was 146. Details regarding each experiment are available at https://osf.io/hjfd8/. Our goal was to include experiments that manipulated the level of economic inequality (e.g., high vs. low or high vs. control) and we excluded studies that manipulated other features of economic inequality, such as the frame of inequality (11 experiments; e.g., focus on rich vs. on poor people), as a continuous variable (1 experiment), and manipulated economic inequality in different domains (4 experiments; e.g., black-white economic inequality). The resulting total number of experiments included in the review was 130. The number and reasons for including and excluding studies can be found in the PRISMA search strategy checklist (**Figure 1**).

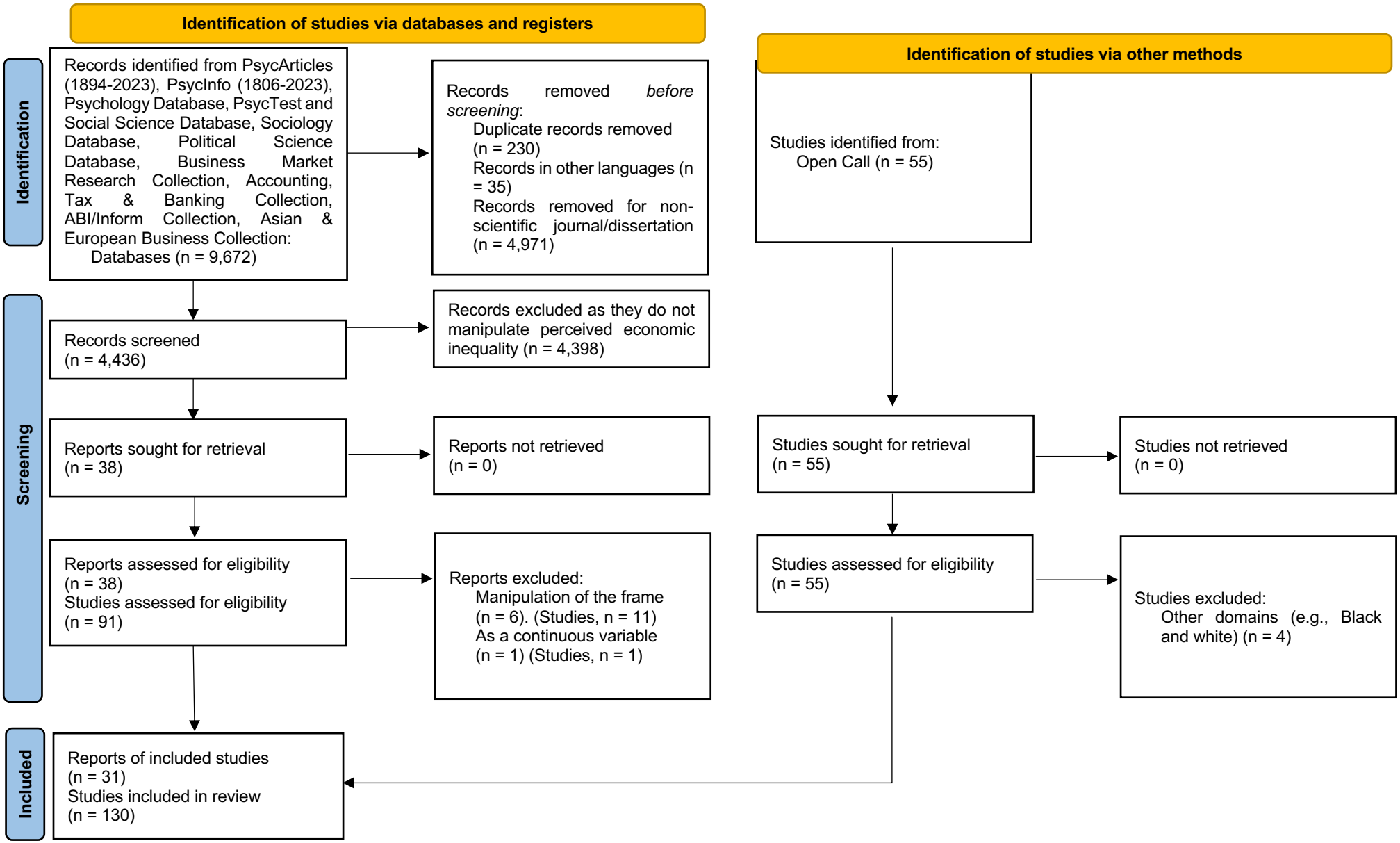

Figure 1.
Flowchart of the search and selection procedure

Categorization and coding

Once the total number of experiments manipulating the level of perceived economic inequality was identified, we undertook three separate processes of categorization and coding of these experiments: (1) One to identify the experimental paradigms in general terms, (2) a second one focusing on specific features of the experiments and manipulation checks, and (3) a final one to categorize the main outcomes in each of these experiments.

Which paradigms are used to manipulate perceived economic inequality?

Two researchers independently read the description of the experimental manipulations. Experimental paradigms that shared a similar strategy for manipulating perceived economic inequality were inductively grouped. Following *constant comparative method*, the category systems independently identified by each researcher were compared and discussed collaboratively (Glaser & Strauss, 1967). Discrepancies emerged regarding the breadth of the categories—ranging from very specific (14 categories for R1) to more general classifications (6 categories for R2)—as well as the defining characteristics to be considered. These differences were reconciled through discussion until a final, consensual set of six broad categories was established, coded from 1 to 6. The rationale behind these categories was to group together those experimental paradigms that employed similar strategies to manipulate economic inequality, leaving the specific characteristics for a separate categorization process. For each category, a consensus definition was agreed upon, considering the related theoretical background, that is, using the theoretical triangulation proposed in the Grounded Theory. Then, the set of categories with their definitions, plus an additional category called "other" that could function as a catch-all, was handed over to two

researchers, blind to the previous categorization process. These researchers independently coded each of the 126 experiments to one of these 7 categories.

The level of agreement in the coding process was substantial (kappa = .70, $p < .001$), suggesting that the categorization is a good fit to describe the different broad strategies used to manipulate perceived economic inequality. Thus, the resulting paradigms were:

1) *Absolute economic inequality*: It provides information about the level of economic inequality in the region where participants lived. This paradigm typically uses news with charts and indices (e.g., Gini index) to describe the level of economic inequality. We call this paradigm "absolute" because what is being manipulated is the level of economic inequality itself (high vs. low). Therefore, it usually uses deception to manipulate perceptions of economic inequality.
2) *Relative economic inequality*: It provides information on the level of relative economic inequality and focuses on participants' regions/countries having higher (vs. lower) levels of economic inequality compared to other regions/countries.
3) *Economic inequality in a fictional society*: Participants are asked to imagine that they were living in a fictional society and are told that this society has high (vs. low) inequality.
4) *Everyday life inequality*: Participants are encouraged to think about or observe people in their immediate environment (neighborhood, street, acquaintances) who differ in wealth, income, and living conditions.
5) *Economic inequality in an allocation task*: Participants take part in games where they have to allocate resources, points, or money according to certain

rules. The distribution of these resources, points, or money is manipulated, resulting in different levels of economic inequality.

6) *Economic inequality in a fictional organizational setting*: Economic inequality is manipulated in a fictional organizational setting.[1]

What are the main features of the experimental paradigms?

Similarly, two researchers independently identified several specific features that varied between paradigms and manipulation checks. In this case, researchers were required to focus on identifying specific characteristics of the experimental paradigms or the information they provided, with the aim of detecting details that could vary systematically between studies and that could influence their effectiveness. A total of three specific features of the paradigms used to manipulate economic inequality emerged: (a) the time period of economic inequality manipulated (0 = present, 1 = future, 2 = both), (b) the type of manipulation (0 = abstract [e.g., Gini index)], 1 = specific [e.g., living conditions], 2 = both), (c) a number of groups contrasted (0 = two [e.g., rich vs. poor], 1 = more than two income groups). Moreover, coders identified six types of information added in the manipulations (coded as 0 = no, 1 = yes, for each of them): (d) proportion of income/wealth, (e) absolute level of income/wealth, (f) charts, graphs, (g) numbers, (h) income (e.g., salaries, rent, etc.), and (i) wealth (e.g., houses, cars, etc.).

Two other independent researchers coded each experiment using these nine characteristics. The low level of agreement (kappa ≤ .20) in this process leads us to exclude one specific feature (i.e., group contrasted, kappa = .20) and one type of

[1] Although the fictional organizational (6) and societal (3) paradigms shared the characteristic of being set in a fictional context, both researchers who independently reviewed the descriptions of the experimental manipulations agreed that they should be treated as distinct types of paradigms, as they imply different levels and contexts of economic inequality. For instance, the level of economic inequality in an organizational setting is determined by differences in compensation across various jobs, whereas in a societal setting, the causes of inequality are not explicitly defined.

information added (i.e., numbers, kappa = .01) as these categories were not robust enough. Therefore, we kept the remaining 7 categories (see **Table 1**). Although some of the Kappas are still relatively low, indicating fair to moderate agreement, we have kept them in order to be as informative as possible regarding the characteristics of the paradigms. However, we want to explicitly state that caution should be exercised when interpreting characteristics with Kappas below .40.

Table 1.
Features of Paradigms

Features of paradigms	Levels (code)	Code	Kappa
Time period of Economic inequality At which moment is economic inequality manipulated?	Present Future Both	0 1 2	.35, $p < .001$
Type of manipulation Which level of economic inequality is manipulated?	Abstract Specific Both	0 1 2	.63, $p < .001$
Type of material used Is the following information included?	Proportion of resources between groups	0 (No)/1 (Yes)	.66, $p < .001$
	Absolute level of resources of groups	0 (No)/1 (Yes)	.69, $p < .001$
	Charts, graphs	0 (No)/1 (Yes)	.69, $p < .001$
	Income	0 (No)/1 (Yes)	.42, $p < .001$
	Wealth	0 (No)/1 (Yes)	.24, $p < .001$

What are the main manipulation checks used?

Regarding the features of the manipulation checks a similar process was conducted. A total of two specific features emerged: (a) Type of manipulation check (0 = perception of economic inequality, 1 = attitudes toward economic inequality, 2 = both) and (b) group contrasted (0 = two groups [rich vs. poor], 1 = more than two groups, 2 = one group, 3 = several of the above options). The high level of agreement in the coding process was substantial (kappa > .70, $p < .001$), suggesting that the categorization is adequate to describe the type of manipulation checks used (**Table 2**).

Table 2.

Features Manipulation Checks

Features of Manipulation Checks	Levels [code]	Kappa
Type of Manipulation check	*Perception* [0] (e.g., "To what extent is [Country]economic distribution unequal?" (1 = not unequal at all, 7 = very unequal) *Attitudes* [1] (e.g., "There is too much economic inequality", 1 = disagree, 7 = agree) *Both* [2]	.71, $p < .001$
Group Contrasted Which groups are asked about?	*Two groups* [0] (rich vs. poor; director vs. assistant…) *More than two groups* [1] *One group* [2] *Several options* [3]	.81, $p < .001$

What are the consequences of perceived economic inequality that are investigated?

Finally, a similar process was carried out for the dependent variables. Two researchers independently read the dependent variables used in each study and assessed how they were measured. After comparing coding schemes, they settled on a final scheme after discussing discrepancies. A total of 12 different types of constructs, coded from 1 to 12, emerged (**Table 3**).

As for the other two coding processes, two different researchers received the set of categories with their definitions. Then, they independently coded each dependent variable used in the 126 experiments. The level of agreement was substantial (kappa = .79, $p < .001$), suggesting that this categorization is adequate to describe the nature of the dependent variables studied as a consequence of perceived economic inequality. After testing the interrater reliability in the three processes, the remaining discrepancies were resolved through discussion.

Table 3.
Types of Consequences of Perceived Economic Inequality

Attitudes	Evaluation of a particular entity (concrete and abstract concepts, ideas and opinions, behaviors, persons, or groups) favorably or unfavorably (e.g., attitudes toward redistribution).
Belief system	A set of principles that form the basis of a religion, philosophy, moral code, ideology, etc (e.g., conspiracy beliefs).
Perception	Awareness of the existence (or degree of existence) of a given phenomenon or event (e.g., perceived upward mobility).
Stereotypes	A set of generalizations about the qualities and features of members of a group or social category (e.g., competence).
Causal attributions	Identify one or more factors that are responsible for bringing about a particular behavior or outcome (e.g., internal attributions for poverty).
Norms	Any of the socially determined consensual standards that indicate (a) which behaviors are considered typical in a given context (descriptive norms) and (b) which behaviors are considered proper in the context (prescriptive norms) (e.g., normative self-enhancement values).
Motivations	Reasons for acting or behaving in a particular way. The impetus that gives purpose or direction to behavior and operates in humans at a conscious or unconscious level (e.g., desire for wealth).
Emotions	A complex reaction pattern, involving experiential, behavioral, and physiological elements, by which an individual attempts to deal with a personally significant matter or event. Emotion typically involves feeling but differs from feeling in having an overt or implicit engagement with the world (e.g., mood).
Social identity	The part of self-concept that is derived from memberships in social groups or categories (e.g., identification with one's organization).
Social and economic comparison	Strategy where we seek to better understand our own standing by comparing ourselves to other people socially (e.g., kindness) or economically (e.g., salary or income).
Allocation strategies	Preference or use of the methods by which goods and services are distributed (e.g., cooperation).
Self-concept	Any specific belief about the self (e.g., self-construal).

Analytic strategy

After the categorization and coding processes, we meta-analyzed our data as follows:

Effect size

Given that most of the primary studies used designs in which inequality was manipulated in separate samples of participants, we opted for a Cohen's d_s (Lakens, 2013):

$$d_s = \frac{M_1 - M_2}{\sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}} \quad (1)$$

whose variance was estimated as

$$V_{d_s} = \frac{n_1 + n_2}{n_1 \times n_2} + \frac{d_s^2}{2(n_1 + n_2)} \quad (2)$$

We estimated Cohen's d_z for within-participant designs, which we estimated from t values, $d_z = t/\sqrt{n}$, and the following formula for its variance:

$$V_{d_z} = \frac{1}{n} + \frac{d_z^2}{2n}. \quad (3)$$

All estimates and their variance were corrected for small-sample bias:

$$J = 1 - \frac{3}{4df - 1} \quad (4)$$

$$g = J \times d \quad (5)$$

$$V_g = J^2 \times V_d. \quad (6)$$

Meta-analysis, heterogeneity, and outliers

Only 7 out of 107 experiments (Connor et al., 2021; García-Castro et al., 2020; Hernández et al., 2020; Melita et al., 2017; Moreno-Bella, Kulich et al., 2023; Moreno-Bella et al., 2022; Sánchez-Rodríguez et al., 2022) included more than one effect size per experiment (i.e., they tested the effect of perceived economic inequality on multiple measures). Therefore, we estimated aggregates of all the effect sizes from the same samples in those studies (assuming a default within-study correlation of $r = .50$; Borenstein et al., 2021) and fitted a univariate random-effects meta-analysis, given the diversity of manipulations, samples, and designs. Under a random-effects model, the

effects in the studies are assumed to have been sampled from a distribution of true effects and the summary effect will represent the overall mean of all true effects (Borenstein et al., 2021). The usual heterogeneity indexes, τ^2, and I^2, were computed using the restricted maximum likelihood method.

To analyze the impact of inequality manipulations, we implemented multilevel meta-analytic models using the robust variance estimation approach (Hedges et al., 2010), which deals with a correlated structure of outcomes from the same primary study. We used the robust variance estimation method using the *robumeta* R package (Fisher & Tipton, 2015). Again, τ^2 and I^2 were computed.

We assessed whether the observed heterogeneity could be due to the presence of outliers and moderating variables. Studies with studentized residuals higher than 2 and Cook's distance higher than $4/(n - 1)$ were identified as outliers.

Moderators

We examined the influence of the publication process (e.g., publication bias) on the effectiveness of the manipulations. In addition, based on our findings in the coding process, we analyzed whether the characteristics of the manipulations and manipulation checks might also have an effect. We also included features of the sample as potential moderators. Finally, we conducted an automated model selection to estimate the best meta-regressive model (excluding pairwise interactions between moderators) based on the corrected Akaike information criterion with the R package *glmulti* (Calcagno & Mazancourt, 2020). Specifically, we examined the influence of the following moderators:

Publication status. Papers published (0.5) vs. unpublished (−0.5). Studies conducted later than 2021 that have not been published yet were considered as "potentially publishable" reports and were excluded from this moderator analysis.

Year of publication/completion. We included the year of publication of the papers to estimate whether there has been an evolution in the effectiveness of the paradigms over time. We centered this variable to make the results easier to interpret.

Type of manipulation. We estimated whether the effectiveness of the paradigm depends on the types of paradigms used: (1) Absolute economic inequality, (2) relative economic inequality; (3) fictional society; (4) inequality in everyday life; (5) allocation task; and (6) fictional organization.

Type of contrast. Since different experiments compared different levels of economic inequality, we included the type of contrast as a moderator. We used the *high economic inequality* condition as the reference point, as it is the most commonly used one, so that we included the next contrasts: (1) High vs. low; (2) high vs. equality; and (3) high vs. control.

The time period of economic inequality. We estimated whether the fact that economic inequality had been manipulated in the present (i.e., the current level of economic inequality is high/low) or in the future (i.e., the level of economic inequality will increase/decrease in the next few years) qualifies the effectiveness of the manipulation (−0.5 = present; 0.5 = future).

Level of manipulation. We included as moderator whether the experiment manipulated the level of economic inequality in an abstract way (e.g., using economic indexes such as GINI) or concretely showing the different living conditions that inequality entails (0 = abstract; 1 = concrete = 1; 2 = both).

Proportion of income/wealth between groups. We estimated the effect of whether the experiment included the proportion of income/wealth between groups in the design (0.5) or not (−0.5)

The absolute level of income/wealth of groups. We included as moderator whether the experiment included the absolute level of income/wealth of the groups in the design (0.5) or not (−0.5).

Support of charts/graphs. We estimated the effect of whether the experiment was included in the design charts/graphs (0.5) or not (−0.5) to show the level of economic inequality.

Income. We included as moderators whether the experiment included in the design the income (e.g., salaries) of the different groups (0.5) or not (−0.5).

Type of manipulation check measure. Based on the difference found between the type of manipulation checks used in the literature, we analyzed whether they were based on mere perception (e.g., "To what extent is your country's economic distribution unequal?") or attitudes towards inequality (e.g., "There is too much economic inequality") affected the observed effectiveness of the manipulations (0 = perception, 1 = attitudes, and 2 = both).

Number of groups contrasted. When the manipulation checks varied in the number of groups asked about, this variable was included as a potential moderator (0 = *two groups*, 1 = *more than two groups*, *2 = one group*, *3 = several options*).

Number of manipulation check items. Given the number of items used as manipulation check may affect the measurement error, especially when a single item is used (Spector, 1992), we included the number of manipulation check items as an additional moderator (1, 2, or 3 items). We centered this variable to make the results easier to interpret.

Age and gender. We included the mean age of the samples as well as the percentage of women to explore whether these socio-demographic features of the sample may affect the effectiveness of the manipulation. We centered these variables.

Gini index. We examined whether the objective level of economic inequality might moderate the effect of the manipulation, so we include the Gini index of the country where the experiment was conducted. We took the country's Gini index for the year of publication, or the closest available earlier year, from the World Bank (2023). We centered this variable to make results easier to interpret.

Western vs. non-western societies. Given that Western countries have a less holistic focus and typically give less importance to situational factors (Kitayama et al., 2009), we examined whether this moderated the effectiveness of the manipulation of perceived economic inequality. Specifically, we differentiated between experiments conducted in Western (Australia, Ireland, Italy, Mexico, Spain, Sweden, Switzerland, UK, and USA; coded 0.5) and non-Western countries (China and Singapore, coded with −0.5).

Publication bias

To test for publication bias, two approaches were considered. First, we tested funnel plot asymmetry (FAT) fitting a meta-regressive model including the effect-size precision as a moderator to test whether there is a general relationship between the observed effect sizes and their precision (i.e., Egger's test; Egger et al., 1997). To prevent the artifactual dependence between Cohen's *d* and its precision estimate (Pustejovsky & Rodgers, 2019), we conducted Egger's test with Fisher's *z* for being a variance-stabilizing transformation for the effect size (Borenstein et al., 2021). Second, selection models (Vevea & Hedges, 1995) assume that the probability of publication depends on the *p*-value. In our meta-analysis, we used a three-parameter selection

model (3PSM) with a one-tailed *p*-value cutpoint of .025, selecting only significant studies.

Results

Main analyses

The meta-analysis included 60 articles published or reported between 2008 and 2023. The articles contributed a total of 119 effect sizes from 107 independent studies (i.e., many of the articles included several studies; **Table 4**). Most of the studies manipulated perceived economic inequality between groups (59 studies out of 60) with an average size of 141 participants per group (*SD* = 104; total of 31,637 participants). Most of the studies were carried out with adult participants [mean age = 27.7 years, *SD* = 7.5; only Trump (2018) investigated adolescents, and Kirkland et al. (2020) and Kirkland et al. (2021) studied children]; 63% women (*SD* = 14.5); from countries in Asia (China: 5 studies; Singapore: 2), Europe (Ireland: 3; Italy: 2; Spain: 42; Sweden: 1; Switzerland: 2; United Kingdom: 4), North America (United States of America: 33; Mexico: 4), and Oceania (Australia: 7).

Regarding the manipulation procedure, most of the studies contrasted a high-inequality condition with a low-inequality (90), an equality (3), or a control group (10) as a reference condition, although some studies included several comparison groups (5). While some strategies to manipulate economic inequality were used frequently (fictional society: 47 experiments; absolute economic inequality: 29 experiments; inequality in everyday life: 13 experiments), some experimental manipulations were less common (allocation task: 9 experiments; organizational inequality: 7 experiments; relative economic inequality: 6 experiments). Finally, the manipulation checks used in the studies had an average of 1.5 items (*SD* = 0.6).

Table 4.

Characteristics of the studies included in the review.

Reference	Number of study	Type of manipulation	Contrast	Total sample size	Method	Country	Mean (*SD*) age	Gender %
Anderson et al. (2008)	Study	Allocation task	Levels of EI	144	Lab	US	Undergraduates	82.50% women, 17.50% men
Bak & Yi (2020)	Study 2	Absolute economic inequality	EI vs. Control	140	Online (Prolific)	UK	-	50.35% women
	Study 4	Absolute economic inequality	Levels of EI	122	Online (Mturk)	US	37.57 (12.03)	50.35% women
Brown-Iannuzzi et al. (2021)	Study 1	Allocation task	Levels of EI	422	Online (Mturk)	US	37.57(12.03)	54.74% women
	Study 2	Allocation task	Levels of EI	418	Online (Mturk)	US	40.95 (12.74)	59.81% women
	Study 3	Absolute economic inequality	Levels of EI	408	Online (Prolific)	US	36.99 (12.84)	51.96% women
Casara et al. (2022)	Study 3a	Fictional society	Levels of EI	95	Online	Australia	21.11(6.03)	68.32% women, 31.68% men
	Study 3b	Fictional society	Levels of EI	296	Online	Australia	41.53 (11.11)	54.39% women, 45.61% men
	Study 4a	Fictional society	Levels of EI	56	Online	Italy	20.75 (2.96)	80.36% women, 19.64% men
	Study 4b	Fictional society	Levels of EI	95	Online	Italy	30.12 (12.60)	60.80% women, 26.60% men, 2.85% non-binary

Cheng et al. (2021)	Study 1	Organizational inequality	Levels of EI	73	Online	China	25.63 (7.21)	61.64% women
	Study 2	Organizational inequality	Levels of EI	127	Online	China	27.20 (6.06)	66.14% women
	Study 3	Fictional society	Levels of EI	125	Online	China	29.57 (5.79)	61.60% women
Cheng et al. (2023)	Study 1	Fictional society	Levels of EI	201	Online (Prolific)	US	26.01 (8.53)	79.60% women
	Study 2	Fictional society	Levels of EI	209	Online (Prolific)	US	26.92 (9.18)	76.56% women
	Study 3	Fictional society	Levels of EI	216	Online (Prolific)	US	32.66 (12.56)	56.45% women
	Study 4	Fictional society	Levels of EI	211	Online (Prolific)	UK	39.41 (13.85)	55.92% women
Connor et al. (2021)	Pilot 1	Fictional society	EI vs. Control	43	Online (Mturk)	US	33.79 (10.36)	39.53% women
	Pilot 2	Fictional society	EI vs. Control	169	Online (Mturk)	US	32.17 (9.94)	37.87% women
	Study 1	Fictional society	EI vs. Control	410	Online (Mturk)	US	35.20 (11.10)	46.10% women
	Study 2	Fictional society	EI vs. Control	1157	In person (volunteers at University campus)	US	23.10 (8.10)	57.99% women
	Study 3	Fictional society	EI vs. Control	747	Tablet-assisted (volunteers at University)	US	21.20 (6.35)	56.36% women
Côté et al. (2015)	pretest	Absolute economic inequality	Levels of EI	80	Online (Mturk)	US	-	
	experiment	Absolute economic inequality	Levels of EI	704	Online (Mturk)	US	34.32 (12.31)	57.95% women

Davidai (2018)	Study 2a	Absolute economic inequality	Levels of EI	511	-	-	-	-
	Study 2b	Absolute economic inequality	Levels of EI	746	Online (Mturk)	US	34.48	57.11% women
	Study 3	Absolute economic inequality	Levels of EI	1111	Online (Mturk)	US	49.30	51.94% women
	Study 4	Absolute economic inequality	Levels of EI	397	Online (Mturk)	US	36.10 (11.56)	56.93% women
Du et al. (2021)	Study 2	Fictional society	Levels of EI	100	Online	China	19.59 (1.44)	85% women
Du et al. (2022)	Study	Absolute economic inequality	Levels of EI	433	Online	China	20.66 (2.63)	64.90% women
Carrillo-Pareja (2015) *	Study	Relative economic inequality	Levels of EI	52	Libraries/Street	Spain	22.24 (2.79)	63.50% women, 34.60% men, 1.90% not answered
Cuéllar (2021)*	Study	Inequality in everyday life	Levels of EI	138	Online	Spain	22.47 (2.45)	73.20% women, 26.80% men
Cuevas (2015)*	Study	Absolute economic inequality	Levels of EI	102	Libraries/Street	Spain	30.10 (13.56)	60.80% women, 39.20% men
del Fresno-Díaz et al. (2021)	Study 1a	Fictional society	Levels of EI	260	Libraries	Spain	19.99 (2.81)	53.08% women, 46.92% men
	Study 1b	Fictional society	Levels of EI	292	Libraries	Spain	20.82 (2.83)	83.56% women, 16.44% men
	Pooled Analysis	Fictional society	Levels of EI	552			21.58 (3.78)	68.20% women, 31.80% men
García-Castro et al. (2020)	Pilot Study	Inequality in everyday life	Levels of EI	292	Libraries	Spain	22.20 (3.70)	58.70% women, 41.30% men
	Study 2	Inequality in everyday life	Levels of EI	173	Libraries	Spain	22.30 (3.60)	52.10% women, 47.90% men
	Study 3a	Inequality in everyday life	Levels of EI	186	Libraries	Spain	22.30 (3.40)	54% women, 46% men

	Study 3b	Inequality in everyday life	Levels of EI	145	Libraries	Spain	21.90 (3.20)	63.30% women, 36.70% men
	Study 4	Inequality in everyday life	Levels of EI	144	Online	Spain	20.80 (4.20)	69.60% women, 30.4% Men
García-Sánchez et al. (Unpublished)	Study	Relative economic inequality	Levels of EI	212	Online	Spain	19.08 (3.09)	78% women, 22% men
Heiserman et al. (2020)	Study 1	Absolute economic inequality	Levels of EI	649	Online (Mturk)	US	Median = 34	50.20% women
	Study 2	Absolute economic inequality	Levels of EI	928	Online (Mturk)	US	Median = 47	57.30% women
Heiserman, & Simpson (2017)	Study	Fictional society	Levels of EI	100	Online (Mturk)	USA	Median = 33.30	45% women
Hernández (2020)*	Study	Inequality in everyday life	Levels of EI	74	Online	Spain	26.80 (9.73)	80.20% women, 18.20% men, 1.60% other
Henares-Fernández (2021)*	Study	Absolute economic inequality	Levels of EI	227	Online	Spain	34.98 (15.53)	63% women, 34.40% men, 0.90% non-binary, 0.90% other, 0.90% not answered
Hueltes (2015)*	Study	Absolute economic inequality	EI vs. Control	99	Online	Spain	24.05 (5.31)	59.90% women, 41.10% men
Jetten et al. (2015)	Study 3	Fictional society	Levels of EI	151	Online (Mturk)	USA	32.02 (9.50)	41.05% women, 58.95% men
Kirkland et al. (2020)	Study	Allocation task	Levels of EI	58	Lab	Australia	54.70 (3.40) months	53.45% women
Kirkland et al. (2021)	Study	Allocation task	Levels of EI	128	Lab	Australia	83.83 (10.05) months	57.30% women
Matamoros et al. (unpublished)	Study 1a	Fictional society	Levels of EI	203	Street	Mexico	36.70 (11.40)	47.30% women, 52.70% men

	Study 1b	Fictional society	Levels of EI	244	Online	Mexico	32.90 (14.70)	66.80% women, 33.20% men
McCall et al. (2017)	Study 1	Absolute economic inequality	EI vs. Control	480	Online (Mturk)	US	32.24 (10.16)	45% women
	Study 2	Absolute economic inequality	EI vs. Control	1305	Online (Mturk)	US	32.86 (10.40)	45% women
	Study 3	Fictional society	EI vs. Control	1501	Online (GfK panel)	US	51.49 (16.43)	49% women
Melita et al. (2016a)	Study	Absolute economic inequality	Levels of EI	81	Lab	Spain	19.62 (2.82)	90.36% women
Melita et al. (2016b)	Study	Absolute economic inequality	Levels of EI	83	Libraries	Spain	21.08 (3.24)	80.68% women
Melita et al. (2017a)	Study	Absolute economic inequality	Levels of EI	127	Libraries	Spain	22.25 (2.79)	85.94% women
Melita et al. (2017b)	Study	Absolute economic inequality	Levels of EI	140	Libraries	Spain	21.90 (2.79)	60% women
Melita et al. (2018a)	Study	Absolute economic inequality	Levels of EI	161	Online	Spain	21.58 (2.69)	84.47% women
Melita et al. (2018b)	Study	Absolute economic inequality	Levels of EI	218	Online	United States	37.23 (12.03)	44.50% women
Melita et al. (2019)	Study	Inequality in everyday life	Levels of EI	496	Online	Spain	22.13 (3.30)	72.78% women
Melita et al. (in preparation)	Study	Inequality in everyday life	Levels of EI	430	Online	Spain	21.55 (3.05)	64.88% women
Melita et al. (2021)	Study 2	Fictional society	Levels of EI	200	Online	Spain	21.59 (2.45)	44.72% women
Melita et al. (2023)	Study 1	Inequality in everyday life	Levels of EI	517	Online	Spain	21.76 (3.19)	52.22% women
	Study 2	Inequality in everyday life	Levels of EI	600	Online	Spain	22.11 (3.32)	67.17% women

Montoya-Lozano et al. (Unpublished)	Study	Absolute economic inequality	Levels of EI	266	Online	Spain	25.62 (8.89)	66.50% women, 31.10% men
Montoya-Lozano et al. (2024)	Study 1	Allocation task	Levels of EI	479	Online	Spain	23.82 (7.91)	65.50% women, 32.90% men, 2% other
	Study 2	Allocation task	Levels of EI	165	Online	Spain	26.91 (13.00)	77.60% women, 21.20% men, 1.20% other
	Study 3	Allocation task	Levels of EI	464	Online	Spain	24.43 (7.55)	72.60% women, 26.30% men, 1.10% other
Moreno-Bella (2016)*	Study	Absolute economic inequality	Levels of EI	185	Online	US	40.68 (13.75)	53% women, 47% men
Moreno-Bella et al. (2019)	Study 1	Fictional society	Levels of EI	106	In class	Spain	21.87 (3.84)	84% women, 16% men
	Study 2	Fictional society	Levels of EI	75	In class	Spain	21.48 (2.93)	78.70% women, 21.30% men
Moreno-Bella, Willis et al. (2023)	Study 1	Fictional society	Levels of EI	170	Online	Spain	21.51 (5.25)	63.40% women, 37.60% men
	Study 2	Fictional society	Levels of EI	215	Online	México	21.51 (2.23)	73% women, 27% men
Moreno-Bella, Kulich et al. (2023)	Study 1	Organizational inequality	Levels of EI	195	Online	US (Mturk)	35.60 (10.55)	35.40% women, 64.10% men
	Study 2	Organizational inequality	Levels of EI	183	Online	Switzerland	22.97 (4.48)	83.60% women, 16.40% men
	Study 3	Organizational inequality	Levels of EI	198	Online	Switzerland	21.84 (2.92)	82.80% women, 17.20% men
Moreno-Bella et al. (2022)	Study	Organizational inequality	Levels of EI	482	Online	US (Mturk)	40.41 (11.75)	42.20% women, 48.40% men, 0.40% other

Nishi et al. (2015)	Study	Allocation task	Levels of EI		Online		-	-
Payne et al. (2017)	pilot	Allocation task	Levels of EI	222	Online (Mturk)	US	-	-
	Study 1	Allocation task	Levels of EI	221	Online (Mturk)	US	-	-
	Study 2	Allocation task	Levels of EI				-	-
	Study 3	Allocation task	Levels of EI		Online (Mturk)	US	-	-
Peter et al. (2021)	Study 3a	Fictional society	Levels of EI	226	Online (Mturk)	USA	35.38 (11.21)	50.88% men
	Study 3b	Fictional society	Levels of EI	414	Online (Mturk)	USA	36.03 (10.74)	57% women, 41.80% men, 1.20% other
	Study 4	Relative economic inequality	Levels of EI	505	Online (Prolific)	United Kingdom	34.26	68.12% women, 31.09% men, 0.79% other
Roth et al. (2021)	Study 1	Allocation task	Levels of EI	142	Online	Ireland	25.96 (8.50)	73.90% women, 26.10% men
	Study 2	Allocation task	Levels of EI	219	Online	Ireland	24.65 (7.62)	82.70% women, 18.30% men
	Study 3	Absolute economic inequality	Levels of EI	148	Online	Ireland	26.04 (7.32)	56.80% women, 42.60% men
Sainz et al. (2022)	Study 2a	Fictional society	Levels of EI	320	Online (Prolific)	Spain	27.01 (10.13)	70.31% women, 28.43% men, 1.25% other
	Study 2b	Fictional society	Levels of EI	330	Online (Prolific)	Mexico	20.95 (6.06)	62.73% women, 36.96% men, 0.30% other
Sánchez-Rodríguez, Willis et al. (2019)	Study 1	Fictional society	Levels of EI	206	Lab	Spain	19.99 (2.81)	82.50% women, 17.50% men

	Study 2	Fictional society	Levels of EI	60	Lab	Australia	18.45 (1.25)	61.70% women, 36.70% men
	Study 3	Fictional society	Levels of EI	198	Online (Mturk)	USA	33.6 (10.10)	44.40% women, 55.10% men
Sánchez-Rodríguez, Willis & Rodríguez-Bailón (2019)	Study2	Fictional society	Levels of EI	94	Lab	Spain	21.55 (3.89)	76.60% women, 23.30% men
Sánchez-Rodríguez, Jetten et al. (2019)	Study 7	Fictional society	Levels of EI	222	Online (Mturk)	USA	33.72 (1.00)	40.10% women, 59.50% men
Sánchez-Rodríguez et al. (2022)	Study 2	Fictional society	Levels of EI	98	Lab	Spain	20.20 (1.42)	83.70% women, 16.30% men
	Study 3	Relative economic inequality	Levels of EI	133	Lab	Spain	20.12 (3.99)	83.50% women, 16.50% men
Sánchez-Rodríguez et al. (2023)	Study 2	Fictional society	Levels of EI	541	Online (Mturk)	USA	38.63 (12.61)	50.50% women, 45.50% men
Sánchez-Rodríguez et al. (in preparation)	Study 1	Fictional society	Levels of EI	86	Lab	Spain	20.38 (3.39)	85.70% women, 14.40% men
Schmalor, A, (Unpublished)	Study 1	Fictional society	Levels of EI	948	-	-	-	-
Sistiaga (2020) *	Study	Fictional society	Levels of EI	152	Online	Spain	26.93 (9.43)	75.80% women, 22.20% men, 2% other
Sommet et al. (2022)	Study 3	Fictional society	Levels of EI	846	Online (Mturk)	US	24.46 (2.62)	57.75% women
Sommet & Elliot (2022)	Study 2a	Fictional society	Levels of EI	444	Online (Mturk)	USA	36.20 (10.5)	32.28% women
Sprong, et al. (2019)	Study 3a	Fictional society	Levels of EI	96	Online	Australia	21.11 (6.03)	65.63% women
	Study 3b	Fictional society	Levels of EI	296	Online (Mturk)	US	41.53 (11.11)	54.39% women

Tan, Tan, & Lim (manuscript in prep)	Study 1	Inequality in everyday life	Levels of EI	200	Lab	Singapore	21.22 (1.91)	77% women, 23% men
	Study 2	Inequality in everyday life	Levels of EI	387			21.81 (2.03)	63.20% women, 36.80% men
Tan, Adler, & Mendes (manuscript in prep)	Study 2	Allocation task	Levels of EI	980	Online	USA	45.83 (16.44)	54.90% women, 45.10% men
Tanjitpiyanond et al. (2022a)	Study 2	Organizational inequality	Levels of EI	286	Online	Australia	30 (10.45)	49.30% women
Tanjitpiyanond et al. (2022b)	Study 1	Fictional society	Levels of EI	425	Online	Australia	27.47 (11.40)	56.71% women
	Study 2	Fictional society	Levels of EI	397	Online	Australia	26.41(10.04)	59.45% women
Travesí (2015)*	Study	Relative economic inequality	Levels of EI	80	Libraries	Spain	22.51 (3.35)	52.50% women, 47.50% men
Trump (2018)	Study 2	Absolute economic inequality	EI vs. Control	407	Online (Mturk)	US	12.44 (10.06)	36% women
	Study 3	Absolute economic inequality	EI vs. Control	250	Online	Sweden	26.22 (6.59)	60% women
	Study 4	Absolute economic inequality	EI vs. Control	616	Online (Mturk)	US	30.63 (11.72)	37% women
Velandia-Morales et al. (2022)	Study 1	Relative economic inequality	Levels of EI	252	Online/street	Spain	34.20 (9.77)	61.40% women, 38.60% men,
	Study 2	Fictional society	Levels of EI	301	Online	Spain	24.19 (6.75)	69.40% women, 29.30% men, 1.30% other
Velandia-Morales et al. (unpublished)	Study	Absolute economic inequality	Levels of EI	187	Lab	Spain	24.20 (6.56)	65.90% women, 34.10% men
Velandia-Morales et al. (2023)	Study 1b	Fictional society	Levels of EI	276	Online	Spain	23.98 (6.96)	69.70% women, 28.60% men, 1.10% other

	Study 2b	Absolute economic inequality	Levels of EI	301	Online	Spain	24.20 (7.40)	66% women, 33.30% men, 0.70% other
Wang et al. (2022)	Study 1	Fictional society	Levels of EI	321	Online	US	41.40 (11.10)	53.90% women
	Study 3	Fictional society	Levels of EI	596	Online	UK	36.30 (13.20)	55.70% women
	Study S1	Absolute economic inequality	Levels of EI	500	Online	US	38.10 (11.80)	45.20% women
Willis et al. (2016)	Study	Absolute economic inequality	EI vs. Control	78	Class	Spain	22.39 (5.64)	84.80% women, 13.90% men

Note. EI: Economic inequality
*Master's Thesis or final degree project

Are the paradigms used to manipulate perceived economic inequality effective?

Consistent with the literature, we confirmed that perceived economic inequality was affected by experimental manipulations, $g = 1.70$ [1.44, 1.97], $p < .001$. This result arose from a pool of effect sizes that were highly variable among themselves, more than could be explained by sampling error (i.e., heterogeneity): $\tau^2 = 1.38$, $I^2 = 98.68\%$. It suggests that a great portion of the observed variability between the effect sizes of the studies (98.68%) was potentially due to the influence of moderating variables and other sources of variability different from chance. Thus, although the overall mean effect was positive and significant ($g = 1.70$, $p < .001$), the distribution of predicted future effects (i.e., prediction interval) covers negative values, 95% PrI [−1.02, 4.44]. Given that there are known and unknown variables that remarkably modulate the impact of the manipulation, the interval suggests that some studies might observe no difference between inequality conditions or even the opposite of the expected result (i.e., more perceived inequality in the comparison/control condition).

One study (Connor et al., 2021: Study 3) was detected as an outlier, given that it reported an extremely large effect size ($g > 9$). After excluding this study, studentized residuals (> 2) and Cook's distance [$> 4/(n - 1)$] allowed us to identify four additional outliers (Roth et al., unpublished: Study 2; Tanjitpiyanond et al., 2022b: Studies 1 and 2; Wang et al., 2022: Study 3) that contributed with disparate outcomes (gs > 4). After excluding the outliers, the overall effect and heterogeneity were reduced, $g = 1.49$ [1.31, 1.68], $p < .0001$, $\tau^2 = 0.87$, $I^2 = 97.97\%$, although heterogeneity remained high and the prediction interval still includes negative values, 95% PrI [−0.27, 3.08] (**Figure 2**). Results were similar when 5% winsorization was applied instead of removing outliers: $g = 1.63$ [1.42, 1.84], $p < .0001$, $\tau^2 = 1.17$, $I^2 = 98.43\%$. The following results will be estimated with this level of winsorization.

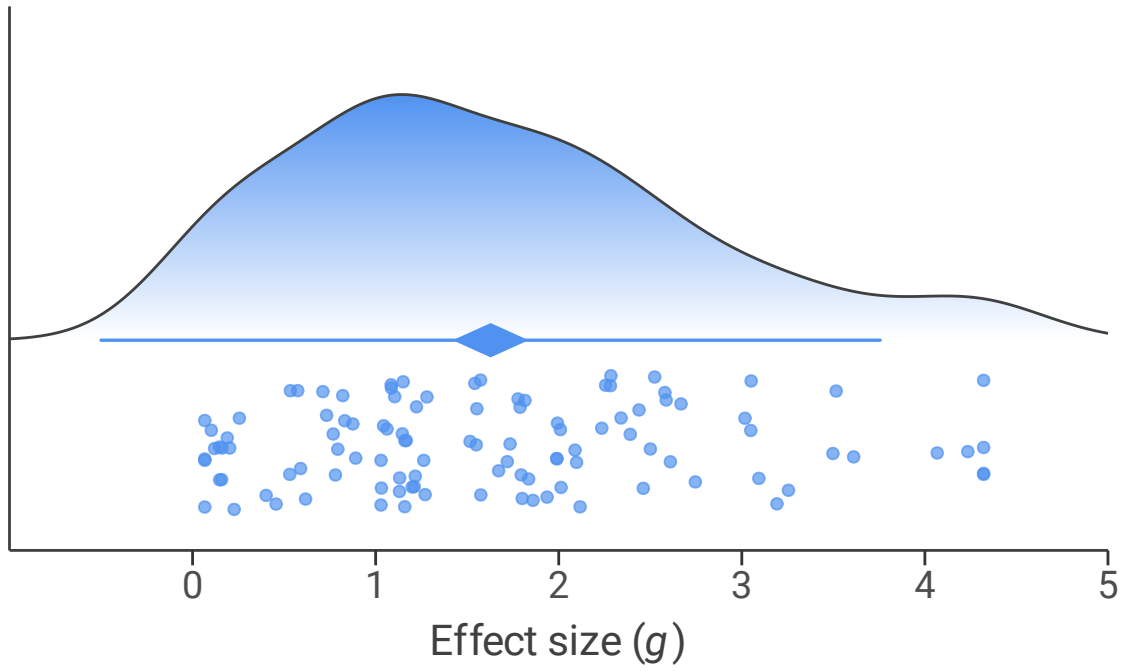

Figure 2. Overall effect of the model (diamond) with the individual effects of all included primary studies (circles). The final effect and its confidence interval are represented by the location and the width of the diamond, while the horizontal line depicts the predicted interval.

The effects reported in published studies were larger than those in unpublished studies conducted before 2023 (g = 1.93 vs. g = 1.02, p < .001; **Table 5**). In addition, the observed difference as a result of the inequality manipulation has increased over the years, p = .004, results that cannot be accounted for by publication bias. Thus, Egger's test suggested a lack of small-study bias, p = .404, and Veveas and Hedges' selection model observed no evidence of selective reporting based on statistical significance, $\chi^2(1) = 0.11$, p = .741. The lack of publication bias evidence was observed even when only published studies were included in the models (Egger's test: $Q_M = 0.12$, p = .731; 3PSM: $\chi^2(1) = 0.16$, p = .690). The moderating effect of the publication status of the studies (published vs. unpublished) and their year of publication could be explained by variables related to the manipulation itself (see the following section).

Table 5.
Results of univariate moderator analyses in manipulation check comparisons.

Moderator	Q_M	*df*	*p*	
Publication status	**11.03**	**1**	**< .001**	Published: *g* = 1.93 [1.66, 2.20], *k* = 62 Unpublished: *g* = 1.02 [0.57, 1.49], *k* = 22
Year of publication/completion	**8.13**	**1**	**.004**	β = 0.13, *k* = 107
Egger's test: *SE* of Fisher's *z* (small-study bias)	0.70	1	.404	β = −1.88, *k* = 107
Veveas and Hedges' selection model: 3PSM	χ^2 = 0.11	1	.741	*k* = 107
Variables of the manipulation strategy				
Type of manipulation	**48.81**	**5**	**< .001**	Absolute economic inequality: *g* = 0.79 [0.55, 1.03], *k* = 29 Relative economic inequality: *g* = 0.86 [0.46, 1.26], *k* = 6 Fictional society: *g* = 2.21 [1.89, 2.53], *k* = 46 Inequality in everyday life: *g* = 1.44 [1.14, 1.73], *k* = 13 Allocation task: *g* = 2.07 [0.80, 3.35], *k* = 6 Organizational inequality: *g* = 1.97 [1.47, 2.47], *k* = 7
Type of contrast	**8.62**	**2**	**.013**	High vs. low: *g* = 1.64 [1.42, 1.86], *k* = 90 High vs. equality: *g* = 2.48 [1.65, 3.30], *k* = 7 High vs. control: *g* = 0.94 [0.41, 1.47], *k* = 10
Period of time of economic inequality	0.05	1	.817	Present: *g* = 1.64 [1.42, 1.85], *k* = 97 Future: *g* = 1.56 [0.72, 2.40], *k* = 10
Level of manipulation	4.78	2	.092	Abstract: *g* = 1.40 [1.08, 1.73], *k* = 49 Concrete: *g* = 2.14[1.47, 2.79], *k* = 8 Both: *g* = 1.77 [1.49, 2.05], *k* = 50
Proportion of income/wealth between groups	**4.08**	**1**	**.043**	With proportion: *g* = 1.79 [1.53, 2.05], *k* = 67 Without proportion: *g* = 1.36 [1.02, 1.69], *k* = 40
Absolute level of income/wealth of groups	0.24	1	.623	With absolute level: *g* = 1.57 [1.27, 1.88], *k* = 51 Without absolute level: *g* = 1.68 [1.40, 1.96], *k* = 56
Support of charts/graphs	**6.87**	**1**	**.009**	With charts/graphs: *g* = 1.83 [1.56, 2.10], *k* = 70 Without charts/graphs: *g* = 1.26 [0.97, 1.54], *k* = 37
Income	0.32	1	.572	With income: *g* = 1.56 [1.24, 1.87], *k* = 37 Without income: *g* = 1.69 [1.42, 1.96], *k* = 69
Variables of the measure of the manipulation check				
Type of manipulation check measure	6.74	2	.035	Perception: *g* = 1.76 [1.52, 1.99], *k* = 87 Attitudes: *g* = 1.06 [0.67, 1.45], *k* = 18

				Both: g = 1.10 [−0.26, 2.46], k = 2
Number of groups contrasted	4.44	3	.218	*Two groups*: g = 1.22 [0.96, 1.49], k = 16 *More than 2 groups*: g = 1.67 [1.43, 1.91], k = 83 *One group*: g = 0.88 [0.57, 1.18], k = 1 *Several options*: g = 2.16 [1.09, 3.24], k = 7
Number of items	1.70	1	.192	β = 0.24, k = 107
Sample variables				
Age	0.11	1	.737	β = 0.005, k = 103
Gender	< 0.01	1	.994	β = 0.01, k = 104
Gini index	**5.44**	**1**	**.020**	β = −0.08, k = 103
Western vs. non-western societies	0.70	1	.402	Western: g = 1.65 [1.42, 1.88], k = 94 Non-western: g = 1.34 [0.89, 1.80], k = 11

Which paradigms are more effective in manipulating perceived economic inequality?

Compared to the *fictional society strategy*, which was the most used manipulation paradigm (46 experiments out of 107), the effect on perceived economic inequality was significantly smaller in studies using *absolute economic inequality*, *relative economic inequality*, and *inequality in everyday life* manipulations (**Figure 3** and **Table 5**). Interestingly, the number of designs using manipulations of *fictional society strategy*, *allocation tasks*, and *organizational inequality* has increased since 2018 compared to the remaining types. The fact that the most effective manipulations have increased in recent years may explain why the effect of manipulations on perceived inequality is stronger among reports in recent years, as manipulations based on the more efficient paradigms—*fictional society strategy*, *allocation task*, and *organizational inequality*—are unevenly distributed within this moderating variable (i.e., year of publication). Thus, when the type of manipulation is added to the meta-regressive models with year of publication/completion, the publication status (i.e., published vs. unpublished) reduced its predictive power, and year of publication/completion was no longer a significant moderator (p = .403).

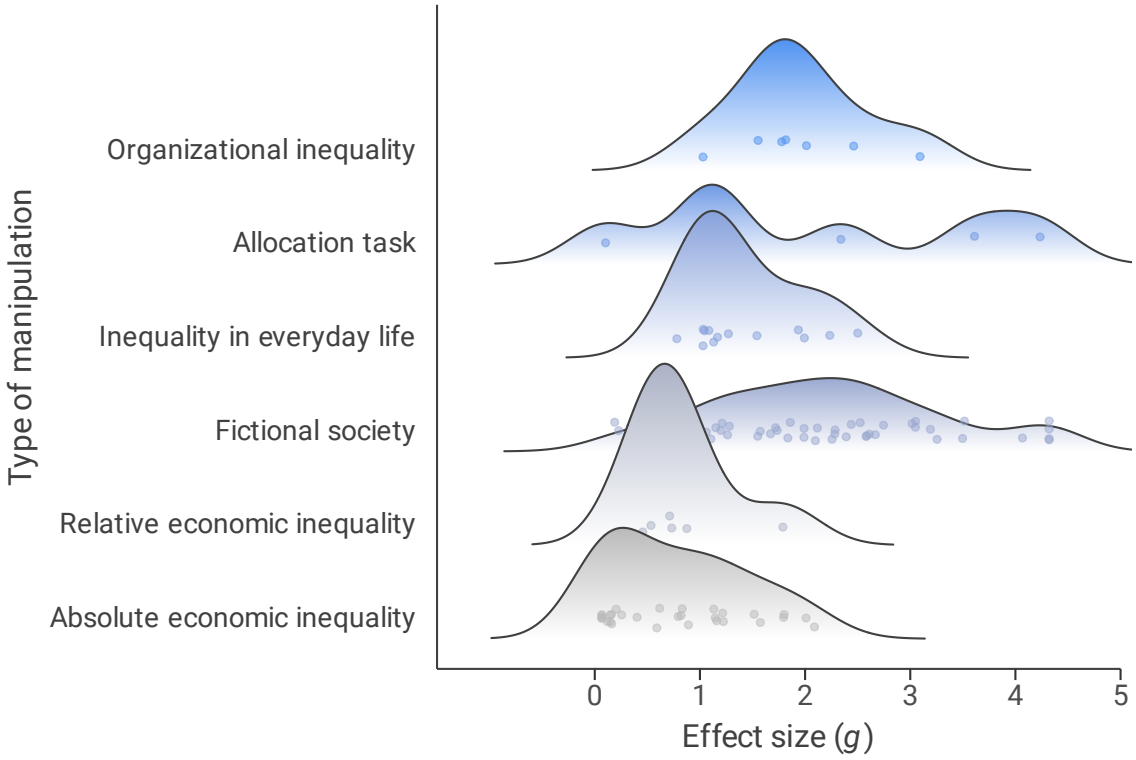

Figure 3. Distribution of individual effects of the six strategies used to manipulate perceived economic inequality across studies.

How do the particular characteristics of experiments and the nature of manipulation checks influence the efficacy of the paradigm?

The type of contrast, the inclusion of the proportion of income/wealth between groups, and the use of charts or graphs as support significantly moderated the effect of the manipulation, (ps < .05), while there was a numerical trend with level of manipulation, p = .092. Contrasts with equality conditions led to larger differences than low-inequality conditions, which was the most frequent comparison condition (high vs. equality: g = 2.18; high vs. low: g = 1.51; high vs. control: g = 0.91). Also, including proportion of income/wealth and charts/graphs in the manipulation protocol led to higher perceived inequality (with proportion: g = 1.67; vs. without proportion: g = 1.19; with charts/graphs: g = 1.83; vs. without charts/graphs: g = 1.26). When the manipulation was at an abstract level (i.e., Gini index, graph, etc.), the effect was

smaller than when the manipulation was concrete (i.e., living conditions) or the manipulation concerned both type levels (abstract: $g = 1.20$; vs. concrete: $g = 1.84$; and both: $g = 1.71$).

Furthermore, other variables relating to features of the manipulation check and the sample influenced the observed effect. Thus, the type of manipulation check measure showed a significant effect ($p = .035$), with a higher effect when the manipulation check was measured as perceptions ($g = 1.76$) than when it was measured as attitudes ($g = 1.06$) or both ($g = 1.10$).

When more complex structures of moderators were considered, the best meta-regressive model included type of manipulation, type of contrast, level of manipulation, publication status, year of publication, and Gini index (**Table 6**). Consistently with univariate analyses, published studies showed larger effects and *fictional society* strategy led to larger effects on the manipulation checks than *absolute* and *relative economic inequality*, *inequality in everyday life*, and *organizational inequality*. In addition, the high vs. low contrast led to smaller effect than high vs. equality ones, but the reversed, higher perceived inequality, compared to high vs. control contrasts. Finally, countries with a lower Gini index showed a larger effect of the manipulations.

Table 6.
Results of the best meta-regressive model.

Moderator	β	*z* value	*p*
Absolute economic inequality (vs. fictional society)	**−1.23**	**−4.35**	**< .001**
Relative economic inequality (vs. fictional society)	**−1.42**	**−3.73**	**< .001**
Inequality in everyday life (vs. fictional society)	**−0.88**	**−2.41**	**.016**
Allocation task (vs. fictional society)	−0.92	−1.90	.057
Organizational inequality (vs. fictional society)	**−0.98**	**−2.23**	**.026**
High vs. equality (vs. high vs. low)	**0.94**	**2.02**	**.044**
High vs. control (vs. high vs. low)	**−0.65**	**−1.97**	**.048**
Abstract vs. Concrete	0.30	0.67	.505
Abstract vs. Both	−0.46	−1.88	.060

Published (vs. unpublished)	**0.59**	**3.05**	**.002**
Year	**0.09**	**2.22**	**.027**
Gini index	**−0.09**	**−3.08**	**.002**

Which psychosocial consequences are more affected by perceived economic inequality?

We estimated the effect size of economic inequality manipulation on the twelve consequences that we identified previously. We identified types of dependent variables according to their nature (motivations, attributions, etc.) to estimate whether some types of consequences are more impacted by the manipulation of perceived economic inequality than others. It is important to note that the expected impact on these variables can be strongly influenced by their content. For instance, economic inequality might influence stereotypes about the competence of the rich and poor, potentially increasing the perceived competence of the rich and decreasing that of the poor. If we were to estimate the main effect of economic inequality on competence in general, the effect might appear null, even though both effects could be present. Therefore, to calculate the overall effect of economic inequality on downstream consequences, we aligned the dependent variables with the general research hypothesis. This approach allows us to estimate the extent to which different dependent variables may be more or less affected by the manipulation of perceived economic inequality, considering their nature rather than their specific content.

Our results show that manipulating inequality had significant effects on 8 out of 12 variables (**Table 7**). Dimensions such as belief system, perception, stereotyping causal attributions, norms, motivation/values, social and economic comparison, and self-concept were affected. Importantly, the effects ranged from small to large (with

effect sizes ranging from $g = 0.07$ to $g = 0.77$), and there was considerable heterogeneity across these effects (from $I^2 = 57.8$ to $I^2 = 96.6$).

Table 7.
Results of the meta-analyses of the effect of manipulating inequality on multiple variables after winsorization.

Variable	*g* [95% CI], *p-value*	I^2	*n* (*k*)
Attitudes	$g = 0.07$ [−0.07, 0.22], $p = .315$	84.8	18 (27)
Belief system	**$g = 0.50$ [0.28, 0.71], $p < .001$**	**92.6**	**19 (23)**
Perception	**$g = 0.57$ [0.17, 0.96], $p = .009$**	**96.6**	**14 (29)**
Stereotypes	**$g = 0.42$ [0.23, 0.62], $p = .001$**	**92.4**	**9 (50)**
Causal attributions	$g = 0.27$ [−0.04, 0.58], $p = .078$	93.6	10 (16)
Norms	**$g = 0.77$ [0.36, 1.19], $p = .003$**	**96.6**	**9 (26)**
Motivations/Values	**$g = 0.37$ [0.18, 0.57], $p = .001$**	**90.8**	**14 (33)**
Emotions	$g = 0.17$ [−0.26, 0.60], $p = .291$	79.9	4 (7)
Identity	$g = 0.12$ [−0.21, 0.45], $p = .431$	89.3	10 (14)
Social/economic comparison	**$g = 0.25$ [0.11, 0.38], $p = .001$**	**88.3**	**24 (41)**
Allocation strategies	$g = 0.10$ [−0.15, 0.36], $p = .381$	81.8	9 (13)
Self-concept	**$g = 0.29$ [0.10, 0.47], $p = .013$**	**57.8**	**5 (16)**

Note. *n*: Number of independent samples, *k*: Number of effects

Interestingly, certain aspects of the manipulation strategy that influenced the outcome of the manipulation check also impacted the consequences observed on the dependent variables (**Table 8**). In line with what was observed in the analyses with manipulation checks, the *fictional society* and *organizational inequality* strategy yielded a larger effect on dependent variables than manipulations based on *absolute economic inequality* and *inequality in everyday life*. In addition, the effects on dependent variables were significant only when the studies manipulated perceived economic inequality in the present and when they were published. In contrast, the effects were smaller and non-significant when inequality was manipulated for the future or when the studies were unpublished.

Table 8.
Results for the moderators with the dependent variables.

Moderator	χ^2	*df*	*p*	
Publication status	**7.50**	**1**	**.006**	Published: $g = 0.39$ [0.29, 0.50], $n = 52$, $k = 170$ Unpublished: $g = 0.17$ [0.06, 0.29], $n = 38$, $k = 112$

Variables of the manipulation strategy				
Type of manipulation	**3.10**	**5**	**.008**	Absolute economic inequality: g = 0.17 [0.03, 0.30], n = 24, k = 45 Relative economic inequality: g = 0.14 [−0.15, 0.42], n = 6, k = 18 Fictional society: g = 0.39 [0.26, 0.52], n = 41, k = 137 Inequality in everyday life: g = 0.10 [−0.08, 0.27], n = 6, k = 13 Allocation task: g = 0.28 [−0.38, 0.94], n = 3, k = 6 Organizational inequality: g = 0.58 [0.20, 0.97], n = 7, k = 53
Type of contrast	2.73	2	.065	High vs. low: g = 0.30 [0.21, 0.38], n = 83, k = 232 High vs. equality: g = 0.49 [0.11, 0.87], n = 6, k = 25 High vs. control: g = 0.15 [−0.05, 0.35], n = 8, k = 18
Time of economic inequality	**7.17**	**1**	**.007**	Present: g = 0.32 [0.23, 0.41], n = 78, k = 259 Future: g = 0.10 [−0.03, 0.24], n = 8, k = 13
Level of manipulation	0.06	1	.807	Abstract: g = 0.29 [0.17, 0.40], n = 39, k = 105 Both: g = 0.31 [0.19, 0.44], n = 47, k = 165
Proportion of income/wealth between groups	0.63	1	.428	With proportion: g = 0.33 [0.21, 0.45], n = 52, k = 147 Without proportion: g = 0.26 [0.15, 0.37], n = 35, k = 124
Absolute level of income/wealth of groups	0.55	1	.458	With absolute level: g = 0.27 [0.16, 0.37], n = 39, k = 146 Without absolute level: g = 0.33 [0.21, 0.45], n = 48, k = 125
Support of charts/graphs	0.30	1	.585	With charts/graphs: g = 0.32 [0.21, 0.43], n = 55, k = 202 Without charts/graphs: g = 0.27 [0.13, 0.40], n = 32, k = 70
Sample variables				
Age	1.48	1	.224	β = 0.007, n = 88, k = 279
Gender	1.07	1	.300	β = −0.002, n = 90, k = 282
Gini index	0.67	1	.414	β = −0.01, n = 81, k = 262
Western vs. non-western societies	1.06	1	.303	Western: g = 0.29 [0.21, 0.38], n = 81, k = 262 Non-western: g = 0.49 [−0.03, 1.01], n = 5, k = 10

Discussion

Our main objective was to review the literature on economic inequality in order to systematize the diversity of experimental paradigms used to manipulate perceived

economic inequality in psychology and to assess their effectiveness. According to the results of our systematic review, the vast majority of scientific work on the psychosocial consequences of economic inequality has been correlational. Thus, only 37 papers have met our inclusion criteria since 1987. Even including additional studies that we collected through open call requests for unpublished studies, experimental studies on the effects of perceived economic inequality account for less than 5% of the studies that have investigated economic inequality and have mainly taken place in the last decade. This corroborates that although research on the consequences of economic inequality has typically been correlational, a growing literature of experiments manipulating the perceived level of economic inequality has emerged from 2008, strengthening the causal inference on the consequences of economic inequality.

Are the paradigms used to manipulate perceived economic inequality effective?

Our results show that the manipulation of economic inequality affected the perception of economic inequality successfully and in most cases with a large magnitude (i.e., the effect size in the manipulation checks was overall large). However, there was also considerable heterogeneity among effect sizes, including negative values suggesting that some manipulations/conditions might not be effective. In an attempt to account for this high heterogeneity, we examined the moderating role of the type of manipulation, the specific features of the manipulation and manipulation check, and the characteristics of the sample. Although some of these moderators explained some of the heterogeneity, as outlined further below, the remaining heterogeneity was still very high. Given that most studies define economic inequality in similar terms (e.g., the gap between the rich and poor people, Du et al., 2020; Kirkland et al., 2020; Sánchez-Rodríguez et al., 2019; Wang et al., 2022), part of the observed heterogeneity may be due to implicit assumptions made by researchers when designing experiments or by

participants when responding (e.g., the reference group they have in mind when they think of rich people, Jachimowicz et al., 2023). Given that experimental manipulations are designed to target the same construct—i.e., economic inequality— characteristics of each paradigm should be carefully considered. The large heterogeneity that remains unexplained raises questions about the rigor with which the details in the construction of paradigms are implemented. We encourage readers to consider this when designing future experiment.

Which paradigms are used to manipulate perceived economic inequality, and which are more effective?

According to our findings, six main types of experimental strategies are used to manipulate perceived economic inequality, ordered from most to least used: *fictional society, absolute economic inequality*, *inequality in everyday life, allocation tasks*, *organizational inequality*, and *relative economic inequality*. There is a clear predominance of the first two manipulations in the reviewed research and our results showed that *fictional society* is the most effective paradigm to manipulate economic inequality, followed by *organizational inequality, allocation tasks*, and *inequality in everyday life* (indeed, the differences among these three paradigms were not significant). The *absolute and relative economic inequality* paradigms showed significantly smaller effect sizes on the manipulation checks than the *fictional society*, suggesting that they are less effective in changing perceptions of economic inequality.

These findings suggest that it is more difficult to change perceptions of economic inequality in the real world using an experimental paradigm (absolute or relative) than in a fictional setting (society or organization), probably because perceptions of economic inequality in the real world are more closely linked to prior knowledge and motivated perceptions (e.g., driven by ideology, Kteily et al., 2016;

Waldfogel et al., 2021). Alternatively, there could have been a covariation between the type of paradigm and the format of manipulation checks, with more sensitive manipulation checks being overrepresented in certain paradigms. However, although there is a covariation between the type of paradigm and the type of manipulation checks used, this does not seem to explain the results.[2]

Fictional settings, both social and organizational, are therefore the most effective strategy for manipulating economic inequality. However, a common criticism of experimental paradigms, especially those that create fictional situations, is that they have low external validity (Cesario, 2022). Despite this, fictional settings have significant advantages for exploring the underlying mechanisms through which economic inequality may impacts psychosocial outcomes (Duell & Landa, 2022). For example, extensive research has shown that economic inequality positively predicts status-focused behaviors, including more Google searches for luxury brands and more mentions of them on social media (Walasek et al., 2016, 2018), longer work hours (Alexiou, 2020), and a greater willingness to take higher risks in order to win a larger prize (Payne et al., 2017). A potential mechanism that explains this relationship between economic inequality and status-focused behavior is that people infer that contexts of high economic inequality are competitive settings, and therefore, they feel compelled to engage in behaviors that highlight their status. Multiple studies have shown evidence for this reasoning by demonstrating that people associate higher economic inequality with increased competitiveness (Cheng et al., 2021; Sánchez-Rodríguez et al., 2019, Sommet et al. 2022), which makes it challenging to separate the effects of inequality and competitiveness on psychosocial outcomes. Yet limited, fictional scenarios help

[2] The three paradigms with the largest effect sizes in the manipulation check more frequently use the perception of economic inequality [χ^2 (1)=4.61; p = .032], which is more sensitive than the manipulation check based on attitudes toward inequality. However, when considering only the cases in which perceived economic inequality is used, the type of paradigm still predicts the effect sizes (Q_M = 30.26, p < .001)"

overcome this limitation by manipulating different psychosocial components of economic inequality, including perceptions or prescriptive norms. One of the most efficient designs for examining the potential mediating role of a variable is the concurrent double randomization design or moderation-of-process design (Pirlot et al., 2016; Spencer et al., 2005). In this design, the research manipulates both the independent (economic inequality) and mediator (competitiveness) variable simultaneously and orthogonally in a two-factor experimental design, allowing for the manipulation of the mediational effect.

Nevertheless, it is important to note that the effects observed in experimental fictional settings, while helpful in uncovering underlying mechanisms, should be complemented with other designs that offer greater ecological validity. In real-world settings, additional forces that could inhibit the effect may be at play, and specific conditions may be required to generate the necessary contingencies for the effect to occur (Cesario et al., 2022). Since different types of paradigms have different weaknesses, ideally, they should be combined, and convergent evidence should be sought across different experimental paradigms (e.g., fictional and real-world setting). This would compensate for their unique weaknesses and complement their specific strengths. For example, it has been shown that results are similar when perceived economic inequality is manipulated in a *fictional society* and using *relative economic inequality* (Sánchez-Rodríguez et al., 2020). Converging results reinforce the robustness of the findings. Results that align provide confidence in the robustness of findings when combined with strategies beyond experimental settings (Jetten et al., 2022). Indeed, several papers provide convergent evidence for their findings by combining experimental studies with correlational data obtained from archival data (Peters et al., 2021), field surveys (Tanjitpiyanond et al., 2022), and representative and non-

representative international samples (Sánchez-Rodríguez, Uskul, et al., 2023; Sprong et al., 2019; Wang et al., 2022). Longitudinal designs are particularly valuable in this regard, as they offer high ecological validity while allowing for causal inference (e.g., Cheng et al., 2023). Although we can never be completely sure about the adequacy of our theory in relation to our results due to the problem of the under-determination of theory by data (Stanford, 2017; Quine, 1951), on the basis of the combination of evidence, the internal and external validity of the findings is strengthened, and confidence in the identified underlying mechanism may be gained.

What are the main features of experimental paradigms, and which are more effective?

Apart from the type of paradigm used, our results suggest that there are also specific characteristics of the manipulations that influence its effectiveness. Although the contrast between high and low economic inequality is the most common, the comparison between high economic inequality vs. equality appears to show the greatest effect on the perceptions of inequality, which is logical given that the degree of comparative inequality is greater. However, given the small number of studies that made this comparison (i.e., six), we must be cautious about this finding.

Moreover, we identified specific features of the paradigms that may vary. The level of manipulation (abstract, concrete, or both) and the inclusion or not of the proportion of income/wealth between groups are particularly relevant because they moderated the effect of the perceived economic inequality manipulation on the manipulation checks. When the manipulation used only abstract ways of manipulating economic inequality (i.e., Gini index, graph, etc.), the effect on perceived economic inequality was smaller than when the manipulation used concrete ways of manipulating it (i.e., comparing different living conditions between income groups). This finding is in

line with previous research that has shown that more proximal inequality affects individuals more strongly than more general and abstract inequality (García-Castro et al., 2020).

Moreover, the inclusion of information about the proportion of income/wealth between groups seems to strengthen the effect of the manipulation checks. This is in line with the definition of economic inequality itself, given that it reflects how income and wealth are distributed among people. The concept of economic inequality is strongly linked to the processes of social comparison and relative deprivation generated by the contrasts that take place in the income/wealth held by different groups (Festinger, 1954; Osborne et al., 2015). Therefore, making these contrasts salient in the form of a ratio reinforces the strength of the manipulation.

What are the main manipulation checks used, and which are more sensitive?

Beyond the features of the experimental paradigms, the way in which the perception of economic inequality is measured in the different manipulation checks also seems to affect the observed effectiveness of the manipulations. According to our results, the greater the number of items included to measure perceived economic inequality, the greater the effectiveness of the manipulation observed. This effect may be due to the fact that increasing the number of items used to measure perceived economic inequality reduces measurement error, providing a more reliable measure of the effect of the manipulation. Manipulation checks with only one item might produce more extreme outcomes (also on the negative side), but their overall effect should be similar in the absence of selective reporting and enough studies. However, we observed that the number of items was also confounded with the type of manipulation: all three-item manipulation checks came from experiments that used fictional society and allocation tasks as manipulation strategies (i.e., two of the most effective strategies). On

the other hand, the percentage of manipulation checks from paradigms of reduced effectiveness (absolute and relative economic inequality) increased progressively among manipulation checks with fewer items (one item: 0%; two items: 28%; one items: 34%).

Moreover, although most manipulation checks focused on perceived economic inequality, others measured attitudes toward economic inequality as manipulation checks. Items such as “There is too much economic inequality”, not only reflect the perceived degree of economic inequality but also involve a judgment about the amount of economic inequality perceived, reflecting an attitude towards inequality. If someone agrees that there is too much economic inequality in a given context, this implies that from their point of view, ideally, there should be less inequality. Although perceived inequality and attitudes towards it are strongly correlated (Kteily et al., 2016), which may be the reason why several researchers treat them as a single construct (Valtorta et al., 2024), we consider that conceptual clarity would be gained if the effectiveness of the manipulations of perceived economic inequality were measured with manipulations checks focus on perceived, rather than attitudes toward, economic inequality. Although our results did not show a significant difference in the effect sizes of manipulation checks measured as perceptions or attitudes, we did observe a marginally significant trend suggesting that when manipulation checks focus on perceived economic inequality, the effect size tends to be higher than when measured as attitudes towards economic inequality. Indeed, because some research has shown that perceived economic inequality influences attitudes toward economic inequality (García-Castro et al., 2020), attitudes may not be a suitable manipulation check but rather a potential outcome of manipulating perceived inequality. Therefore, it could be useful for future research to distinguish between perceived economic inequality and attitudes and beliefs about it

(Schmalor & Heine, 2022), focusing on the former when the aim is to manipulate perceived economic inequality.

What are the consequences of perceived economic inequality, and which are more affected?

Finally, we identified twelve types of consequences of manipulated perceived economic inequality that previous research has explored. According to our results, *norms,* and *perceptions* are the variables most strongly affected by the manipulation of economic inequality, followed in order by *stereotypes, belief systems, motivations/values, causal attributions*, and *social/economic comparisons.* These results suggest that manipulating perceived economic inequality has a particularly strong impact on perceptions and norms, which is consistent with some models that propose that perceptions of social norms are one of the channels through which perceived economic inequality affects individual outcomes (Sánchez-Rodríguez, Rodríguez-Bailón, et al., 2023). By contrast, *attitudes, social identities, emotions*, and *allocation strategies* were not significantly affected by the manipulation of inequality. Nevertheless, we should be cautious with drawing strong conclusions from the lack of an effect given the small number of studies available reducing the statistical power to detect effects for these types of variables. Future research should conduct power analyses to determine sample sizes based on the specific effect sizes found here.

The types of manipulation and their features also moderated effects found. Thus, the manipulations conducted in fictional settings (society and organization) revealed larger effect sizes in their outcomes than strategies based on absolute and relative economic inequality. Furthermore, those manipulations that focused on the present found stronger effects than those that considered the changes in the future economic inequality. Therefore, the type of manipulations and time seem to be particularly

relevant for both manipulation checks and outcomes. If the manipulation of economic inequality has psychosocial effects, it is reasonable that the stronger the effects of the manipulation on the changing perception of economic inequality, the stronger the subsequent outcomes will be. An alternative explanation could be the experiments that looked at outcomes that were more sensitive to changes in the perceptions of economic inequality used fictional settings. However, even though there is a covariation between the type of paradigm and the type of psychosocial outcome analyzed, this does not seem to explain the result[3]. Nevertheless, as we posited above, exploring the same effect with different manipulations may clarify the possible effects that are conditional on a particular type of paradigm.

Limitations and future research

We acknowledge several limitations in the current research. Firstly, we observed substantial heterogeneity in the effects of the paradigms used to manipulate inequality. Despite identifying some sources of variability, significant heterogeneity persists, suggesting the presence of unknown moderating variables that remain unidentified. This heterogeneity might be partly due to the implicit assumptions made by researchers when constructing perceived economic inequality paradigms (Jachimowicz et al. 2023). We advocate for greater attention to experimental designs and detailed reporting to address this issue. Furthermore, incomplete descriptions of manipulations hinder the identification of their features. The insufficient detail in these descriptions posed a significant challenge for researchers coding the characteristics of the paradigms, making it difficult to accurately identify aspects that would otherwise be straightforward (e.g.,

[3]There is a significant contingency between the type of paradigms and the psychosocial outcome analyzes [χ^2 (55)=346.91; p< .001]. However, if we estimate the effect size of economic inequality manipulation on the twelve consequences using the same paradigm, the results are rather similar. For example, when using the fictional society paradigm—the most commonly employed one— the results are virtually the same with perceptions and norms as the more sensitive outcomes.

income, wealth, or both), ultimately leading to low agreement rates. Future research would benefit from structured validation of paradigms and specification of manipulation features (Chester & Lasko, 2021). Guidelines proposed by Jachimowicz et al. (2023), emphasizing the identification of inequality type, analytical level, distribution segment, and comparison groups, offer practical utility in this regard. Improved standardization in paradigm construction and description may enhance the comparability of results and facilitate the identification of literature gaps. For instance, while some aspects identified by Jachimowicz et al. (2023) emerged as variable categories across manipulations (e.g., temporal focus), others remained constant, such as the type of inequality manipulated (i.e., outcomes or opportunities). A systematic approach to constructing and describing paradigms could facilitate easier identification of literature gaps in future research. Moreover, these studies represent initial efforts to manipulate perceived economic inequality within psychological research, indicating that this area is still evolving. This review highlights key insights that can guide future research directions in this field.

Second, as we acknowledge above, the growth of the research in psychology on the consequences of economic inequality has been exponential in recent years. The meta-analysis we have conducted here is limited to the literature identified up to mid-2023. It is foreseeable that, if the exponential trend in research on economic inequality continues, this review will quickly become outdated. Moreover, it is possible that we may not have identified all research that manipulates inequality due to the lack of full reporting of all studies conducted by the research groups, as we could confirm in our complementary request to authors for unpublished data. It would be desirable to be alert to new experimental paradigms or adjustments to the features of existing paradigms to evaluate their effectiveness.

Finally, the inherent differences across the various paradigms are necessarily associated with specific types of manipulation checks. For instance, some manipulations are conducted within fictitious contexts, whereas others occur in real-world settings. Consequently, the manipulation checks are adapted to match the context in which economic inequality is being manipulated. This may raise concerns regarding the comparability of effects across paradigms, as participants exposed to real-world manipulations may rely on pre-existing knowledge or beliefs about inequality levels, whereas those in fictitious contexts are not influenced by such prior information. However, we contend that the inherent differences between paradigms and their associated manipulation checks should be regarded as natural confounds that do not undermine the comparability of findings across studies. Although these methodological elements are necessarily distinct, the core construct being manipulated—economic inequality—remains consistent and therefore comparable across paradigms. Nevertheless, we recommend authors using experiments to be mindful about the potential differences between scenarios.

Constrain on Generality

We conducted a systematic review aimed at identifying research that examines economic inequality from an experimental perspective. Our results are based on the full body of scientific evidence we could find in the literature, covering different contexts, methods, and disciplines. However, our results still have generality constraints. First, most of the studies identified were conducted in Western contexts, typically classified as WEIRD societies (Western, Educated, Industrialized, Rich, and Democratic), which differ significantly from other cultural settings (Henrich et al., 2010). Although some studies have been conducted in Eastern contexts (e.g., China), generalization remains unclear, given that most experimental approaches to studying perception of economic

inequality are still concentrated in the Global North, which limits the applicability of the findings to other regions, such as Latin America, Africa, and the Middle East (Kryst, 2025). Second, current levels of economic inequality are exceptionally high compared to other historical periods, and this situation permeates public discourse, including media narratives, political agendas, and international agencies. Indeed, reducing high levels of economic inequality is one of the Sustainable Development Goals to be achieved by 2030 (United Nations, 2015). This context implies that, at present, economic inequality is a particularly salient issue in public debate, which may influence the outcomes observed in experimental studies. Even in controlled laboratory settings, psychosocial processes are historically embedded, meaning that the generalizability of current findings is constrained by the specific characteristics of the present historical circumstances.

Conclusions

The present meta-analysis has taken a broad approach in quantitatively reviewing the existing paradigms for manipulating perceived economic inequality that have emerged in recent years. We found large heterogeneity in the effect size of the manipulations on their manipulation checks, which is not only explained by the type of paradigm used and the characteristics that we identified. Moreover, in an effort to provide a practical toolbox for researchers who are interested in experimental manipulation of perceived economic inequality, we organized the manipulations in the reviewed literature according to our categorization criteria, and made it publicly available at https://osf.io/hjfd8/. We recommend that researchers use these findings to guide their choice, as well as combine the best parts of paradigms in future studies (see **Table 9**).

All in all, high levels of economic inequality continue to be one of the main problems facing societies today. Research in this field is essential to better understand

how it is perpetuated and its consequences. This will allow us to find the best strategies to both mitigate its consequences and reduce the levels of inequality.

Table 9.

Summary of Recommendations for Researchers Using Paradigms to Manipulate Perceived Economic Inequality

1. It would be desirable to clearly define the concept of economic inequality and report in detail the features manipulated in the research.
2. The inclusion of contrasts in people's living conditions, such as tangible and familiar elements like housing, strengthens the manipulations of perceived economic inequality.
3. Including ratios or proportions that compare levels of income/wealth between individuals or groups reinforces the manipulation of perceived economic inequality.
4. Using reliable manipulation checks (e.g., short validated scales) reduces measurement error and gives researchers a clearer idea of the effectiveness of different manipulations.
5. Using items that measure perceptions of economic inequality as manipulation checks, rather than beliefs and attitudes related to inequality, provides greater conceptual clarity on how the manipulations work.
6. The combination of different experimental paradigms and the triangulation with other methodologies, such as field surveys, archival data and longitudinal designs, provides the most robust strategy for understanding the consequences of perceived economic inequality.

References

Studies included in this review are marked with an asterisk (*)

Adler, N. E., Boyce, T., Chesney, M. a, Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health. The challenge of the gradient. The *American Psychologist*, *49*(1), 15–24. https://doi.org/10.1037/0003-066X.49.1.15

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: preliminary data in healthy white women. Health Psychology: Official Journal of the Division of Health Psychology, *American Psychological Association, 19*(6), 586–592. https://doi.org/10.1037/0278-6133.19.6.586

*Anderson, L. R., Mellor, J. M., & Milyo, J. (2008). Inequality and public good provision: An experimental analysis. *The Journal of Socio-Economics, 37*(3), 1010-1028. https://doi.org/10.1016/j.socec.2006.12.073

*Bak, H., & Yi, Y. (2020). When the American dream fails: The effect of perceived economic inequality on present-oriented behavior. *Psychology & Marketing, 37*(10), 1321-1341. https://doi.org/10.1002/mar.21369

Borenstein et al., 2021: Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2021). Introduction to meta-analysis. John Wiley & Sons.

*Brown-Iannuzzi, J. L., Lundberg, K. B., & McKee, S. E. (2021). Economic inequality and socioeconomic ranking inform attitudes toward redistribution. *Journal of Experimental Social Psychology, 96,* 104180. https://doi.org/10.1016/j.jesp.2021.104180

Calcagno, V., & de Mazancourt, C. (2010). glmulti: An R Package for Easy Automated Model Selection with (Generalized) Linear Models. *Journal of Statistical Software*, *34*(12), 1–29. https://doi.org/10.18637/jss.v034.i12

*Casara, B. G. S., Suitner, C., & Jetten, J. (2022). The impact of economic inequality on conspiracy beliefs. *Journal of Experimental Social Psychology, 98*, 104245. https://doi.org/10.1016/j.jesp.2021.104245

Castillo J.C., García-Castro J.D., Venegas M. (2022) Perception of economic inequality: concepts, associated factors and prospects of a burgeoning research agenda (Percepción de desigualdad económica: conceptos, factores asociados yproyecciones de una agenda creciente de investigación). *International Journal of Social Psychology*, *37*(1), 180-207. https://doi.org/10.1080/02134748.2021.2009275

Cesario, J. (2022). What can experimental studies of bias tell us about real-world group disparities? *Behavioral and Brain Sciences,* 45(e66), 1–71. https://doi.org/10.1017/S0140525X21000017

Chancel, L., Piketty, T., Saez, E., & Zucman, G. (2022). World Inequality Report, 2022. Retrieved from chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://wir2022.wid.world/www-site/uploads/2021/12/WorldInequalityReport2022_Full_Report.pdf

*Cheng, L., Hao, M., & Wang, F. (2021). Beware of the 'Bad Guys': economic inequality, perceived competition, and social vigilance. *International Review of Social Psychology, 34*, 1–12. https://doi.org/https://doi.org/10.5334/irsp.497

*Cheng, L., Hao, M. M., Wang, X., li, z., & Wang, F. (2023). "You are useful objects": Economic inequality leads people to approach instrumental others. European *Journal of Social Psychology, 53* (7), 1359-1371, https://doi.org/10.31219/osf.io/qu9t4

Chester, D. S., & Lasko, E. N. (2021). Construct Validation of Experimental Manipulations in Social Psychology: Current Practices and Recommendations for

the Future. *Perspectives on Psychological Science, 16*(2), 377–395. https://doi.org/10.1177/1745691620950684

*Connor, P., Varney, J., Keltner, D., & Chen, S. (2020). Social Class Competence Stereotypes Are Amplified by Socially Signaled Economic Inequality. *Personality & Social Psychology Bulletin,* 1–17. https://doi.org/10.1177/0146167220916640

*Côté, S., House, J., & Willer, R. (2015). High economic inequality leads higher-income individuals to be less generous. *Proceedings of the National Academy of Sciences*, *112*(52), 15838-15843. https://doi.org/10.1073/pnas.151153611

Cruces, G., Perez-truglia, R., & Tetaz, M. (2013). Biased perceptions of income distribution and preferences for redistribution: Evidence from a survey experiment ☆. *Journal of Public Economics, 98,* 100–112. https://doi.org/10.1016/j.jpubeco.2012.10.009

*Davidai, S. (2018). Why do Americans believe in economic mobility? Economic inequality, external attributions of wealth and poverty, and the belief in economic mobility. *Journal of Experimental Social Psychology, 79*, 138-148. https://doi.org/10.1016/j.jesp.2018.07.012

*del Fresno-Díaz, Á., Sánchez-Rodríguez, Á., Willis, G. B. (2021). I choose to be powerful: Economic inequality encourages preferences of power over status positions. *The Social Science Journal*. 1-18 https://doi.org/10.1080/03623319.2021.1949547

*Du, H., Chen, A., Chi, P., & King, R. B. (2021). Income inequality reduces civic honesty. *Social Psychological and Personality Science, 12*(4), 537-543. https://doi.org/10.1177/1948550620929495

*Du, H., Chen, A., Li, Y., Ma, L., Xing, Q., & Nie, Y. (2022). Perceived income inequality increases status seeking among low social class individuals. Asian *Journal of Social Psychology, 25*(1), 52-59. https://doi.org/10.1111/ajsp.12455

Duell, Dominik & Landa, Dimitri (2022). Understanding causal mechanisms in the study of group bias. *Behavioral and Brain Sciences 45.*

Durante, F., Fiske, S. T., Kervyn, N., Cuddy, A. J. C., Akande, A. D., Adetoun, B. E., Adewuyi, M. F., Tserere, M. M., Ramiah, A. Al, Mastor, K. A., Barlow, F. K., Bonn, G., Tafarodi, R. W., Bosak, J., Cairns, E., Doherty, C., Capozza, D., Chandran, A., Chryssochoou, X., … Storari, C. C. (2013). Nations' income inequality predicts ambivalence in stereotype content: How societies mind the gap. *British Journal of Social Psychology, 52*(4), 726–746. https://doi.org/10.1111/bjso.12005

Egger et al., 1997: Egger, M., Smith, D. G., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *BMJ, 315*, 629–634. https://doi.org/10.1136/

Elgar, F. J., Craig, W., Boyce, W., Morgan, A., & Vella-Zarb, R. (2009). Income Inequality and School Bullying: Multilevel Study of Adolescents in 37 Countries. *Journal of Adolescent Health, 45*(4), 351–359. https://doi.org/10.1016/j.jadohealth.2009.04.004

Festinger, L. (1954). A Theory of Social Comparison Processes. 117–140.

Fisher & Tipton, 2015: Fisher, Z., Tipton, E., & Zhipeng, H. (2017). robumeta: Robust variance meta-regression. R package version 2.0 https://cran.r-project.org/web/packages/robumeta/.

*García-Castro, J. D., Rodríguez-Bailón, R., & Willis, G. B. (2020). Perceiving economic inequality in everyday life decreases tolerance to inequality. *Journal of*

Experimental Social Psychology, 90(May), 104019. https://doi.org/10.1016/j.jesp.2020.104019

García-Castro, J. D., Willis, G. B., & Rodríguez-Bailón, R. (2018). I know people who can and who cannot: A measure of the perception of economic inequality in everyday life. *Social Science Journal, 56*(4), 599-608 https://doi.org/10.1016/j.soscij.2018.09.008

García-Sánchez, E., Van der Toorn, J., Rodríguez-Bailón, R., & Willis, G. B. (2018). The Vicious Cycle of Economic Inequality. *Social Psychological and Personality Science*, 194855061881150. https://doi.org/10.1177/1948550618811500

Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine Publishing Company.

Hannay, J. W., Payne, B. K., & Brown-iannuzzi, J. (2021). Economic Inequality and the Pursuit of Pleasure. *Social Psychological and Personality Science, 12*(7), 1254–1263. https://doi.org/10.1177/19485506211015049

*Heiserman, N., & Simpson, B. (2017). Higher inequality increases the gap in the perceived merit of the rich and poor. *Social Psychology Quarterly*, *80*, 243–253. https://doi. org/10.1177/0190272517711919

*Heiserman, N., Simpson, B., & Willer, R. (2020). Judgments of economic fairness are based more on perceived economic mobility than perceived inequality. Socius, 6: 1-12. https://doi.org/10.1177/2378023120959547

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. *The Behavioral and brain sciences*, *33*(2-3), 61–135. https://doi.org/10.1017/S0140525X0999152X

Hsieh CC &, P. M. (1993). Poverty, income inequality, and violent crime: A meta-analysis of recent aggregate data studies. *Crim Justice Rev, 18(*2), 182-202.

Hedges et al., 2010: Hedges, L. V., Tipton, E., & Johnson, M. C. (2010). Robust variance estimation in meta-regression with dependent effect size estimates. *Research Synthesis Methods,* 1 (1), 39–65. https://doi.org/10.1002/jrsm.5

Jachimowicz, J. M., Davidai, S., Goya-Tocchetto, D., Szaszi, B., Day, M. V., Tepper, S. J., Phillips, L. T., Mirza, M. U., Ordabayeva, N., & Hauser, O. P. (2023). Inequality in researchers' minds: Four guiding questions for studying subjective perceptions of economic inequality. *Journal of Economic Surveys, 37*(5), 1534–1561. https://doi.org/10.1111/joes.12507

*Jetten, J., Mols, F., & Postmes, T. (2015). Relative deprivation and relative wealth enhances antiimmigrant sentiments: The v-curve re-examined. *PLoS ONE,* 10(10), 1–24. https://doi.org/10.1371/journal.pone.0139156

Jetten, J., Peters, K. (2019). Putting a Social Psychological Spotlight on Economic Inequality. In K. Jetten, J., Peters (Ed.), The Social Psychology of Inequality. Springer. https://doi.org/https://doi.org/10.1007/978-3-030-28856-3_1

Jetten, J., Peters, K., Álvarez, B., Casara, B. G. S., Dare, M., Kirkland, K., Sánchez-Rodríguez, Á., Selvanathan, H. P., Sprong, S., Tanjitpiyanond, P., Wang, Z., & Mols, F. (2021). Consequences of Economic Inequality for the Social and Political Vitality of Society: A Social Identity Analysis. *Political Psychology, 42*, 241–266. https://doi.org/10.1111/pops.12800

Jetten J, Selvanathan HP, Crimston CR, Bentley SV, Haslam SA. Experiments make a good breakfast, but a poor supper. (2022) *Behavioral and Brain Sciences*.;45:e79. doi:10.1017/S0140525X21000662

Kitayama, S., Park, H., Sevincer, A. T., Karasawa, M., & Uskul, A. K. (2009). A cultural task analysis of implicit independence: comparing North America, Western

Europe, and East Asia. *Journal of personality and social psychology*, *97*(2), 236–255. https://doi.org/10.1037/a0015999

*Kirkland, K., Jetten, J., & Nielsen, M. (2020). The effect of economic inequality on young children's prosocial decision-making. *British Journal of Developmental Psychology, 38*(4), 512-528. https://doi.org/10.1111/bjdp.12334

*Kirkland, K., Jetten, J., Wilks, M., & Nielsen, M. (2021). How economic inequality affects prosocial behavior in children across development. *Journal of Experimental Child Psychology,* 210, 105202. https://doi.org/10.1016/j.jecp.2021.105202

Kteily, N. S., Sheehy-Skeffington, J., & Ho, A. K. (2017). Hierarchy in the eye of the beholder: (Anti-)egalitarianism shapes perceived levels of social inequality. *Journal of personality and social psychology*, *112*(1), 136–159. https://doi.org/10.1037/pspp0000097

Krys, K., de Almeida, I., Wasiel, A., & Vignoles, V. L. (2025). WEIRD–Confucian comparisons: Ongoing cultural biases in psychology's evidence base and some recommendations for improving global representation. *American Psychologist, 80*(2), 247–263. https://doi.org/10.1037/amp0001298

Layte, R. (2012). The association between income inequality and mental health: Testing status anxiety, social capital, and neo-materialist explanations. *European Sociological Review, 28*(4), 498–511. https://doi.org/10.1093/esr/jcr012

Layte, R., & Whelan, C. T. (2014). Who feels inferior? A test of the status anxiety hypothesis of social inequalities in health. *European Sociological Review, 30*(4), 525–535. https://doi.org/10.1093/esr/jcu057

*McCall, L., Burk, D., Laperrière, M., & Richeson, J. A. (2017). Exposure to rising inequality shapes Americans' opportunity beliefs and policy support. *Proceedings*

of the National Academy of Sciences, 114(36), 9593-9598. https://doi.org/10.1073/pnas.1706253114

*Melita, D., Willis, G. B., Rodríguez-Bailón, R. (2021). Economic inequality increases status anxiety through normative climate. *Frontiers in Psychology, 12* https://doi.org/10.3389/fpsyg.2021.637365

*Montoya-Lozano, M., Willis, G. B. y Rodríguez-Bailón, R. (2024). The Effect of Economic Inequality on Individuals' Cooperative Behavior Using an Economic Experiment. *Psicológica Journal, 45*(2), Article e16534. https://doi.org/10.20350/digitalCSIC/16354

*Moreno-Bella, E., Kulich, C., Willis, G. B., & Moya, M. (2022). What about diversity? The effect of organizational economic inequality on the perceived presence of women and ethnic minority groups. *PloS one, 17(*8), e0271356. https://doi.org/10.1371/journal.pone.0271356

*Moreno-Bella, E., Kulich, C., Willis, G. B., & Moya, M. (2023). Wage (in) equality matters: the effect of organizational economic inequality on others' and self-ascriptions. *The Journal of Social Psychology, 163*(5), 716-734. https://doi.org/10.1080/00224545.2023.2192398

*Moreno-Bella, E., Willis, G. B., & Moya, M. (2019). Economic Inequality and Masculinity–Femininity: The Prevailing Perceived Traits in Higher Unequal Contexts Are Masculine. *Frontiers in Psychology, 10*(July), 1–9. https://doi.org/10.3389/fpsyg.2019.01590

*Moreno-Bella, E., Willis, G. B., Quiroga-Garza, A., & Moya, M. (2023). Economic inequality shapes the agency–communion content of gender stereotypes. *Group Processes & Intergroup Relations, 26*(5), 1075-1098. https://doi.org/10.1177/13684302221095338

Nations, U. (2015). Transforming our World: The 2030 Agenda for Sustainable Development.

Neckerman, K. M., & Torche, F. (2007). Inequality: Causes and Consequences. Annual *Review of Sociology, 33,* 335–357. https://doi.org/10.1146/annurev.soc.33.040406.131755

*Nishi, A., Shirado, H., Rand, D. G., & Christakis, N. a. (2015). Inequality and visibility of wealth in experimental social networks. *Nature*, 526(7573), 426–429. https://doi.org/10.1038/nature15392

Osborne, D., Sibley, C. G., & Sengupta, N. K. (2015). Income and neighbourhood-level inequality predict self-esteem and ethnic identity centrality through individual- and group-based relative deprivation: A multilevel path analysis. European Journal of Social Psychology, 45(3), 368–377. https://doi.org/10.1002/ejsp.2087

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. In The BMJ (Vol. 372). BMJ Publishing Group. https://doi.org/10.1136/bmj.n71

*Payne, B. K., Brown-iannuzzi, J. L., & Hannay, J. W. (2017). Economic inequality increases risk taking. *Proceedings of the National Academy of Sciences* 114 (18) 4643-4648. https://doi.org/10.1073/pnas.1616453114

*Peter, K., Jetten, J., Tanjitpiyanond, P., Wang, Z., Mols, F. & Verkuyten, M. (2021) The Language of Inequality: Evidence Economic Inequality Increases Wealth Category Salience. *Personality and Social Psychology Bulletin, 48*(8), 1-16. https://doi.org/10.1177/01461672211036627

Pickett, K. E., & Wilkinson, R. G. (2015). Income inequality and health: A causal review. *Social Science and Medicine*, 128, 316–326. https://doi.org/10.1016/j.socscimed.2014.12.031

Pickett, K., Kelly, S., Brunner, E., Lobstein, T., & Wilkinson, R. (2005). Wider income gaps, wider waistbands? An ecological study of obesity and income inequality. *J Epidemiol Community Health, 59*(8), 670–674. https://doi.org/10.1136/jech.2004.028795

Piketty, T. (2014). *Capital in the Twenty-First Century*. Harvard

Pirlott, A. G., & MacKinnon, D. P. (2016). Design approaches to experimental mediation. *Journal of Experimental Social Psychology, 66,* 29–38. https://doi.org/10.1016/j.jesp.2015.09.012

Pustejovsky & Rodgers, 2019: Pustejovsky, J. E., & Rodgers, M. A. (2019). Testing for funnel plot asymmetry of standardized mean differences. *Research Synthesis Methods, 10*(1), 57–71. https://doi.org/10.1002/jrsm.1332

Quine, W. V. O. (1951). Two Dogmas of Empiricism. *The Philosophical Review, 60*(1), 20-43. https://doi.org/10.2307/2181906

Rodríguez Ruzafa, M., Carrasco Picazo, J. P., Junquera Fernández, G., & Aguilar García-Iturrospe, E. J. (2022). EUROLD: preliminary results of the ecological study on suicide and its associated socioeconomic variables in people over 85 in Europe. *International Psychogeriatrics, 34*(3), 301–303. https://doi.org/10.1017/S1041610222000072

Rodríguez-Bailón, R., Sánchez-Rodríguez, Á., García-Sánchez, E., Petkanopoulou, K., & Willis, G. B. (2020). Inequality is in the air: Contextual psychosocial effects of power and social class. *Current Opinion in Psychology*, 33, 120–125. https://doi.org/10.1016/j.copsyc.2019.07.004

*Roth, J., Deutsch, R., & Lannon, F. (2021). When Groups Mind the Gap: Income Inequality Intensifies Social Identity in Predefined Groups with Middle-Income. Unpublished Manuscript, University of Limerick

Rufrancos, H., & Power, M, Pickett, KE & Wilkinson, R. (2013). Income Inequality and Crime: A Review and Explanation of the Time-series Evidence. *Social and Criminology, 1*(1), 1–9. https://doi.org/10.4172/scoa.1000103

*Sainz, M., Martínez, R., Matamoros-Lima, J., Moya, M., & Rodríguez-Bailón, R. (2022). Perceived economic inequality enlarges the perceived humanity gap between low- and high-socioeconomic status groups. *The Journal of Social Psychology*, 1–14. https://doi.org/10.1080/00224545.2022.2157699

*Sánchez-Rodríguez, Á, Jetten, J., Willis, G. B., & Rodríguez-bailón, R. (2019). High Economic Inequality Makes Us Feel Less Wealthy. *International Review of Social Psychology, 32*(1): 17, 1–11. https://doi.org/10.5334/irsp.333

Sánchez-Rodríguez, A. & Moreno-Bella, E. (2021). Are you interested in economic inequality? Depends on where you live. *Asian Journal of Social Psychology*, December 2020. https://doi.org/10.1111/ajsp.12458

Sánchez-Rodríguez, Á., Rodríguez-Bailón, R., & Willis, G. B. (2023). The economic inequality as normative information model (EINIM). European Review of Social Psychology. https://doi.org/10.1080/10463283.2022.2160555

*Sánchez-Rodríguez, Á., Uskul, A. K., Rodríguez-Bailón, R., Willis, G. B., Vignoles, V. L., Krys, K., Adamovic, M., Akotia, C. S., Albert, I., Appoh, L., Baltin, A., Barrientos, P. E., Bond, M. H., Denoux, P., Domínguez-Espinosa, A., Esteves, C. S., Fülöp, M., Gamsakhurdia, V., Garðarsdóttir, R. B., … Zelenski, J. M. (2023). Unpackaging the link between economic inequality and self-construal. *Self and Identity, 22*(5), 713–739. https://doi.org/10.1080/15298868.2023.2200032

*Sánchez-Rodríguez, Á., Willis, G. B., Jetten, J. & Rodríguez-bailón, R. (2019). Economic Inequality Enhances Inferences that the Normative Climate is Individualistic and Competitive. *European Journal of Social Psychology, 49*, 1114-1127. http://doi.org/10.1002/ejsp.2557

*Sánchez-Rodríguez, Á., Willis, G. B., & Rodríguez-Bailón, R. (2019). Economic and social distance: Perceived income inequality negatively predicts an interdependent self-construal. *International Journal of Psychology*, 54(1), 117–125. https://doi.org/10.1002/ijop.12437

*Sánchez-Rodríguez, Á., Willis, G. B., & Rodríguez-bailón, R. (2022). Economic inequality affects perceived normative values. *Group Processes & Intergroup Relations*, *25* (1) https://doi.org/10.1177/1368430220968141

Schmalor, A., & Heine, S. J. (2022). The Construct of Subjective Economic Inequality. *Social Psychological and Personality Science, 13*(1), 210–219. https://doi.org/10.1177/1948550621996867

Sommet, N., Elliot, A. J., Jamieson, J. P., & Butera, F. (2019). Income inequality, perceived competitiveness, and approach-avoidance motivation. *Journal of Personality*, 87(August), 767–784. https://doi.org/10.1111/jopy.12432

*Sommet, N. & Elliot, A.J. (2022) Opposing effects of income inequality on health: The role of perceived competitiveness and avoidance/approach motivation. *European Journal of Social Psychology, 53* (1) 71-77 https://doi.org/10.1002/ejsp.2884

*Sommet, N., Weissman, D. L., & Elliot, A. J. (2022). Income inequality predicts competitiveness and cooperativeness at school. *Journal of Educational Psychology*. Advance online publication. https://doi.org/10.1037/edu0000731

Spector, P. E. (1992). Summated rating scale construction: an introduction. Sage. https://doi.org/http://dx.doi.org/10.4135/9781412986038

*Sprong, S., Jetten, J., Wang, Z., Peters, K., Mols, F., Verkuyten, M., ... & Wohl, M. J. (2019). "Our country needs a strong leader right now": Economic inequality enhances the wish for a strong leader. *Psychological science, 30*(11), 1625-1637. https://doi.org/10.1177/0956797619875472

Stanford, K. (2017). Underdetermination of Scientific Theory. In E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition). The Metaphysics Research Lab. https://plato.stanford.edu/archives/win2017/entries/scientific-underdetermination/

*Tanjitpiyanond, P., Jetten, J., & Peters, K. (2022). How economic inequality shapes social class stereotyping. *Journal of Experimental Social Psychology, 98*(October 2021), 104248. https://doi.org/10.1016/j.jesp.2021.104248

*Tanjitpiyanond, P., Jetten, J., & Peters, K. (2022). A social identity analysis of how pay inequality divides the workplace. *Group Processes & Intergroup Relations, 26* (3). https://doi.org/10.1177/13684302221074550

Tibber, M. S., Walji, F., Kirkbride, J. B., & Huddy, V. (2022). The association between income inequality and adult mental health at the subnational level—a systematic review. *Social Psychiatry and Psychiatric Epidemiology, 57*(1). https://doi.org/10.1007/s00127-021-02159-w

*Trump, K. S. (2018). Income inequality influences perceptions of legitimate income differences. *British Journal of Political Science, 48*(4), 929-952. https://doi.org/10.1017/S0007123416000326

United Nations. (2015). *Transforming our World: The 2030 Agenda for Sustainable Development*. https://sustainabledevelopment.un.org/post2015/transformingourworld

Uskul, S. Oishi. (2018). *Socio-economic environment and human psychology. social, ecological, and cultural perspectives*. Oxford University

Valtorta, R. R., Vezzoli, M., Mari, S., Durante, F., & Volpato, C. (2024). Measuring Subjective Inequality: Development and Validation of the Perceived Economic Inequality Scale (PEIS). *The Spanish Journal of Psychology, 27*, e2. https://doi.org/10.1017/SJP.2024.4

*Velandia-Morales, A., Rodríguez-Bailón, R., & Martínez, R. (2022). Economic Inequality Increases the Preference for Status Consumption. *Frontiers in Psychology, 12*, 1-12. https://doi.org/10.3389/FPSYG.2021.809101/BIBTEX

*Velandia-Morales, A., Rodríguez-Bailón, R., & Martínez, R. (2023). Normative effect of economic inequality: empirical evidence about conspicuous consumption (Efecto normativo de la desigualdad económica: evidencias empíricas sobre el consumo conspicuo). *International Journal of Social Psychology*, 38(2), 412-455. , https://doi.org/10.1080/02134748.2023.2181611

Vevea & Hedges, 1995: Vevea, J. L., & Hedges, L. V. (1995). A general linear model for estimating effect size in the presence of publication bias. *Psychometrika*, *60*(3), 419–435. https://doi.org/10.1007/BF02294384

Waldfogel, H. B., Sheehy-Skeffington, J., Hauser, O. P., Ho, A. K., & Kteily, N. S. (2021). Ideology selectively shapes attention to inequality. *Proceedings of the National Academy of Sciences of the United States of America, 118*(14). https://doi.org/10.1073/pnas.2023985118

*Wang, Z., Jetten, J., & Steffens, N. K. (2022). Restless in an unequal world: economic inequality fuels the desire for wealth and status. *Personality and Social Psychology Bulletin, 49* (6) https://doi.org/10.1177/01461672221083747

Wilkinson, R. & Pickett, K. (2009). *The Spirit Level. Why Greater Equality Makes Societies Stronger*. Penguin, Ed.

Wilkinson, R. G., & Pickett, K. E. (2006). Income inequality and population health: A review and explanation of the evidence. *Social Science and Medicine, 62*(7), 1768–1784. https://doi.org/10.1016/j.socscimed.2005.08.036

Willis, G. B., García-Sánchez, E., Sánchez-Rodríguez, Á., García-Castro, J. D., & Rodríguez-Bailón, R. (2022). The psychosocial effects of economic inequality depend on its perception. *Nature Reviews Psychology*, *1*(5), 301–309. https://doi.org/10.1038/s44159-022-00044-0

Willis, G.B., Sánchez-Rodríguez, A., & Hueltes, F. (2016). *Economic Inequality and Actitudes and Attributions Towards Poverty*. 39th Annual Meeting of the International Society of Political Psychology. Warsaw, Poland

World Bank (2023) *GINI index (World Bank estimate)*. Retrieved from https://data.worldbank.org/indicator/si.pov.gini?most_recent_value_desc=false