

# Stereotype (In)Accuracy in Perceptions of Groups and Individuals

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#### **Abstract**

Are stereotypes accurate or inaccurate? We summarize evidence that stereotype accuracy is one of the largest and most replicable findings in social psychology. We address controversies in this literature, including the long-standing and continuing but unjustified emphasis on stereotype inaccuracy, how to define and assess stereotype accuracy, and whether stereotypic (vs. individuating) information can be used rationally in person perception. We conclude with suggestions for building theory and for future directions of stereotype (in)accuracy research.

#### **Keywords**

stereotypes, social perception, person perception, accuracy, bias

Stereotypes are beliefs about groups (Ashmore & Del Boca, 1981), so *stereotype accuracy* refers to the extent to which beliefs about groups correspond to those groups' characteristics. The aims of this review are to bring claims about stereotype accuracy in line with empirical evidence and to advance the scientific study of stereotype accuracy. To do so, we first briefly review the long-standing emphasis on stereotype inaccuracy. We then review advances in stereotype (in)accuracy research and articulate what they mean for future directions in stereotype research.

# The Long-standing Emphasis on Stereotype Inaccuracy

Psychological perspectives once defined stereotypes as inaccurate, casting them as rigid (Lippmann, 1922/1991), rationalizations of prejudice (La Piere, 1936), out of touch with reality (Bargh & Chartrand, 1999), or exaggerations based on small "kernels of truth" (Allport, 1954/1979; Table 1). These common definitions are untenable. Almost any belief about almost any group has been considered a *stereotype* in empirical studies (Jussim, 2012). It is, however, impossible for all beliefs about groups to be inaccurate. This would make it "inaccurate" to believe either that two groups differ or that they do not differ.

Alternatively, perhaps stereotypes are only inaccurate beliefs about groups, and therefore accurate beliefs about groups are not stereotypes. If this were true, then to determine whether a belief was a stereotype, one would first have to empirically establish that it was inaccurate. The rarity of such demonstrations would mean that there are few known stereotypes. Increasing recognition of these logical problems has led many modern reviews to abandon "inaccuracy" as a core definitional component of stereotypes (see the top half of Table 1).

Nonetheless, an emphasis on inaccuracy remains, even though it is broadly inconsistent with empirical research. Except in articles specifically focusing on stereotype accuracy, many modern perspectives on stereotypes still ignore or dismiss these data, thereby perpetuating the emphasis on inaccuracy. To summarize those modern perspectives, we reviewed eleven books written for scientific, lay, and student audiences. We selected only books published since 2008 to ensure that they reflected contemporary claims about stereotypes. Among the eleven books, four scholarly books were selected because they were recent treatises by influential experts in the area of intergroup relations. The remaining textbooks were selected because they were authored by prominent psychological researchers and were readily

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Table 1. Modern Claims About Stereotype (In)Accuracy

Sources	Explicitly acknowledges strong evidence of stereotype accuracy	Reviews little or no evidence of accuracy and either dismisses accuracy as unimportant or emphasizes stereotype inaccuracy and bias	Defines stereotypes as or declares them to be inaccurate	Representative quotes
Scholarly books Banaji and Greenwald (2013)		×		Because all stereotypes are partly true and partly false, it may seem pointless to debate their accuracy. (p. 74) [Sltereotyping is an unfortunate by-product of the otherwise immensely useful human ability to conceive the world in terms of categories.
Brown (2011)		×		[T]he question of whether stereotypes are "objectively" (in)accurate is only of marginal interest to most students of prejudice. (p. 71)
Fiske and Taylor (2008)		×		Stereotyping is the cognitive aspect of bias and it comes in both blatant and subtle forms. (p. 282)
Whitley and Kite (2009)		×		At the group level, then, stereotypes may have a kernel of truth, but relying on them at the individual level may lead to serious judgment errors. (p. 100)
Textbooks				
Aronson (2011)			×	To stereotype is to allow those pictures to dominate our thinking, leading us to assign identical characteristics to any person in a group, regardless of the actual variation among members of that group. (p. 309)
Baumeister and Bushman (2014)	×			The high level of accuracy in modern stereotypes may also indicate that stereotyping has changed. (p. 485)
Crisp and Turner (2014)			×	Once a category is activated we tend to see members as possessing all the traits associated with the stereotype. (p. 57)
Greenberg, Schmader, Arndt, and Landau (2015)			×	Even though this kernel [of truth] might be quite small, with much more overlap between groups than there are differences, as perceivers we tend to exaggerate any differences that might exist and apply them to all members of the group. (p. 352)
Grison, Heatherton, and Gazzaniga (2015)	×			Indeed, some stereotypes are based in truth: Men tend to be more violent than women, and women tend to be more nurturing than men. However, these statements are true on average. (p. 385)
King (2013)			×	A stereotype is a generalization about a group's characteristics that does not consider any variations from one individual to another. (p. 402)
Schacter, Gilbert, Wegner, and Nock (2015)		×		[S]tereotyping is a useful process that often produces harmful results, and it does so because stereotypes have four properties. They can be (1) inaccurate, (2) overused, (3) self-perpetuating, and (4) unconscious and automatic. (p. 403)

Note: Additional quotes and information can be found at http://www.rci.rutgers.edu/~jussim/stereotypes.html.

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available in the libraries of the first and third authors of the present article and that of a colleague, Dr. Stephen Kilianski, who regularly teaches introductory psychology courses at Rutgers University. Although not representative, this sampling of the literature includes work by eminent psychologists at some of the most prominent psychological departments in the world. Consequently, it allowed us to make a reasonable assessment of the extent to which modern perspectives reflect the empirical evidence for substantial stereotype accuracy.

Only two sources explicitly acknowledged evidence for accuracy. Four defined stereotypes as or declared them to be inaccurate. The remaining sources did not define stereotypes as inaccurate but emphasized error, bias, and inaccuracy. Thus, nine of these eleven sources perpetuated the erroneous perspective that stereotypes either are largely inaccurate or mostly cause inaccuracies. The probability of finding that only two of eleven sources acknowledged accuracy, if even half routinely did so, was only .033 (as per the binomial theorem). We concluded that evidence for moderate to high stereotype accuracy is not well reflected in these modern perspectives.

### How to Assess Stereotype (In)Accuracy

Assessing stereotype accuracy requires three steps:

- 1. Assess people's descriptive beliefs about a group (e.g., "What proportion of Asian Americans complete college?")
- 2. Identify criteria that establish group characteristics (e.g., U.S. Census data on the proportion of Asian Americans who complete college)
- 3. Compare beliefs to criteria.

Only studies meeting these criteria are relevant to stereotype (in)accuracy.

Researchers routinely make two types of distinctions when studying stereotype accuracy (Judd & Park, 1993; Ryan, 2002). First, stereotype accuracy can be assessed using *discrepancy scores* (mean difference between perception and criterion) or *correspondence* (correlation between perceptions and criteria). One method of assessing accuracy is not "better" than the other; each contributes unique information (Jussim, 2012; Ryan, 2002). Discrepancy scores indicate how close perceivers' stereotypes come to being perfectly accurate (scores of 0 reflect perfect accuracy). Correspondence indicates how well people's beliefs covary with criteria.

Second, researchers distinguish between *consensual* stereotypes, which are shared by members of a particular culture or sample and usually assessed by sample means, and *personal* stereotypes, which are individuals' beliefs

about groups (Jussim, 2012; Ryan, 2002). Judd and Park's (1993) approach identified several additional components of stereotype accuracy (e.g., valence inaccuracy, or inaccurate perceptions of how positive or negative the group's attributes are).

Our approach considers discrepancy scores within 10% or 0.25 standard deviations (SDs) of criteria accurate and scores more than 10% or 0.25 SDs off but within 20% or 0.50 SDs to reflect both accuracy and inaccuracy. We consider discrepancies greater than 20% or 0.50 SDs to be inaccurate. Our approach also considers stereotype-criterion correlations of at least r = .40 to be accurate and correlations between .25 and .40 to be moderately accurate. Correlations below .25 are considered inaccurate. Our standards for considering stereotype correlations accurate correspond closely to Cohen's (1988) standards for medium and large effects (see Jussim, 2012, for more detail). Cohen's (1988) cutoff for a large effect size—a stereotype-criterion correlation of r > .40—means that, as per a binomial effect size display, the stereotype would be right at least 70% of the time (Rosenthal, 1991).

# Stereotype Accuracy: The Empirical Evidence

### Key empirical questions

Research over the past 35 years has provided empirical answers to central theoretical questions about stereotype accuracy: Does stereotype accuracy vary by target group? Does stereotype accuracy vary by type of accuracy assessed? Do stereotypes lead people to ignore individual differences? And how rationally—or irrationally—do people use stereotypes when judging individual group members?

Research addressing these questions is reviewed next. Table 2, adapted from Jussim, Crawford, Anglin, et al. (in press), summarizes the pattern of correspondence stereotype accuracy from over 50 studies and shows that stereotype accuracy is one of the largest and most replicable findings in all of social psychology. Nonetheless, that same research has also uncovered some systematic variations in accuracy.

# Variation in stereotype accuracy by target group and type of accuracy

**Demographic stereotypes are accurate.** Research has consistently shown moderate to high levels of correspondence accuracy for demographic (e.g., race/ethnicity, gender) stereotypes (Table 2). Nearly all accuracy correlations for consensual stereotypes about race/ethnicity and gender exceed .50 (compared to only 5% of social psychological findings; Richard, Bond, & Stokes-Zoota, 2003).

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**Table 2.** Stereotype Accuracy Correlations From Over 50 Studies Showing That Stereotypes Are More Accurate Than Social-Psychological Hypotheses

Stereotyped group	Percentage of consensual- stereotype accuracy correlations <sup>1</sup>		Percentage of personal-stereotype accuracy correlations	
	r > .30	r > .50	r > .30	r > .50
Studies	with criterion sampl	es matched well to	the assessed stereo	type
Race	95%	95%	47%	18%
Gender	100%	94%	79%	58%
Political affiliation	100%	100%	89%	33%
National character	43%	43%	NA	NA
Other	100%	96%	100%	63%
	Studies with	haphazard criterior	n samples	
Race	NA	NA	NA	NA
Gender	80%	80%	NA	NA
Political affiliation	NA	NA	NA	NA
National character (using a Big Five personality measure)	17%	4%	NA	NA
Other	63%	50%	64%	45%

Note: Percentages of stereotype accuracy correlations exceeding .30 and .50 are presented because only 24% and 5%, respectively, of all effects in social psychology exceed correlations of .30 and .50 (Richard, Bond, & Stokes-Zoota, 2003). This table divides results between studies with (top half) and without (bottom half) well-matched criterion samples. A criterion sample is well matched when it corresponds to the group to which the stereotype applies (see Jussim, 2012; Jussim, Crawford, Anglin, et al., in press, for details). For example, if people are asked about their beliefs about African Americans, we consider criterion samples well matched if they are based on U.S. Census data, nationally representative samples, or meta-analyses. If, instead, the criterion sample is unrepresentative of African Americans (e.g., undergraduates or Mechanical Turk respondents), it would be at least somewhat mismatched to a stereotype referring only to "African Americans." By the same token, if college students at a particular university were asked for their beliefs about "White undergraduates at this university," then a well-matched criterion sample would consist of a representative sample of White undergraduates at that university, whereas a haphazard sample might consist of, say, only introductory psychology students participating in a study to meet a research requirement. Mismatched samples likely underestimate accuracy because perceiver beliefs about a group, even when largely accurate, may not necessarily correspond well with a criterion sample that is not representative of that group. This can be seen by the somewhat lower levels of accuracy in the lower than in the upper portion of the table. For a full list of sources, as well as further details on their methods, measures, and samples, see Jussim, Crawford, Anglin, et al. (in press).

<sup>1</sup>When articles reported correlations of stereotypes with multiple criteria (e.g., self-reports and observer reports), we averaged them to produce a single correlation for this table. Even though articles often did not report these, they are included here if consensual stereotype accuracy correlations were computable from their published data.

Rather than being based in cultural myths, the shared component of stereotypes is often highly accurate. This pattern cannot be easily explained by motivational or social-constructionist theories of stereotypes and probably reflects a "wisdom of crowds" effect (Surowiecki, 2004). Although less accurate than consensual demographic stereotypes, personal stereotypes are also quite accurate, with correspondence accuracy for roughly half exceeding r = .50.

The stereotype-accuracy literature rarely reports tallies of accurate versus inaccurate discrepancy scores. However, we have constructed such tallies from studies reporting stereotype beliefs and criterion scores (see Jussim, 2012;

Jussim, Crawford, Anglin, et al., in press, for summaries of individual studies). We found 34 published studies of racial-, ethnic-, and gender-stereotype accuracy. Although not every study examined discrepancy scores, when they did, a plurality or majority of all consensual stereotype judgments were accurate. For example, an international study of accuracy in consensual gender stereotypes about the Big Five personality characteristics found that discrepancy scores for all five reflected accuracy (Lockenhoff et al., 2014). In these 34 studies, when stereotypes were inaccurate, there was more evidence of underestimating than overestimating actual demographic group differences (although see Chan et al., 2012, for an exception).

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National-character stereotypes are often inaccurate. Big Five personality inventories have been administered to thousands of people worldwide (e.g., Costa & McCrae, 2008) and have been used as criteria to assess the accuracy of national-character stereotypes. Empirical reports based on independent samples from around the world (e.g., McCrae et al., 2013) have consistently found little national-character stereotype accuracy (see Jussim, Crawford, Anglin, et al., in press, for a review). Consensual accuracy correlations hovered around zero, and discrepancies were high. However, high accuracy in national-character stereotypes has been found using behavioral rather than self-report criteria (Heine, Buchtel, & Norenzayan, 2008). This observed difference in accuracy when measured against self-reported Big Five versus behavioral criteria is currently poorly understood.

American political stereotypes exaggerate differ**ences.** Political stereotypes (people's beliefs about Democrats vs. Republicans or liberals vs. conservatives) exaggerate group differences (e.g., Graham, Nosek, & Haidt, 2012; see Jussim, Crawford, Anglin, et al., in press, for a review). The pattern of large discrepancy scores is highly robust (perceived differences typically exceed real differences by 0.50 SDs or more), has been replicated across time and independent labs, and occurs regardless of whether the stereotypes are about morals, values, traits, or policy positions. Nonetheless, people's political stereotypes often correspond well with partisans' actual positions (Table 2; Jussim, Crawford, Anglin, et al., in press). Consensual-stereotype accuracy correlations generally exceed r = .50, and most personal-stereotype accuracy correlations exceed r = .30, with a third exceeding r = .50. Thus, people in the United States (where all studies we uncovered were conducted) understand the direction of differences between political opponents but exaggerate them, with extreme partisans exaggerating the most (Westfall, Van Boven, Chambers, & Judd, 2015). Whether this pattern holds outside the United States is currently unknown.

**Other stereotypes.** Research assessing the accuracy of miscellaneous other stereotypes (e.g., about occupations, college majors, sororities, etc.) has generally found accuracy levels comparable to those for demographic stereotypes (i.e., high personal and consensual accuracy correlations and low discrepancies; see Jussim, 2012, for a review).

# Are stereotypes inaccurate because they do not apply to all individuals?

A common claim (e.g., American Psychological Association, 1991; Eagly, 2015; Table 1) is that even though many stereotypes accurately capture group means, they are still not

accurate because group means cannot describe every individual group member. This claim, though logically true, is irrelevant to evaluating the accuracy of stereotypes for two reasons. First, it confuses group and individual levels of analysis, which we illustrate with a nonsocial example. One cannot evaluate the accuracy of a belief that Alaska is colder than Massachusetts against the daily high in Juneau versus Boston on January 15. Instead, one must compare average yearly temperature differences between Alaska and Massachusetts. Similarly, one cannot evaluate the accuracy of the belief that "relatively few African Americans complete college" against the accomplishments of Neil deGrasse Tyson. Instead, one must compare that belief against African Americans' college completion rates.

Second, the claim that stereotypes are inaccurate because they do not apply to all individuals presumes to answer an empirical question ("Do people apply their stereotype indiscriminately to all group members?") without recourse to data, which is rarely scientifically justified. So, what do data reveal about applications of stereotypes to individuals?

### Stereotypes and person perception: How do people use stereotypes when judging others?

If people were rational, they would use stereotypes to judge individual targets when they lack information about targets' unique personal characteristics (i.e., individuating information), when the stereotype itself is highly diagnostic (i.e., highly informative regarding the judgment), and when available individuating information is ambiguous or incompletely useful.

People's judgments robustly conform to rational predictions. In the rare situations in which a stereotype is highly diagnostic, people rely on it (e.g., Crawford, Jussim, Madon, Cain, & Stevens, 2011). When highly diagnostic individuating information is available, people overwhelmingly rely on it (Kunda & Thagard, 1996; effect size averaging r=.70). Stereotype biases average no higher than r=.10 (Jussim, 2012) but reach r=.25 in the absence of individuating information (Kunda & Thagard, 1996). The more diagnostic individuating information people have, the less they stereotype (Crawford et al., 2011; Krueger & Rothbart, 1988). Thus, people do not indiscriminately apply their stereotypes to all individual members of stereotyped groups.

Do influences of stereotypes on person-perception judgments increase or reduce accuracy? Studies have addressed this issue by comparing accuracy (operationalized differently in different studies) when people did or did not rely on stereotypes. For example, Brodt and Ross (1998) found that perceivers' inferences about targets' behaviors and preferences were most often accurate

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when they made stereotype-consistent rather than stereotype-inconsistent predictions (in this case, about residents of "hippie" and "preppy" student houses). The few studies addressing this issue have usually found similar results (see Jussim's, 2012, review), but more research is needed before concluding that reliance on stereotypes generally increases the accuracy of person perception.

Research has begun exploring conditions under which reliance on stereotypes increases or reduces person-perception accuracy. One possibility is that reliance on stereotypes enhances person-perception accuracy primarily when targets conform to stereotypes. For example, conservatives, who were more willing to apply their stereotypes of gay men than were liberals, made more accurate judgments regarding targets who fit the stereotypes, whereas liberals made more accurate judgments regarding targets who did not (Stern, West, Jost, & Rule, 2013). Identifying further conditions under which relying on stereotypes increases or reduces person-perception accuracy is an important avenue for future research.

# **Implications for Modern Perspectives on Stereotypes**

To rectify the disconnect between the continued emphasis on stereotype inaccuracy and abundant evidence of stereotype accuracy, we recommend that psychologists do the following:

- Define stereotypes in ways that permit them to be accurate, avoiding presumptions of inaccuracy, exaggeration, or overgeneralization (e.g., Ashmore & Del Boca, 1981).
- Base claims of stereotype accuracy on studies reporting empirical data rather than sources (even "authoritative" ones; e.g., Allport, 1954/1979; see also Table 1) declaring stereotypes to be inaccurate (or exaggerations) without data.
- Review the entire relevant literature before making claims regarding stereotype accuracy and avoid cherry-picking a biased sample of studies to make an argument (Jussim, Crawford, Stevens, & Anglin, in press).
- Build rational judgment processes into theoretical perspectives on stereotyping. To determine whether some stereotype phenomenon (reliance on stereotypes, subtyping, etc.) is irrational, researchers must empirically demonstrate that judgments about groups or individuals deviate from an a priori normative model of rationality.
- Cease confounding levels of analysis by declaring that stereotypes are inaccurate because they do not apply to every individual in the stereotyped group. Acknowledge that evidence demonstrating powerful effects of individuating information

disconfirms the prediction that stereotypes lead people to ignore individual differences.

# **Implications for Future Empirical Research**

The evidence that many stereotypes are accurate has been surprising, making it appropriate for researchers to investigate stereotype accuracy in a wide variety of ways in order to be confident that these initial findings were valid and generalizable. However, because so much of that work has primarily focused on gathering evidence that bears on the accuracy question, it has not addressed many other important questions about the sources, nature, and consequences of accurate and inaccurate stereotypes. The next generation of stereotype (in)accuracy research should therefore investigate the following:

- The conditions, processes, and individual differences leading to accurate versus inaccurate stereotypes. Are certain types of groups generally perceived more accurately? Are specific types of perceivers more or less accurate? Do specific combinations of perceivers and targets produce more or less accuracy? For example, the *stereotypes as knowledge hypothesis* (Jussim, Crawford, Anglin, et al., in press) predicts that more accurate stereotypes should be found among perceivers with more intelligence, education, and contact with the stereotyped group. The *egalitarian-denial hypothesis* predicts that in their attempt to be egalitarian, many perceivers are motivated to understate real group differences.
- Whether people are more accurate when predicting stereotype-consistent or stereotype-inconsistent characteristics.
- Whether group attributes that are more accessible (e.g., for people familiar with basketball, height as opposed to generosity for basketball players) are perceived more or less accurately than those that are less accessible.
- Whether cognitively accessible group stereotypes are more or less accurate than stereotypes that are less cognitively accessible (e.g., for Americans, beliefs about African Americans vs. beliefs about Bhutanese Americans).
- Why national-character stereotypes are inaccurate when compared specifically against self-reported Big Five personality criteria (especially because national stereotypes compared against behavioral criteria are often accurate). Explanations such as the reference-group effect, sampling and measurement issues, and contact have all been proposed (Jussim, Crawford, Anglin, et al., in press). An empirically based resolution to this apparent conflict would be

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advanced by research using criteria other than the Big Five, by greater use of representative samples, and by theoretical identification (and tests) of proposed processes leading to accurate and inaccurate stereotypes.

- Why political stereotypes strongly and consistently exaggerate real differences. Does exaggeration characterize opposing groups in other types of conflict?
- Whether accurate versus inaccurate stereotypes have different consequences for perceivers and targets. For example, research has shown that extreme partisans are most likely to exaggerate ideological differences, which may have both harmful and beneficial consequences. Exaggerating real political differences can be damaging—for instance, if perceivers view targets as more extreme than they really are and then become unwilling to negotiate with them. However, targets' political involvement might actually increase in order to contest perceivers' extreme views.
- Whether accuracy varies by cultural context. There is little data on the accuracy of Middle Eastern, Asian, African, and South American perceiver groups, whose levels and consequences of stereotype inaccuracy may differ from those of the Western samples typically studied (Henrich, Heine, & Norenzayan, 2010). Perhaps nations with lower levels of education and democracy produce more inaccurate stereotypes. Empirical assessment of stereotype accuracy in non-Western contexts could therefore answer important process questions about sources of stereotype (in)accuracy.

#### Conclusion

The historical emphasis on stereotype inaccuracy persists in many modern perspectives and requires scientific self-correction. This review has aimed to stimulate such self-correction by summarizing the extant evidence on stereotype accuracy. Demographic (and "miscellaneous") stereotypes tend to be highly accurate; political stereotypes exaggerate real differences in the correct direction; and national-character stereotypes have often been found to be inaccurate when compared against Big Five self-reports.

People do not ignore individual differences; instead, they apply their stereotypes flexibly and approximately rationally when judging individuals. People, however, are not perfectly accurate or rational—indeed, we reviewed empirical evidence that has identified some conditions under which stereotypes have been found to be generally inaccurate, and to play a role in prejudice. Last, we have identified important unanswered questions that may guide the next generation of research on stereotype (in)

accuracy. Psychologists have a long-standing interest in understanding the role of stereotypes in prejudice and discrimination. An accurate understanding of stereotype (in)accuracy is central to that effort.

#### **Recommended Reading**

- Brodt, S. E., & Ross, L. D. (1998). (See References). A field study that showed that college students' predictions about individual dorm residents were more accurate when they relied on, rather than ignored, stereotypes relevant to those dorm residents.
- Crawford, J. T., Jussim, L., Madon, S., Cain, T.R., & Stevens, S. T. (2011). (See References). Provides empirical evidence that diagnosticity was the primary factor determining whether people relied on stereotypes, individuating information, or both (i.e., that people relied on stereotypes and/or individuating information in an approximately rational manner) in political person-perception judgments.
- Jussim, L. (2012). (See References). An accessibly written book that reviews experimental and survey data regarding stereotype accuracy and biases in social perception, showing that stereotypes are often accurate and that the biases in social perception they produce are generally weak.
- Jussim, L., Cain, T., Crawford, J., Harber, K., & Cohen, F. (2009). The unbearable accuracy of stereotypes. In T. Nelson (Ed.), Handbook of prejudice, stereotyping, and discrimination (pp. 199–227). Hillsdale, NJ: Erlbaum. A chapter that provides a logically coherent definition of "stereotype," reviews conceptual issues and empirical evidence regarding the accuracy of stereotypes, and considers the role of stereotypes in increasing or reducing accuracy in person perception.
- Ryan, C. S. (2002). (See References). A paper that reviews methodological issues and empirical findings in the domain of stereotype accuracy, arguing that stereotypes can be accurate and useful despite their potential negative consequences.

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### **Declaration of Conflicting Interests**

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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