

THE EPISTEMIC BASES OF PREJUDICE: THE ROLE OF NEED FOR COGNITIVE CLOSURE

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Social psychologists have long studied the factors that underlie prejudice, including rigid ways of viewing the world and a fear of outside influence. More recent research has focused on the need for cognitive closure, or the desire for epistemic certainty, and how this can lead to prejudice. Individuals who desire secure knowledge can turn to stereotypes that provide it; individuals under a need for cognitive closure can be more likely to accept these stereotypes and the resulting prejudicial attitudes. However, the need for cognitive closure can, paradoxically, be used to reduce prejudice, by substituting a prejudiced source of knowledge with a positive source. In the following review, we will trace the development of these ideas, build connections between literatures, and propose a new future direction.

Key words: Need for closure; Prejudice; Stereotypes; Authoritarianism; Attitude change.

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When we discuss problems faced by ethnic minorities, by women, by immigrants—in short, by any disadvantaged group — we often speak of *prejudice*. Social psychologists have been intensely interested in this problem for decades, as can be seen in two classical works: *The Authoritarian Personality* (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950) and *The Nature of Prejudice* (Allport, 1954). These works were published shortly after the Second World War yet their conclusions are still relevant today. In this review, we trace how the conclusions reached by these researchers are reflected in more modern research — particularly in the construct of the *need for cognitive closure*, or the desire for epistemic certainty. We will show how this need can lead to a perception of the world as series of ingroups and outgroups, to a dislike of certain types of change, to a form of conservatism and, ultimately to prejudiced attitudes toward outgroups. To help make this case, we will also call upon elements of group-centrism, including from moral foundations theory (Graham, Haidt, & Nosek, 2009). Most importantly, we will also show how the need for cognitive closure can, paradoxically, lead to reduced prejudice.

THE PREJUDICED PERSONALITY

Adorno and colleagues (1950) were interested in how fascist attitudes could be replicated in the United States — however, their general conclusions could apply to individuals in any democracy. Likewise, their conclusions are still relevant for modern research on prejudiced attitudes. They argued that U.S. fascism would be cloaked in the guise of traditional U.S. democracy (Sanford, 1950), and that the “anti-democratic” mindset (i.e., fascism) — the intention to exterminate or permanently subordinate a hated outgroup — was rarely explicitly endorsed. They instead concluded that some individuals explicitly or implicitly endorse democratic principles but are nonetheless hostile toward hated, albeit typically disadvantaged, outgroups. By “outgroups,” they did not simply intend to refer to groups outside the individual; instead, they are categorically different from the ingroup and represent potential enemies to the self and to his or her ingroup mates. They noted that these individuals were able to rationalize their hatred and hostility by attributing negative characteristics to these outgroups, and consequentially, that their hostility became justified: from their perspective, they were simply reacting against injustices enacted against them. This mindset is dangerous in itself; the greater danger is that these individuals are susceptible to explicitly fascist propaganda.

Adorno and colleagues (1950) argued that the answer to how individuals develop this mindset lies in how their needs and desires predispose them to certain kinds of attitudes and behaviors — that is, in their personality. These individuals are likely to be prejudiced against any outgroup, regardless of the actual balance of power between groups, insofar as it is perceived as a threat to the ingroup. This same point was made by Allport (1954), who argued that individuals who are prejudiced against a particular group are likely to be prejudiced against other groups. In the current political climate, immigrants, ethnic minorities, nonbinary gender and lesbian, gay, bisexual, transgender, and questioning (LGBTQ) individuals, and women in powerful leadership positions represent potential outgroups that can face prejudice from individuals who perceive themselves as simply reacting against hostile forces.

There are three related aspects of this type of personality that are particularly relevant. First, prejudiced individuals tend to see the world in terms of ingroups that must be submitted to and of outgroups that can threaten the ingroup. From their perspective, outgroup members are more likely to be seen as reflections or representations of their group than as unique individuals. The existence of outgroups can also explain shortcomings in the ingroup: if an ingroup is perceived by its members to be weak it can be explained by an unfair advantage that has been achieved by an outgroup. For a modern example, there is a belief among some white university applicants in the United States that they are denied admittance in favor of less-deserving ethnic minority applicants (Harriot, 2018). Second, prejudiced individuals can perceive that these outgroups desire to make changes that harm the ingroup. For instance, Sanford (1950) noted that Christian society was perceived by some of their participants as having been infiltrated by Jews and “Jewish ideas.” For a more modern example, political commentators have observed that anti-immigration rhetoric in the United States highlights the fear of physical and ideological infiltration, to tragic effect (e.g., Markusoff, 2018). In other words, prejudiced individuals fear change in their own beliefs, attitudes, and their way of life. Third, they tended to be conservative and to generally desire the rapid change of political systems that were perceived to harm the ingroup; at times, these two forces could be at odds. This could be seen, in Adorno and colleagues’ time, as participants who endorsed conservative values — including the necessity of slowly changing governments — while simultaneously desiring to quickly tear down the generally left-wing political regime. For a more modern example, typically right-wing anti-abortion activists in the United States desire to

dismantle laws protecting abortion — ranging from increased governmental regulations to outright prohibition — while simultaneously decrying governmental interference (e.g., Ramsey, 2016).

Adorno and colleagues (1950) noted that these beliefs can be irrational, in the sense that the outgroup members could be perceived to have attributes that could not exist in the same person; likewise, the same attributes could be perceived as either good or bad depending on if they were attributed to the ingroup or outgroup. For instance, Jews could be perceived as “snoops” who wish to infiltrate Christian society but also as a “clannish” people who keep to themselves. Likewise, Jews can be hated for their stereotypical greed while ingroup members can be simultaneously praised for their financial ambition (Sanford, 1950). A modern example of this irrationality can be seen in abovementioned U.S. anti-abortion activists who fiercely support the abstract principle of freedom from government interference while also fiercely supporting a specific instance of government interference that defends their group’s interests. These irrational, paradoxical attitudes can be the result of little or no contact with outgroup members, and are symptoms of an underlying acceptance of hostile stereotypes of the outgroup. Attempting to change these attitudes — for example, by showing outgroups’ relatively disadvantaged position in society — is unlikely to succeed as long as these hostile stereotypes remain (Levinson, 1950a, 1950b).

Recent research has furthered the conclusions made by Adorno and colleagues and there is now a wide literature on the prejudiced personality. This literature has touched on the tendency of these individuals to view the world as a series of ingroups and outgroups, their tendency to fear changes that could harm the ingroup, as well as how these tendencies conceptually interact with political conservatism. We argue that these tendencies emanate from the *need for cognitive closure* (Kruglanski, 1989), or the state of mind that helps explain how individuals can quickly adopt, and hold strong to, any information source that promises stable knowledge about the world. In the following sections, we will explain this need and show how it can be used to promote, but also to undermine, prejudiced attitudes.

WHAT IS THE NEED FOR COGNITIVE CLOSURE?

The need for cognitive closure (Kruglanski, 1989), or the individual’s quest for epistemic certainty, reflects how individuals approach new knowledge. An epistemic quest is initiated whenever an individual is confronted with an important question to which they do not have an answer; when the individual finds an answer or stops trying to find one, the quest is terminated. Although every epistemic quest must come to an end eventually, individuals with a need for cognitive closure typically close this quest more quickly. The need for cognitive closure can be measured as an individual difference (Webster & Kruglanski, 1994); however, it can also be a feature of particular environments or tasks. For instance, individuals who are confronted with an aggravating environment (Kruglanski, Webster, & Klem, 1993), a boring or unpleasant task (Webster, 1993), or who otherwise feel the need to complete a task quickly can be motivated by a need for cognitive closure. In each of these cases, individuals are motivated to quickly solve whatever problem they are confronted with. On the other hand, a pleasurable task (Webster, 1993) and the need for accuracy (Kruglanski, Peri, & Zakai, 1991) can lower the need for cognitive closure; in these cases, individuals are more likely to take their time.

This need can be divided into two phases: the seizing, or urgency, phase, and the freezing, or permanence, phase. In the seizing phase, individuals are motivated to find an answer that can provide stable knowledge in the present and into the future. In the freezing phase, individuals are instead motivated to defend their existing knowledge, even in the face of perhaps better solutions. The need for cognitive closure,

essentially, helps explain how individuals react to new pieces of knowledge; however, the stance toward new knowledge should differ among individuals in the seizing and freezing phases. Individuals in the seizing phase lack crystallized knowledge and can be open to new ideas; individuals in the freezing phase already have crystallized knowledge and should resist losing the stability that it provides (e.g., Kruglanski et al., 1993; Vermier, Van Kenhove, & Hendrickx, 2002).

Need for Cognitive Closure and Group-Centrism

Individuals under a need for cognitive closure, as many researchers have argued (e.g., Dugas & Kruglanski, 2018; Roets, Kruglanski, Kossowska, Pierro, & Hong, 2015), are concerned with *groups*. Groups can, among many other things, serve as sources of knowledge. If individuals with a high need for closure want a secure belief on a topic they perceive to be important, they can turn to their ingroup's shared reality (e.g., Hardin & Higgins, 1996) for an answer (if they are in the seizing phase) or when they want to protect an existing belief from a challenging point of view (if they are in the freezing phase). For the ingroup to be useful it should have consistent answers. For instance, I can turn to my political party in order to arrive at an opinion about immigration policy; this would not be a helpful solution if this party includes politicians who often change their minds or who do not have a consensus opinion. Of course, not all individuals will want to turn to groups in order to ease their decision-making process, but this should be particularly attractive to individuals under a need for cognitive closure.

A corollary of individuals' reliance on groups under a need for cognitive closure is that they are more likely to show attitudes and behaviors consistent with *group-centrism*. Conceptually, groups with centralized decision-making structures should be better able to provide stable knowledge and so should be particularly attractive to individuals under this need. Past research has shown that these individuals can become very attached to ingroups that can provide stable knowledge. For instance, individuals under a high, but not low, need for cognitive closure were more likely to engage in ingroup favoritism and outgroup derogation (Shah, Kruglanski, & Thompson, 1998), and particularly when individuals see themselves as similar to these groups (Kruglanski, Shah, Pierro, & Mannetti, 2002). In other words, individuals can use their ingroups as a way to reinforce their existing beliefs and attitudes — that is, their stable knowledge — and are more likely to dislike outgroups, who can render this knowledge less secure. Likewise, these individuals are more likely to prefer autocratic group structures (e.g., De Grada, Kruglanski, Mannetti, & Pierro, 1999; Pierro, Mannetti, De Grada, Livi, & Kruglanski, 2003) that demand submission from group members, precisely because these types of groups can more quickly arrive at stable knowledge. This approach to new knowledge fosters an environment in which the world can be sharply divided into ingroups — which provide and preserve knowledge — and outgroups — which threaten this knowledge. This state of affairs could be particularly prominent in the freezing stage, as individuals already possess stable knowledge which could be threatened by outgroups.

Groups can also be sources of knowledge of, among many other things, its own members. Roets and colleagues (2015) have argued that the need for cognitive closure is associated with “essentialism”— that is, the belief that individuals reflect their group's essence. If I want to know the characteristics, attitudes, beliefs, and so forth of particular individuals, I can turn to my ideas — or the ideas of my ingroup's shared reality — about their group stereotypes. Although stereotypes can obviously be very harmful, they also serve as very stable sources of knowledge, and so should be attractive to individuals under a need for cognitive closure. On one level group stereotypes are also a very poor source of knowledge as they can ob-

viously be extremely inaccurate. However, this should be less salient to individuals under a need for cognitive closure, who above all are concerned with stable, not necessarily accurate, knowledge.

In a similar vein, Van Hiel, Pandelaere, and Duriez (2004) have also found connections between the need for cognitive closure and right-wing authoritarianism (RWA; Altemeyer, 1988) and social dominance orientation (SDO; Pratto, Sidanus, Stallworth, & Malle, 1994). The RWA represents a syndrome of submission to superior ingroup members, dominance of inferior ingroup members, and hostility to threatening outgroups, and was originally developed to assess the authoritarian personality as described by Adorno and colleagues. The SDO represents a strong preference for ingroup enhancement at the expense of outgroups. Both the RWA and the SDO reflect a form of group-centrism, and above all a preference for perceiving the world in terms of rigid ingroups and outgroups and of a tolerance of inequality. Although neither the RWA nor the SDO were developed with epistemic motivations in mind, as there is a reliable association between the need for cognitive closure and these constructs, we can argue that strong ingroups can be perceived to protect knowledge, and that outgroups can be perceived to attack knowledge.

Our recent research on the group-centric effect of the need for cognitive closure within moral foundations theory has taken a similar approach. This theory posits that individuals' attitudes toward morality can be explained by five basic intuitions, or foundations (Haidt & Joseph, 2007). These five foundations are respect/authority (i.e., maintenance of leadership and social hierarchies), ingroup/loyalty (i.e., a concern for faithfulness toward the group), and purity/sanctity (i.e., a concern with potential social but also physical contamination); harm/care (i.e., a concern for the well-being of individuals), and fairness/reciprocity (i.e., a concern toward individuals receiving what they deserve). The first three foundations (respect/authority, ingroup/loyalty, purity/sanctity) are referred to as the *binding foundations*, as they support "binding" to a larger group. Conceptually, individuals who endorse these attitudes tend to favor the rights of strong groups relative to individuals, potentially including group members, and to an extent they can tolerate harm to individuals (Giacomantio, Pierro, Baldner, & Kruglanski, 2017). The last two foundations (harm/care, fairness/reciprocity) are referred to as the *individualizing foundations*, as they are concerned with the plight of individuals *per se*, not simply as members of a group, and with their rights. Even though the binding foundations were originally developed in order to describe non-Western morals (Haidt & Graham, 2007), as with RWA and SDO, they represent a form of group-centrism. There is quite a bit of debate about the nature of these moral foundations, and some researchers have convincingly argued that these foundations are underlied by more basic foundations (Gray & Schein, 2012; Gray, Schein, & Ward, 2014). Nevertheless, the binding and individualizing foundations can reflect individuals' attitudes toward the rights of individuals and toward groups (e.g., Giacomantonio et al., 2017; Federico, Ekstrom, Tagar, & Williams, 2016).

The binding and individualizing foundations are disproportionately endorsed by political liberals and conservatives, respectively (Graham et al., 2009). However, these foundations are not identical with these political orientations. The correlations between the moral foundations and political orientation are not necessarily strong (Federico, Deason, & Fisher, 2012) and consequentially it is not difficult to find counterexamples. For instance, conservatives who score highly on the binding foundations are unlikely to support a strong group that supports liberal political policies (e.g., gay marriage in the United States). Instead, individuals who are characterized by the binding foundations should conceptually tend to favor (knowledge-protecting) groups over the rights of individuals, including group members. They should also tend to support their group even when some individuals are harmed (e.g., Giacomantonio et al., 2017), provided that they perceive this group to be useful or necessary. On the other hand, individuals who are characterized by the individualizing foundations should be much less willing to make these sacrifices, and should instead tend to favor the individual over the group.

Recent research has shown that the need for cognitive closure is more strongly related to the binding than to the individualizing foundations (Federico et al., 2016). This result has been replicated in other research conducted in both the United States and in Italy (Baldner & Pierro, 2018; Baldner & Pierro, 2019; Giacomantonio et al., 2017), and is consistent with research on the relationship between the need for cognitive closure and other elements of group-centrism (e.g., Roets et al., 2015). The conceptual link between the need for cognitive closure and the individualizing foundations is much less strong. It is not that specific individuals cannot be knowledge sources — they obviously can. However, those who endorse the individualizing foundations should be willing to consider the opinions of many different individuals. This presents the knowledge-seeker with judging between many different competing answers; even if one particular answer is selected, it could be revised in light of new answers offered by different individuals. This process impedes the search for stable answers desired by individuals with a high need for cognitive closure.

The link between the need for cognitive closure and elements of group-centrism, including the binding foundations, is consistent with Adorno and colleagues' (1950) conclusion that the fascist mindset perceived the world as a series of rigid ingroups and outgroups and feared "contamination" from outgroups. This mindset is linked with the tolerance of inequality, to the extent that outgroups, if they are viewed as a threat, should ideally have less power than the ingroup. Moreover, rigid ingroups can also have rigid hierarchies that themselves produce inequality. In other words, viewing the world in this way can produce inequality that originates from both in and outside the ingroup. More modern research provides a potential motivation for this perspective. Although individuals can be attracted to this perspective for many reasons, based on the above research, we can argue that individuals can be led to this perspective through a desire for stable knowledge about the world.

Need for Cognitive Closure and the Dislike of Change

Individuals under a need for cognitive closure are preoccupied with homogeneity, precisely because this can create an environment where stable knowledge can flourish. Indeed, this need can, in some cases, be thought of as a dislike of change. As one example, a study of Italian postal workers found that it were the workers with a dispositional need for cognitive closure that had the most negative responses after a major organizational change (Kruglanski, Pierro, Higgins, & Capozza, 2007, Study 4). As these individuals should be specifically concerned with change that could prevent them from arriving at, or maintaining, knowledge, attitudes toward change or the lack thereof should depend on whether individuals are in the seizing or freezing phase. For example, the Italian postal workers mentioned above were likely accustomed to their current work habits and consequentially more likely to be in the freezing phase. We may have observed different results if participants were fresh hires, and thus more likely to be in the seizing phase.

The classic research of Leon Festinger can shed light on how individuals under a need for cognitive closure can react toward new knowledge when they are in either of these phases. Although this research predates need for closure theory by about three decades, Festinger argued that individuals have three options when they are need to reach a consensus with other people: they can change their opinion ("change self") or that of the other person ("change other"), or they can reject the opinion deviates (Festinger, 1950; Festinger & Schachter, 1951). More recent research has assessed the likelihood of these three outcomes among individuals under either a high or low need for cognitive closure, and who either had or lacked a firm prior opinion — that is, who were likely to be in either the freezing or seizing phase. It were precisely the individuals who had a prior firm opinion under the need for cognitive closure who were more likely to

take the “change other” or to reject the opinion deviates; individuals who either lacked a firm opinion or who were not under a need for cognitive closure were more likely to take the “change self” approach (Kruglanski et al., 1993; Kruglanski & Webster, 1991).

The fear of change is clearly related to the need for cognitive closure, with the caveat that individuals with this need fear changing their own opinions, attitudes, behaviors, and so forth. Although they are less likely to voluntarily make these kinds of changes, they could be concerned that outside forces (e.g., outgroups and their ideologies) could force them to change. Change that could cast doubt on the ingroup’s ability to provide secure knowledge — such as change that originates from a threatening outgroup — should be particularly worrisome to individuals with a high need for cognitive closure. On the other hand, these individuals could favor changes that bring others inline with the their ingroup — that is, to adopt Festinger’s “change other” strategy.

For example, prolife advocates in the United States are typically politically conservative; however, they also wish to reform U.S. laws regarding abortion. These individuals are unlikely to change their own opinions on this matter — they are likely to be in the freezing phase — but cannot be said to fear change as they explicitly advocate changing the existing laws. However, it could be said that they fear changes that originate from the outgroup (i.e., laws that expand abortion rights) and wish to change the laws of this outgroup (i.e., the generally pro-abortion government) to align with the views of the ingroup.

Need for Cognitive Closure and Conservatism

Although past research has also found relationships between elements of the need for cognitive closure and elements of conservatism, this is a complicated relationship. Federico and colleagues (Federico et al., 2012) first found a positive, albeit moderate, relation between this need and political conservatism; this finding has since been replicated (e.g., Baldner & Pierro, 2018; Giacomantonio et al., 2017). However, this relationship is not very strong: political conservatism cannot explain the need for cognitive closure, or vice versa, and it is not uncommon to find a liberal with a high need for cognitive closure or a conservative with a low need for cognitive closure. The relation between the need for cognitive closure and conservatism is also at least somewhat dependent on national culture. Kossowska and Hiel (2003) found that the need for cognitive closure and economic conservatism were positively correlated in Belgium — such that higher conservatism was associated with the need for cognitive closure — but negatively correlated in Poland. There was a positive correlation between cultural conservatism and the need for cognitive closure in both countries. To make sense of this result, readers must take into account that Poland was a part of the former Soviet Union and, consequentially, that it had a tradition of left-wing economic policies. In this case, individuals with a high need for cognitive closure should tend to dislike change from their established left-wing tradition.

The ambivalence between the need for cognitive closure and political conservatism was commented upon by Jost and colleagues (Jost, Glaser, Kruglanski, & Sulloway, 2003), who noted that conservatism is simultaneously a political and a psychological construct. It can be thought of as a set of cultural-specific political beliefs: for instance, in the the United States, attitudes against abortion and of supporting big business. At the same time, it can be thought of as the intersection of the fear of change (Rossiter, 1968) and as a tolerance of inequality (Bobbio, 1996). As Jost and colleagues (2003) argued, these elements were typically strongly correlated throughout history: individuals who advocated for change often explicitly wanted to change the existing unequal social structure.

Moreover, the association between need for cognitive closure with group-centrism could also be referred to as *psychological conservatism*, insofar as the need for cognitive closure and group-centrism are associated with a fear of types of change and a tolerance of inequality. Jost and colleagues (2003) argued that what we refer to as psychological conservatism could be related to political conservatism, or the culture-specific political beliefs espoused by conservatives (e.g., low taxes in the United States), yet would remain distinct. This point was criticized by Greenberg and Jonas (2003), who countered that right-wing governments could advocate for change and that totalitarian left-wing governments could be tolerant of inequality. However, as Kruglanski (2004) argued, all governments, including those from the right-wing, will likely need to enact some kind of change. Further, some of these proposed changes reflect the restoration of conservative values; this could reflect Festinger's (1950) "change other" approach.

From some of our recent research, we can also conclude that individuals can simultaneously be politically liberal and psychologically conservative (Baldner, Pierro, Chernikova, & Kruglanski, 2018). We investigated, in both the United States and Italy, the strength of the relation between the individuals' self-described left-right political orientation and the binding foundations among individuals with either a high or low dispositional need for cognitive closure. Based on previous research (Graham et al., 2009), there would be an expected main effect of political orientation, such that endorsement of the binding foundations would increase as political orientation became more conservative. This pattern would also be expected in participants with a high need for cognitive closure, as these individuals already tend to endorse the binding foundations.

Perhaps surprisingly, individuals who scored highly on the need for cognitive closure and political liberalism also scored highly on the binding foundations. In other words, political liberals could have similar desires to political conservatives when they are also under the need for cognitive closure. These results held even after controlling for participants' education level and the strength of their political orientation. On the other hand, political conservatives — particularly in the U.S. sample — did not score highly on the individualizing foundations when they had a low need for cognitive closure. Put differently, although the elements of psychological conservatism are clearly separable, they can overpower political liberalism. As a practical example, we recently found that need for cognitive closure can predict voting for the republican U.S. presidential candidate, through the binding foundations, in a sample of self-described liberals (Baldner, Pierro, & Kruglanski, 2019). On the surface it appears that these individuals have violated their political self-interest by voting for a rival candidate; however, this does not take into consideration that their self-interest includes epistemic needs that could be fulfilled by right-wing political candidates. In this case, liberals could be attracted to candidate who presents a relatively simple view of the world.

HOW IS THE NEED FOR COGNITIVE CLOSURE RELATED TO PREJUDICE?

If the association between the need for cognitive closure and elements of group centrism represents a form of psychological conservatism consistent with fascist attitudes, then we should naturally expect it to be also associated with forms of prejudice. There is now a wide literature on the role played by the need for cognitive closure in the prejudicial personality (see Roets et al., 2015, Section 3.2). Indeed, Roets and colleagues (2015) argued that the need for cognitive closure is the *source* of the prejudiced personality. This may seem odd as the need for cognitive closure was developed outside the prejudice literature, and, generally, the desire for secure knowledge has superficially little in common with prejudice. Above all, it is important to remember that individuals under a need for cognitive closure will be attracted to any information source than can provide stable knowledge, including prejudicial beliefs. Although this

process can be seen in different cultures, the outcomes should be culturally-dependent. For an example outside the prejudice literature, the national health system in the United Kingdom is considered a stable feature of British society and performs strongly on opinion polls across the political spectrum (Robertson, Appleby, & Evans, 2018). On the other hand, attempts to create socialized national health system has met stiff feedback in the United States, likely in part because it is perceived to be a new and potentially threatening social development (Bernard, 2014). Consequentially, we should expect that approval of social medicine should be associated with the need for cognitive closure in the United Kingdom whereas the opposite should be expected in the United States.

When individuals who prefer quick, stable answers are presented with an increasingly complex social world, simple beliefs — including prejudicial beliefs — could seem very attractive: in this way, a complex world can become more simple. This could function in the seizing phase, for instance when they are presented with a new social development (e.g., gay marriage), as well as when they are in freezing phase, for instance when a politician proposes a new law that grants rights to a disadvantaged outgroup.

Past research has also found that the need for cognitive closure is directly related to prejudicial outcomes. For instance, the research by Van Hiel et al., (2004), mentioned earlier, found an indirect effect of the need for cognitive closure on cultural conservatism and racism through the RWA and SDO in a Flemish Belgian sample. They later found that Belgian men and women with a high need for cognitive closure were more likely to hold sexist attitudes toward women (Roets, Van Hiel, & Dhont, 2012). Even though women were less likely to hold sexist attitudes toward other women, they were more likely to hold these views when they also had a high need for cognitive closure. On the surface, it would seem that these women are acting against their own self-interest, as these attitudes could naturally be used against them. Although this could be true, this perspective does not take into account that these women also have a very strong interest in securing stable knowledge. By holding on to these prejudicial attitudes, women under a need for cognitive closure can have a stable knowledge base that can help them navigate their social worlds — for instance, when they meet new women.

Our own research has assessed the mediating role of the binding foundations, as an index of group-centrism, on the relationship between the need for cognitive closure and outcomes that reflect prejudice. For instance, we recently tested the effect of dispositional need for cognitive closure, through the binding foundations, on prejudice toward women managers (Baldner & Pierro, 2018). As expected, individuals with a high need for cognitive closure also tended to support the binding foundations and, consequentially, had more negative attitudes toward women managers. These results held even after controlling for participants' gender and political orientation. Even though political liberals and women generally had more positive attitudes toward women managers, these individuals had more negative attitudes when they also had a higher need for cognitive closure. On the surface, this appears again to be a violation of self-interest, particularly for our left-wing women participants. Again, even women can have negative views of other women when this satisfies their psychological need for knowledge.

This study assumed that negative attitudes toward women managers were underlied by a kind of stereotype mismatch — leaders are seen as stereotypically hard whereas women are seen as stereotypically soft (Pica et al., 2018). Women managers could then be negatively evaluated for failing to live up to stereotypically feminine characteristics; their men colleagues in managerial positions are naturally not impeded by this mismatch. A follow-up study (Baldner & Pierro, 2018) also found support for the indirect effect for the need for cognitive closure on the support of stereotypical feminine traits through the binding foundations — again, controlling for participants' gender and political orientation. Stereotypes, although often offensive and inaccurate, are also sources of knowledge. If an individual wants to know how a stranger —

the new boss, for instance — will act, he or she can turn to the stereotypes that are available to them; these stereotypes should be particularly attractive to individuals with a high need for cognitive closure.

But what of the binding foundations? Individuals who endorse these foundations tend to support strong groups, over individuals, but how is this related to sexism? What we call “groups” are more than mere collections of individuals, and can be interpreted as cultures, or the different conceptual worlds in which people live (Geertz, 1973), and as shared realities (Hardin & Higgins, 1996), or individuals’ shared understanding of their social world. These cultures, or shared realities, also include traditions and standards of thought and behavior that are espoused by its followers. In our case, in both United States and Italy, we can indirectly observe a dominant culture or shared reality that is, in principle, patriarchal. Individuals who ascribe to this culture or shared reality have available to them shared stereotypes of women and of leaders. As these stereotypes are incompatible, women managers should suffer. It is possible that the binding foundations at least partially assess adherence to the dominant culture.

If this view is correct, then the same model could also be applied to attitudes toward any outgroup that stands outside the dominant culture. For instance, we have also assessed how the dispositional need for cognitive closure and the binding foundations predict attitudes toward immigrants (Baldner & Pierro, 2019, Studies 1-3). As before, the effect of need for cognitive closure on negative attitudes toward immigrants was mediated by the binding foundations, in both Italian and U.S. samples, controlling for political orientation. Even though we found that political liberals had generally more positive attitudes toward immigrants, attitudes were more negative among political liberals with a high need for cognitive closure. We found an identical pattern of results when we assessed general and economic attitudes toward immigrants. Again, the need for cognitive closure can drive individuals to sources of knowledge — for example, cultures or shared realities that include traditions and belief systems that exclude outgroup members. As this model predicts negative attitudes toward immigrants, we can posit that the underlying dominant culture, or shared reality, is nativist.

The above research assessed need for cognitive closure as a disposition, which is consistent with Adorno and colleagues (1950), as well as with Allport (1954), who both posited that prejudice could form a part of individuals’ personalities. However, the need for cognitive closure can also be a feature of environments (Kruglanski & Webster, 1996), and consequentially it can be raised or lowered. With this in mind, we have also found an effect of manipulated need for cognitive closure on prejudice toward immigrants (Baldner & Pierro, 2019, Study 4) and toward women managers (Pierro, Baldner, Di Santo, & Kruglanski, 2019, Study 3). We can posit not only that negative outgroup stereotypes serve some kind of epistemic need, but that they also represent a set of attitudes that are available to our participants. More importantly, if the need for cognitive closure can be at least temporarily induced in individuals, then it is more than just an aspect of personality.

Although we found support for the indirect effect of the need for cognitive closure, through the binding foundations, on negative attitudes toward immigrants and toward women leaders, there is nothing specific to these groups in our model. This can lead us to two conclusions. First, individuals with a need for cognitive closure and who favor group-centrism — what we could call psychological conservatism — could be opposed to outgroups that could make knowledge less secure, even when they themselves are members of these outgroups (e.g., women can have sexist views toward other women). Second, and as a consequence of our first conclusion, we should find these results toward any outgroup perceived to be a threat.

HOW THE NEED FOR COGNITIVE CLOSURE CAN HELP REVERSE PREJUDICE

A natural next question for this line of research is to investigate how these attitudes can be reversed. Since the need for cognitive closure can be a feature of specific environments, we could simply attempt to lower this need. However, this may be difficult or impossible when individuals are often in high need for cognitive closure environments. Second, we could attempt to change the culture or shared reality in favor of disliked outgroups. In this case, individuals with a high need for cognitive closure should “close” upon this new source of knowledge. However, this, too, could be a very laborious process, at best, when dealing with very large groups (e.g., a national culture). Third, in line with Allport’s (1954) contact hypothesis, we could expose individuals to contact with the hated outgroup. This could reduce individuals’ reliance on hostile stereotypes, although not all contact will serve this goal. Allport (1954) argued that contact should have four properties in order to reduce prejudice: individuals in the ingroup and outgroup must have equal status, must share common goals, must have intergroup cooperation, and must have some kind of institutional support (e.g., customs, legal support). In an extensive meta-analysis, Pettigrew and Tropp (2006) found that studies with rigorous methods and that included these properties found prejudice-reducing effects for contact. At the same time, none of these four properties were necessary; instead, these properties facilitated the positive effect of contact. It is possible that individuals under a need for cognitive closure could be particularly attracted to intergroup contact, as this could create a new stable ingroup that provides positive information about the outgroup. Some of our ongoing research investigates this possibility.

Fourth, we could present an outgroup either as an *epistemic authority*, or a source of knowledge for a particular subject (Kruglanski, Orehek, Dechesne, & Pierro, 2010), or as endorsed by an epistemic authority. For instance, Echterhoff, Kopietz, and Higgins (2017) have shown that immigrants who are presented as epistemic authorities can be judged favorably, independent of the need for cognitive closure. In our own research, we have investigated the proclivity of individuals with either a high or low need for cognitive closure to accept either a positive or negative endorsement of immigrants by an epistemic authority (Baldner, Pierro, Talamo, & Kruglanski, 2019, Study 1). We found that individuals with a low need for cognitive closure were generally favorable toward immigrants; this is consistent with previous research (Brizi, Mannetti, & Kruglanski, 2016). However, individuals with a high need for cognitive closure were favorable toward immigrants in the positive condition, but negative toward immigrants in the negative condition — again, controlling for participants’ political orientations. In other words, we were able to at least temporarily replace individuals’ knowledge source with something more positive toward immigrants. Consequentially, the need for cognitive closure can, paradoxically, work in favor of dislike outgroups.

However, there is one caveat to the above conclusion. As Adorno and colleagues (1950) concluded, some individuals who accept prejudice may be hostile to a less prejudiced perspective (Levinson, 1950b). To test this possibility, we repeated the above study, taking into account participants’ trust in the source of knowledge (Baldner, Pierro, Talamo, et al., 2019, Study 2). We replicated the effect when trust was high, but not when it was low. The natural next question to this finding is how we can increase trust.

CONCLUSIONS AND IMPLICATIONS

Adorno and colleagues (1950) identified many features of the authoritarian personality. Two particularly important features, in the light of modern research, are that these individuals tend to view the world as a set of rigid ingroups and outgroups, and that they fear that a hated outgroup will change the in-

group. Modern research has studied closely related constructs: elements of group-centrism and the need for cognitive closure. These variables themselves are closely related, in that groups with central command structures reflect sources of stable knowledge that are particularly attractive to individuals with a high need for cognitive closure. Taken together, these variables could also be described as elements of psychological conservatism (Bobbio, 1996; Rossiter, 1968), in order to differentiate it from political conservatism, or the cultural-specific conservative political beliefs. As noted by several researchers (Federico et al., 2012; Jost et al., 2003), the correlation between political and “psychological conservatism” is moderate at best; this can be at least partially explained by political liberals who endorse psychological conservatism (Baldner et al., 2018). These variables, taken together, can consequentially explain prejudice toward disliked outgroups (e.g., Baldner & Pierro, 2018, 2019; Roets et al., 2015).

These results can help us understand when prejudice is likely to occur. Individuals who are often in fast-paced environments should be more likely to experience a need for cognitive closure and, consequentially, could be at risk for prejudicial attitudes. Moreover, individuals who generally desire stable knowledge could also be at-risk. This even includes individuals who would not superficially appear to at risk for prejudice — for instance, political liberals or women, when they interact with other women. Most importantly, this research lays out how this situation could be averted, although more research on this point is needed. These attitudes are not set in stone, and it could be possible to change them by presenting individuals under high need for cognitive closure a knowledge sources that are both stable and positive toward these outgroups. In this way, the need for cognitive closure could, paradoxically, work to reduce prejudice.

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