The Social Psychology and Neurobiology of Intergroup Conflict

6

Sara E. Gorman and Jack M. Gorman

The true hero is one who conquers his own anger and hatred. – the 14th Dalai Lama

How does the formation of prominent group identities impact conflict between groups and perhaps ultimately lead to phenomena such as Islamophobia? In this chapter, we will review some of the social psychological theories about group formation, focusing particularly on the formulation of contentious and exclusive "ingroups" and "outgroups."

We will explore some of the factors that make these groups particularly strong and therefore more likely to come into conflict with one another. Then we will look at the evidence from both social psychology and sociology regarding reducing intergroup conflict. In the second part of the chapter, we will move to an investigation of some cutting-edge neuroscience research that helps explain how groups are formed, strengthened, and reinforced as well as what works to reverse bias and conflict.

Most of the research we cite in this chapter deals with intergroup conflict across racial lines. We do of course recognize that Islam is a religion and not a race and as such is comprised of different types of people from around the globe of many different races. Nonetheless, this research is relevant because Islamophobia itself is not founded on an accurate understanding and appreciation of the racial and ethnic diversity of people who practice the religion of Islam. Although there continues to be debate in academic circles about whether or not Islamophobia is technically a form of racism, we agree with the many scholars who argue that racist ideologies do not depend on the existence of a technical "race" [1]. Indeed, many scientists note that "race" is in any case a societal construct and not a technical, scientific phenomenon [2]. Insofar as Islamophobia derives from a set of biased and stereotyped assumptions about a group of people who, although in reality incredibly diverse, are

S. E. Gorman · J. M. Gorman (✉)
Critica Inc., New York, NY, USA

H. S. Moffic et al. (eds.), *Islamophobia and Psychiatry*,
https://doi.org/10.1007/978-3-030-00512-2_6

artificially grouped together as objects of fear, hatred, and even violence, we consider it for the purposes of this chapter enough a form of racism for the research we cite here to be relevant to this phenomenon.

Prominent Social Psychological Theories About Groups

Forming groups is a prominent and common human impulse, and there has been a great deal of literature in an array of social science disciplines both to define different kinds of groups and to form theories about how and why groups form in the ways they do.

In the most basic sense, groups fall into two main categories: primary and secondary. Primary groups tend to be small and characterized by extensive interaction and close, emotional bonds [3]. Family is a good example of a "primary group," although very close peer groups can also function as primary groups. Primary groups tend to be long-lasting, often persisting for the entire lifetimes. Secondary groups, on the other hand, tend to be larger and are not characterized by particularly close emotional ties [3]. Secondary groups also tend to exist for shorter periods of time and come into being in most cases to fulfill a particular purpose. Examples include religious groups, social organizations, and professional organizations. Typically larger groups, such as sports teams and fraternities, can sometimes act as primary groups if emotional bonds are particularly intense.

There is also another interesting type of group called a "reference group." A reference group is not a group we are necessarily part of but may be a group we wish to be a part of someday [3]. Reference groups actually determine many of our attitudes and behaviors, as we behave in accordance with what we aspire to be. For example, we might exercise more if we view a subset of young, athletic females who prioritize fitness and exercising as our reference group. In fact, some recent studies have suggested that our attitudes and behaviors are determined more by what we aspire to be than what we are today, rendering reference group identifications quite important in understanding an individual's attitudes and behaviors [4].

Most of us can intuitively understand the very prevalent and prominent human impulse to join groups. So what are some of the key psychological features that cause groups to be so ubiquitous? Social psychologists have long posited that groups serve an essential function in defining our identities and allowing us to categorize both ourselves and other people we encounter. The social identity and categorization functions of groups create the need to define "ingroups" of "us" and "outgroups" of "them."

We use these ingroup and outgroup definitions to categorize ourselves and others, to determine our own attitudes and behaviors in accordance with our ingroups and in contrast to our outgroups, and to define and identify ourselves through social comparisons between ingroup and outgroup members. In other words, forming groups and subsequently devising the defining features of the ingroup "us" vs. the outgroup "them" allows us to complete important social processes including creating our own social identities and social categories. Social categorization can be extremely important because it allows us to understand others and even to begin to predict their behaviors. It helps us survive by understanding who will cooperate

with us and who is a threat [5]. Forming defined ingroups and outgroups creates essential shorthand information about who will help us and who will harm us. Most of our social behaviors lie on a continuum between interpersonal and intergroup behaviors. Thus our group memberships and our perception of the role of these group memberships in our overall social identity form a vital component of a large portion of our ultimate actions in society.

Ingroup and Outgroup Formation and Perception

As we have seen, from an evolutionary perspective, ingroup formation has many benefits, especially if the groups are formed along kinship lines. Forming groups helps people attain various goals through resource sharing, distribution of labor, and self-protection [5].

Once groups are formed and identified as groups, a number of group psychological processes tend to take shape quickly. What we find repeatedly is that people tend to form groups in somewhat haphazard ways and *then* go through a series of psychological steps to make sense of them. The most basic form of groups, kinship groups, has a basic organizing principle: blood relation. But even when people form groups based on far weaker links than family relationships, they tend to view those groups as "naturally occurring" [5]. Even the most obviously constructed, forced group can come to be viewed as "natural" once group psychological processes are set in motion.

Once the psychological recognition of a group occurs, a number of other assumptions and biases kick in that in many cases result in the formation of a strong sense of "us" versus "them."

The first of these biases is called "ingroup favoritism bias." Ingroup favoritism is exactly what it sounds like: the belief that members of your own group are somehow innately superior to members of other groups [6]. If we really think about it, this belief does not make a lot of sense. Why would New York Yankees fans be innately superior to New York Mets fans? There's no actual, plausible reason for any such disparity. Members of these groups are not substantively different on a population level in any significant way, and the division between the groups is relatively arbitrary. Nonetheless, once someone comes to feel strongly identified with the "ingroup" of New York Yankees fans, he or she will most certainly come to believe that on some level New York Mets fans are inferior.

In addition to forming ingroup favoritism biases, members of groups tend to also exhibit self-serving bias and make a number of attribution errors along group lines. Self-serving bias refers to the tendency to attribute positive outcomes to internal causes and negative outcomes to external causes [7]. In the case of ingroups and outgroups, this translates into a tendency to attribute all positive outcomes in intergroup relations and other group-related activities to the supposed "ingroup" and all negative or undesirable outcomes to the supposed "outgroup" [6]. This phenomenon is closely related to another type of group-related cognitive error, attribution error, which refers to the tendency to make more flattering attributions about members of one's own group than about members of another group [6].

Take a brief example to illustrate these two concepts. Say two groups, Group A and Group B, are attempting to negotiate a deal and the deal ends up falling apart due to conflict on both sides. Members of Group A will interpret the events according to a certain framework that benefits Group A's self-image. Members of this group will find some reason to believe that the negotiations fell apart due to something Group B did. If the negotiations went well, however, members of Group A would come away thinking that the positive outcome was solely due to Group A's valiant efforts. At the same time, members of Group A will start to attribute positive qualities to their group, perhaps in this case including attributes such as tolerance, patience, negotiation skills, and the like. Meanwhile, members of Group A will also attribute negative qualities to members of Group B, perhaps including impulsivity, aggressiveness, and a lack of diplomacy. While all of this is going on, members of Group B will begin to think in similar ways about their own members and about members of Group A.

Part of the problem here is that no matter the outcome, biases such as ingroup favoritism, self-serving bias, and attribution error will be strengthened. Even if Group A and Group B negotiate, have a positive interaction, and come to some sort of cooperative agreement, these biases will still ensure that ingroup members continue to judge themselves as markedly and naturally superior to outgroup members.

Determinants of Strength of Ingroup and Outgroup Bonds

Aside from understanding how ingroups and outgroups form and crystallize, social psychologists and sociologists have long been interested in identifying what exactly makes ingroup bonds particularly strong. One theory has to do with something called "social identity complexity." Social identity complexity refers to a spectrum of self-perceptions in social settings ranging from simple to complex [8].

At the low end of the social complexity scale, people tend to identify with a single ingroup as the intersection of all their group identities. This identification has the effect of creating a single, highly exclusive ingroup category that fundamentally excludes anyone who is not very similar to the individual on traits associated with the ingroup. These types of highly "simple" social identities have the tendency to create very strong and often very sharply opposed ingroups and outgroups [8].

On the other hand, individuals who are at the high end of the social complexity spectrum tend to recognize that each of their group memberships incorporates a different set of people as ingroup members and that their combined identities are the sum of all of these group identities. In other words, they tend not to see themselves as highly exclusive members of a single strong group but as complex individuals with a variety of unique group memberships that together make up a large part of their overall social identities. Complex social identities often form when there is low overlap among group memberships held by a single individual. A good example of a complex social identity is a female corporate executive: since most corporate executives tend to be male, there is little overlap between "female" social identity and "corporate executive" social identity, which inevitably results in a complex social identity with different facets and group memberships that may not always have a lot in common [8].

Having multiple group memberships reduces the importance of any one social identity for defining and identifying an individual. In other words, individual groups become less salient for individuals who glean their identities from a complex amalgamation of different group memberships and other defining factors [8]. People with high degrees of social complexity, usually meaning they are members of various groups and do not define themselves simply by association with a single group, tend to have achieved a higher level of education and show higher degrees of tolerance and acceptance of diversity and multiculturalism, even when controlling for age, socioeconomic status, and ideology on social issues. In many of these studies, intergroup contact alone did not make people more accepting of "outgroups" [9]. This is an important finding because we often find suggestions that contact between opposing groups is a kind of panacea for intergroup conflict. The reality is far more complex than this.

Can Ingroup Bias Be Changed?

Is the intensity of ingroup identification and outgroup ostracization immutable? Research suggests that in fact the strength of one's identification with particular social groups is actually subject to change depending on the situation [8]. Most notably, researchers have repeatedly found that whenever there is a high degree of need for a sense of certainty, people tend to strengthen their ingroup bonds and demonize outgroups more [8, 10]. The need for certainty is often influenced by high degrees of stress: the more stressful the situation is, the more people search tirelessly for any evidence of certainty in their lives. This craving for certainty often leads to something called the "ingroup oversimplification effect," which causes people to make vast, oversimplified generalizations about the differences between the ingroup and the outgroup and often indefensible assumptions about who is a member of the ingroup versus the outgroup. When we feel somehow threatened, we are more likely to viciously denigrate the outgroup, in part because this kind of denigration of the "other" has been associated with increased self-esteem, especially under highly stressful and uncertain circumstances.

In some instances, ingroup affiliations may even compensate for challenges to our feelings of self-worth. In one interesting study, researchers had groups of college female students perform a creative task. They were later told their individual performances had been poor, but that another woman in the group had performed well. This created a feeling of reduced self-esteem in the subjects. However, when they were subsequently told that the experiment actually compared men versus women in performance of this task, a move meant to increase perception of group membership, they maintained a positive self-image despite the negative evaluation of them individually. The researchers gleaned two conclusions from these results: (1) that people whose self-worth and thus sense of identity and certainty have been challenged will cling more tightly to group memberships as a result and (2) that opportunities to venerate and demonstrate the "superiority" of someone's ingroup affiliation can compensate for low individual self-esteem [11].

Although these kinds of experimental circumstances always carry methodological issues with them, including the fact that the environment in the laboratory often does not mimic the real-world environment of everyday life, we can see that research findings like these may have significant implications for understanding human social behaviors and phenomena. This study in particular suggests that people who have undergone serious life stress, experienced perceived or real challenges to their identities and self-worth, and/or come to find themselves in situations marked by a tremendous amount of uncertainty have the tendency to rely much more on ingroup identification *and* perception of ingroup superiority, which may involve extreme denigration of perceived "outgroups" by comparison, in order to maintain a basic sense of self and stability.

This observation is extremely important because it should allow us to be able to effectively predict situations that may cause exacerbation of intergroup conflict. Circumstances involving massive amounts of stress and change, including economic downturns accompanied by massive job loss, natural disasters, and armed conflict, all have the potential to cause heightened intergroup aggression. Indeed, these research findings have more recently led many in the USA to assert that Donald Trump's successful presidential campaign was made possible at least in part by heightened outgroup hatred among American populations undergoing extreme stress due to economic changes and job losses in traditional manufacturing industries that have globalized in the past few decades [12]. The theory is that these people have turned to the "ingroup" to maintain their sense of self during turbulent times. Unfortunately this turn inward has also caused a more nefarious impulse to shun the "outgroup," leading to phenomena such as widespread Islamophobia and even a resurgence of white supremacy.

What Can Be Done to Reduce Intergroup Conflict?

Given what we know about ingroups, outgroups, and group psychology in general, is there anything that might work to reduce tension and prevent conflict and violence between groups? Social psychologists have been working on this question for a long time, and while this is undoubtedly a difficult set of attitudes and behaviors to change, there is some reason to be hopeful about a few techniques that do seem to make a difference.

One of the ways that increasing intergroup cooperation has been tested uses the prisoner's dilemma game. Traditionally in this game, the scenario is that two members of a gang have been arrested and imprisoned. They are subsequently simultaneously offered a deal by the prosecutor. The terms of the deal are as follows:

- If A and B betray each other, each of them serves 2 years in prison.
- If A betrays B but B remains silent, A will be set free, and B will spend 3 years in prison (and vice versa).
- If A and B both remain silent, both of them will serve 1 year in prison.

Logically, the best course of action for any individual would be to betray the other person, but the degree of cooperation in this game is much higher than one might expect. When the game is played on a group rather than an individual basis, however, rates of cooperation are extremely low. When communication between players is allowed, this difference between individual and group response becomes even larger, demonstrating that individuals tend to feel more comfortable trusting another individual after communication has taken place, while groups tend to feel more distrustful because they assume the other group is lying [9].

Contrary to what might seem logical, encouraging group members to do more "perspective taking" to increase intergroup trust tends to be counterproductive [9]. When group members in these situations are asked to take the position of the other side, they end up distrusting them more, projecting that the other group members will act in a completely self-interested manner. This phenomenon is called "reactive egoism," in which self-serving behavior is activated by presumed egoistic behavior on the part of others [9].

One strategy that may work is to ask participants to think about the effect of their behaviors on the future behaviors of the other group. In one study, researchers asked members of one group to think about how the other group would respond on a second iteration of the prisoner's dilemma game considering their own choice during the first game. Subjects in this condition were more likely to cooperate and were also less likely to express distrust of the other group in a follow-up assessment [9].

Much of the research on reducing intergroup conflict has come from Tajfel's original research and theories of how ingroups and outgroups form and are strengthened. This research found repeatedly that with relatively meaningless categories, anonymity, and limited contact, people can "devolve" into us versus them mindsets relatively easily. As a result, people have tended to assume that reducing the sense of differentiation between groups is the best way to reduce intergroup conflict [11]. This strategy is useful in some circumstances but in many cases it does not work and in some cases it can even backfire. Merging boundaries or creating "superordinate" groups has made things worse. One good "natural" example of this is what happens during company mergers. Often the creation of a superordinate category of one company over and above two previously rival companies simply strengthens preexisting subgroups and ingroup favoritism [11].

Whenever the group identity is an important part of an individual's sense of self, differentiation reduction techniques will likely backfire. To test this, in one experiment, researchers first measured subjects belonging to different group level of ingroup identification (the degree to which individual identity is bound up in group identity) and then had participants list characteristics shared by the ingroup and outgroup to stimulate the process of reducing differentiation. Then subjects completed a repeat assessment measuring ingroup favoritism. The study found that higher identifiers at the baseline assessment, meaning people whose individual identity was more tied to the group identity, showed higher ingroup favoritism *after* listing similarities between groups [11]. This finding, among others, suggests that interventions to reduce intergroup conflict must be tailored to specific populations to avoid ineffective practices or, worse, techniques and interventions that could backfire.

A better strategy may be to attempt to modify attitudes within a group rather than about another group. Eran Halperin and colleagues at the Interdisciplinary Center Herzliya in Israel have examined approaches to encouraging negotiation between Israeli Jews and Palestinians. In one study, they showed that subjects are more critical of the outgroup when they believe that in general a person's attitudes are fixed rather than malleable [13]. They then randomized subjects to read an article that portrayed opposed groups as being either of a fixed nature or a malleable nature. The articles did not mention Israel, Jews, or Palestinians. Nevertheless, both Jewish and Palestinian subjects who read the article indicating that groups have malleable attitudes themselves expressed more positive attitudes for members of the opposite group and a greater willingness to compromise. Work such as this is critical in developing evidence-based interventions to reduce bias and group conflict.

Neurobiology of Ingroup/Outgroup Identification

Understanding some of what is known about the neurobiology of the ingroup/outgroup phenomenon may also point to opportunities for interventions that may successfully reduce bias. We have shown that racial prejudice is supported by membership in a group that shares a biased idea. We also know that a strong promoter of social affiliation is the hormone oxytocin. Therefore, it is worthwhile to speculate about whether oxytocin plays a role in promoting affiliation with a group that is based on a shared value of racial prejudice, like Islamophobia.

In a series of seminal experiments, Thomas Insel and colleagues showed that oxytocin is critical for an unusual behavior among the prairie vole: mating for life and shared parental offspring rearing [14]. Only 5% of mammals, including humans, exhibit this behavior, and it is not present even in other species of voles. This led to many studies showing that oxytocin increases social affiliation and maternal bonding among mammalian species. In humans, oxytocin has antianxiety effects [15], enhances parental behavior [16], and increases trust [17]. Many of these behavioral functions of oxytocin rely on hormone activity within the brain rather than in the peripheral circulation. Oxytocin receptors are found in numerous brain regions including the lateral septum, hippocampus, and amygdala.

When we move from the individual to social groups, however, oxytocin plays a less clearly beneficent role. It is clear that oxytocin, by promoting social affiliation, also strengthens ingroup bonding and outgroup hostility [18]. Oxytocin increases aggressive behavior in rat mothers when their pups are threatened by an intruder [19]. In the wild our nearest genetic neighbor, the chimpanzee (*Pan troglodytes*), engages in remarkably organized group behaviors, some of which include violent raids by one group of animals on another. Chimpanzees also go on well-coordinated group border patrols in which there may not be actual interaction with members of another group. In anticipation of conflicts with members of other groups, during border patrols, and during violent encounters with outgroup, urinary levels of oxytocin rise to higher levels than seen in no-conflict control situations [20]. Oxytocin is therefore involved among chimpanzees in maintaining ingroup hostility toward an outgroup.

In humans, there is similar evidence that oxytocin's ability to increase interpersonal trust and bonding functions mainly within an ingroup. In one study, male volunteers were given oxytocin and placebo under conditions in which lying could help themselves or members of their group. Compared to placebo, subjects who received oxytocin lied more to benefit their group, but there was no difference between placebo and oxytocin on lying to benefit oneself [21]. Thus, oxytocin specifically enhanced the tendency for ingroup dishonesty. Oxytocin promotes ingroup favoritism and cooperation and "derogation" of the outgroup [22–25]. If oxytocin is a "feel-good" hormone, then, it has clearly developed to make us feel good doing what our ingroup does and to resist the lures of any other group. Thus, oxytocin is one aspect of the neurobiology of ingroup affiliation.

If oxytocin makes us feel comfortable lying to benefit members of our ingroup [21], it is nevertheless possible that other brain systems can oppose this action. Of note in this regard is a study showing that lesions to the dorsolateral prefrontal cortex (dlPFC), a highly evolved brain region in humans responsible for reason and judgment, impair honest behavior [26]. The dlPFC, which unlike oxytocin is far more developed in humans than in any other mammalian species, may be able to override the effects of oxytocin and promote reasoned choices even when they violate ingroup norms. We will return to this idea after examining the role of another brain structure, the amygdala, that has important influences over the PFC and group affiliative behavior.

Prejudice and the Amygdala

Brain imaging studies have consistently implicated the amygdala, the part of the brain most readily associated with fear, in unconscious racial prejudice. In the typical experiment, subjects are shown pictures of members of their own and of another race while in the fMRI scanner. In many of these studies, the pictures are shown for lengths of time too short to permit conscious registration of the race of the faces in the pictures. In most studies, the amygdala is selectively activated by pictures of an outgroup race.

That the amygdala is activated when subjects view pictures of an outgroup race is hardly surprising. Preclinical and clinical studies have consistently shown that the amygdala is involved in emotional learning and is central to the recognition of threatening stimuli and the acquisition and expression of fear. In one of the first imaging studies evaluating neural response to race, Phelps et al. found that the level of amygdala activation among white subjects when viewing pictures of unfamiliar black males was correlated with unconscious but not conscious measures of race evaluation [27]. However, the amygdala was not preferentially activated when white subjects viewed pictures of familiar black faces. This study thus also suggested that amygdala response to a racial outgroup is modifiable by an individual's own background and experience. This conclusion is supported by the finding by Hart and colleagues that amygdala response to outgroup racial pictures among both black and white subjects did not occur on the first presentation of the pictures but only

after subsequent presentations [28]. This implies that it is only after the subjects processed the personal meaning of the pictures that the outgroup is evaluated as threatening. In another experiment, Wheeler and Fiske found that the cognitive instructional set – what the subjects were told to do and think while looking at pictures of unfamiliar black and white faces – had a profound effect on amygdala activation. That is, amygdala activation was highly dependent on the instructional set given to the subjects before viewing the faces.

A perhaps more direct test of the idea that racial prejudice is modifiable came from a study in which white subjects were shown pictures of black faces for 30 ms, well below the threshold for conscious detection, and 525 ms, above that threshold. Only in the former condition, when subjects were unaware of the faces they were viewing, did white subjects show a greater fMRI amygdala response to pictures of black faces. The result implies that conscious processing modified the response [29].

An important and at first startling finding comes from a study in which both African-American and Caucasian-American subjects showed greater amygdala activity to African-American than to Caucasian-American faces [30]. The study's authors suggested that the amygdala response is related to cultural learning rather than simply to innate outgroup prejudice. According to this interpretation, African-Americans have been taught by the dominant race to have a fearful reaction to representations of members of their own ingroup.

These studies of amygdala response to outgroup facial pictures tell us two things. First, to the extent that a picture of someone is associated with risk, the amygdala will be activated. Second, amygdala responses are modifiable by the conditions under which we consider any potentially threatening stimulus, including appraising it over time, having seen it before, or being told what to think or do when confronting it. The implication, then, is that racial prejudice is not entirely "hardwired" into the human brain but rather at least in part a function of learning and acculturation. Furthermore, the brain's automatic response to perceived threat is subject to reason when parts of the prefrontal cortex exert top-down inhibitory control over limbic structures like the amygdala.

How the Brain Learns to Adhere to an Ingroup

It is of interest, therefore, to understand how the brain learns to identify with the values of an ingroup. One theory is that this occurs by following a charismatic leader. We generally make decisions based on one or more of three specific factors: our own personal experience, our observations of what other people do, and/or our observations of what particularly confident people do. A brain imaging study showed that when making decisions based on personal experiences or the experiences of others, activation occurs throughout the entire ventromedial prefrontal cortex (vmPFC) [31]. However, the most powerful determinant of subjects' choices was the behavior of another, particularly confident, person. Following the lead of a confident person selectively activated a specific part of the vmPFC, Brodmann's area 10, the most anterior part of the human brain and likely the most recently

evolved. Thus, a specific section of the vmPFC makes us susceptible to the influence of confident people, even if what they recommend is discordant with our own experience.

The more powerful that confident person is, the more convincing is her argument. This is mirrored in a remarkable group brain activation pattern in which rhetorically powerful political speeches, but not weak speeches, are associated with alignment of listeners' brain activation patterns with other listeners [32]. Moreover, the brain also has a mechanism to adapt to dishonesty. An fMRI study showed that repeated lying decreased amygdala activation, lessening the aversive signal we experience when we first tell a lie [33]. Thus, the confident, charismatic leader can reduce his own sensitivity to lying and exert an influence on an entire group, such that members of the group become inured to dishonesty as well.

Once the brain has established a pattern of adhering to the ingroup's norms, it protects itself from change. The default bias is simply our tendency to do what is routine and customary. Once again, we can see the default bias at work in the brain. In simulated gambling tasks during brain imaging acquisition, switching from the default option activates the anterior insula, a brain region associated with fear and disgust, whereas staying with the default option activates the ventral striatum, a part of the basal ganglia that is the terminus of the brain's main reward pathway [34]. Our brains make us feel uncomfortable when we entertain the risk of departing from customary behavior, whereas "selecting the default might be rewarding in itself ([34], p 14706)."

These studies strongly suggest, then, that the amygdala alerts us to perceived threats from members of an outgroup and the insula makes us feel uneasy when we contemplate any action that deviates from the ingroup's norms. The ventral striatum promotes an iterative process that teaches us to anticipate reward from sticking with the ingroup and punishment from opposing it.

Once we accept the fact that ingroup/outgroup bias is at least in part a learned phenomenon, it is reasonable to ask to what extent it can be unlearned. An interesting experiment took advantage of the fact that memory traces acquired during the day are reactivated and strengthened during deep (also known as slow-wave or non-REM) sleep [35]. Researchers were able to use a conditioning paradigm to show that both unconscious gender- and racially biased ideas could be reduced while subjects took a 90-min nap. Commentators on the experiment noted that even though the gender- and racially biased ideas these subjects harbored were implicit – that is, unconscious and only accessible by a test specific to implicit attitudes – and common, it still proved possible in this study to disrupt them at the deep, unconscious level at which they exist [36].

Prefrontal Cortex Can Assert Reasoned Appraisals

There is a long literature on the role of several subregions of the PFC in inhibiting the amygdala and asserting reason over emotion [37]. For example, the PFC is active when individuals self-correct erroneous ideas that were provided by others

[38]. As noted above, damage to the dlPFC decreases honesty [26]. We have seen that conscious appraisal and instructional set modify both brain and behavioral responses to bias. Although the sleep experiment described above demonstrates that prejudicial ideas can be modified, such unconscious manipulation of attitudes would be both practically and ethically impossible on a wider scale. We propose that methods that activate PFC regions and involve reason and learning may be effective in reversing bias.

Children as young as 5 already show affiliative behavior toward their ingroup. For example, young children were found to attribute fewer mental abilities and uniquely human traits to people who do not share their gender or hometown [39]. This begs the question of how much ingroup preference is genetically determined and how much is learned. Given that we are currently unable to alter any genetic predispositions to bias, it is reassuring that at least some of the variance for outgroup prejudice appears to be learned and therefore potentially modifiable.

The neurobiological studies discussed here are for the most part early attempts to understand very complex human emotions and behaviors. It is entirely possible, indeed likely, that continued research will render much of what we think we know today obsolete as more studies using more sophisticated technologies are performed. Nevertheless, they point to intriguing, and in many ways hopeful, signs that even the biases commonly and deeply held by groups can be changed for the better.

Conclusions and Clinical Implications

Social psychological and neurobiological studies of ingroup/outgroup identification and conflict agree on three basic principles. First, the tendency to affiliate with a group and to malign other groups is a natural phenomenon observed in multiple mammalian species, including both nonhuman and human primates. As such, there is unquestionably an evolutionarily conserved, heritable tendency to affiliate with and defend, however irrationally, an ingroup.

Second, despite the first point, ingroup affiliation and outgroup hatred are learned phenomena. While we may be born with a propensity to belong to a group, which group or groups we belong to and how fiercely we defend the values of those groups are largely products of learning, culture, and socialization.

Finally, given that at least some of ingroup identification is learned, there is clear opportunity for modification. Experiments discussed in this chapter demonstrate that both behavior and its underlying biological foundation can be altered by learning and conditioning aimed at reducing bias.

Psychiatrists, psychologists, and other mental health professionals are of course not immune to unconscious biases, including those engendered by ingroup membership. It might be worthwhile for therapists themselves to take the Implicit Association Test (IAT), which is a validated instrument for uncovering unconscious bias. A heightened awareness for unconscious, automatic beliefs such as thinking

that minority patients are more likely to have violent impulses, female patients will prefer to study humanities over science, or Islamic patients will secretly harbor terrorist sympathies needs constant surveillance and identification. Therapists often resist acknowledging such ideas because they believe themselves to be liberal and enlightened, but unconscious bias is common to all of us.

The data reviewed here also suggest that members of outgroups may learn and adopt self-deprecatory attitudes from the ingroup. When Islamic people live in countries in which they are a minority, for example, they may be susceptible to anti-Muslim rhetoric and harbor feelings of low esteem, isolation, and powerlessness. When they present for help from mental health professionals, it is important to identify these learned, culturally determined feelings, and it is important for therapists to be sensitive to their existence and know how to manage them.

Identifying unconscious bias among therapists and feelings of inferiority among marginalized minorities is a step toward reversing them. Data support the idea that conscious, reasoned processes, as are supported by many forms of psychotherapy, may help people assert control over their biased attitudes and reduce their susceptibility to the rhetoric of the outgroup marginalization and prejudice at the hands of dominant ingroups.

There is also an opportunity for social psychologists and neuroscientists to collaborate on work to both understand ingroup/outgroup conflict and to develop interventions to prevent and dispel it. Work needs to be pursued at both an individual and at a group level. Although laboratory studies show we can change attitudes one person at a time, destructive prejudicial attitudes like Islamophobia demand population-level solutions. Science already indicates likely directions for accomplishing this critical task.

References

1. For a good summary of the academic discussion, see Sayyid S. Racism and Islamophobia. International Centre for Muslim and non-Muslim Understanding Commentary 2011;4:1–4.
2. Yudell M, Roberts D, DeSalle R, Tishkoff S. Taking race out of human genetics. Science. 2016;351(6273):564–5.
3. University of Minnesota Libraries. Sociology: understanding and changing the social world. Minneapolis: University of Minnesota Libraries Publishing Edition; 2016. p. 173.
4. DeMarree K, Clark C, Weeler SC, Brinol P, Petty R. On the pursuit of desired attitudes: wanting a different attitude affects information processing and behavior. J Exp Soc Psychol. 2017;70:129–42.
5. Krueger JI, DiDonato TE. Social categorization and the perception of groups and group differences. Soc Personal Psychol Compass. 2008;2(2):733–50.
6. University of Minnesota Libraries. Principles of social psychology. Minneapolis: University of Minnesota Libraries Publishing Edition; 2015. p. 550.
7. Duval TS, Silvia PJ. Self-awareness, probability of improvement, and the self-serving bias. J Pers Soc Psychol. 2002;82(1):49–61.
8. Brewer MB, Pierce RP. Social identity complexity and outgroup tolerance. Personal Soc Psychol Bull. 2005;31:428.
9. Wolf ST, Cohen TR, Kirchner JL, Rea A, Montoya RM. Reducing intergroup conflict through consideration of future conflict. Pittsburgh: Carnegie Mellon Tepper School of Business; 2009.

10. Robbins JM, Krueger JI. Social projection to ingroups and outgroups: a review and meta-analysis. Personal Soc Psychol Rev. 2005;9(1):32–47.
11. Crisp RJ, Beck SR. Reducing intergroup bias: the moderating role of ingroup identification. Group Process Intergroup Relat. 2005;8(2):173–85.
12. Cox D, Lienesch R, Jones RP. Beyond economics: fears of cultural displacement pushed the white working class to trump. PRRI/The Atlantic Report 2017. Published online May 9, 2017.
13. Halperin E, Russell AG, Trzesniewski KH, Gross JJ, Dweck CS. Promoting the Middle East peace process by changing beliefs about group malleability. Science. 2011;333:1767–9.
14. Insel TR, Shapiro LE. Oxytocin receptor distribution reflects social organization in monogamous and polygamous voles. Proc Natl Acad Sci U S A. 1992;89:5981–5.
15. Kirsch P, Essinger C, Chen Q, et al. Oxytocin modulates neural circuitry for social cognition and fear in humans. J Neurosci. 2005;25:11489–93.
16. Rilling JK, Young LJ. The biology of mammalian parenting and its effect on offspring social development. Science. 2014;345:771–6.
17. Insel TR. The challenge of translation in social neuroscience: a review of oxytocin, vasopressin, and affiliative behavior. Neuron. 2010;65:768–79.
18. Miller G. The promise and perils of oxytocin. Science. 2013;339:267–9.
19. American Physiological Society. Oxytocin raises aggression, cuts anxiety during lactation; similar effects on virgin rats. ScienceDaily. 2005.
20. Samuni L, Preis A, Mundry R, Deschner T, Crockford C, Wittig RM. Oxytocin reactivity during intergroup conflict in wild chimpanzees. Proc Natl Acad Sci U S A. 2016;114:268–73.
21. Shalvi S, De Dreu CKW. Oxytocin promotes group-serving dishonesty. Proc Natl Acad Sci U S A. 2014;111:5503–7.
22. De Dreu CK, Gree LL, Van Kleef GA, Shalvi S, Handgraaf MJ. Oxytocin promotes human ethnocentrism. Proc Natl Acad Sci U S A. 2011;108:1262–6.
23. De Dreu CK, Greer LL, Handgraaf JM, et al. The neuropeptide oxytocin regulates parochial altruism in intergroup conflict among humans. Science. 2010;328:1408–11.
24. Ten Velden FS, Daughters K, De Dreu CKW. Oxytocin promotes intuitive rather than deliberated cooperation with the in-group. Horm Behav. 2017;92:164–71.
25. Daughers K, Manstead AS, Ten Velden FS, De Dreu CK. Oxytocin modulates third-party sanctioning of selfish and generous behavior within and between groups. Psychoneuroendocrinology. 2017;77:18–24.
26. Zhu L, Jenkins AC, Set E, et al. Damage to dorsolateral prefrontal cortex affects tradeoffs between honesty and self-interest. Nat Neurosci. 2014;17:1319–21.
27. Phelps EA, O'Connor KJ, Cunningham WA, et al. Performance on indirect measures of race evaluation predicts amygdala activation. J Cogn Neurosci. 2000;12:729–38.
28. Hart AJ, Whalen PJ, Shin LM, McInerney SC, Fischer H, Rauch SL. Differential response in the human amygdala to racial outgroup vs ingroup face stimuli. Neuroreport. 2000;11:23510–2355.
29. Cunningham WA, Johnson MK, Raye CL, Gatenby C, Gore JC, Banali MR. Separable neural components in the processing of black and white faces. Psychol Sci. 2004;15:806–13.
30. Lieberman MD, Hariri A, Jarcho JM, Eisenberger NI, Bookheimer SY. An fMRI investigation of race-related amygdala activity in African-American and Caucasian-American individuals. Nat Neurosci. 2005;8:720–2.
31. Campbell-Meiklejohn D, Simonsen A, Frith CD, Daw ND. Independent neural computation of value from other people's confidence. J Neurosci. 2017;37:673–84.
32. Schmalzle R, Hacker FEK, Honey CJ, Hasson U. Engaged listeners: shared neural processing of powerful political speeches. Soc Cogn Affect Neurosci. 2015;10:11370–143.
33. Garrett N, Lazzaro SC, Ariely D, Sharot T. The brain adapts to dishonesty. Nat Neurosci. 2016;19:1727–32.
34. Yu R, Mobbs D, Seymour B, Calder AJ. Insula and striatum mediate the default bias. J Neurosci. 2010;30:14702–7.
35. Hu X, Antony JW, Creery JD, Vargas IM, Bondenhausen GV, Paller KA. Unlearning implicit social biases during sleep. Science. 2015;348:1013–5.
36. Feld GB, Born J. Exploiting sleep to modify bad attitudes. Science. 2015;348:971–3.

37. Gorman SE, Gorman JM. Denying to the grave: why we ignore the facts that will save us. New York: Oxford University Press; 2016.
38. Edelson MG, Dudai Y, Dolan RJ, Sharot T. Brain substrates of recovery from misleading influence. J Neurosci. 2014;34:7744–53.
39. McLoughlin N, Over H. Young children are more likely to spontaneously attribute mental states to members of their own group. Psychol Sci. 2017;28(10):1503–9.