



The Will to Fight: Aversion-Induced Aggression and the Role of Motivation in Intergroup Conflicts

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Abstract

Aggressive behavior is a source of many significant human problems, most notably the catastrophic loss of life and resources that can result from violent conflicts between groups. Aggressive behavior is particularly likely to arise from aversive conditions that function as motivating operations (MOs) that establish the stimulation produced by aggressive acts as reinforcing. We describe the behavior that arises from these circumstances as aversion-induced aggression (AIA) and argue that the MOs associated with AIA are important factors in initiating and sustaining violent conflicts between groups. In support of this, we survey the basic nonhuman research that has demonstrated the aggression-motivating functions of aversive stimuli. We extend our analysis of AIA to humans and describe how the special properties of verbal stimuli serve as the basis for notable differences between AIA in humans and nonhumans. We describe how aversive conditions may be exploited by leaders to establish support for aggression against another group in the pursuit of their objectives. We suggest that conflicts between groups cannot be resolved in the long term unless the motivational conditions from which conflicts arise are alleviated. Aggression is rarely effective in this regard because it exacerbates these conditions. For this reason, we advocate against the use of aggression as a tool for resolving conflicts between groups and consider how behavior science may contribute to the development and evaluation of alternative nonviolent practices.

Keywords Motivation · Motivating operations · Aggression · Intergroup conflict · Verbal behavior · Cultural behavior

Aggressive behavior (i.e., behavior which results in the physical harm of another individual) is at the root of many of the most obvious and troublesome problems facing

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all human societies, including violent crime, domestic abuse, and intergroup conflict. Although violent crime and domestic abuse are major problems, the effects of aggressive behavior in those contexts are largely limited to the individuals immediately involved. On the other hand, violent intergroup conflict involves the coordinated aggressive actions of many people and often results in outcomes that are undesirable or even fatal for large numbers of individuals, many of whom may not be directly involved in the conflict. Violent intergroup conflict may take the form of warfare between states, civil war between factions in a state, violent exchanges between state and non-state organizations (e.g., terrorism, counterterrorism, or cartel wars), or conflicts between nonstate racial or ethnic groups or rival gangs. A casual survey of human history in the last 100 years provides a plethora of examples of just how catastrophic such conflicts can be. Despite the tragic outcomes inevitably associated with coordinated aggressive action of this nature, it appears that the dominant view among scholars and would-be combatants alike is that violent action is still the most effective means of achieving the objectives of a group (Howes, 2013; Pape, 1997; Sprinzak, 2000; Stephan & Chenoweth, 2008).

Nevertheless, based on analyses of the relative success rates of violent and nonviolent campaigns, scholars are beginning to argue that violent action may be less effective than nonviolent action in achieving the goals of groups (Mattaini, 2013; Sharp, 2005; Stephan & Chenoweth, 2008). As an example, Abrahms (2006) found that violent terrorist groups were effective in achieving their policy objectives only 7% of the time. Furthermore, it is often noted that the use of aggressive action by one party arranges the circumstances under which aggression (i.e., retaliation) from the second party is highly probable (Mattaini, 2013; Sidman, 1989). The initiation of aggressive action on the part of the second party can in turn provoke further aggression from the first party and so on in a continuing cycle of escalating levels of aggressive exchange (Mattaini, 2013). This sequence of events may be observed in the early stages of nearly every violent conflict between groups throughout human history and often culminates in mass casualties for both parties. Perhaps the most salient contemporary example is the ongoing conflict between Israeli and Palestinian groups, which has been characterized as a “cycle of violence” (Jaeger & Paserman, 2006).

The purpose of the present article is to argue that such cycles of intergroup violence are related in part to the phenomenon of aversion-induced aggression (AIA). AIA has been well-studied in the laboratory and describes circumstances in which aversive conditions function as motivating operations (MOs) that increase the probability of aggressive behavior (Lewon & Hayes, 2014). We will argue that the use of violence on the part of one group in an attempt to achieve its social, political, or economic objectives arranges aversive conditions for members of another group, and these conditions often serve to motivate retaliatory aggression in return. These MOs are often an important means by which a sufficient number of group members are induced to participate in coordinating activities aimed at inflicting damage on another group.

To this end, we begin by surveying basic research on AIA with nonhumans and humans, showing that aversive stimulation serves as a MO that establishes the stimulation produced by aggressive behavior as a reinforcer. We extrapolate from these laboratory findings to the circumstances of humans living in groups, paying special attention to important differences between human and nonhuman AIA that arise in large part from the special properties of verbal behavior. We then consider how the

MOs associated with AIA contribute to establishing support for coordinated aggressive action within a group. We argue that aggressive action often has the unintended consequence of contributing to the initiation and maintenance of cycles of aggression between groups. Even in cases where the short-term goals of a group appear to be achieved through violence, they do not address the motivational sources of conflict. We conclude by considering how behavior science may contribute to the development and evaluation of nonviolent strategies in resolving intergroup conflicts.

Aversion-Induced Aggression (AIA): Basic Research and Theoretical Framework

Since Tedeschi et al.'s (1959) observation that electric shock produced attack behavior in mice, many subsequent studies have demonstrated that shock and other forms of aversive stimulation (i.e., events that function as punishers when they are contingent upon behavior) can produce attack behavior in a variety of species, including rats and hamsters (Azrin, Hutchinson, & McLaughlin, 1965; Hynan, 1976; Ulrich & Azrin, 1962), squirrel monkeys (Azrin, Hake, & Hutchinson, 1963), pigeons (Gentry, 1968), turtles (Fraser & Spigel, 1971), and humans (Frederiksen & Peterson, 1977). In addition to aversive stimulation, research has also demonstrated that attack behavior can be induced by a variety of schedules of reinforcement, including extinction (Azrin, Hutchinson, & Hake, 1966; Knutson, 1970), fixed-ratio (Cherek & Pickens, 1970; Gentry, 1968; Knutson, 1970), fixed-interval (Cherek, Thompson, & Heistad, 1973; Richards & Rilling, 1972), variable-interval (Dove, Rashotte, & Katz, 1974), differential reinforcement of low rates of responding (Knutson & Kleinknecht, 1970), and fixed-time schedules of reinforcement (Flory, 1969).

When experimenters have employed aversive stimulation (e.g., electric shock) as the aggression-inducing event, the levels of aggression are highest immediately following exposure to that stimulation (Azrin, Hutchinson, & McLaughlin, 1965). When aggression is induced by particular schedules of reinforcement, attack levels are highest immediately following the delivery of a reinforcer, which signals a period of time during which further reinforcers are not forthcoming (i.e., a functional period of extinction; Cherek et al., 1973). In procedures that utilized extinction as the aggression-inducing event, aggression was most probable immediately following the cessation of reinforcement for a previously reinforced response (Azrin, Hutchinson, & Hake, 1966). Aversive stimulation, extinction, and the immediate postreinforcement period of certain schedules of reinforcement share a number of functional properties associated with aversive stimuli: they reduce the frequency of previously reinforced behavior, they occasion aggression, and they motivate escape/avoidance behavior (Azrin, 1961; Azrin, Hake, Holz, & Hutchinson, 1967; Thompson 1964, 1965). Because of these functional similarities, extinction (including the immediate postreinforcement period of certain schedules of reinforcement) has been characterized as an aversive condition (Richards & Rilling, 1972; Wagner, 1969). We will therefore use the omnibus term *aversion-induced aggression* (AIA) to refer to aggressive behavior occasioned by these classes of events.

Even though some have characterized AIA as reflexive behavior that is elicited by shock (Ulrich & Azrin, 1962) or as an automatic byproduct of certain schedules of

reinforcement (Falk, 1971; Staddon, 1977), a number of studies have demonstrated that aversive conditions actually establish the stimulation produced by aggression as a reinforcer (Lewon & Hayes, 2014; Malott & Shane, 2016). For example, Cherek et al. (1973) described a concurrent contingencies arrangement in which pigeons could either peck a key for food (food key) or a second key to gain access to a restrained target pigeon against which they could aggress (attack key). During the baseline condition, food was not available for food key pecks (i.e., responding on the food key was not reinforced with access to food) and the experimenters observed near-zero levels of responding on the attack key. Following baseline, the experimenters made access to food contingent upon food key pecks on fixed-interval (FI) schedules of reinforcement and found differentially high rates of responding on the attack key immediately following the delivery of food reinforcers. It should be noted that postreinforcement responding on the attack key extinguished when the target pigeon was absent, suggesting that it was specifically the stimulation produced by attack that served to reinforce attack key responding. The defining characteristic of a reinforcer is that it serves to maintain the repeated occurrence of a class of responses that produce it. The results of Cherek et al. suggest that the stimulation produced by aggression may function as a reinforcer, but it appears to do so only in the immediate postreinforcement period (i.e., a period consistently correlated with extinction). Other studies have demonstrated that shock (Azrin, Hutchinson, & McLaughlin, 1965), extinction (Malott & Shane, 2016), and the postreinforcement period of different time-based schedules of reinforcement similarly establish aggression as reinforcing (Cole & Parker, 1971; Dove, 1971), and comparable results have been reported with humans (Frederiksen & Peterson, 1977).

On the basis of this research, we will argue that aversive stimulation, extinction, and the postreinforcement periods of certain schedules of reinforcement are aversive events that also function as MOs that establish the stimulation produced by aggression as reinforcing. This means that organisms exposed to extinction or aversive stimulation may be more likely to aggress, but it does not mean that they will necessarily do so in the sense that aggression is “reflexive” or “elicited.” Even if there is some evidence to suggest that species-specific attack responses may be elicited the first time an animal of a certain species is exposed to an aggression-motivating aversive event (Azrin, Hutchinson, & Hake, 1967; Bolles, 1970), this behavior is presumably shaped across subsequent occasions via the stimulation it produces, and topographies that produce the most reinforcing stimulation are differentially reinforced. For this reason, we are characterizing AIA as a motivated operant. Modern accounts of reinforcement posit that reinforcers are not *stimuli*, they are *activities* (i.e., an interaction between a stimulating object or event and the stimulated organism; Killeen & Jacobs, 2017; Timberlake & Allison, 1974). When the reinforcer is eating, food deprivation serves as the MO, and the class of responses upon which eating is contingent constitutes the operant. Lay accounts describe this relationship between the food deprivation MO and an increased probability of eating as “hunger.”

A similar analysis may be applied to AIA and other phenomena that have been described colloquially as emotions (Lewon & Hayes, 2014). In the case of AIA, aversive stimulation or extinction function as the MO, attack against another organism or object is the reinforcing activity, and the class of responses upon which this activity is contingent constitutes the operant. Lay accounts typically describe these types of

behavior-environment relationships with emotional terms such as “anger,” “rage,” or “hatred.” The account of AIA that we are advancing here is therefore a technical behavior analytic account of the emotions that are frequently invoked as “causes” of aggressive behavior both in casual discourse and by scholars from other theoretical perspectives. From the perspective we espouse here, the terms motivation and emotion describe the same phenomena: changes in certain classes of behavior as a function of exposure to events that function as MOs (Lewon & Hayes, 2014).

As is the case with other operants, the MOs associated with AIA may increase the probability of aggressive behavior, but it is also influenced by other variables. AIA can come under stimulus control and occur differentially in circumstances where it is most likely to be reinforced (Cole & Litchfield, 1969; Hynan, 1976). AIA is susceptible to its consequences and, even under the relevant motivational circumstances, may be decreased through aggression-contingent punishment (Azrin, 1970; Azrin & Holz, 1966; Ulrich, Wolfe, & Delaney, 1969) or increased through reinforcement (Azrin & Hutchinson, 1967). The latter finding means that aggressive behavior that is initially reinforced only by the stimulation it produces under aversive MOs may acquire additional functions if other reinforcers are contingent upon it. One example of this is when a child’s aggression that occurs during extinction is inadvertently reinforced by caregiver reactions and/or access to tangible items or activities (Marcus, Vollmer, Swanson, Roane, & Ringdahl, 2001; Thompson, Fisher, Piazza, & Kuhn, 1998). Another example is when aggression is negatively reinforced by escape from an aversive condition (Carr, Newsom, & Binkoff, 1980). In these circumstances, aggression may come at least partially under the control of discriminative stimuli and MOs related to those other reinforcers.

AIA in Verbal Humans

The types of MOs that have been shown to establish aggression as reinforcing for a variety of species in the laboratory appear to have similar effects on humans in nonlaboratory circumstances. There are many instances of human aggression that have clear parallels to AIA as it has been studied in the basic laboratory, including so-called “crimes of passion” wherein an acutely aversive exchange between people leads to immediate violence. Another example is the “road rage” phenomenon. In many cultures, there appears to be an implicit recognition of AIA in that these types of unpremeditated episodes of aggression that occur in the “heat of the moment” are punished less harshly than premeditated ones (Finkel, 1995; Goldstein, 2002).

Despite this, human environments and repertoires differ in many important ways from nonhuman ones, and these must be acknowledged in translating basic AIA research to an analysis of the behavior of verbal humans living in groups, especially as it relates to intergroup aggression. Some of the most important differences arise from verbal behavior. Verbal stimuli are pervasive and profoundly affect how individuals respond to circumstances in both the physical and social environments (Hayes, Barnes-Holmes, & Roche, 2001). Below we consider two issues related to language and AIA in violent conflict between groups. The first is the important role and special properties of verbal stimuli as MOs capable of inducing AIA. The second is the contribution of verbal stimuli in determining the topographies of AIA.

Motivational Functions of Verbal Stimuli

For nonverbal organisms, the events that are capable of establishing aggression as reinforcing in nature seem to be limited to circumstances in which organisms are in direct contact with aversive stimulation arising from another organism. We have also noted that the aggression-motivating effects of these events are relatively short-lived. However, in verbal humans, AIA can be induced through verbal means in the absence of direct contact with nonverbal aversive stimulation. In addition, AIA may persist across much longer periods of time than is observed in laboratory studies with nonverbal organisms.

We attribute these differences in AIA between verbal and nonverbal organisms primarily to the special properties of verbal stimuli that make them particularly likely to function as substitute stimuli (Hayes, 1991; Parrott, 1984). Substitute stimuli are those through which the functions of objects or events that are not present operate. A familiar example of this is a stimulus that comes to function as a conditioned stimulus due to its consistent correlation with an unconditioned stimulus in a Pavlovian conditioning procedure. When events consistently cooccur (and do not frequently occur in each other's absence), both may acquire some of the psychological functions of the other (Delgado & Hayes, 2014; Rehfeldt & Hayes, 1998). Verbal stimuli are particularly likely to enter into such relations with other objects and events because verbal stimuli produce no direct effects on the physical environment, and they are not incompatible with most other forms of nonverbal action. Because of these properties, verbal stimuli can cooccur with a wide range of events as well as nonverbal forms of action, including perceptual activity such as seeing, hearing, and smelling. This allows many opportunities for verbal stimuli to acquire the functions of the things and events with which they occur conjunctively (Parrott, 1984).

Through these means, verbal stimuli may acquire MO functions, and they serve as an important source of motivation for verbal humans (Maraccini, Housmanfar, & Szarko, 2016). With respect to aggression, this means that aversive verbal stimuli are capable of establishing aggression as reinforcing in the same way as the events from which they derive this function (i.e., a description or depiction of some event may be as effective in motivating aggression as experiencing the event itself). Verbal stimuli can take a multitude of forms (e.g., textual, vocal, gestural), and they may arise from the behavior of others or be produced overtly or covertly by individuals themselves. Verbal stimuli may also occur in nearly any situation, including ones far removed in space and time from the actual events from which their motivational functions are derived. The aggression-motivating functions of events may therefore persist for extended periods of time when they operate through verbal stimuli. This allows for more protracted episodes of AIA in verbal humans than is exhibited by nonhumans. Conflicts between individuals or groups arising from a particular aggression-motivating event in the past may continue to exert its influence across years or even decades. Histories and accounts of grievances may be passed verbally among members of a group, making it such that events in the past can affect behavior within a group across generations.

The substitutional properties of verbal stimuli also allow for the establishment of particular functions of things or events in the absence of any direct experience with them. Over the past 30 years, a great deal of research has shown how individuals learn to respond to events verbally in terms of their relations to other events (Dymond &

Rehfeldt, 2000; Hayes et al., 2001; O'Connor, Farrell, Munnely, & McHugh, 2017). Once this repertoire is established, verbal stimuli are capable of establishing the functional similarity or difference of stimuli (e.g., us vs. them, Christians vs. Muslims, capitalists vs. communists), such that people may come to respond differentially to individuals that have been verbally established as being members of other nationalities, races, or ethnicities. On the other hand, when individuals see themselves as members of a group, offenses against one member may function as an affront to all. Verbal stimuli may be used to indirectly establish the relative reinforcing and aversive functions of things and events that people have never encountered by describing them as good or evil, right or wrong, and patriotic or unpatriotic. Other groups and their actions may be verbally established as aversive or “bad” independent of personal experience. Below we will describe how intergroup anger and hatred arising from the sorts of verbal processes discussed in this section can serve as a significant source of support for aggressive action within groups.

Diversity of Response Forms

In addition to serving as a powerful source of motivation for AIA, verbal behavior allows AIA to take on a more diverse range of response topographies. In nonhuman organisms, AIA is largely limited to physical attack directed at another organism. In verbal humans, AIA can range from direct physical attacks to indirect and sometimes very subtle forms of aggression, including verbal attack, boycotts, noncompliance, the “silent treatment,” or spreading rumors. An important source of this diversity is rule-governance afforded by language (Skinner, 1969). Rules are verbal descriptions of contingencies, and they may be provided by other individuals in a verbal community or, with the appropriate history, generated by individuals themselves with respect to their current environmental circumstances. When individuals are behaving under the influence of verbal stimuli of this kind, it is called rule-governed behavior.

Verbal stimuli in the form of rules allow for interactions with the physical and social environment not afforded by nonverbal stimuli due to the greater specificity with which they may correspond to particular objects and events in the world. Verbal stimuli may take a nearly infinite variety of forms, and particular response forms may thereby be intimately coordinated with various features of the environment. The diversity of response forms that verbal behavior may take means that verbal stimuli may be more specifically coordinated with particular objects, events, or actions (or abstracted properties of these) than is possible with nonverbal responses (Parrott, 1984). Because of this, rules afford great specificity of action with respect to a wide range of environmental circumstances. Through rules speakers may induce listeners to respond in particular ways by precisely specifying the topography of behavior, the conditions under which it is to occur, and/or its probable consequences.

These features of rules are particularly important in understanding aggressive acts that involve coordination between members of a group. First, as rules may specify forms of behavior, particular response topographies may be brought about via rules without need for direct shaping (Skinner, 1974, p. 125). New topographies may be established via rules describing different means by which a person may arrange aversive conditions for others, or by specifying forms that are less likely to be punished. Rules may also establish topographically dissimilar responses as functional equivalents.

For example, a person who has just experienced a contentious breakup with a boyfriend may be told by a friend, “The best way to get back at your ex-boyfriend is to date one of his friends.” Assuming that the breakup functions as an aversive event for the individual, that event (as well as the stimuli that remind the individual of it) may serve as a MO that arranges the conditions under which AIA is probable. Under these motivational conditions, the rule provided by the friend may establish dating one of the ex-boyfriend’s friends as a functionally equivalent alternative to other possible means of imposing aversive stimulation.

In a similar way, rules may contribute to the establishment of unconventional aggressive practices in intergroup conflicts. These may include suicide attacks or martyrdom (Houmanfar & Ward, 2012), cyber warfare (Dinniss, 2012), and various other forms of terrorist attacks or guerilla warfare. These practices are particularly likely to arise when other more conventional forms of coordinated aggression against another group may not be possible due to a lack of numbers, resources, or other means of advocating for themselves (Houmanfar & Ward, 2012).

The specificity of verbal stimuli and rules also allows for coordinated action between individuals (Houmanfar, Rodrigues, & Smith, 2009). This allows groups to delegate various responsibilities across individuals (e.g., coordination between groups of individuals in branches of armed forces, industrial/agricultural support for military efforts, specialization within terrorist groups). In the execution of direct aggressive action, verbal stimuli are useful in situations where individuals are not in direct perceptual contact with particular things and events. The fact that verbal stimuli allow people to behave with respect to events or objects that are not present allows leaders to issue commands that may be effective in governing the action of subordinates even when the leader is not physically present. Individuals who are in a particular location may describe what they observe to others in another location, which puts listeners into contact with situations to which they would otherwise not be privy and occasion effective action. Historical accounts of battles and other types of conflicts between groups may be studied to inform subsequent practices, and rules derived from this may contribute to progressively more effective forms of aggression. These aspects of verbal behavior greatly increase a group’s capacity to inflict damage on others.

Motivation for Aggression Within Groups

In this section we consider the role of the verbal and nonverbal MOs associated AIA in contributing to the use of violence in intergroup conflicts. In order to prosecute coordinated acts of aggression against another group, a sufficient number of members within a group must be induced to support these efforts and/or contribute to them. The motivational circumstances under which group members may be compelled to support or contribute to acts of violence are determined in part by their environmental circumstances (e.g., political, social, legal, and economic events/conditions) and in part through the actions of group leaders. With respect to the latter, leaders have a number of motivational tools at their disposal, including coercion, promises of material gain, and appeals to religion or patriotism. The sources of motivation for leaders who wield these tools with the purpose of mobilizing support for acts of aggression may be (and

are often) markedly different from the motivational variables that induce group members to participate in these acts.

Although leaders often use multiple motivational tools to establish support for group aggression, the MOs associated with AIA, both verbal and nonverbal and often described as “emotional” (Halperin, 2011), are among the most common and powerful. Aggression is most likely to be considered a viable course of action within a group when people are living under chronically aversive living conditions and/or are exposed to acutely aversive events. Chronically aversive group conditions may arise from prolonged economic, legal, or political disenfranchisement. Acutely aversive conditions may arise from a direct violent attack from another group. When many members of a group are exposed to similar aversive circumstances, and those circumstances are deemed to be due to the actions of another group (either through direct observation or by verbal means), aggression may be motivated across a sufficient number of individuals such that leaders of the “aggrieved” group may exploit these motivational conditions to orchestrate coordinated violence against what is perceived as the “offending” group.

Support for violence within a group may come from aversive conditions clearly imposed by another group, the use of propaganda on the part of leaders to either highlight or fabricate a grievance against another group, or some combination of the two. When an egregious and easily observable aggressive act is perpetrated against a group, there is relatively little that leaders need to do establish support for retaliatory aggression within the group. Large-scale examples of these sorts of events in the last century include the assassination of Archduke Franz Ferdinand of Austria in 1914 (followed by a succession of declarations of war by various European powers against each other), the German invasions of Poland in 1939 and then the Soviet Union in 1941, the Pearl Harbor attack against the United States in 1942, and the 9/11 terrorist attacks. A similar principle operates in smaller chronic conflicts between groups. An act of aggression on the part of one group often motivates reprisal, which in turn motivates further retaliation that can result in a cycle of intergroup aggression. In some cases, these tit-for-tat exchanges between nations, racial or ethnic groups, or gangs may continue for many years through exchanges of relatively minor aggressive acts. The Israel–Palestine conflict is an example of this sort of situation. However, in some circumstances where one group is able to acquire more political, economic, and/or military resources than the other and there are no effective restraints on their activities, they can escalate into full-scale attempts to exterminate entire groups of people (e.g., the Armenian genocide in the early 20th century or the Bosnian and Rwandan genocides in the 1990s).

When the aversive stimulation imposed upon a group by another is less acute/discrete, less destructive, and/or somehow difficult to observe, leaders of the “aggrieved” group must go to some lengths to establish support for aggression. This is often achieved through propaganda and rhetoric aimed at bringing events that will function as aversive for members of a group to their attention and/or verbally framing particular events emotionally as attacks upon the group or its interests. Those who control the information that is provided and the nature in which it is presented therefore play a large part in controlling motivation within the group (Laswell, 1927; Lewandowsky, Stritzke, Freund, Oberauer, & Krueger, 2013; Moerk & Pincus, 2000). The events preceding the 2003 invasion of Iraq by the United States provide a

recent example of how misinformation or selective information may be used to establish support for aggressive group action in the absence of an obvious threat or direct aggression from a group (Calabrese, 2005). Leaders may also use censorship in an attempt to prevent individuals from coming into contact with information that may establish motivation that is counter to the prosecution of aggressive action (Sweeney, 2001).

In some cases, leaders have actually provoked attacks against their group to establish support for aggressive action aimed at achieving their own materialistic objectives (Maddox, 2015; Malendowski, 2018). As one example, U.S. president James K. Polk and other American leaders of the time greatly desired the annexation of Texas and the seizure of various Mexican territories in the 1840s (Greenberg, 2012; Maddox, 2015). There were a number of sources of motivation for this among the leadership of the country, including access to natural resources in Mexican territories (especially within California), access to the Pacific Ocean for commerce, and the expansion of slavery in the south. Despite this, there were many Americans who opposed war with Mexico for various reasons, ranging from opposition to the expansion of slavery to moral objections to the use of aggression for territorial gains. In the end, war was precipitated in spite of this opposition when President Polk sent General Zachary Taylor to a contested strip of land along the Mexican border to establish visible defensive positions in an attempt to provoke an attack from the Mexicans. Such an attack ultimately occurred and Polk was able to successfully petition Congress to declare war on the grounds that American blood had been shed upon American soil. Future president Ulysses S. Grant was an officer under General Taylor at the time and described the situation thusly:

We were sent to provoke a fight, but it was essential that Mexico should commence it. It was very doubtful whether Congress would declare war; but if Mexico should attack our troops, the Executive could announce, “Whereas, war exists by the acts of, etc.,” and prosecute the contest with vigor. Once initiated there were but few public men who would have the courage to oppose it. Experience proves that the man who obstructs a war in which his country is engaged, no matter whether right or wrong, occupies no enviable place in life or history. (Grant, 1885/1952, p. 30)

The power of the MOs associated with AIA in establishing group support for aggression is attested to by the fact that they are deemed necessary even in groups that systematically employ threats and coercion to control their members. For example, the German Nazi state leading up to World War II staged a series of “attacks” against itself (referred to as the Gleiwitz incident) to build domestic support (and perhaps attempt to avoid international condemnation and intervention) for its 1939 invasion of Poland (Malendowski, 2018). A similar example is provided by the 1931 Mukden (or Manchurian) Incident, in which the Japanese allegedly staged a minor explosion that damaged 31 inches of railway line and used this incident as pretext for an invasion and occupation of Chinese territory roughly the size of Texas (Ferrell, 1955). These methods have also been used in conflicts between state and nonstate groups. In orchestrating the Holocaust, Nazi propaganda went to great lengths to advance an “international Jewry” conspiracy theory to justify and maintain support for their actions by framing them as a response to centuries of Jewish “treachery” (Herf, 2005). In doing

so, their work was facilitated by long-standing and pervasive antisemitism within the group (Voigtländer & Voth, 2015). This latter example demonstrates how motivational efforts on the part of leaders can exploit preexisting prejudices arising from the verbal practices of a group.

Effectiveness of Group Aggression

In the preceding section we described how aversive group conditions (whether real, established verbally, or some combination of the two) are used by leaders to establish support for coordinated aggression against another group. In this section we consider the use of aggression in achieving group objectives and whether it may be judged to be effective in that regard. In the broadest of terms, the objective of all instances of group aggression is ostensibly the maintenance or betterment of a group's conditions. This can take the form of the removal or reduction of aversive conditions imposed by the actions of another group (i.e., escape from attacks or persecution by another group), access to some resource possessed by another group (i.e., material gain), or a combination of these. These are the same in within-group conflicts (e.g., civil wars, revolutions, or power struggles within organized crime groups), where a faction attempts to seize control of the group to escape the aversive practices of incumbent leaders and/or take control of the group's resources.

Before we consider the effectiveness of group aggression in achieving these objectives, we wish to highlight several features of group aggression that must factor into evaluations of its use in any circumstances. First, as we have argued above, attacking a group will inevitably establish support within that group for retaliation. This is the case whether or not the attacked group is capable of executing retaliatory aggression in the moment. We have noted that the MOs associated with AIAs can exert their motivational properties through verbal practices within a group over extended periods of time. Even if an attack on a group does not evoke immediate retaliatory aggression, it exacerbates conditions that may lead to aggressive retribution in the future (Halperin, 2011). This is especially the case if the acts of the offending group simultaneously serve to significantly worsen the aggrieved group's economic or social conditions (Collier, Hoeffler, & Söderbom, 2008).

Second, acts of aggression, even those that may be deemed successful by some measures, often require a significant amount of a group's resources. The costs associated with violent conflict come in many forms, including the loss of human life and property, the destruction of natural and industrial resources, and the disruption of trade and other economic activities (Glick & Taylor, 2010). This raises the question of whether other more unconventional nonaversive practices may be more cost-effective in achieving group objectives, either in the short or long term. We will return to this question in the subsequent section.

A final issue is that any benefits of aggression often accrue primarily to the political, military, and/or economic leaders within a group. In modern stratified groups, aggression that results in material gain often does not have any direct or immediate benefit for the people responsible for carrying it out. Even in situations where combatants are ostensibly defending the group from destruction by another, the main outcome is the preservation of group leadership and the social contingencies that benefit its most

powerful members. The use of aggression as a tool could be justifiable if it is successful in improving the conditions under which a particular group lives, but this is often not the case, especially in the short term (Fosu & Collier, 2005). Those who stand to derive the least benefit from group aggression are often the ones required to sacrifice the most.

Having acknowledged these general features of group aggression, we now consider its use in achieving group objectives. The success of a group in achieving its objectives through aggression and aversive control depends on a) the extent to which it can incapacitate an opposing group's ability to retaliate (e.g., by killing or imprisoning its members and/or taking or destroying resources necessary for retaliation) and/or b) the extent to which it can change the motivational conditions that give rise to the opposing group's use of aversive tactics, either in retaliation or offensive action. Techniques aimed at destroying groups' capacities for retaliation have evolved to extremely sophisticated levels across human history, driven largely through the development of ever-more destructive weapon technologies. On the other hand, the importance of understanding an opposing group's motivational circumstances is often overlooked, and practices aimed at managing the conditions of which group motivation is a function remain relatively primitive and underutilized. We will suggest below that the failure to address an opposing group's motivational conditions greatly compromises the chances of a group achieving its own objectives in intergroup conflicts, even in cases where it has an advantage in a violent conflict.

In a conflict between two groups in which one has a significantly greater capacity for aggression, the stronger group can ostensibly achieve its objectives by quickly incapacitating the weaker group's ability to retaliate in a meaningful way. However, any immediate benefits of aggression often come with a number of negative long-term externalities that must factor into its evaluation. First, as we have argued above, the aggressive acts of the stronger group serve as MOs that strengthen motivation for retaliation within the weaker group, especially if the aggressive act also significantly worsens the weaker group's social and economic conditions. Research suggests that violent domestic repression on the part of a ruling group against a dissident group will reduce the dissident group's nonviolent activities but actually increase its violent activities (Dugan & Chenoweth, 2012; Hultman, 2012; Lichbach, 1987). Even if the weaker group is incapable of immediate or large-scale retaliation, it may lead to future conflicts and/or ongoing guerilla and terrorist attacks arising from the weaker group's conditions. Despite the overwhelming superiority of U.S. military power in conflicts in Vietnam, Afghanistan, and Iraq, these sorts of circumstances emerged in each and undermined the achievement of U.S. objectives. Second, if the stronger group dismantles the leadership of the weaker group, it creates a power vacuum in a social environment already predisposed against the stronger group. These are the conditions under which leaders even more inclined to the use of violence may rise to power and consolidate group support for retaliation. A recent example is the Islamic State's rise from the political void left by the toppling of Saddam Hussein's regime in Iraq and the civil war in Syria (Panayiotides, 2015).

Group motivational circumstances are also important in situations where weaker groups use violence against stronger ones. Aggression from a weaker group will establish motivation for retaliation within the stronger group and therefore initiate a conflict in an arena in which the latter has the advantage (Sharp, 2010). Countless insurrections and uprisings on the part of weaker groups have been ruthlessly

suppressed by stronger ones, and most of them have been forgotten by history. However, there are some notable exceptions in which persistent small-scale attacks from weaker groups appeared to be successful in achieving their objectives. It is interesting to note that when these types of actions are successful, it is not because they destroyed the stronger group's capacity for aggression. Rather, they appear to be effective because they contributed to eroding support within the stronger group for continued aggression. This seems counter to our main thesis that aggression establishes motivation for retaliation, but insurrectionary violence has only tended to be successful in this regard when the weaker group's attacks occur in distant lands and/or have little or no direct aversive consequences for noncombatants. Extraneous circumstances acting on the stronger group (i.e., circumstances unrelated to the violent acts of the weaker group) also often contribute to the loss of support for continued aggression. An example of these circumstances is provided by the American Revolutionary War. Due to its superior size and sophisticated military, Britain would have been expected to be successful in quelling the armed rebellion in the American colonies. However, American aggression had few direct effects on British citizens. At the same time, Britain was concurrently at war globally with France, Spain, and the Dutch and was fearful of losing wealthy colonies in the Caribbean (O'Shaughnessy, 2000). This combination of factors, among others, eventually led to a withering of support for continuation of the war in Britain.

The examples described above demonstrate the importance of motivation in intergroup conflict. They also demonstrate how groups are most likely to achieve their objectives vis á vis another group when the motivational circumstances of an opposing group are altered in some way. If they are not, conflicts between groups are unlikely to be resolved, and aggression is rarely helpful in this regard. Group aggression has several inherent features that contraindicate its use in any circumstances: it establishes support for retaliation in opposing groups, it requires the use of significant group resources, and any benefits obtained through aggression often accrue primarily to a group's leaders at the expense of others. In addition to these, aggression does not alter the underlying motivational conditions that give rise to conflicts between groups. A group initiates aggression against another because it lacks certain resources or because the other group has imposed aversive conditions upon it. Defeating a group through aggressive means does not alleviate these circumstances. Indeed, it exacerbates them by introducing MOs associated with AIA. The resolution of a conflict with another group in the long term must therefore include efforts at mitigating the sources of motivation within that group. These are psychological issues, and behavior science is therefore in a unique position to contribute to the development and evaluation of practices aimed at addressing them.

Contributions of Behavior Science

As we see it, behavior science can contribute to the alleviation of human problems (of which intergroup violence is one) in three general ways. The first is analysis: observations of the behavior of individuals and the conditions under which it occurs can be made in well-controlled settings, and these observations can be stated in general theoretical terms and used to propose plausible accounts of the classes of events that

contribute to particular types of group actions and their consequences in real-world settings. The preceding sections of this article were dedicated to analysis of this sort, focusing on the role of motivational variables in group aggression. On the basis of this account and supporting historical evidence, we suggested that aggression is not a particularly effective tool in resolving group conflicts.

The second contribution of behavior science is to suggest solutions on the basis of its theoretical accounts. We have argued that managing motivation within opposing groups is necessary for the long-term resolution of intergroup conflict. We therefore propose some group practices below aimed at mitigating some of the motivational variables that contribute to group violence.

The third contribution of behavior science is in the evaluation of group practices. Leaders of groups are unlikely to be persuaded to support nonviolent alternatives to aggression in intergroup conflicts without evidence of their relative efficacy, nor are they likely to abandon conventional practices in the absence of evidence showing that they are ineffective. In the final section, we describe how the methods of behavior scientists are uniquely suited for this purpose.

Nonviolent Resistance

Scholars are increasingly advocating for the use of nonviolent resistance in the pursuit of a group's objectives (Howes, 2013; Mattaini, 2013; Sharp, 2010; Stephan & Chenoweth, 2008). These methods involve applying strategic pressure to sources of support for a ruling group or government with the aims of achieving reform. Underlying nonviolent resistance methods is the assumption that group leaders derive their power through the cooperation, submission, and obedience from the populations they govern (Sharp, 2010). These sources of power may be systematically denied through various methods of organized noncompliance, including protests, economic boycotts, strikes, nonviolent occupation of buildings or territory, and the establishment of parallel leadership groups. A nonviolent resistance campaign may use these various tools strategically to make it difficult for group leaders to exert control.

There are a number of advantages offered by nonviolent methods of resistance. First, these methods make it more difficult for leaders to respond with violence. If a dissident faction within a group employs violent action against the leaders of a group, it is easier for the leaders to motivate their supporters to respond with aggression in kind for the reasons we have discussed above. If, on the other hand, a dissident faction pursues its objectives systematically through nonviolence, any attacks against it often have the paradoxical effects of eroding support for the leadership while increasing domestic and international support for the dissidents (Stephan & Chenoweth, 2008). Second, resisting incumbent leaders of a group through violence engages it in the arena in which they are almost inevitably stronger. Leaders often have organized and well-equipped militaries and police forces to deal with threats to their rule, and dissidents often do not. Because of this, engaging leaders through aggression amounts to ceding them the advantage in conflict. On the other hand, leaders are often far less prepared to effectively counter mass civil resistance (Sharp, 2010). Finally, coordinated acts of resistance are designed to render leaders' institutions ineffective and are therefore primarily disruptive strategies, but they also foster the conditions under which resistance groups may establish parallel institutions that may take the place of oppressive

institutions and prevent the social and political vacuums that often prevail in the wake of violent resistance campaigns (Mattaini, 2013).

Improving Conditions for Others

We have argued that support for and participation in coordinated aggressive behavior is particularly likely to arise from aversive conditions in which groups of people live. This is especially the case in light of changes occurring at the global level that are likely to exacerbate the aversive conditions to which groups are exposed (e.g., climate change and the increasingly rapid depletion of resources; Alavosius & Mattaini, 2011; Evans, 2010). In a world that is increasingly politically and economically interconnected, the well-being of one group is inextricably related to the well-being of others (Kaul, Grunberg, & Stern, 1999). The security and welfare of individual nations or groups therefore necessarily involves taking actions that support the security and welfare of other groups. Improving the social, political, and economic conditions in which other groups live (i.e., making them less aversive) is a potentially powerful strategy for preventing the initiation of intergroup violence.

The Marshall Plan stands as an important example of a large-scale attempt to address the conditions from which violent struggles for power and aggression are likely to arise through preemptive economic support. The Plan was initiated by the United States in 1948 and involved the provision of over \$13.2 billion in aid to support the rebuilding of Western European economies in the aftermath of World War II. Rather than focusing on retribution for the German and Japanese instigation of the War, or support for armed opposition to the activities of communist groups who might have seized power in those countries, the Plan was based on an assumption that further conflict and/or the opportunistic seizure of power by objectionable groups through violence could be allayed by improving the economic conditions in the countries most affected by the War. Although historians continue to debate the extent to which the Marshall Plan was directly responsible for the remarkable postwar economic recovery observed in Western European nations, the Marshall Plan was a success in the estimation of most scholars and serves as an example of how political objectives may be achieved through large-scale interventions aimed at alleviating some of the aversive conditions that give rise to violent conflict (Behrman, 2007; De Long & Eichengreen, 1991; Kunz, 1997).

The Marshall Plan is one example of how strategic aid may serve as a potentially valuable tool in preventing the initiation of intergroup aggression, but it is important to note that aid as suggested here is not limited to monetary assistance. It includes a larger class of actions aimed at improving the general well-being of the social conditions of individuals in other groups. The well-being of a group is related to many factors, including its verbal practices, the amount of coercive control to which its members are subject, and the degree of choice experienced by members (Houmanfar, Alavosius, Morford, Herbst, & Reimer, 2015). Given the enormous costs associated with violent conflict (both in terms of human lives and capital; Azam & Thelen, 2010), as well as the aforementioned negative side effects associated with them, various types of strategic aid aimed at improving the conditions of a group in any of these domains has the potential to serve as a powerful and possibly cost-effective alternative.

Intergroup Contact and Perspective Taking

We have noted that, for verbal humans, particular functions of things and events may be established verbally in the absence of having interacted directly with those things and events. In the context of intergroup relations, this means that members of other groups (e.g., different religious, ethnic, or racial groups) or their actions may be established as aversive solely through verbal processes. Members of the latter group may therefore respond negatively to the former without ever having the opportunity to interact directly with them. In the absence of any such interaction, there is no opportunity to observe the conditions under which the other group lives or how they behave. Under these circumstances, the views of the other group that have been established through verbal means are bound to go unchanged. In other words, if an individual has been taught to regard a particular group as “evil,” and the individual has no opportunity to actually observe instances in which members of that group engage in behavior that is not “evil,” the only source for the individual’s reactions to the other group is the verbal practices of his or her own group. Furthermore, if the individual’s only opportunity to observe the other group is in the context of conflicts with his or her own, the negative view of the other group is bound to be strengthened (Stephan & Stephan, 2000). Prejudice and hatred between groups is therefore likely to prevail (and be particularly resistant to change) when there are relatively few opportunities for members of different groups to interact. When the members or actions of another group function as abstractly aversive in this way, aggression against the group may be highly motivated and it is therefore easier for leaders to establish support for discriminatory practices, direct attacks on the group, or even genocide (Halperin, 2011).

A growing body of literature is showing that arranging for interactions between groups (Al Ramiah & Hewstone, 2013; Bilali & Vollhardt, 2013; Vezzali, Hewstone, Capozza, Giovannini, & Wölfer, 2014) and the teaching of perspective taking skills (McHugh, 2015; Shih, Wang, Bucher, & Stotzer, 2009) help to alleviate the intergroup animosity and prejudice that serve as a motivational matrix from which some violent conflicts emerge. Methods of intergroup contact involve arranging for either direct (e.g., engaging in cooperative activities) or indirect (e.g., books, internet, television; Brown & Paterson, 2016) interactions between groups. Because the circumstances in which members of the groups interact may be managed, conditions can be arranged such that the interactions are most likely to function as reinforcing for both sides. This allows members of a group with whom individuals have never interacted to acquire reinforcing functions that may counter the aversive properties established via their verbal communities (Al Ramiah & Hewstone, 2013).

Perspective taking involves learning to observe and describe the conditions under which other people behave. Methods of teaching this skill include having individuals either directly experience what others experience or by observing the conditions under which others engage in certain behaviors. Once perspective taking is established, it allows people to better understand the causes of others’ actions as well as how one’s own actions might influence the actions of others. In the absence of direct observation, a person’s reaction to the actions of others is determined largely by the person’s own history, including prejudices arising from a particular verbal community. Observing the conditions under which others behave likely changes the function of their behavior for an observer. A person inclined to regard to another person’s behavior as aversive

because of a particular verbal history may come to respond differently to the behavior when he or she can observe the conditions responsible for it. For these reasons, arranging for mutually reinforcing intergroup contacts and methods for teaching perspective taking are useful tools for changing some of the verbal factors involved in conflict between groups.

Leadership and the Evaluation of Group Practices

We have noted that group leadership plays a pivotal role in leveraging motivational variables to cultivate support for aggressive action within a group. Leaders must play a similarly crucial role in establishing support for alternative nonviolent strategies. In general terms, the role of leaders is to specify and induce action on the part of a group of individuals with respect to a group's ever-changing circumstances (Houmanfar et al., 2015). In an ideal situation, leaders would conduct these activities in the service of collective action that contributes to the well-being and survival of the group (Skinner, 1971), but it is often impossible to predict in the present whether a particular practice will help or hinder the survival of a group in the future (Staddon, 2013). In addition, when leaders are insensitive or unaware of the consequences of their actions (e.g., because they are delayed or otherwise difficult to observe) practices that are irrelevant or even detrimental to the survival of a group may prevail over long periods of time (Houmanfar, Hayes, & Fredericks, 2001; Kantor, 1982; Skinner, 1971).

Unfortunately, this is often the case when leaders decide to use violence in conflicts with other groups. These decisions are often determined by the exigencies of the moment, when powerful motivational variables are at play. The potential long-term consequences of actions are particularly unlikely to factor into decisions under these circumstances, even if they can somehow be predicted. Furthermore, when aggression is initiated, it is rarely accompanied by any sort of meaningful measurement system that can provide more immediate feedback pertaining to outcomes so leaders may be held accountable and/or modify courses of action if the desired outcome is not being achieved. As a result, historians, political scientists, and economists are left to quibble about whether or not some action was effective (and by what measures) many years after the fact, long after it is too late to do anything about it. Recent examples include the ongoing debates regarding the effectiveness of the "War on Terror" (Jenkins, 2016), the 2007 "surge" in Iraq (Biddle, Friedman, & Shapiro, 2012), and the "war on drugs" (Godlee & Hurley, 2016).

The methodological features of behavior science have much to contribute in evaluating group practices in intergroup conflict and bringing the consequences of leaders' actions to bear on their behavior (Mattaini & Holtschneider, 2017). In treatment settings, behavior scientists decide on treatment goals that are meaningful to stakeholders, state them in measurable terms, take repeated measures of the outcomes of interest during treatment, and adjust features of the treatment as necessary on the basis of those measures. A similar approach would be useful in evaluating and identifying effective practices in the context of intergroup conflicts. It would involve stating group objectives in measurable terms before taking action. Once action is initiated, repeated measurements of the relevant outcomes provide feedback to guide decision making and inform future practices (Biglan, Ary, & Wagenaar, 2000). The power of this methodology is that it can lead to the development of more effective practices regardless of

philosophical orientation: it allows for the identification of what works, thereby making it more likely that leaders adopt courses of action that contribute to the long-term well-being of the group over and above its immediate motivational circumstances.

Conclusion

The use of violence in intergroup conflict is a vestige of a prescientific time, a time when there was perhaps an excuse for its use to achieve group aims: we simply did not know any better. Over the course of human history, knowledge has advanced dramatically in many domains, but the fact that violent action continues to be regarded as anything other than a last resort in conflicts between groups highlights our continued shortcomings in the understanding of human behavior (Skinner, 1971). Violence invariably produces catastrophic losses in human life and property, and as we have argued here, it exacerbates rather than resolves the motivational variables that lay at the heart of intractable conflicts. As groups are increasingly dependent upon each other for mutual welfare and we are coming to more fully understand the consequences of violent conflict, aggression is an increasingly indefensible solution to intergroup conflict. We must do what we can to bring the science of behavior to bear on this issue and continue to develop and refine methods for bringing about social change that do not rely on violence.

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