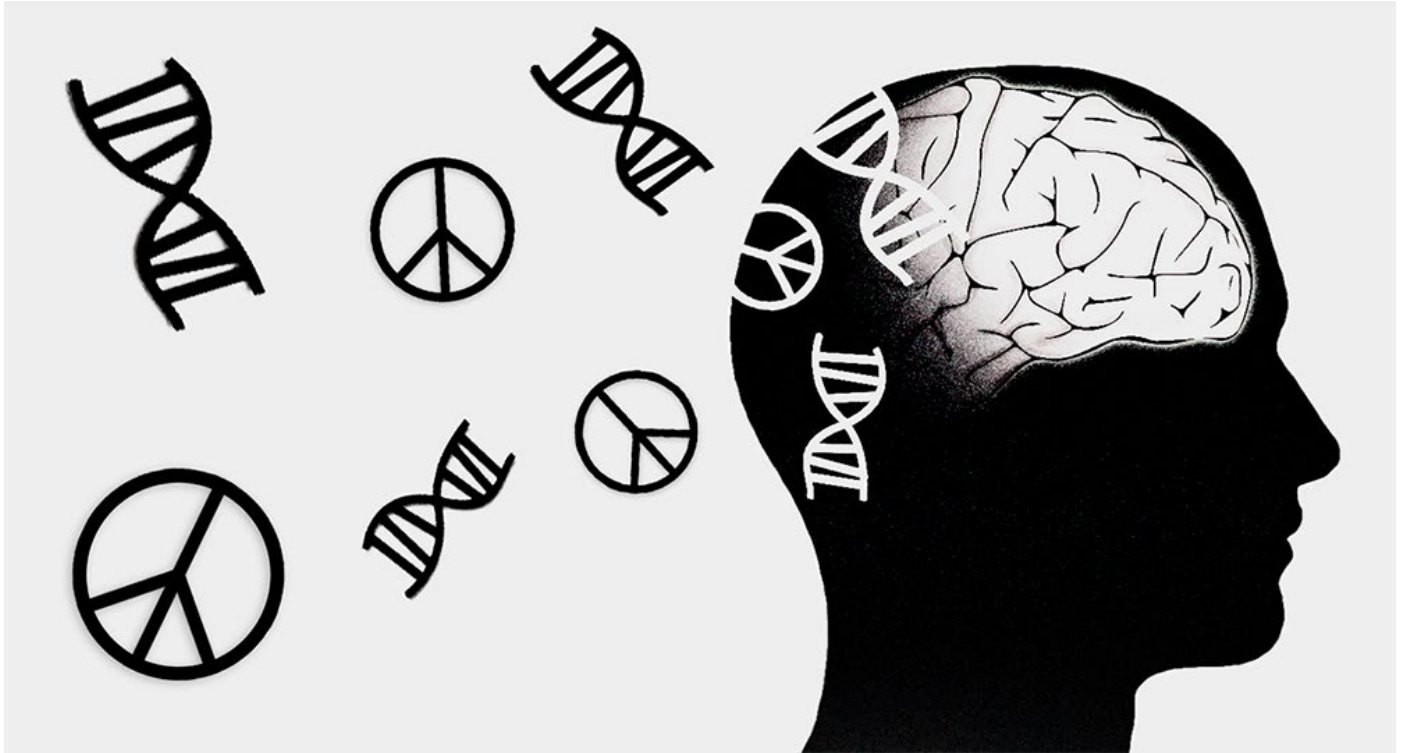


The Theory of Violence

On the violence inhibition mechanism or why, even though normally people have a strong inner resistance to harming others, some find it easy to commit violence and even kill, and how to solve this problem



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When it comes to violence, although it seems to be a socially unacceptable phenomenon, its naturalness is most often not questioned, considering the fact that we can observe it in the animal world and human society. However, if we study this phenomenon more deeply, we can easily realize that things are not so simple, especially in the case of intraspecific interactions.

Did you know that in the nervous system of many animals and even humans, there is a mechanism that, when activated, inhibits offensive aggression towards members of their own species while not affecting defensive behavior or other forms of activity? The theory that many species have inhibitions of intraspecific aggression has existed for quite a long time, since the very emergence of ethology, which is the science of animal behavior. In many cases, and especially when members of the same species have strong innate weapons and no opportunity to avoid each other, unrestrained forms of aggressive behavior reduce the aggressor's own chances of survival and reproduction. This is how aggression inhibitions that prevent the infliction of harm, often through the ritualization of intraspecific fights, emerge during biological evolution.

Similarly, humans have the violence inhibition mechanism. It is based on an innate reflex that causes an aversive reaction when observing the suffering of others. Also, the functioning of this mechanism explains the development of empathy and different aspects of morality, and its dysfunction explains the emergence of psychopathic tendencies, which, according to a huge number of criminological studies, are the purest and the best explanation of antisocial and violent behavior, especially in the case of premeditated acts of harming people. A lot of evidence, including the findings of anthropologists and military experts, suggests that the average and healthy individual has a strong inner resistance to killing other people. The concept of the violence inhibitor is also supported by research from the fields of psychiatry, neurophysiology, and genetics.

In turn, the prevalence of violence we observe can be explained by the fact that even a relatively small number of individuals who can easily commit it are capable of causing significant harm to other people and society. The truth is that violence is nothing more than a deviation and pathology, and we will get acquainted with all the details and evidence behind such a conclusion. Also, we will develop potential solutions to the problem of still-existing violence in society and human relationships.

WHAT VIOLENCE INHIBITOR IS

Why it is psychologically difficult for a healthy individual to harm people, commit violence, and especially kill



INHIBITIONS OF INTRASPECIFIC AGGRESSION

- many species have "restraints" against injuring or killing conspecifics, often expressed through instinctive ritualization of intraspecific fights;
- they are highly common in animals that have strong innate weapons and lack the opportunity to avoid conspecifics;
- **most intraspecific aggression is non-lethal**, and only 0.3% of mammals die as a result of it.

Lorenz, K. (1949, 1963); Eibl-Eibesfeldt, I. (1970); Fry, D. P. (2010); Gómez, J. (2016) ...



MYTHS ABOUT VIOLENCE

- many popular claims about violence are simply false;
- **killing was not the norm** for "savages," and in all of human history, it accounted for only 2% of the causes of death;
- in experiments supposedly proving human cruelty (the Milgram experiment, the Stanford prison experiment), the results were either distorted (by hiding some of them) or completely faked.

Gómez, J. (2016); Haas, J. (2016); Ferguson, R. B. (2013); Perry, G. (2019); Le Texier, T. (2019) ...



WHAT WARS AND GENOCIDES HAVE REVEALED

- 98% of soldiers on the battlefield experience **strong inner resistance to killing** and become psychiatric casualties after long battles;
- 2% of soldiers who experience no inner resistance to killing and are able to kill easily have **psychopathic tendencies**;
- most people never participate in the perpetration of mass murders and genocides.

Marshall, S. L. A. (1947); Grossman, D. (1995); Van der Dennen, J. M. G. (2008); Straus, S. (2004) ...

VIOLENCE INHIBITION MECHANISM

- humans possess the violence inhibition mechanism (VIM);
- this mechanism is based on the **innate aversive reaction**, which is triggered by the observation of distress cues from other people, such as a sad facial expression or crying;
- even from childhood, this reaction predisposes individuals to withdraw from violent attacks and helps to shape them as non-violent persons;
- VIM is crucial in the development of moral emotions, including empathy and guilt;
- psychopathic tendencies (including traits such as callousness and lack of empathy) result from violence inhibitor dysfunction, and they are **the purest and the best explanation** of antisocial and violent behavior.

Blair, R. J. R. (1993, 1995, 2006); DeLisi, M. (2009, 2018) ...



HOW THE VIOLENCE INHIBITOR WORKS

- the serotonergic (5-HT) system of the brain is responsible for the inhibition of harm;
- experiments conducted on animals showed that the activation of the 5-HT_{1A/1B} receptors leads to the suppression of **offensive aggression** towards conspecifics while not affecting **defensive behavior** or other forms of activity;
- limited human trials of agonists of these receptors (drugs that activate them) also show that they are promising in treating violent behavior;
- the function of these receptors (and the 5-HT system), in addition to their own genes, is influenced by genes such as TPH2, SLC6A4, and MAOA (also known as the "warrior gene");
- **gene therapy** is proposed to be used to treat violence.

Siegel & Crockett (2013); Popova, N. K. (2006, 2022); Boer, S. (1999); Olivier, B. (2006, 2022) ...



All references and more information can be found on the website [Antiviolence.io](https://antiviolence.io)

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I. Definition of important concepts

In order to study the topic of violence as a form of behavior and social communication, we need to give this concept a concrete definition. Moreover, we will often use the concept of psychopathy, and we must be clear about which state of the human psyche it describes.

1. An ethological approach to the definition of violence

In defining the concept of violence as well as another important concept of self-defense, we will start with the broader concept of aggression. An **ethological approach** will help us solve this problem. Aggression is a natural disposition to behave aggressively, i.e., in a hostile and unfriendly manner^{[1][2]}. However, **functional (or adaptive) aggression** as a form of behavior and social communication in intraspecific relationships is characterized by **constrained** actions, reactions, and social signals between participants in the conflict. It is important to pay attention to this “constraint.” It consists of rules and rituals of a certain magnitude, expression, and sequence, which make aggression functional, dynamic, yet structured behavior within inhibitory limits. Regardless of species-specific rules, these components are necessary for functionally driven aggression^{[3][4][5]}. Also, such inhibition of aggression is the main function of the violence inhibition mechanism, which we will discuss later.

The difference between violence and functional aggression lies in the behavioral sequence or interaction dynamics between two or more conspecifics in combat. Violence is characterized by the absence of inhibitory control and the loss of adaptive functions in social communication. As a quantitative behavior, **violence is an escalated, pathological, and abnormal form of aggression** characterized primarily by short attack latencies and prolonged and frequent **harm-oriented conflict behaviors**. As a qualitative behavior, **violence is characterized by attacks that are aimed at vulnerable parts of the opponent's body** and context-independent attacks regardless of the environment or the sex and type of the opponent^{[3][4][5][6]}.

It is believed that functional aggression, unlike violence, is not anticipated to target vulnerable body parts even in the midst of an agonistic interaction unless challenged, as seen in defensive aggression^{[4][7]}.

According to the **threat superiority effect**, humans (like many species) have the ability to quickly and effectively detect threats in the environment, which allows them to activate defense mechanisms in time and adequately respond to the threat. Such a response can be expressed by flight or defensive aggression (it is also called a fight-or-flight response). Threat stimuli can be innate due to the fact that humans have encountered them in the course of biological evolution (for example, snakes) or acquired through experience due to the adaptation of defense mechanisms (for example, a knife or a gun). Threats can be conveyed through many visual or auditory modalities, but in human interactions, they are often indicated through angry facial expressions^{[8][9][10][11]}.

Self-defense can be defined as a form of aggression performed in the presence of a threat in the environment and social signals^[Author's note]. Also, in the case of intraspecific relationships, **self-defense (or defensive aggression) is defined as a form of aggressive behavior performed in response to an attack by another individual**. It is worth noting that extreme forms of defensive aggression can have violent characteristics. However, it is distinctly different from offense in terms of its behavioral expression and inhibitory control^{[12][13]}.

2. Reactive and proactive aggression

In studies of the human psyche and behavior, the division of aggression into reactive (affective) and proactive (instrumental) forms is widespread. **Reactive aggression is an impulsive response to a perceived threat or provocation** associated with high emotional arousal, anxiety, and anger. In turn, **proactive aggression is instrumental, organized, cold-blooded, and motivated by the anticipation of reward**^{[14][15]}.

In other words, reactive aggression arises as a reaction of the subject to a certain stimulus (including a threat stimulus that can lead to self-defense) or as a result of frustration. It is limited to a specific conflict, has no intent, and no purpose other than the direct infliction of harm. In turn, proactive aggression consists in achieving a certain positive result by resorting to aggressive actions; it is a planned and motivated act of harming the victim.

Also, it is important to note that proactive aggression is significantly associated with reduced levels of both **cognitive empathy, which is the ability to understand the emotions of others**, and **affective (emotional) empathy, which is the ability to experience the emotions of others**^{[15][16]}.

Reactive Aggressor



Proactive Aggressor



3. What psychopathy is and who psychopaths are

Most of us abstain from criminal or violent activities, not only out of fear of being arrested and punished but out of knowledge of the guilt and remorse we will suffer as an outcome and out of the empathy that we have towards the people who would be victimized due to our harmful actions. Yet, for some people, their minds appear to be configured differently. The emotional barriers that should have been there to restrain them from committing a criminal or violent act are absent or porous; thus, they find it easier to break the rules and hurt others. People with such an affective deficit, and with certain interpersonal and behavioral traits that result from that deficit, are known in the literature as having psychopathy^[17].

Psychopathy is a **socially devastating personality disorder** defined by a constellation of affective, interpersonal, and behavioral characteristics, including egocentricity, manipulateness, deceitfulness, lack of empathy, guilt or remorse, and a propensity to violate social and legal expectations and norms. Psychopaths are **intraspecies predators** who use charm, manipulation, intimidation, and **violence** to control others and to satisfy their selfish needs. Lacking in conscience and in feelings for others, they selfishly take what they want and do as they please, violating social norms and expectations without the slightest sense of guilt or regret^[18].

Psychopathy can be divided into primary and secondary factors. Although both factors are associated with antisocial behaviors, hostility, and reduced empathy, primary psychopathic traits predominantly reflect interpersonal and affective characteristics such as grandiosity, manipulative behaviors, superficial charm, a lack of remorse or guilt, and emotional detachment. In turn, secondary psychopathic traits refer to features often portrayed by individuals who are irresponsible, impulsive, incapable of long-term planning, and display erratic behaviors^[19].

As we will see later in the third topic of Chapter Two, individuals with high scores of primary psychopathy include managers and CEOs who succeed by deceiving, manipulating, and unfairly exploiting others, police and army officers who commit crimes against humanity (mass arrests, tortures, and murders), and politicians who establish authoritarian and oppressive regimes. In turn, ordinary violent offenders are characterized by significantly increased scores of both psychopathy factors. And their highest scores are observed in the most violent criminals, such as serial sexual murderers.

II. Myths and facts about violence

In this chapter, we will look at the various myths about violence that prevent a full understanding of its nature and the facts that will help us understand it. As ethological, archaeological, anthropological, criminological, military, and other evidence demonstrates, violence, and especially killing, is largely absent from intraspecific animal and human relationships. The average and healthy individual has a strong inner resistance to killing, but the minority of killers is still enough to cause significant harm to everyone else.

1. Are intraspecific killings common in animals

A study of 1024 mammalian species showed that only about 40% of them were observed to have at least occasional lethal violence, i.e., cases of deaths of individuals from aggressive actions by members of their own species (including infanticide, cannibalism, and intergroup aggression). Of course, this figure may be underestimated due to the lack of data, but even after adjusting for this possibility, non-violent intraspecific relationships are still common and prevail over violent ones, especially if we take into account that, according to overall statistics, **lethal violence is the cause of death in mammals in only 0.3% of cases**^[20].

Many researchers have come to the conclusion that **most intraspecific aggression is non-lethal**, and individuals with techniques that enable them to avoid agonistic situations involving serious possibilities of defeat or injury are evolutionarily successful. Across many species, **nonkilling is the default and killing is the exception, the oddity, the unusual**. Also, restraints against harming and killing conspecifics are common in animals that have strong innate weapons and lack the opportunity

to avoid members of their own species^{[21][22][23][24][25][26][27][28]}. A detailed description of examples of such restraints and why they have developed during biological evolution can be found in Chapter Three.

It is important to note that the natural cruelty of chimpanzees is often greatly exaggerated (as in the works of primatologist and anthropologist Richard Wrangham) when, in fact, most of the violence observed in them is provoked by disturbances caused by intense human intervention in their habitat (e.g., deforestation). Most of the known chimpanzee killings have occurred in two exceptional cases, closely related to human impact and representing only 2% of the entire history of chimpanzee observations, and without these cases, killings would be extremely rare for chimpanzees. **There is no significant evidence that chimpanzees have an innate predisposition to kill conspecifics**, and the idea that chimpanzee and human wars are identical phenomena with common evolutionary roots is refuted by current research (for example, this is well done by anthropologist Brian Ferguson in his book "Chimpanzees, War, and History: Are Men Born to Kill?"). Also, let's not forget that the closest human relative, the pygmy chimpanzee (bonobo), is widely known for its non-violent nature and complete absence of intraspecific killings^{[29][30][31]}.

Nonkilling is the normal state of affairs. Across many species, **nonkilling is the default and killing is the exception, the oddity, the unusual**. This thesis is derived from evolutionary theory and gains support from a consideration of data from biology, anthropology, and psychology.

There are exceptions such as infanticide in some species, which has its own evolutionary explanations, but for the most part **intraspecific killing is rare in the animal kingdom**.

Many competitive interactions do not involve any physical contact so this pretty much precludes killing. In other cases, injuries and deaths within a species are avoided via a variety of different mechanisms.

Fry, D. P., Schober, G., Björkqvist, K. (2010). Nonkilling As An Evolutionary Adaptation.
More information about the problem of violence: ANTIVIOLENCE.IO

2. Lethal violence in human history or "The Myth of the Violent Savage"

In researching war and peace, one can easily notice a bias toward exaggerating, overemphasizing, and magnifying warfare in comparison to peace. The belief that human beings have evolved to be natural-born killers or that hunter-gatherer societies are almost always warlike is common among ordinary people and scholars alike^[32]. As an example, it is a common claim, taken from the works of scientist Steven Pinker, that in the past, 15% of the population of hunter-gatherer societies died from lethal violence, and in some cases, its level could be as high as 60%. Thus, societies that existed before the emergence of agricultural civilizations with cities and monopoly governments suffered from chronic violence and endless wars^{[33][34]}.

However, a study examining 600 human populations shows that **only 2% of people have been killed in all of human history**, and this includes cases of war and genocide^[20]. In the case of hunter-gatherer societies of the past, the level of lethal violence was also only 2%^[35]. Some studies argue that the presumed universality of warfare in human history lacks empirical support, and the evidence for its commonality in prehistoric times (such as that demonstrated in “War Before Civilization: The Myth of the Peaceful Savage” by Lawrence Keeley) may be overstated and misleading^{[36][37]}. As anthropologist Brian Ferguson writes, considering all the archaeological evidence for Europe and the Near East, and not just selected cases of violence, one can conclude that **the idea that 15% of the prehistoric population died from war is not just false, it is absurd**. And there is no evidence that war is an expression of innate human tendencies or a selective force driving human psychological evolution^{[34][38]}.

Pinker ignored much of the archaeological evidence that did not align with his argument. One survey of 2000–3000 remains found in France showed that 1.9% of them had projectile wounds, including healed ones. Another survey of 350 remains found in Britain showed that about 2% of them had trauma that could potentially lead to death, and another 4–5% had healed wounds. One more survey of 418 remains found in Serbia and Romania showed that 2.3% of them had signs of violent injury. A study of 2500 adult remains found in Japan showed that 2% of them had signs of potentially violent death. Anthropologist Ivana Radovanovic has looked at 1107 remains from Europe, including all of the cases on Pinker's list, and concludes that you could average out at 3.7% for a low estimate of the level of lethal violence and 5.5% for a high estimate. These results are not even close to Pinker's 15%^{[38][39][35]}.

Claims about extremely high levels of lethal violence in prehistoric people are often based on an analogy with the high levels of it in some modern hunter-gatherers. However, a study of 21 nomadic forager societies shows that in 10 of them, only one person committed killings, and in 3 of them, there was no killing at all. Nearly half (47%) of the killings occurred in the Tiwi tribe from Australia, which shows its exceptionality. Also, anthropologist Douglas Fry, after studying the anthropological literature, found as many as 70 nonwarring cultures, including cases of completely non-violent tribes, famous examples of which are the Paliyar (or Paliyan) from South India and the Semai from Malaysia, who do not even hit other people in conflicts or physically punish children^{[35][40][41]}. And researcher Johan M. G. van der Dennen has compiled a list of nearly 200 highly unwarlike cultures, in the case of which wars were absent or mainly defensive^{[42][32]}. In addition, a study of 590 societies from all over the world found that the majority (64%) of cultures are nonwarring or unwarlike^{[40][43]}. And although homicide rates vary tremendously from one society to the next and also change over time within the same society, **the vast majority of people never kill or attempt to kill anyone**^[28].

What also turned out to be false was the claim made by anthropologist Napoleon Chagnon, who studied the Yanomami tribes and is often cited by Pinker, that in tribal societies, men who commit killings should be more reproductively successful (have 3 times as many children) as they eliminate their neighbors from procreation. And since, in the past, all people lived in tribes, this allegedly made a human a natural-born killer. However, the study that makes such a claim has methodological flaws; the difference in the average age between the killers and non-killers studied was more than 10 years, which distorts the result. And even if they were the same age (Chagnon insisted that they were but flatly refused to provide evidence for this), other anthropologists' calculations suggest that such a result would still be exaggerated. Also, it does not agree with the findings of other studies, which show that killers not only have the same number of children as non-killers (and the most bellicose among them have even fewer) but that **the children of killers are less likely to reach reproductive age**^{[28][44][45]}.

It is worth briefly mentioning the issue of cannibalism. It turns out that researchers often mistake cases of ritual consumption of dead relatives (endocannibalism) for cases of consumption of enemies defeated in a war (exocannibalism)^{[46][38]}. Also, the discovery of human remains with marks presumably indicating that they were killed for consumption may, in fact, be explained by attacks by predatory animals or burial practices (in some cultures, this process involved separating the flesh of the deceased from the bones)^[29].

In general, there is no reason to think that “simple societies,” in which humans have spent 99% of their existence, are predisposed to kill members of other groups. Of course, some hunter-gatherers with complex social structures make wars, but mobile foragers (simple hunter-gatherers) are not characterized by this. Wars between different groups of people only begin to occur when higher levels of social organization emerge. **An expanding state is what can introduce violence into an otherwise peaceful population of foragers or horticulturalists**^{[47][36][31]}.



Richard Brian Ferguson
historical anthropologist, researcher
of the origins of war

Archaeological findings are said to prove that prehistoric people in general were plagued by chronic warfare that regularly claimed about 15 percent of total population, and a quarter or more of the adult men. These numbers have become axiomatic ... this “fact” — as widely invoked as it is — is utterly without empirical foundation.

It is a selective compilation of highly unusual cases, grossly distorting war’s antiquity and lethality. The elaborate castle of evolutionary and other theorizing that rises on this sample is built upon sand. The alternative and representative way to assess prehistoric war mortality ... surveys all Europe and the Near East, considering whole archaeological records, not selected violent cases.

When considered against the total record, the idea that 15 percent of prehistoric populations died in war is not just false, it is absurd. There is no support here for war as an expression of innate human tendencies, or a selective force driving human psychological evolution.

R. Brian Ferguson. (2013). Pinker’s List Exaggerating Prehistoric War Mortality & The Prehistory of War and Peace in Europe and the Near East. In: DP Fry ed. War peace and human nature: the convergence of evolutionary and cultural views. Oxford Univ. Press.

We recommend visiting the **Antiviolence.io** website, which explores the problem of violence in detail

3. What kind of people commit violent crimes and harm others

An analysis of 22 studies with 29 unique samples of homicide offenders from 6 countries (USA, Canada, Sweden, Finland, Germany, and Brazil) shows that **the mean murderers’ psychopathy score on the PCL-R test is 21.1 out of 40**. At the same time, **for people who do not commit crimes, it is only 5.2**^[48]. In general, the majority of the population (more than 80–90% of people) demonstrate no or only a few psychopathic traits and associated behaviors. And only 1–2% of people have high psychopathy scores (above 12 out of 24 on the PCL:SV test)^{[49][50]}.

In one study of 98 forensic men charged with violent crimes, the mean PCL-R score was 21.4. Only 9 individuals (9.2%) among them had scores below 10^[51]. For 636 homicide offenders on death row in California, the mean PCL-R score was 23.31. Only 15% of them scored 10 or less, and these individuals had no official criminal history prior to their capital crimes, were contrite, apologetic, and remorseful during their court proceedings, and generally engaged in normative conduct for the majority of their adult lives. These are people who most would view as “salvageable.” In contrast, individuals with higher psychopathy scores clearly exhibited problem behaviors. And among the five individuals who scored a maximum of 40 points were the most violent criminals, such as serial sexual murderers^[52].

Clinical psychopaths, scoring from 25–30 on the PCL-R test and from 18 on the PCL:SV test, make up no more than 1% of people in society. However, as forensic psychologist Robert Hare points out, they make up a significant proportion (up to 25%) of prison populations and are responsible for a markedly disproportionate amount of serious crime and social distress. It has also been found that if people are divided into two equal groups based on their PCL:SV scores, individuals in the higher-scoring group will be 10 times more likely to commit violent crimes^{[18][53]}. The economic burden of crime resulting from psychopathy was up to 7.4% of GDP in the case of the United States as of 2020, and the individual suffering and loss inflicted by psychopaths on others is so enormous that it is likely impossible to estimate^{[54][55]}.

An increased number of psychopathic individuals may show up in some professions, for example, managers and CEOs. According to various studies and claims, between 3% and 21% of their representatives are psychopaths^{[56][57]}. Also, one study conducted among employees of companies showed that if a company employs non-psychopathic managers (whose psychopathy scores are less than 9 out of 16 on the PM-MRV test), the overwhelming majority of employees (89.3%) will assess its activities as **socially responsible and environmentally friendly**. However, this figure drops to 66% in the presence of dysfunctional managers (whose psychopathy scores are 9–12) and to 52.5% in the presence of psychopathic managers (whose psychopathy scores are more than 12). In addition, the majority of employees (79.6%) think that **a company shows commitment to them if it has non-psychopathic managers**, but this figure drops to as low as 23.7% if psychopathic managers are present. In general, it is a widely known fact that psychopathic individuals working in companies are prone to white-collar crime, such as embezzlement and fraud. They also tend to neglect information security measures. Their actions can often even lead to the company's bankruptcy. These results demonstrate the importance of **the problem of corporate psychopaths, who may make ethically questionable decisions in pursuit of their own benefit and have a negative impact on their company and society as a whole**^{[58][59][60][61]}.

Politicians cannot be expected to do well either; despite the lack of reliable statistics, practically any expert in the field of sociopathy/psychopathy/antisocial personality disorder would not dispute that there is a higher percentage of individuals with psychopathic tendencies among them than in the general population^[62]. The mean PCL-R score among army and police officers convicted of crimes against humanity (mass arrests, tortures, and murders) is 21.06. Not only that, they do not have as high scores of secondary psychopathy (which is characterized by impulsivity) as ordinary violent offenders, but they have extremely high scores of primary psychopathy (which is characterized by callousness and lack of empathy). **State violators of human rights have an extreme disposition for self-serving, callous, and ruthless treatment of others without guilt or remorse**^[63].

Psychiatrist Andrew Lobaczewski, in his book “Political Ponerology: A Science on the Nature of Evil Adjusted for Political Purposes,” explains the very emergence of authoritarian and oppressive regimes as the result of the seizure of political power by primary psychopaths^[64]. Also, in the case of police officers, primary psychopathic traits may be associated with the use of unjustified and excessive force against criminal suspects^[65].

Committing indirect violence, which involves using social manipulation instead of direct physical attack to harm people, also has a significant association with psychopathic tendencies^[66]. The same can be said for the use of unethical tactics in business negotiations, such as making false promises, misrepresentation of facts, aggressive bargaining (exerting pressure through emotions and anger), secretly gathering “inappropriate” information about the other party, and attacking their professional network^[67]. Psychopathy is also a key factor in the perpetration of intimate partner violence^{[68][69][70][71]}. And the higher an individual's psychopathy scores, the more likely they are to become violent as a result of substance use (alcohol, cannabis, and cocaine)^[72]. In addition, psychopathy is a significant risk factor in aggressive religious radicalization and a propensity for extremism (support for the use of violence in achieving political goals)^{[73][74][75][76][77]}. And its primary factor significantly predicts an individual's propensity for totalitarian political ideology, expressed by a high need for government-imposed social regulation, acceptance of life under dictatorship, denial of individual freedom, and support for oppressive methods and procedures^[78]. Finally, psychopathy traits are associated with carrying guns for illegal purposes (but this does not apply to those whose motivation for carrying a gun is legal) and gun violence^{[79][80]}.

Criminologist Matthew DeLisi concludes that **psychopathy is the purest and the best explanation of antisocial behavior and can be labeled as a unified theory of crime**^[81]. It is the most formidable risk factor for antisocial behavior, crime, and violence, and no study exists that has found that psychopathy was unrelated to crime and various aberrant conduct^[82]. Also, it is worth noting that **the more psychopathic an individual is, the more proactive (instrumental) aggressive behavior can be expected in the crimes they commit**. As research demonstrates, committing just one act of proactive violence is already associated with increased psychopathic tendencies of the offender compared to offenders whose actions were reactive (impulsive) or non-violent (as in the case of theft) and non-offenders^{[83][84][85][86]}.

Distribution of psychopathy scores and their mean values in different samples on the PCL-R (scale 0 to 40) and PCL:SV (scale 0 to 24) tests

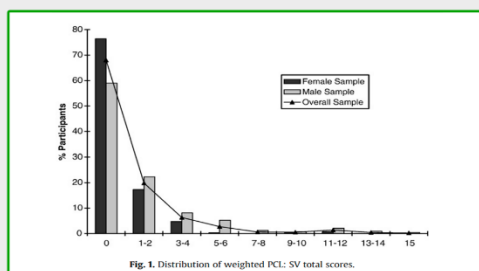
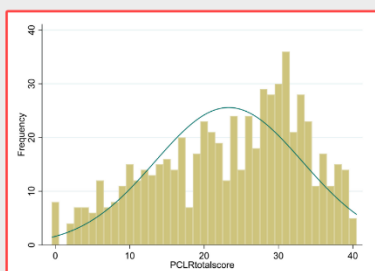
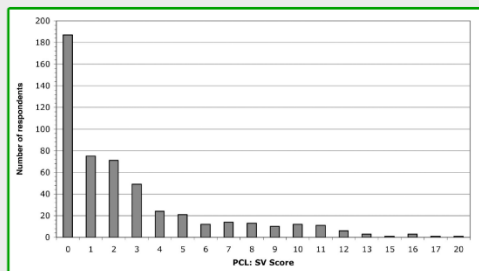


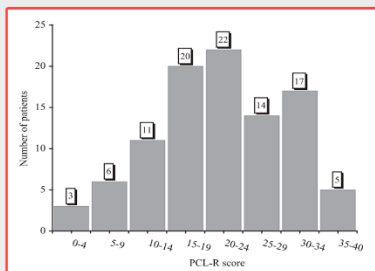
Fig. 1. Distribution of weighted PCL:SV total scores.
The general population of England, Wales, and Scotland (Coid, J. et al, 2009)



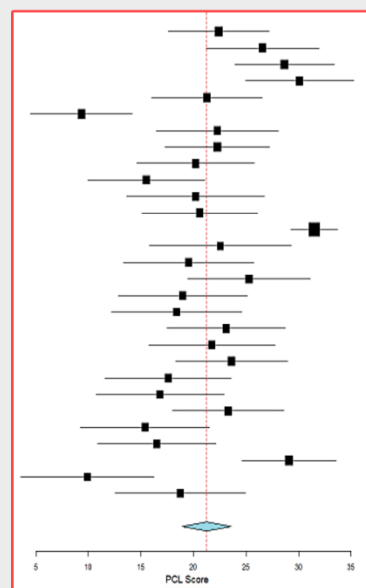
California death row homicide offenders (DeLisi, M. et al, 2023)



Americans (White and African American) living in the same county (Neuman, C. S., Hare, R. D., 2008)



Male forensic psychiatric patients in the Netherlands, all charged with violent crimes (Hidebrand, M., De Ruiter, C., 2004)



Mean psychopathy scores for 29 unique samples of homicide offenders from 6 countries: US, Canada, Sweden, Finland, Germany, Brazil (Fox, D., DeLisi, M., 2018)

Our findings confirm that the majority of the general population has very few psychopathic personality traits or associated behaviors, particularly when compared with individuals in correctional or forensic psychiatric institutions. The majority of the adult household population demonstrated no or only very few psychopathic traits. (Coid, J. et al, 2009)

Psychopathy and homicide are importantly linked and psychopathic personality functioning is a significant risk factor for various forms of lethal violence. (Fox, D., DeLisi, M., 2018)

The most pathological offenders, such as serial sexual homicide offenders, were among the most psychopathic and sadistic. (DeLisi, M. et al, 2023)

		Mean
Psychopathy Score (PCL-R)	Homicide Offenders	21.1
	Non-Offenders	5.2

More details on the problem of violence and psychopathy on the website **Antiviolence.io**

4. War and resistance to killing

Military experts have found that most humans possess an intense resistance to killing. The resistance is so strong that, in many circumstances, soldiers on the battlefield will die before they can overcome it. **There is only 2% of the male population that, if pushed or if given a legitimate reason, will kill without regret or remorse**^{[87][88][89][28]}. And we will now familiarize ourselves with the range of evidence behind such a conclusion. Also, along the way, we will examine the criticisms it faces and demonstrate their untenability.

A study by neurologists Roy Swank and Walter Marchand, published after World War II, demonstrated that after 60 days of ongoing battles, 98% of surviving soldiers are psychologically traumatized, and only **less than 2% of them who are predisposed to be “aggressive psychopaths”** are not affected by such a problem since they apparently do not experience any resistance to killing^{[90][87][88][89]}. Current research also confirms that some traits of primary psychopathy (which is characterized by callousness and lack of empathy) may protect an individual from experiencing psychological trauma as a result of participation in combat^{[91][92]}. In general, almost all combat participants experience it. Military historian

Richard Gabriel, who has studied this problem, lists conditions such as fatigue, confusion, anxiety, obsessive-compulsive states, character disorders, and conversion hysteria, including the paralysis of the arm, usually the one used to pull the trigger, seen in soldiers in both World Wars. The traumatic impact of war on the human psyche is also confirmed by the high rate of suicide among veterans^{[87][89][93][94]}.

According to American military journalist, Brigadier General, and historian Samuel Marshall, who interviewed 400 infantry companies, only 15–25% of American soldiers fired at enemy positions during World War II. In many cases, those who did not fire were willing to risk great danger to rescue comrades, get ammunition, or run messages. Marshall concludes that **the average and healthy individual has such an inner and usually unrealized resistance towards killing a fellow man that he will not of his own volition take life if it is possible to turn away from that responsibility**^{[87][95]}.

Much criticism has been levied against Marshall, including claims that soldiers actually enjoyed committing killings and accusations that he made up his findings at all. However, historian David Lee shows in his book “Up Close and Personal: The Reality of Close-Quarter Fighting in World War II” that Marshall often visited soldiers after battles and interviewed them regarding firing at the enemy. And the idea that many soldiers enjoyed killing is universally rejected, even by those who were active firers. Most men who participated in combat found killing an unpleasant job, and only a few among the many veterans will claim to have enjoyed it. Many accounts confirm that fighting often depended on one or a few exceptional soldiers who led others in the assault, while the majority merely followed or did nothing^[96].

As American publicist and former Lieutenant Colonel Dave Grossman writes, the U.S. Armed Forces have widely accepted these conclusions. Although Marshall's methodology may not meet rigorous modern standards, that does not mean he lied, and every available, parallel, scholarly study validates his basic findings. In support of his words, Grossman cites such war researchers as Charles Ardant du Picq, John Keegan, Richard Holmes, and Paddy Griffith. The evidence they and others provide (some of which we will review after dealing with the criticism) is compiled in his book “On Killing: The Psychological Cost of Learning to Kill in War and Society,” which is on the curriculum of many American institutions. According to Grossman, **in the realms of criminal justice, psychology, sociology, and peace studies programs, the possible existence of an innate resistance to killing, in most healthy citizens, is widely accepted**^{[87][97][98]}.

There is some criticism towards Grossman as well. For example, his idea that video games make people more violent and train them to be killers has been shown to be unfounded. And his promotion of military training for police officers, including training them to kill, has been criticized for the fact that it could lead to more police violence against ordinary citizens^{[99][100][101][102][103]}. But none of this is relevant to the current topic. Grossman may be a controversial person who is wrong about some things, but his position on the existence of resistance to killing is well-founded^[Author's note].

Another criticism worth mentioning is put forward by anthropologist Michael Ghiglieri. He is a proponent of the idea that humans have an instinct to commit murder, rape, and genocide, developed over millions of years of evolution. And those who argue otherwise, including Grossman, in his opinion, simply do not understand biology. However, in a review of his book “The Dark Side of Man: Tracing the Origins of Male Violence,” anthropologist Brian Ferguson writes that it is full of arguments by analogy, sweeping generalizations, and one-sided presentations. It also contains major misinformation that is inconsistent with the literature on the topic of violence, according to which the decision to kill in men is triggered by just one chemical, testosterone. However, Ferguson praises Ghiglieri for skillfully writing his book to convince people already primed to believe men are bad to the

bone^{[104][100][105]}. Now, having dealt with the criticism, we can continue to explore the topic of resistance to killing.

Back in the middle of the 19th century, French army officer and military theorist Charles Ardant du Picq conducted his own research, a survey among other officers, who told him that many soldiers simply shot in the air without aiming^[106]. Military historians John Keegan, Richard Holmes, and Paddy Griffith analyzed data on the firing performance of 18th- and 19th-century soldiers and showed that at the average combat ranges of that era, the killing rate should have been hundreds per minute, but in reality, only one or two killings occurred. The weak link between the killing potential and the killing capability was the soldier who, when faced with a living opponent instead of a practice target, simply fired over his head. Only a small percentage of soldiers were actually attempting to fire at the enemy^{[107][108][87]}.

The Battle of Gettysburg, the bloodiest battle of the American Civil War, is quite a demonstrative example. After the battle, more than 27,000 abandoned muskets were found, 90% of which were loaded, and 12,000 muskets were loaded multiple times. As Canadian historian, journalist, and retired naval officer Gwynne Dyer writes, this could mean that most of the soldiers on both sides were loading their muskets, perhaps even mimicking the act of firing when someone nearby actually did fire in order to hide their internal defection from the killing process but couldn't fire themselves. And many of those who did fire were probably deliberately aiming high^{[109][88]}. Of course, some might say that the soldiers simply made mistakes when using weapons. But even if, despite all the endless hours of training, you do accidentally double-load a musket, you shoot it anyway, and the first load simply pushes out the second load. And in the rare event of a weapon breaking, you can pick up another one. It is therefore unlikely that a huge number of soldiers could have made the same mistake^[87].

Dyer also cites one interesting fact from the statistics of the U.S. Air Force. Less than 1% of pilots accounted for about 40% of downed enemy aircraft. Most of the pilots didn't shoot down anyone and didn't even try to do it. In addition, when the U.S. Air Force tried to identify commonalities among their World War II aces, it was found that in childhood, they had been involved in a lot of fights. And they were not just bullies who, as a rule, avoid real fights; they were exactly “fighters”^{[110][87]}.

Looking back at how many victims some wars, and especially World War II, had, it is difficult to agree that only 2% of soldiers actually killed their enemies easily. However, this can be easily explained by distancing. Dyer notes that strong resistance to killing was not observed in artillerymen, bomber crew members, naval personnel, and machine gunners, who, without seeing their target (and whose task was to strike not living humans but non-living objects, even if that meant the attendant loss of life), were able to convince themselves that they didn't kill anyone at all^{[110][87]}.

It should also be noted that the training of soldiers after World War II began to consider the existence of resistance to killing. It was made more effective, “conditioning” soldiers to kill reflectively and automatically, so the number of soldiers firing in combat increased significantly (although this still doesn't tell us anything about how many of them actually aim at the enemy). And for some modern armies that rely on volunteers who are more susceptible to conditioning training than conscripts and weed out the unsuitable ones, it is not a problem to get 100% of soldiers to fire. However, soldiers who do find themselves capable of killing after such training are later unable to cope with what they have done and begin to suffer from psychological trauma^{[87][89][93][96]}.

According to some researchers, including Kevin Dutton, nowadays, psychopaths are extremely common among **elite or special forces, where selection is deliberately focused on traits typical of psychopaths**. Such individuals are characterized by high psychological stability and cold-bloodedness in military operations. But militarized groups consisting of psychopaths have a “culture of

impunity” and are cold-blooded towards civilians. Therefore, they can easily kill peaceful and unarmed people in foreign operations, and authoritarian regimes can use them to effectively suppress internal discontent^{[111][112]}.

In the end, it is worth noting that there is a statement that roughly 80% of males choose to avoid violent conflict. If forced into violent conflict, they just do not fight, although present. The 20% left do not reject violence as a behavioral option. Nevertheless, the main part is probably defensive only, that is, they use violence only if compelled to. Finally, about 1% adopt an offensive elementary strategy. Historical and statistical facts confirm the existence of a ratio noncombatants : defensive combatants : offensive combatants. Roughly, this ratio looks like 80:19:1^[88]. This statement is mentioned by researcher Johan M. G. van der Dennen, who has also done a good job collecting evidence on resistance to killing. However, its primary source is an “unpublished manuscript” that cannot be found. Therefore, we will leave it to your judgment^[Author's note].



The average and healthy individual has such an inner and usually unrealized resistance towards killing a fellow man that he will not of his own volition take life if it is possible to turn away from that responsibility. Though it is impossible that he may ever analyze his own feelings so searchingly as to know what is stopping his own hand, his hand is nonetheless stopped. At the vital point he became a conscientious objector, unknowing.

S. L. A. Marshall

American military journalist, Brigadier General, historian.



We cannot help but come away with an image of war as one of the most horrifying and traumatic acts a human being can participate in. War is an environment that will psychologically debilitate 98 percent of all who participate in it for any length of time. And the 2 percent who are not driven insane by war appear to have already been insane – aggressive psychopaths – before coming to the battlefield.

Dave Grossman

American publicist and former Lieutenant Colonel.

On the problem of violence and war: **Antiviolence.io**

5. How many people participate in committing genocides

It is known that the Khmer Rouge exterminated about 1.8 million Cambodians between 1975 and 1979. Khmer Rouge forces consisted of 55 to 80 thousand people in different years. And the population of Cambodia was about 7.3 to 7.9 million people at the beginning of the genocide^{[113][114][115][116][117][118]}. If we take the ratio of Khmer Rouge forces to the Cambodian population

aged 15 to 64 (it was 55% of the total population), we will get that less than 2% of people were genocide perpetrators^[Author's note].

Based on the most widely accepted studies, between 500,000 and 800,000 Tutsis were murdered in the Rwandan genocide^{[119][120]}. And one study suggests that the number of genocidal murderers, consisting of Hutus, had to be 50,000 people. It also states that the genocide was not a spontaneous eruption of tribal hatred, as the Western media portrayed it; this was a coordinated attack by a small core with no more than two dozen leaders and no more than 100,000 of their henchmen in the state machinery (including the military)^[121]. Another study estimates the number of genocide perpetrators (those who committed murder attempts, murder, rape, torture, and other forms of serious violence) from 175,000 to 210,000 people^[122]. The maximum estimate of the number of people who committed at least one act of genocidal violence (including participating in groups that perpetrated genocide and complicity in acts of violence) reaches 234,000. And 90% of the participants were men with a median age of 34 years^[123].

What does this mean? The vast majority of the Hutu people, and even the majority of their active adult (aged 18 to 54) male population, did not take any violent part in the genocide. It can be confidently stated that no more than 17% of the active adult male Hutu population (totaling 1.26 million people) and no more than 9% of the entire active adult Hutu population (totaling 2.58 million people) participated in the genocide. Although these are extremely high and extraordinary figures, there is still no question of a “criminal population” and collective guilt^{[122][123][Author's note]}.

It is worth noting some important considerations. The study estimating the number of murderers in the Rwandan genocide at 50,000 people states that it is not impossible that even 25,000 people could kill hundreds of thousands, if not a million civilians, in 100 days. For such a scenario to become a reality, one murderer needs to commit only one murder every two and a half days^[121]. There is also evidence that in one of the Rwandan military camps, there were 2,000 well-trained soldiers, and of these, just 40 people could kill up to 1,000 Tutsis in 20 minutes^[124].

In order to prove the ability of ordinary men to commit genocides, the example of Reserve Police Battalion 101, which consisted of less than 500 men and killed tens of thousands of Jews, is sometimes mentioned. As noted, the battalion was made up of very ordinary, middle-class men, which may indicate the capability of any group of men to become killers. However, it is important to note that even in this case, up to 20% of the battalion members had serious psychological difficulties in committing killings and eventually refused to do so. In addition, there is a view that questions the claimed “ordinariness” of this group of men and points to the need to find an abnormality that could explain this case^{[125][126]}.

Finally, it is important to note the cases where one individual personally killed thousands of people. For example, the Croatian war criminal Petar Brzica killed up to 1360 Serbs in one night^[127]. And the NKVD officer Vasily Mikhailovich Blokhin executed up to 20,000 people in his entire service^[128]. Such cases only confirm the fact that in the presence of an unlimited opportunity to murder, the murderers will personally commit dozens, hundreds, and possibly thousands of murders. Accordingly, we should always expect that the number of murderers relative to the number of murders will be quite small^[Author's note].

6. What famous experiments say about violence

“Universe 25”

“Universe 25” was a famous experiment in which ethologist John Calhoun created a habitat for mice with abundant resources. Initially, the population of mice grew rapidly up to 2200 individuals. However, after that, mice began to refuse to reproduce; their numbers began to decline, and in less than 5 years, the population completely died out. Drawing an analogy to human society, Calhoun concluded that exceeding a certain population density leads to the degradation of the behavior of individuals, the breakdown of social bonds, and, later, the complete extinction^[129].

This experiment was criticized for making many mistakes; for example, the mice's living conditions were actually far from ideal. However, few people are aware that the main mistake was the structure of the habitat, which allowed the 65 largest males to forcefully block all other males from accessing females and food. This caused a chain of events that led to the extinction of the population. A mouse population can live for decades in more well-organized habitats, where it is impossible to establish such a violent dominance hierarchy^[130]. This experiment demonstrates well why, under certain conditions, violence is a threat to the survival of the population and is not an evolutionarily stable strategy^[Author's note].

The Milgram experiment

In 1963, psychologist Stanley Milgram conducted experiments to clarify how much suffering ordinary people are willing to inflict on other, completely innocent people if it is part of their duties. The subject, being in the role of a “teacher,” had to punish the “learner” who was in the other room with an electric shock in cases of incorrect performance of tasks. Of course, being an actor, the learner only pretended to be in pain by knocking on the wall or screaming.

According to published data, one of the series of experiments showed that 26 subjects out of 40 (65%) increased the voltage to the maximum and did not stop delivering electric shocks until the researcher gave the order to end the experiment. And only 5 subjects (12.5%) stopped when the learner showed the first signs of discontent^[131]. Reproduction of the experiment under different conditions and with different people, as stated, showed approximately the same results^[132].

However, after analyzing 656 post-experimental questionnaires, the researchers found that 56% of the participants actually stopped the experiment at one point or another because they believed the person behind the wall was in pain. Another study, looking at 91 post-experimental interviews, found that among 46 participants who continued the experiment after the learner showed discontent, 33 participants (72%) did so because they simply did not believe that the experiment was real (and the learner actually only pretended to be in pain). Although Milgram himself recognized the dependence of the willingness to continue the experiment on belief in the reality of inflicting pain, for some reason, he chose not to publish the full results^{[133][134][135]}.

This experiment also had serious methodological problems. The researchers put strong pressure on the participants, often going beyond the protocol of the experiment. The professionalism of the actor who played the role of the learner is questionable. And the experiment was based on the deception of the subject, whereas there is reason to believe that unconsciously, most people would recognize real pain or its absence^[136]. These problems also make any attempt to replicate the Milgram experiment questionable^[Author's note].

The Stanford Prison Experiment

Another well-known experiment about violence is the Stanford Prison Experiment. The participants of this experiment were divided into two groups: the guards and the prisoners, who lived in a simulated prison. Soon after the start of the experiment, the guards began to brutally abuse the prisoners, with a third of them showing sadistic tendencies. Two prisoners were even removed from the experiment due to the psychological trauma they received, and the experiment itself was stopped ahead of time for ethical reasons.

For almost 50 years, many believed in the truthfulness of these results. However, the experiment turned out to be completely untenable. The guards were aware of the results that were expected from them and received clear instructions. Potential participants knew in advance what awaited them in the experiment and what roles they would play. And after a while, some of them stated that they only played their role and knew everything wasn't real. One of the excluded participants later admitted that he was only faking psychosis because he did not like the experiment and wanted to leave as soon as possible. Finally, the data researchers published were far from complete; out of the 150 hours of the experiment, only 10% were recorded (6 hours of video and 15 hours of audio)^{[137][138]}.

Other experiments on violence and conclusions about them

It is worth remembering another experiment, the performance of the artist Marina Abramovic called "Rhythm 0," in which she completely surrendered to the will of the audience, allowing them to use 72 objects and her body freely. As a result, for 6 hours of the performance, she was brutally tortured and even almost shot. It was concluded that all people are cruel, and under suitable conditions, this cruelty will surely break out.

So far, there are no refutations of this experiment. But it can be assumed that it was either staged, like the Stanford prison experiment, with which it is sometimes compared, or the audience was unrepresentative, or cruel people were specially selected as the audience (in many of her performances, Abramovich deliberately put herself in danger and almost died several times)^[Author's note]. At least Abramovich's past performances could determine the audience and its expectations^[136]. Note that such assumptions can be put forward for any experiment that allegedly proves the violent nature and cruelty of a human being^[Author's note].

There was also an anthropologist, Santiago Genovés, who believed humans were inherently cruel. To prove this, he placed 10 people of different genders, races, and social statuses with him on a small raft in the ocean. He expected an outbreak of violence to occur in such isolated conditions. However, in fact, no such thing happened, even when Genovés tried to provoke the participants. He was extremely dissatisfied with the outcome of his experiment^[139]. He did not succeed in deceiving the public by adjusting the experiment to a predetermined result, as is usually done by those wanting to prove human cruelty^[Author's note].

7. Violence draws too much attention to itself

Sometimes, it is stated that not a single day in human history has passed without violence and military conflicts. So, it should be a natural phenomenon for humans and human society. However, this opinion is based more on the subjective evaluation of events taking place in the world than on real data, as well as on the excessive visibility of violence against the background of all other events.

There is one illustrative example of how violence can attract significant attention: 69% of Americans believe that domestic violence is a common problem among American football players. This belief is

based on media scandals unfolding around players who have actually committed violence. However, statistics show that in the families of American football players, domestic violence occurs almost 2 times less often than on average in American families. At the same time, there is a serious problem of domestic violence in the families of police officers; in them, it occurs up to 4 times more often than on average. But this is information that is often not publicized and investigated^{[140][141][142][143][144][145]}.

Observing violence makes people believe that it is common. However, to give a real assessment, one should rely only on real data and not on arbitrary statements^[Author's note].

8. What fiction gets wrong about the nature of violence

Some fictional works can create the false impression that a peaceful person, totally incapable of committing violent attacks, must necessarily be a passive and unmotivated individual. Of course, aggressive stimulus can be important for an individual in many activities. There is even research demonstrating the beneficial role of anger in creative performance^[146]. But one should not equate functional aggression with violence.

In Stanislaw Lem's "Return from the Stars," in order to maintain a peaceful society, people are treated with a procedure called "betrization," designed to neutralize aggressive impulses in the brain and strengthen the self-preservation instinct. But in reality, people do not necessarily need to have no aggressive impulses or strong fear for their lives to be absolutely peaceful and non-psychopathic. They only need to have strong reflexes and emotions that will impose inhibitory control on aggression (i.e., the violence inhibition mechanism), causing them to have an inner resistance to harming other people.

Another book called "A Clockwork Orange" by Anthony Burgess is based on the author's view that all human beings have an inner drive to commit violence, provoked by "original sin," and to take away an individual's freedom to choose whether or not to commit violence is unacceptable. Obviously, a work based on a view that normalizes violence is not something we can take seriously. Many people have a strong inner resistance to committing violence, and they certainly do not look like the protagonist of this work after brainwashing that made him unable to defend himself and listen to his favorite music.

As we can see, fictional works' representations of the nature of violence can be extremely misleading. This is always worth mentioning when someone cites them as an argument^[Author's note].

III. The Theory of the Violence Inhibition Mechanism

With plenty of evidence that, in many circumstances, aggressive behavior is restrained, and that people normally have a strong inner resistance to committing violence, we can proceed to an explanation of this phenomenon. To understand the evolutionary reasons for its emergence, we will first look at the theory of intraspecific aggression inhibitions in animals. Then, we will move on to the theory of the violence inhibition mechanism in humans.

1. Evolution of intraspecific aggression inhibitions

In interspecific interactions, for example, in predation and defense, the role of aggression is quite obvious. It is also important in intraspecific relationships, for example, in the division of territory, reproductive competition, and the establishment and maintenance of social hierarchy. Nevertheless, do not make the mistake of looking at aggression in isolation from evolutionary pressures. The two most important of them are **the presence of strong innate weapons in conspecifics and their lack of opportunity to avoid each other** (due to a limited area of habitat, social behavior, or other reasons). The more pronounced these two factors are, the greater the risks of aggressive behavior. As a result, its unrestrained forms cease to be an evolutionarily stable strategy of behavior as they begin to interfere with survival, and natural selection directs towards the development of strong restraints, preventing the infliction of serious harm and killing between conspecifics.

The concept of aggression inhibitions was first formulated by the ethologist Konrad Lorenz. According to his theory, they are most developed in animals, which are able to kill an individual of approximately their own size easily (with a single peck or bite). Describing his own observations of wolves, Lorenz showed how aggression inhibitions are activated when one wolf demonstrates to another a gesture of submission or vulnerable parts of its body, such as the neck or belly. As a result, a petrified aggressor cannot continue the attack. Also, observations of ravens showed that they do not peck out each other's eyes, even during fights^{[21][22]}.

To avoid any misunderstandings, it should be noted that wolves are sometimes considered to be animals with a violent dominance hierarchy in which the most aggressive male is in charge. However, in reality, such a hierarchy occurs only in artificial conditions, for example, in zoos, while in the natural environment, aggressive individuals are even expelled from the pack^{[147][148]}.

The ethologist Irenaus Eibl-Eibesfeldt listed many examples of aggression inhibitions from various researchers^[23]. Fiddler crabs, due to their anatomical features, do not open their claws in fights wide enough to injure an opponent^{[149][150]}. Many species of fish, lizards, and mammals are characterized by the ritualization of fights. A noteworthy example is oryx antelopes, which carefully handle their sharp horns in fights with other oryx but at the same time use them to the full extent in defense against lions^[151]. It is also worth mentioning venomous snakes, many of which squirm, bloat, and push each other during fights but do not bite or even display their weapons^{[23][152]}. Even very primitive creatures have a similar mechanism. So, jellyfish have a chemical blocker that prevents stinging a conspecific. At the same time, all other living beings are stung automatically^[153].

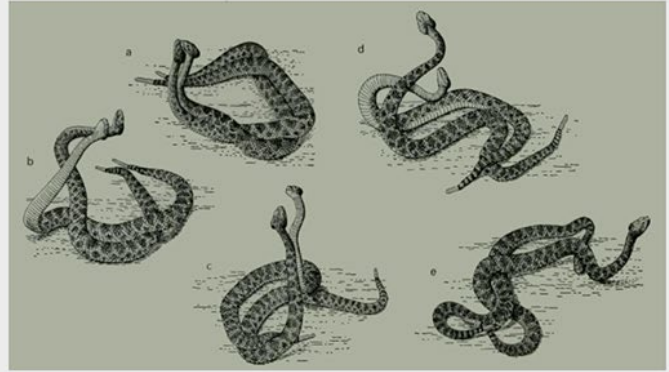
Aggression is less inhibited in weakly armed species. Compared to ravens, turtledoves with a less sharp beak can even kill a conspecific if it is deprived of the opportunity to escape (for example, placed in a cage). Under natural conditions, conflicts do not threaten the survival of turtledoves in any way; they are unable to kill a conspecific quickly, and it can easily escape. Animals with a solitary

lifestyle are also quite aggressive. For example, conflicts pose little threat to the survival of polar bears or jaguars, which, out of the breeding season, rarely cross each other's paths^{[21][22]}.

We should also not forget such a factor of selection against aggressive behavior as inclusive fitness. The basis of evolution is the preservation and spread of genes. And one and the same gene, carriers of which kill each other, has fewer chances for this. Accordingly, developing mechanisms that restrain aggression between individuals sharing enough of the same genes is evolutionarily beneficial. Among other things, **inclusive fitness may be one of the evolutionary factors that led to the development of aggression inhibitions in humans**, despite the fact that, according to Lorenz, due to weak innate weapons, humans have rather weak aggression inhibitions that do not cover the use of the artificial weapons they have created^{[21][27][154]}. Lorenz was concerned about the consequences of humans becoming the most armed species on the planet. However, due to evolutionary reasons, the vast majority of humans cannot be psychopathic individuals. Such individuals are “freeriders” with a parasitic strategy, and human society is only able to exist if their number is limited. Otherwise, it will be destroyed by their actions, which is unprofitable even for the psychopaths themselves^{[84][155][156][157]}. The average and healthy individual still has a strong inner resistance to killing, and “it gives us cause to believe that there may just be hope for mankind after all”^[87].

It is necessary to take into account that some unknown and still unstudied factors can weaken aggression inhibitions, as it happens, for example, in lions, which are strongly armed and social species but still kill conspecifics^[23]. Also, Lorenz's theoretical developments are sometimes criticized. For example, there is criticism of his hydraulic model of aggression, which states that living beings have a tendency to accumulate “aggressive energy” if there is no discharging stimulus for a long time, and later, it can be released in the form of aggressive behavior even from insignificant external stimulus provoking it; among other things, this explains spontaneous acts of aggression. However, Lorenz himself recognized the limitations of this model and that it has a number of shortcomings. In addition, there is a study confirming the existence of such a mechanism and even explaining its neurophysiology^{[22][158][159]}. Lorenz may also be accused of labeling aggression as a universal and inevitable phenomenon for humans, but it is worth considering that in his works, **he called intraspecific aggression the greatest danger to humanity and expressed optimism about the possibility of eradicating racism and stopping wars**. And the criticism of Lorenz's works does not concern his theory of aggression inhibitions^{[22][40]}^[Author's note].

Finally, it is necessary to mention the parochial altruism hypothesis. Based on it, intragroup altruism and intergroup hostility have mutually developed during biological evolution and exist side by side^{[160][161]}. This phenomenon may be argued to contradict the theory of intraspecific aggression inhibitions. However, one study shows that it only explains defensive aggression when there is an imminent threat from competing groups but is not necessarily associated with offensive aggression toward them^[162]. We will address the issue of parochial altruism again in the fifth topic of Chapter Four. For now, it is only important to understand that in the case of humans, **intermarriage and trade would have been impossible without inhibition of intergroup killing**, and “preliterate” societies would have been locked in eternally hostile and xenophobic isolation, killing any “stranger” on sight^[88].



Examples of ritualization of intraspecific fights in animals that prevents them from harming each other

Image source: antiviolence.io

2. Self-defense as an evolutionarily stable strategy of behavior

As we discovered earlier, committing violent attacks on conspecifics is not an evolutionarily stable strategy of behavior for animals that have strong innate weapons and lack the opportunity to avoid members of their own species. The most aggressive individuals, often initiating violent attacks, will also die more often due to the weapons and resistance of their victims. As a result, there will be evolutionary pressure to develop intraspecific aggression inhibitions or so-called violence inhibitor since individuals lacking such a mechanism are less likely to pass their genes on. However, it is worth understanding one important thing: this will not work if the victim of the attack cannot use their weapons in self-defense. This leads us to the assumption that in the presence of an immediate threat to life, the function of the violence inhibitor should be suppressed for a short period of time, sufficient to fight back against the aggressor^[Author's note].

This assumption is consistent with the concept of the **threat superiority effect**, which we considered at the beginning of our study. According to it, the presence of a threat in the environment and social signals leads to the activation of defense mechanisms and the suppression of other ongoing cognitive processes. In behavior, this effect is often manifested by a fight-or-flight response^{[8][9][10]}. Also, computer simulations of evolutionary processes have shown that in most cases, neither the belligerent strategy (hawk), which consists in making attacks, nor the timid strategy (dove), which consists in retreating when attacked, are not as evolutionarily stable strategies as the retaliator strategy, which means to behave non-aggressively but in the event of an attack to fight back. **Timid individuals cannot compete with aggressive individuals, but aggressive individuals risk getting hurt in fights. Therefore, the mixed retaliator strategy is the most stable**^{[163][164][165][28]}.

3. The Violence Inhibition Mechanism in Humans

Neuroscientist James Blair suggested that humans possess aggression inhibitions similar to those observed in many animals in intraspecific relationships and proposed the **Violence Inhibition Mechanism** (VIM) model. In developing the VIM model, he also aimed to explain the development of empathy as a result of this mechanism functioning and the emergence of psychopathy as a result of its dysfunction^{[166][167]}.

VIM is a cognitive mechanism that is directly activated by the observation of non-verbal distress cues from other individuals, such as a sad facial expression or crying. This causes an aversive reaction, and the stronger the distress cues, the stronger the corresponding reaction: a slight sadness on the face will cause only partial aversion, but screams and sobbing can completely stop the aggressor. Also, VIM is not just a mechanism consisting of an unconditioned reflex (aversive reaction) triggered by an unconditioned stimulus (distress cues). Blair argues that through the process of conditioning (the formation of conditioned reflexes), it becomes a cognitive prerequisite for the development of three aspects of morality: the moral emotions (i.e., sympathy, guilt, remorse, and empathy), the inhibition of violence (regardless of distress cues), and the ability to distinguish between moral and conventional transgressions.

During normal development, regular activation of the VIM on the observation of distress cues leads to the formation of corresponding conditioned reflexes. As a result, the individual becomes able to show an empathic response only by thinking about someone else's distress. Accordingly, during the experiments, film sequences where the victims of violence talked about their experience while not showing any distress cues induced physiological arousal changes in observers^{[168][169][170][167]}.

The inhibition of violence works similarly. As early as childhood (at the age of 4–7 years), normally developing individuals will experience the activation of VIM due to the observation of distress cues as soon as they attempt to commit an act of violence (or even take possessions from another child without their permission)^[171]. Over time, even the very thought of committing violence will begin to lead to this reaction, and the probability that the individual will behave violently will gradually decrease.

The activation of VIM also acts as a mediator in distinguishing between moral and conventional transgressions. The observation of moral transgressions – actions that harm people – and the subsequent victims' distress cues will eventually lead to the development of the conditioned reflex that activates VIM. In turn, social transgressions that do not lead to harm but only consist in violating established social norms will not be associated with distress cues. This is how the individual becomes capable of identifying moral transgressions in various actions. Of course, individuals without VIM can evaluate a moral transgression as a bad act if someone teaches them that it is bad. However, in their evaluation, they will refer to the words of other people without experiencing an aversive reaction to causing harm.

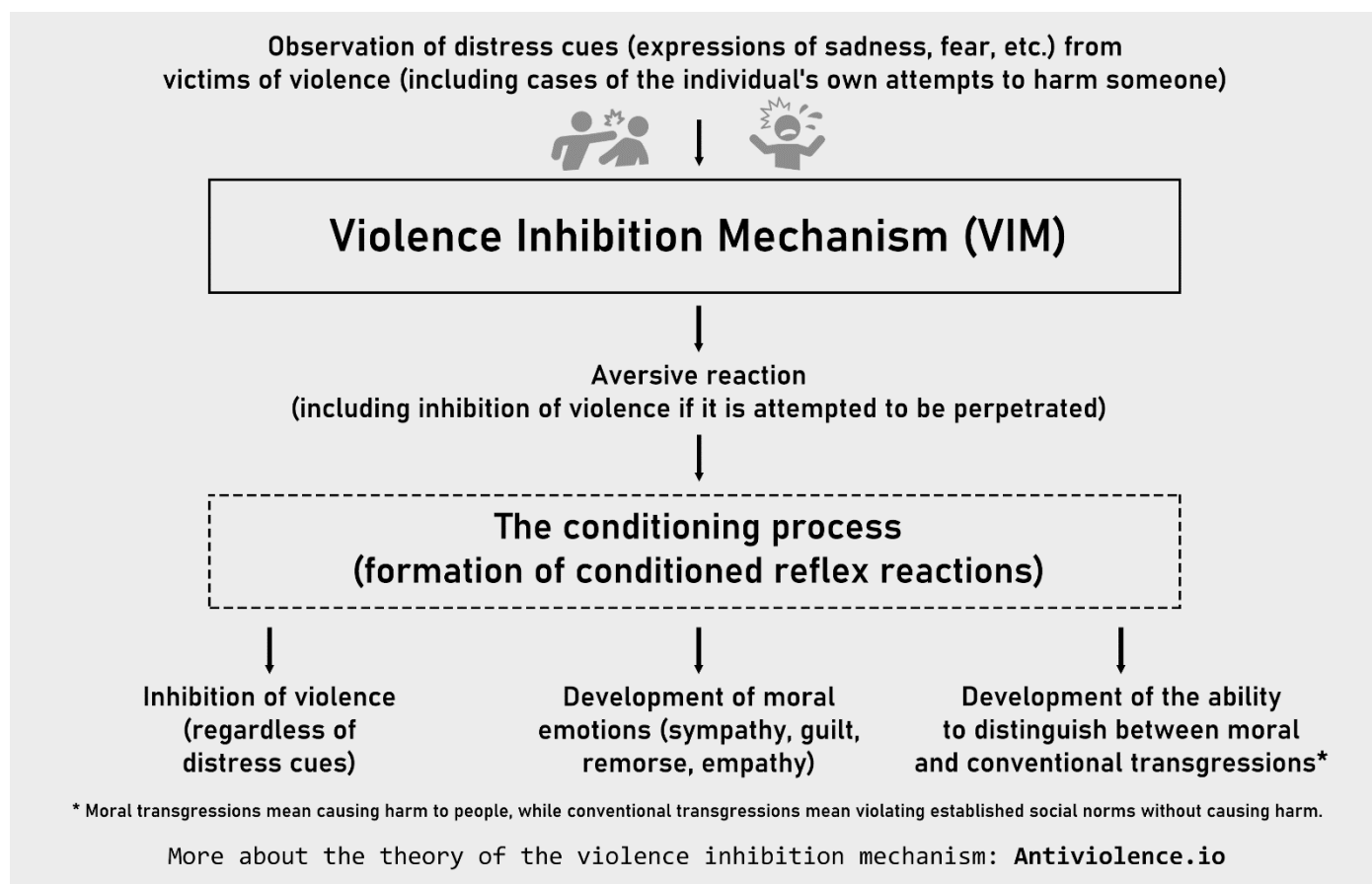
To support the validity of his model, Blair cites the results of many studies. Children with a predisposition to psychopathy and adult psychopaths do show a poor ability to distinguish between moral and social transgressions. The same applies to children with conduct disorders. In addition, and in line with the VIM position, adult psychopaths show reduced comprehension of situations likely to induce guilt. Moreover, children and adults with psychopathy show pronounced impairments in processing sad and fearful facial and vocal expressions^{[167][172][173][174][175][176][177][178][179][180][181][182][183][184]}.

Other studies also support this model. For example, aggressive behavior from callous and unemotional traits, the presence of which in childhood is a prerequisite for psychopathy in adulthood, is associated with a poor ability to recognize fearful facial expressions and fearful body postures^[185]. Children with high scores of callous-unemotional traits also experience problems in recognizing expressions of sadness, and children with conduct disorder experience problems in recognizing expressions of fear^[186]. People with high scores of primary psychopathy (which is characterized by callousness and lack of empathy) were found to be less able to distinguish genuine distress cues from posed ones. At the same time, this effect did not extend to other emotions, such as happiness, anger, or disgust; it was specific to distress cues^[187]. Schizophrenics with a history of violent crime differ from non-violent schizophrenics in their lower ability to recognize expressions of fear^[188]. Even the most up-

to-date research shows that difficulties in recognizing fear and sadness are associated with a greater propensity for proactive (instrumental) aggression in children^[189].

Finally, it is worth noting that psychopathy as a result of VIM dysfunction is a mental disorder by Wakefield's criteria: a condition is a disorder if it leads to harm to oneself or others and is associated with the failure of some internal mechanism to perform a function for which it was biologically designed (i.e., naturally selected)^{[190][191]}.

The VIM model does not provide a complete explanation of the nature of aggression regulation, so Blair later expanded it and developed the Integrated Emotion System (IES) model, which considers the neurophysiology of this process^[172]. However, it still confirms the presence of aggression inhibitions in humans and gives a general idea of how they work^[Author's note].



IV. Neurophysiology and genetics of aggression regulation

For a more in-depth understanding of how aggressive behavior is regulated, it is necessary to examine this process from a neurophysiological and genetic perspective. Among other things, this is particularly important in identifying a direction for the development of therapeutic approaches aimed at treating violence inhibitor dysfunction in individuals who have psychopathic tendencies and can easily harm others.

1. Serotonin: a key regulator of aggressive behavior and a target for its treatment

One study on moral judgments and behavior suggests that a mechanism similar to Blair's violence inhibitor operates for imagined harm. The neurotransmitter serotonin (5-HT) is responsible for the functioning of this mechanism and plays a parallel role in the inhibition of actual harm (in the case of aggression) and imagined harm (in the case of moral judgments)^[192]. Many other studies also confirm the key role of serotonin in the regulation of aggression in animals and humans^{[193][194][195]}.

The administration of selective serotonin reuptake inhibitors (SSRIs), which increase serotonin levels in the brain and are widely used as antidepressants, has shown interesting results in the issue of aggression^[196]. Fluoxetine administration reduces the risk of aggressive behavior by 4 times in patients with personality disorders^[197]. Also, in one trial, fluoxetine significantly reduced the perpetration of violence by alcoholics toward their spouses or significant others^[198]. In another trial, paroxetine successfully eliminated aggression associated with primary psychopathy (which is characterized by callousness and lack of empathy). And it was found that this did not result from sedative or anxiolytic effects. Researchers believe that primary psychopathy is related to dysfunction of the serotonergic system of the brain^[199]. Sertraline has been tested on violent repeat offenders and found to be effective in correcting their behavior^[200]. Additionally, in several experiments, citalopram improved the ability of participants to recognize facial expressions of fear (as we remember, recognizing distress cues from other people is important in the functioning of the violence inhibitor), increased their generosity, and made them more likely to choose to avoid hurting people in certain types of moral dilemmas (indicating increased harm inhibition)^{[201][202][203][204]}. However, SSRIs can lead to unwanted side effects^[205]. Therefore, we will also review potentially more effective and safer drugs.

Various experiments conducted on mice and rats showed that some agonists of 5-HT_{1A} and 5-HT_{1B} receptors (these chemical compounds cause a biological response in receptors or, put simply, activate them) are **able to suppress offensive aggression while not affecting defensive behavior or other forms of activity**^[206].

Drugs such as TFMPP and eltoprazine significantly reduced aggressiveness in mice and rats in the resident-intruder paradigm while not affecting defensive behavior. This effect was associated with the activation of postsynaptic 5-HT_{1B} receptors^[207]. In limited human trials, eltoprazine resulted in a reduction of aggression in patients with dementia, psychotic and personality disorders, and mental retardation, with it working best in severely aggressive patients and side effects being minimal or absent at all^{[208][209]}. A selective 5-HT_{1A} agonist called F15599 reduced the manifestation of intense elements of aggression, biting during attacks, and lateral threat postures (demonstrating aggressive intentions) in mice without affecting non-intense elements of aggression and other forms of behavior^[210]. A 5-HT_{1B} agonist called CP-94253 also reduced the frequency of attack bites and the manifestation of lateral threat postures in mice^[211]. The importance of 5-HT_{1B} receptors in the inhibition of aggression was also demonstrated in an experiment where the administration of their agonist anpirtoline reduced the manifestation of various forms of aggression in mice, including aggression from social interaction with an opponent and aggression from frustration^[212]. Compared to other 5-HT_{1A} agonists, a drug called alnespirone showed a highly selective anti-aggressive effect in rats, which did not affect the defensive behavior when the individual encountered an aggressive conspecific and other forms of activity^[213].

It is known that psychedelics that are agonists of 5-HT_{1A} and 5-HT_{2A} receptors, such as LSD and psilocybin, can stimulate empathy and prosocial behavior in humans. In one experiment, psilocybin even led to a sustained reduction in patients' predisposition to authoritarian political views (as measured by the Libertarian-Authoritarian Questionnaire), and it is considered to be very useful in treating psychopathy and antisocial behavior^{[214][215][216][217][218]}. Also, any experience using LSD or

psilocybin reduces males' risk of committing intimate partner violence by 2 times^[219]. In addition, any experience using psychedelics, as shown in a study of criminal behavior among 480,000 American adults, reduces the risk of committing violent assaults (and psilocybin has a particular protective effect against antisocial criminal behavior)^[220]. A study of substance use among 211,000 American adults shows a similar result: any experience using psilocybin (but not LSD) is associated with a significantly reduced risk of committing violent crimes, especially serious ones such as rape and homicide^[221].

Importantly, experiments on the treatment of hostility and aggression in violent offenders with naratriptan, which is a full agonist of 5-HT_{1B/1D} receptors and a partial agonist of 5-HT_{1A} receptors, were once suggested^[222]. And the similar drug called zolmitriptan was successful in selectively reducing aggression in mice and attenuating alcohol-heightened aggression in humans^{[223][224]}. It has also been suggested that vortioxetine, which is a full agonist of 5-HT_{1A} receptors and a partial agonist of 5-HT_{1B} receptors, may be an effective anti-aggressive agent. This is supported, among other things, by preliminary results obtained on a small number of patients^{[195][225]}. Of course, vortioxetine is also an SSRI, but due to its multimodal mechanism of action, some researchers consider it safer and more effective than other SSRIs^{[226][227]}.

Some drugs similar to SSRIs may also have anti-aggressive effects. For example, in several trials, trazodone effectively reduced aggressiveness in children with disruptive behavior, and serious side effects were rarely observed^{[228][229]}. Also worth considering is amitriptyline, which can eliminate aggressiveness in animals (without causing side effects or interfering with sex drive), as well as in children with behavioral disorders (although, in their case, frequent dosage changes are necessary due to the risk of side effects)^{[230][231][232]}.

Some natural remedies are also worth mentioning. For example, a herbal extract mixture called Kamishoyosan reduces aggressiveness in mice, and this effect is associated with the activation of 5-HT_{1A} receptors and improvements in the regulation of the serotonergic system^[233]. The Yokukansan mixture with a similar mechanism of action leads to a selective anti-aggressive effect in mice. It was found that the active ingredient in this mixture is geissoschizine methyl ether from the extract of *Uncaria rhynchophylla*^[234]. Linalool, which is a component of many essential oils and a 5-HT_{1A} agonist, also reduces aggressiveness in animals (including through inhalation of its vapors)^{[235][236][237]}. In addition, essential oils may be effective in reducing aggressiveness in people with cognitive impairment^[238].

Finally, supplementation with tryptophan, a precursor to serotonin, may be potentially effective. In experiments on mice and dogs, tryptophan had a selective anti-aggressive effect^{[239][240]}. And in some human trials, it reduced aggressiveness and hostility and increased trust and generosity^{[241][242][243][244][245]}. Also, tryptophan deficiency in the organism is associated with increased aggressiveness^[246]. Certain probiotics (including various bifidobacterium and lactobacillus) may help increase tryptophan and serotonin levels in the organism. Among other things, they may influence the serotonergic system of the brain through the gut-brain axis^{[247][248][249][250][251][252]}. The possibility of using them for the treatment of violent behavior is already being researched^[253].

2. What brain regions are involved in the regulation of aggression

The amygdala, which is involved in emotional processing and aversive conditioning, and the ventromedial prefrontal cortex (or orbitofrontal cortex), which is involved in decision-making, play the main role in the regulation of aggression. Together, they modulate the neural circuitry mediating reactive aggression (this circuitry includes the medial hypothalamus and periaqueductal gray) and the

subcortical systems responding to threats (among them, the basal ganglia, including the striatum). Both impairments in the amygdala and the orbitofrontal cortex can lead to an increase in the level of reactive aggression. At the same time, the orbitofrontal cortex does not inhibit reactive aggression but only increases or decreases the chance of triggering this process, depending on social cues. The neural circuitry mediating proactive (instrumental) aggression is modulated by the amygdala (it includes the temporal lobe, which processes information, as well as the striatum and premotor cortex, which are necessary for the implementation of actual behavior)^{[254][172]}.

Psychopaths are characterized by an increased propensity for proactive aggression. They also show impairments in empathic response and the regulation of fear-related behavior resulting from amygdala dysfunction. However, other functions of the amygdala, such as the formation of stimulus-reward associations and certain aspects of social cognition, are only mildly or not impaired at all in individuals with psychopathy. The reason for this may be the presence of genetic anomalies, which, instead of leading to severe amygdala dysfunction, have a more selective effect, disrupting the function of specific neurotransmitters^[172].

3. Genetics of aggression regulation and psychopathy

According to a study of 7-year-old children, the presence of both callous-unemotional traits and antisocial behavior has an extremely high level of heritability (81%). At the same time, the presence of antisocial behavior alone has a moderate level of heritability (30%). Children with callous-unemotional traits are more capable of committing premeditated acts of violence. They have a high risk of developing psychopathy and a propensity for violent crime in adulthood. Their condition is worse than that of other children with antisocial behavior, whose problems are not as severe and long-term^[255]. Also, various studies have shown that the stability of psychopathic traits over different periods of time, even lasting up to 40 years (between the ages of 8–10 and 48), is moderate to very high. This means that psychopathic tendencies emerge at an early age (studies indicate that they and the risk of corresponding behavior in the future can be detected even at the age of 2 years) and do not tend to change significantly over time in the same person^{[256][257][258][259]}.

Different studies demonstrate dozens of genes that affect certain aspects of offensive aggression. However, for its effective regulation, the number of genes and neurotransmitters that play a key role in this process must be limited. And evidence ranging from evolutionary ancientry to pharmacological and clinical data points to the serotonergic (5-HT) system of the brain as the primary regulator of aggressive behavior^[194].

We will begin with the 5-HT_{1A} and 5-HT_{1B} receptor genes (in humans, these are the HTR1A and HTR1B genes). Knockout (inactivation) of the 5-HT_{1B} gene leads to increased aggressiveness in mice. Knockout of the 5-HT_{1A} gene does not affect aggressiveness, but this is explained by the fact that although this procedure eliminates postsynaptic 5-HT_{1A} receptors that inhibit aggression through functional activation of the 5-HT system, it also eliminates presynaptic 5-HT_{1A} receptors that inhibit the 5-HT system itself and increase aggressiveness^{[194][260][261]}. In a study of aggressive and impulsive behavior resulting from alcoholism in Finns and one American Indian tribe, it was found to be associated with HTR1B H861C and HTR1B D6S284 polymorphisms^[262]. In addition, the genotypes of HTR1B rs11568817 polymorphism were found to be different between groups of children with high and low scores of callous-unemotional traits. And higher scores of these traits were found to be associated with lower blood serotonin levels^[263].

Alterations in the binding potential of 5-HT_{1B} receptors reflect how severe the symptoms and psychopathic tendencies are in individuals with pathological aggression^[264]. And alterations in the binding potential of 5-HT_{1A} receptors reflect human aggressiveness itself^{[265][266][267][195]}. Also, changes in the availability of 5-HT_{1A} receptors in the brain due to alterations in HTR1A gene expression can lead to increased levels of psychopathy^[268]. An assessment of psychopathy scores in male prisoners showed that they were higher in carriers of the T/T genotype of the HTR1B rs13212041 polymorphism in comparison with carriers of the C/C and C/T genotypes. In this case, the T allele results in reduced HTR1B gene expression. Also, childhood maltreatment only further increases psychopathic tendencies in carriers of the T/T genotype^[269].

It is also very important to consider the following three genes: TPH2, MAOA (also known as the “warrior gene”), and SLC6A4. Their respective enzymes are involved in serotonin metabolism in the brain. Mice homozygous for the 1473C allele of the TPH2 gene are more aggressive than mice homozygous for the 1473G allele. In the case of rats and silver foxes, in which low aggressiveness was achieved by selection, increased activity of the TPH enzyme, as well as higher concentrations of serotonin and its metabolite 5-HIAA, were observed^{[194][270][271]}. It should also be noted that the knockout of the TPH2 gene in rats led to aggressive behavior from a decrease in the sensitivity of 5-HT_{1A} receptors^[272]. Risky haplotypes of the TPH2 gene leading to decreased 5-HT function may also be associated with aggressive behavior in humans^[273].

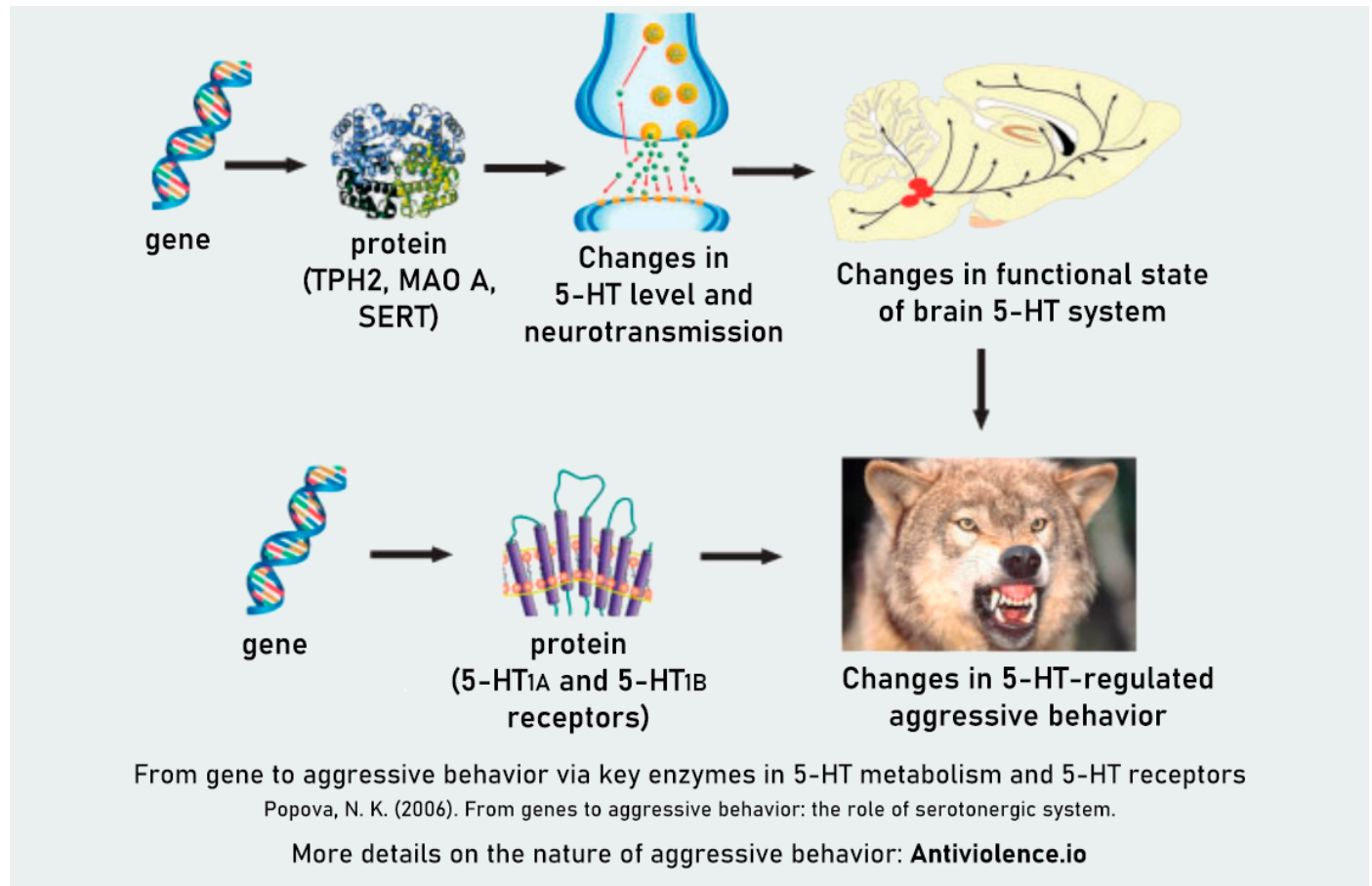
Knockout of the MAOA gene in mice results in increased aggressiveness and decreased 5-HIAA levels, which also indicates reduced functioning of the 5-HT system (however, it is important to note that 5-HIAA levels alone are not a reliable marker of human aggressiveness)^{[274][275][276]}. Males from one Dutch family with a point mutation in exon 8 of the MAOA gene showed increased impulsive aggression^{[277][278]}. A low-activity allele of the MAOA gene has been linked to a greater risk of participating in gangs among American adolescents^[279]. And it is more frequent in Germans with antisocial alcoholism than without it^[280]. Other studies also demonstrate that mutations in the MAOA gene are associated with abnormal male aggression^{[194][281]}.

As a study of the role of genotype in violent behavior showed, childhood maltreatment did not make carriers of the high-activity allele of the MAOA gene more violent than other people. But carriers of the low-activity allele were 4 times more likely to commit rapes, robberies, and assaults in adulthood. Of course, by itself, the low-activity allele of this gene does not make a person more violent but creates such a risk depending on environmental influences^{[282][283]}. Another study also confirmed the role of the low-activity allele of the MAOA gene in the emergence of physical aggression as a result of traumatic events in childhood^[284]. In addition, one study links increased psychopathic tendencies and “emotional dysfunction” to this allele^[285]. However, it is important to note that various studies have given conflicting results regarding the association of the MAOA gene with psychopathy or have not found it at all, which means that this issue needs further investigation^{[286][287]}.

A study of different variants of the promoter region (5-HTTLPR) of the serotonin transporter gene (SLC6A4, encoding the SERT or 5-HTT protein) showed that homozygosity for the long (L) allele of the 5-HTTLPR polymorphism, which leads to a more rapid clearance of serotonin from synapses, significantly increased the risk of narcissistic and callous-unemotional traits in young people with low socioeconomic status (based on the income and professional status of their parents). At the same time, the short (S) allele that reduces the reuptake of serotonin was associated with impulsive behavior (regardless of socioeconomic status). It seems that different alleles carry risks for different psychopathic traits and forms of aggression^[288]. However, it is also important to consider that dividing variants of the 5-HTTLPR polymorphism into L and S alleles is too simplistic. In newer studies, the L allele is often divided into L_A and L_G alleles, and it is assumed that psychopathy is associated

specifically with the L_A allele. In addition, there are conflicting results, indicating the need for further investigation of the issue [\[289\]\[290\]\[285\]\[287\]](#).

Finally, it should be noted that the high heritability and significant role of genetic factors in violent and antisocial behavior indicate that gene therapy (e.g., targeting the MAOA gene) is a promising tool for its treatment [\[291\]](#).



4. How dopamine is linked to aggression and psychopathy

Studies show that impulsive aggression can be explained by a dysfunctional interaction between the serotonergic and dopamine systems in the prefrontal cortex of the brain. And it is serotonin hypofunction that predisposes a person to impulsive aggression, while dopamine hyperfunction aggravates this condition [\[292\]\[293\]](#). Serotonin is known to inhibit the activity of dopamine, meaning low serotonin levels can lead to an overabundance of it. Serotonin inhibits impulsive behavior, while dopamine promotes it by decreasing emotional regulation [\[294\]\[295\]](#).

Also, studies show that **psychopathy (and its primary and secondary factors alone) is strongly associated with simultaneously elevated levels of the dopamine metabolite HVA and reduced levels of the serotonin metabolite 5-HIAA in the cerebrospinal fluid**. A high HVA:5-HIAA ratio indicates impaired serotonergic modulation of dopamine activity. It is suggested that dopamine-modulating drugs, in combination with serotonin reuptake inhibitors, may potentially be effective treatments for psychopathy [\[296\]\[297\]\[298\]](#).

Impulse disorders such as pyromania and kleptomania are associated with the release of extra dopamine, and this can cause a person to become addicted to certain criminal activities over time. Similarly, this can work with serial killers, who seek the “ultimate thrill”^{[299][300]}.

5. How oxytocin affects behavior and the issue of parochial altruism

Oxytocin is a hormone that plays a crucial role in prosocial behaviors such as trust-building, pair bonding, and mothering^{[301][302][303]}. In intragroup relationships, oxytocin contributes to the establishment of altruism, uniting and coordinating the actions of individual members of the group. However, in the case of intergroup interactions, this is thought only to increase aggressiveness, as a cohesive group is willing to fight outsiders more fiercely. The emergence of wars between different groups of people is often explained by this phenomenon called parochial altruism^{[160][161][162]}.

At first glance, parochial altruism seems to contradict the theory of the violence inhibition mechanism. However, one study shows that this phenomenon only explains defensive aggression when there is an imminent threat from competing groups but is not necessarily associated with offensive aggression toward them^[162]. Also, we will see that there is no contradiction at all if we look at how the two mechanisms interact at the neurophysiological level. The serotonergic system, including 5-HT_{1A} and 5-HT_{1B} receptors, is involved in the regulation of oxytocin secretion^[304]. And in one experiment, it was shown that administration of an oxytocin receptor antagonist (a drug that blocks it) to mice only partially prevented the prosocial effect of subsequent administration of a 5-HT_{1A} agonist but did not influence its anti-aggressive effect in any way^[305].

It can be concluded that the regulation of aggression and stimulation of prosocial behavior, although significantly overlapping, are still different functions for which different neurophysiological mechanisms are responsible. Therefore, there should not necessarily be a contradiction between the theory of the violence inhibition mechanism and the parochial altruism hypothesis^{[162][Author's note]}.

6. How the pro-aggressive effect of testosterone is restrained

One study investigated the hypothesis that the male sex hormone testosterone causes pro-aggressive effects through inhibition of serotonergic activity and disproved it. In addition, serotonin has been found to reduce testosterone-induced aggression. This occurs in brain regions such as the medial amygdala, the hypothalamus, the prefrontal cortex, and the lateral septum, which are known to be involved in the regulation of aggression and where a high density of both sex steroid receptors and serotonergic nerve terminals is observed^[306].

This effect caused by the serotonergic system is obviously necessary to restrain aggression so that it does not cease to be an adaptive and functional behavior. And since testosterone does not disrupt its function, it cannot be the cause of uninhibited aggression. Of course, it increases aggressiveness, but only under natural inhibitory control^[Author's note].

There are also claims that testosterone alone is associated with dominant rather than aggressive behavior. Its high levels are common among successful athletes and businessmen. Nevertheless, they are not more aggressive than their counterparts with lower testosterone levels. However, people may experience frustration when their dominant intentions cannot be implemented in practice. In this case,

they may become aggressive towards others. But an important prerequisite for such a reaction is reduced serotonin levels in the central nervous system^[307].

7. What approaches to the treatment of aggressive behavior are ineffective

Dopamine receptor antagonists (the drugs that block them), such as chlorpromazine and haloperidol, are widely used in the treatment of aggressive patients, especially those with psychotic disorders. However, their effect is sedative, and they impair defensive behavior in animals. Such side effects limit their usefulness in the treatment of aggressive behavior. The use of barbiturates and benzodiazepines that affect GABA inhibitory neurotransmission faces the same problems. Beta-blockers such as propranolol and nadolol are effective in patients with organic brain syndromes and chronic psychosis, but they can also lead to side effects. Selective serotonin reuptake inhibitors (SSRIs) effectively reduce aggressiveness in patients with personality disorders, but they lead to unwanted side effects. Finally, agonists and antagonists of 5-HT₂ receptors are also able to reduce aggressiveness; however, the former lead to side effects, and the latter are still poorly studied^{[308][309][310][196][205][311]}.

Psychotherapeutic approaches have demonstrated the possibility of significant decreases in psychopathic tendencies and increases in affective (emotional) empathy. However, in some of their forms, particularly those aimed at restraining aggression by improving self-control, there is a risk that the problem will only worsen as the patient learns to commit acts of violence more effectively and thoughtfully. In addition, psychotherapy for such a severe disorder as psychopathy is too time-consuming; the number of therapeutic sessions required can reach dozens, and the entire process can last up to several years. It is worth highlighting the assumption that psychotherapy can be effective in dealing with violent youth and school bullies with high levels of psychopathy, but only at the most intensive level of intervention (at least four sessions per week for a year). Also, psychotherapy alone, without additional administration of medications, may not be effective in the case of alcoholics who are violent toward their spouses or significant others^{[312][313][314][315][198]}.

Considering all this, 5-HT_{1A} and 5-HT_{1B} agonists are the most promising drugs in the treatment of aggressive behavior because they have minimal or no side effects. This opinion is also shared by some researchers who support the idea that such anti-aggressive agents (or so-called “serenics”) should be developed^[316]. They claim that “modern research suggests that aggressive behavior should be studied as a separate functional disorder” and “it is hoped that new insights into the neurobiology of aggression will reveal novel avenues for treatment of this destructive and costly behavior”^{[317][318]}. It has also been suggested that violent and antisocial behavior can be treated with gene therapy targeting genes associated with the functioning of the serotonergic system of the brain (e.g., the MAOA gene)^[291].

V. The solution to the problem of violence

With a direction for developing therapies aimed at treating the dysfunction of the violence inhibition mechanism, we can make concrete proposals and consider how they can be implemented. It will also be important to look at what social changes the widespread practice of such therapies might lead to and why we need it at all.

In order to prevent some misunderstandings, we should note that **there is no question of changing the nature of a human being**. Here, we consider only the question of treating a specific disorder and enhancing the neurophysiological functions already present in humans.

This Chapter largely demonstrates the author's ideas. Before reading it, it is important to familiarize yourself with the previous chapters in order to understand the ideas presented here.

1. The solution to the problem of violence and in what forms it can be implemented

Considering all the available evidence, the most obvious solution for the treatment of violent behavior is the development of a **pharmacological drug** based on such an agonist of 5-HT_{1A} and/or 5-HT_{1B} receptors that will have the most selective effect, activating the violence inhibitor without causing side effects and without affecting other behaviors. This drug can be used in the treatment of patients suffering from increased aggressiveness. It can also be administered to violent offenders as an alternative to imprisonment or other forms of punishment and correction. Perhaps it may even be effective in the treatment of psychopathy.

Another option is to create a **gene therapy drug**. The best-known example of gene therapy is the treatment of spinal muscular atrophy in children with the drug Zolgensma, which provides a healthy copy of the SMN1 gene^[319]. Also, the possibility of gene therapy for neurological and neuropsychiatric disorders with a genetic origin is being actively studied^[320]. It has even been suggested to use gene therapy targeting the MAOA gene to treat violent and antisocial behavior^[291].

An excellent example of the effectiveness of gene therapy is a trial to treat one serious genetic disorder that leads to a lack of key neurotransmitters (dopamine and serotonin) and causes severe developmental disability and lifelong motor, behavioral, and mental disturbances. During experimental treatment, seven patients aged 4 to 9 years got rid of seizures and began to try to speak and smile, and two of them were even able to walk with assistance, which was previously considered absolutely impossible for such a diagnosis^[321].

Currently, the most promising solution in brain gene therapy is the use of adeno-associated viral vectors as a deliverer of the correct gene variant to the necessary nervous system cells^[322]. And such therapy can even be created in the form of a nasal spray^[323]. An alternative proposal is to use a combination of the technologies CRISPR/Cas9, which allows the replacement of some DNA sequences with others, and iPSC, which involves the creation and application of artificial stem cells^[291].

Of course, gene therapy is still too expensive, but in the future, it may become very affordable, as it was with many other technologies in the past. Now, the main part of the cost of any gene therapy drug is the cost of its development. However, the cost of creating each subsequent dose in mass

production should decrease. It is unlikely that, in this case, the cost of the drug will be higher than the cost of vector vaccines. This can be proved by cases when biohackers independently developed gene therapy drugs by simply following instructions from existing animal studies^[324].

We now need to consider **methods for diagnosing the dysfunction of the violence inhibition mechanism**. A common approach is screening for psychopathic tendencies by professional psychologists and psychiatrists using an instrument such as Robert Hare's "Psychopathy Checklist" (PCL-R)^[325]. An electrophysiological study of the violence inhibitor has shown that certain amplitudes may provide useful markers for detecting impairments in its function^{[11][326]}. The creation of portable DNA testing platforms is also possible^[327]. They could be very useful in diagnosing genetic predispositions to violence inhibitor dysfunction. In addition, it is possible to create automated tools for the preliminary detection of psychopathic tendencies when analyzing an individual's behavior. For example, one could use findings from research claiming that, when participating in an interview, individuals with high levels of psychopathy exhibit more stationary head positions, focused directly towards the camera or interviewer^{[328][329]}. It may also be possible to create an AI solution that assesses an individual's risk of psychopathy by a variety of physiological indicators that are associated with it, such as less tendency to "contagious" yawning, lower levels of respiratory sinus arrhythmia (heart rate changes in response to respiration), reduced heart rate in a calm state, and others^{[330][331][332]}. Current research also shows the possibility of using AI solutions to assess people's personality traits and moral values based on their facial emotional reactions. This approach has an accuracy of up to 86% for each trait and value of a particular individual^[333]. Finally, psychopaths' speech has a number of lexical, syntactic, grammatical, and structural features that reflect their mental state, which can also be used to assess it^[334].

Even children could be tested for violence inhibitor dysfunction, given that signs of callous-unemotional traits can be identified from the age of 2 years old^[259]. That small percentage of them with dysfunction, after just a short course of therapy or even a single injection, will undergo healthy socialization and be free of the risk of becoming violent individuals for life. The problem of violence will eventually be solved long before it occurs. Society will come closer to achieving a **free and non-violent order**, where there is no place for either private violence or violence as a method of governing society.

Another potential solution concerns the **defense sector**. Technically, it should be possible to create a drug that can be sprayed in the air or even based on a self-replicating viral vector that can be transmitted from individual to individual. At the moment, a similar concept is already being used in attempts to create so-called "contagious" vaccines. Such a vaccine was once successfully applied to the rabbit population in the fight against two viral diseases^{[335][336]}. Perhaps, based on the current knowledge of the violence inhibition mechanism, it is quite realistic to develop a psychochemical non-lethal solution that will be the most humane version of a strategic defensive weapon. It can be applied to a hostile army in the event of an attack to enhance the function of the violence inhibitor in its soldiers, resulting in a drastic reduction in its combat effectiveness. In view of the rapid decrease in the cost of biotechnologies, this solution may become available even to small countries that previously could not afford any serious weapons. For societies that have eradicated violence, it could become the primary weapon of deterrence against external threats. Finally, it can be used **against terrorist groups** stationed in a specific, limited area.

We should understand that the actual application of such a psychochemical solution is extremely risky and **should be avoided**, limited only to its demonstration to deter potential aggressors from attacking. Though, in general, this is still a much more humane type of weapon than the already existing chemical, biological, or nuclear weapons.



2. Stages of violence eradication and its social consequences

The process of eradicating violence through therapeutic correction and enhancing the function of the violence inhibition mechanism in a minority of people with its deficiency and psychopathic tendencies will lead to a number of changes in society. And it is very important to list these changes so that no one doubts the need to eradicate violence.

Obviously, a positive and undeniable consequence of this process is the **elimination of violent recidivism**, as violent offenders will be forced into therapy. This, together with the treatment of aggressive patients in medical institutions, are the very first areas in which such therapy should be applied. Even within the current social system, without the need to change it drastically, such an idea can be accepted as potentially the fastest, easiest, cheapest, and most effective way to solve relevant problems. This is the **first stage** that will demonstrate to the general public and popularize anti-violence therapy.

The **second stage** involves the widespread practice of testing violence inhibitor function in people. Currently, researchers studying the problem of corporate psychopathy suggest that companies could screen potential employees for psychopathic tendencies^[61]. And such a practice could be used in many spheres of human activity. Certainly, individuals with violence inhibitor dysfunction should be offered therapy as an opportunity to avoid any sanctions against them. Also, such therapy could be applied to children who exhibit callous-unemotional traits, which would prevent them from becoming violent and psychopathic individuals.

A controversial point is the potential abuse of such an approach by governments. At first glance, by reducing the level of violence in society, they can selectively increase their violent potential by not applying such therapy to some of their agents. However, in reality, the result will be the opposite. Governments recruit enforcers from society, and the lower the overall level of violence, the lower their

ability to do this (let's keep in mind that states are even intentionally selecting psychopaths for special forces, which would be impossible to do if there were no psychopaths in society)^[111].

Ultimately, the following results can be expected:

– Governments will stop using violence to maintain social order. They will have to replace it with other methods, such as reputational and financial sanctions applied to citizens who violate social norms. Thus, a **free and non-violent society** will be achieved, and the institution of statehood will either undergo radical changes, especially in terms of methods of conducting its activities, or be replaced by something more suitable to a free society;

– **Unleashing military conflicts will become simply impossible** because a non-violent society will not tolerate this, and no one in it will be ready to participate in military attacks.

Another point of contention concerns the ability of non-violent individuals and societies to defend themselves against violent threats, and how non-violent people can achieve a free society under the oppression of authoritarian regimes. But there is nothing to worry about:

– It must be remembered that **defensive aggression or self-defense** in the presence of an immediate threat to life is a natural form of behavior, and the violence inhibition mechanism suppresses only offensive aggression^{[8][206]};

– The therapeutic eradication of violence will not be an instant process, creating a completely pacifist society surrounded by potential aggressors. It will take time, during which it can begin to spread around the world, leading to a gradual, multi-generational eradication of violence worldwide. International practice in eradicating violence will be the **third stage** of this process;

– A free and non-violent society is able to protect itself from external threats with the help of modern weapons of deterrence, simply making itself an **unprofitable victim**. One of the options for such a weapon could be a drug for enhancing the function of the violence inhibitor that works on the principle of a “contagious” vaccine^[336]. Of course, the actual application of such a biological solution is extremely risky and should be avoided by using it solely as a deterrent. However, this is still a much more humane type of weapon than the already existing chemical, biological, or nuclear weapons;

– Many potential problems can be solved if biotechnology becomes cheaper and easily produced, distributed, and remote tools to affect violent and psychopathic individuals (e.g., drugs sprayed in the air, including genotherapeutic agents) are developed. The existence of such tools could greatly assist in protecting people from various forms of violent assaults, including even systemic ones. And it is worth noting that biohackers are already demonstrating even the possibility of creating cheap gene therapy drugs^[324].

Finally, it is worth noting that in the modern high-tech world, there is a risk of using the achievements of scientific and technological progress for violent purposes, including the use of weapons of mass destruction to cause “ultimate harm.” And the matter is not limited to nuclear weapons. The threat of bioterrorism using pathogens created in “basement labs” is already quite real, and it is not known what other threats await us in the future. In turn, eradicating violence and psychopathy will drastically reduce such risk. It may even help to **avoid the potential self-destruction of humanity**^[337].

It will also prevent another undesirable scenario of **global totalitarianism**. The problem of causing ultimate harm may seem unsolvable without total surveillance. Moreover, individuals with a desire for power may use modern technology to brainwash the population, making future totalitarianism more

resilient than any of its historical examples. For example, they may resort to the idea from military research of chemically stimulating people to trust and cooperate with authorities by using sprayed drugs^[338]. But all this is preventable by the practice of “moral bioenhancement,” which can be implemented in the form of mandatory therapy for violent and psychopathic individuals^{[337][339]}.



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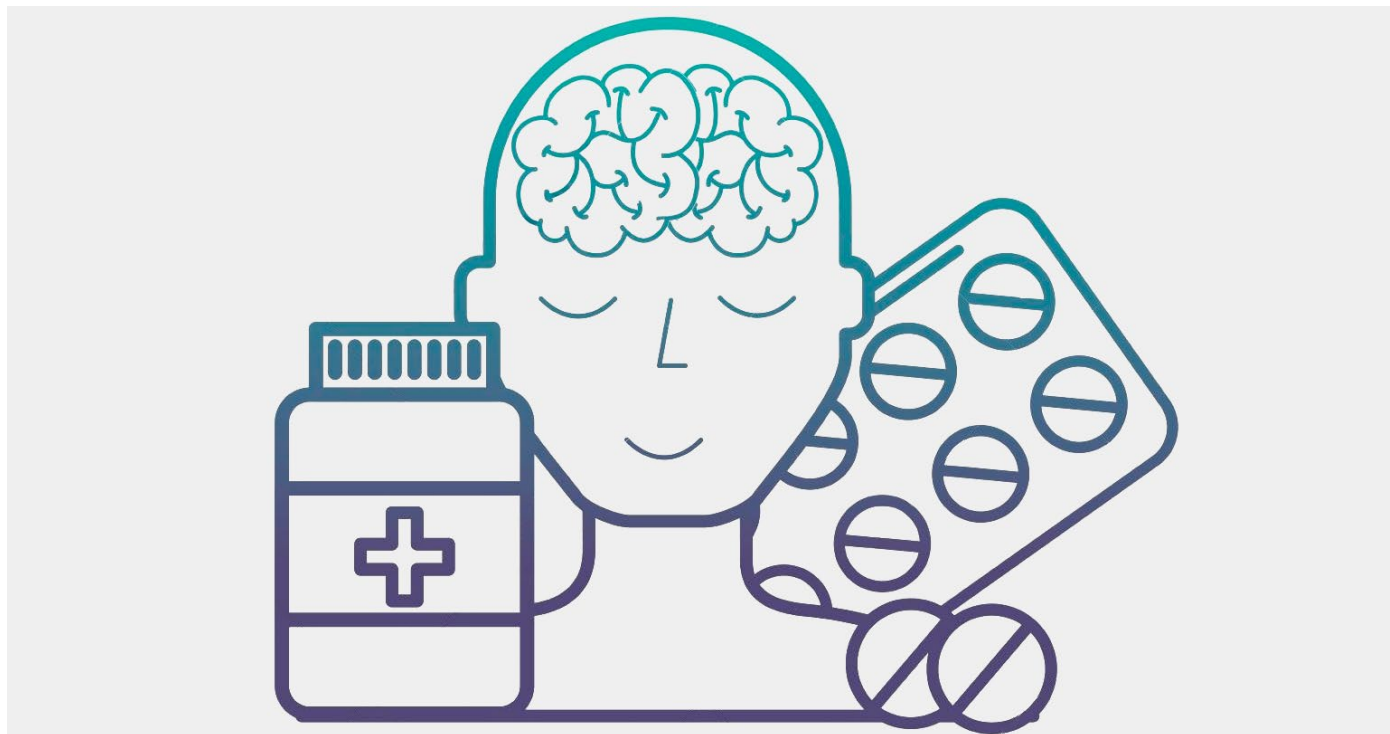
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Potentially effective treatment of violent behavior in humans



Violent behavior, including different forms of abuse and physical attacks, is a huge problem in human relationships. However, relying on simple persuasion or even behavioral psychotherapy can often be ineffective or overly demanding approaches. Therefore, it is crucial to consider a potentially faster and more effective approach that involves treating violent behavior with medications.

It is known that humans have a violence inhibition mechanism, which causes them to experience an aversive reaction to harming other people. The serotonergic system of the brain is responsible for this mechanism and the regulation of aggression in general^{[1][2]}. Therefore, it is reasonable to conclude that the most effective treatment of violent behavior should focus on restoring its healthy functioning. And now, we will look at a number of medications that can help people who are prone to committing violence.

Before considering more serious pharmacological solutions, we should look into the use of common bioactive supplements or natural remedies. For example, tryptophan, a serotonin precursor, may be a good option. The recommended dosage ranges from 500 milligrams to 5 grams per day^[3]. In experiments on animals, tryptophan had a selective anti-aggressive effect^{[4][5]}. And in some human trials, it reduced aggressiveness and hostility and increased trust and generosity^{[6][7][8][9][10]}. Other supplements that affect serotonergic function, such as 5-HTP (reduced aggression in animal experiments), inositol (reduced hostility in humans), S-adenosylmethionine (reduced aggression in patients with schizophrenia), etc., may also be potentially useful^{[11][12][13]}.

Mixtures of herbal extracts like Kamishoyosan (also known as Jia Wei Xiao Yao San in Chinese) and Yokukansan (or even just its specific ingredient, *Uncaria rhynchophylla* extract), as shown in animal studies, may have a selective anti-aggressive effect by affecting the serotonergic system^{[14][15]}. A mixture of extracts called Si Ni San with a similar effect is able to reduce aggression resulting from stress^{[16][17]}. In addition, it is worth considering that other natural remedies (saffron, rosemary, matcha) can affect the serotonergic system in a similar way^{[18][19][20]}.

Based on numerous animal experiments and limited human trials, it is believed that drugs activating specific receptors (1A and 1B) of the serotonergic system should be very effective and selective (with no side effects and no disruption of any behaviors other than offensive aggression)^{[21][22]}. Such agents include the previously mentioned mixtures of herbal extracts. Among the widely available drugs with this mechanism of action are triptans, commonly used against migraine. Particularly noteworthy is zolmitriptan, which was successful in reducing aggression in mice and attenuating alcohol-heightened aggression in humans (using 5 milligrams of the medication)^{[23][24]}. Researchers have also proposed testing triptans, specifically a 4-week course of naratriptan, on violent offenders^[25].

We should not overlook the use of classic antidepressants, selective serotonin reuptake inhibitors (SSRIs), which lead to a general increase of serotonin in the brain. Although taking them is associated with a risk of unwanted side effects, researchers have tested these drugs more than others for their anti-aggressive effect when administered to humans^[26]. For example, individuals with personality disorders who take fluoxetine are 4 times less likely to engage in aggressive behavior than those who do not take SSRIs^[27]. A daily intake of 20–60 milligrams of fluoxetine can reduce aggressiveness to a certain extent after 4 weeks, and after 10 weeks, there are significant improvements^[28]. In laboratory tests, a single dose of 40 milligrams of paroxetine successfully eliminated aggression associated with primary psychopathy (the typical traits of which are callousness and lack of empathy; these traits are strongly associated with violence inhibitor dysfunction). And it was found that this did not result from sedative or anxiolytic effects. Researchers believe that primary psychopathy is related to dysfunction of the serotonergic system of the brain^[29]. Taking 30–40 milligrams of fluoxetine daily for 12 weeks significantly reduced the propensity for both physical and nonphysical aggression in people with alcoholism who were violent toward their spouses or significant others^[30]. Taking 100 milligrams of sertraline daily for 3 months has also proven to be an effective approach in correcting the behavior of violent repeat offenders^[31]. Finally, it should not be overlooked that in several experiments, citalopram improved the ability of participants to recognize facial expressions of fear (and recognizing such distress cues from other people is important in the functioning of the violence inhibitor), increased their generosity, and made them more likely to choose to avoid hurting people in certain types of moral dilemmas (indicating increased harm inhibition)^{[32][33][34][35]}.

Among SSRIs, vortioxetine (most commonly sold under the brand names Brintellix and Trintellix) is particularly noteworthy. Although, due to its novelty, it has not yet been widely tested for its anti-aggressive effect (however, there are already studies on single patients), because of its multimodal mechanism of action, including action on serotonin 1A and 1B receptors, this drug is considered to have a great potential in the treatment of pathological expressions of aggression and to be safer and more effective than other SSRIs^{[36][37][38][39]}.

Some drugs similar to SSRIs may also have anti-aggressive effects. For example, in several trials, trazodone in dosages of 75 mg or more daily effectively reduced aggressiveness in children with disruptive behavior, and serious side effects were rarely observed^{[40][41]}. Also worth considering is amitriptyline, which can eliminate aggressiveness in animals (without causing side effects or interfering with sex drive), as well as in children with behavioral disorders (although, in their case, frequent dosage changes are necessary due to the risk of side effects)^{[42][43][44]}.

Multiple studies have found that “omega-3” supplementation can moderately reduce both reactive (impulsive) and proactive (instrumental) aggression. The effect is up to 30% in different populations and may be related to improvements in the functioning of the violence inhibition mechanism^{[45][46]}.

The therapeutic potential of psilocybin is also currently being researched. Although it is illegal in many countries, in various experiments, even a single administration of psilocybin has been shown to have a strong and long-lasting empathic effect. Not only that, but it can even reduce an individual's

predisposition to authoritarian political views, and any experience using it has been shown in large studies based on data on hundreds of thousands of people to significantly reduce the risk of committing violent crimes, including homicide, rape, and intimate partner violence. Some researchers have suggested that psilocybin should be used in the treatment of psychopathy^{[47][48][49][50][51][52][53]}.

In addition to all of the above, it is not unreasonable to consider such an approach to the treatment of violent behavior as inhalation of essential oil vapors. These often contain linalool, which acts on serotonin 1A receptors and has been shown to have an anti-aggressive effect in animal experiments^{[54][55][56]}. Many essential oils (bitter orange, neroli, petitgrain, rose, lavender, citronella, lemon, geranium, etc.) have substances with similar mechanisms of action (including the already mentioned linalool, as well as d-limonene, citronellol, geraniol, β -pinene, etc.)^{[57][58][59][60][61][62][63][64]}. It is also worth noting that essential oils have been shown to be effective in reducing aggressiveness in people with cognitive impairment^[65].

Taking probiotics can be potentially beneficial (these include Bifidobacterium breve and longum, Lactobacillus plantarum, lactis, and rhamnosus). They can increase tryptophan and serotonin levels in the organism, as well as influence the serotonergic system of the brain through the gut-brain axis^{[66][67][68][69][70][71]}. The possibility of using them for the treatment of violent behavior is already being researched^[72].

When using any of these medications, it is important to carefully select dosages and take into account possible side effects. If any of them are present, it is necessary to stop taking the medication that caused them immediately!

Medications for anti-violence therapy

Here is a list of medications that research has shown to have potential in the treatment of violent behavior. They were mostly selected based on the fact that the **serotonergic system of the brain** plays a key role in the regulation of aggression and is responsible for the **violence inhibition mechanism** in humans, which means that such treatment should be aimed at restoring and enhancing its function.



Tryptophan is a bioactive supplement that promotes the production of **serotonin**. The recommended dosage ranges from 500 mg to 5 g per day. In animal experiments, it reduced aggressiveness without causing side effects. And in humans, in addition to this effect, it reduced hostility and increased trust and generosity. Other supplements that affect **serotonergic function** (5-HTP, inositol, S-adenosylmethionine (S-AMe), etc.) can potentially be useful as well.



Many studies have shown that "**omega-3**" supplementation can moderately reduce both reactive (impulsive) and proactive (instrumental) aggression. The effect is up to 30% in different populations and may be related to improvements in the functioning of the **violence inhibition mechanism**.



Mixtures of herbal extracts such as **Kamishoyosan** (also known as **Jia Wei Xiao Yao San**) and **Yokukansan** (or even just its ingredient, **Uncaria rhynchophylla**) in animal experiments had a **selective anti-aggressive effect** through **activation of serotonin 1A receptors**. A mixture of extracts **Si Ni San** can also reduce aggression. It should be noted that other natural remedies (saffron, rosemary, matcha tea) may affect the **serotonergic system of the brain** in a similar way.



Many **essential oils** (bitter orange, neroli, petitgrain, rose, lavender, citronella, lemon, geranium, etc.) contain various substances that **activate serotonin 1A receptors**. In animal experiments, inhalation of their vapors reduced aggressiveness (especially a substance called **linalool** was researched). Also, essential oils have been shown to be effective in reducing aggressiveness in people with cognitive impairment.



In experiments, **zolmitriptan** was successful in reducing aggression in mice and attenuating alcohol-heightened aggression in humans (at 5 mg dosage). **Triptans** were also once proposed for testing on violent offenders (a 4-week course of therapy was suggested). These medications **activate serotonin 1A and 1B receptors**, which is a highly safe and selective approach that has already been extensively researched in the treatment of violence.



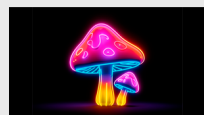
SSRIs, although they can have unwanted side effects, have been tested on humans the most. In one trial, taking 40 mg of **paroxetine** eliminated aggression associated with psychopathy (and it was definitely not a sedative effect). Taking 20–60 mg of **fluoxetine** daily for 3 months effectively treated aggressiveness, including in alcoholics who were violent toward their close ones, and taking 100 mg of **sertraline** was effective in treating violent repeat offenders.



Researchers believe that **vortioxetine** (known under the brand names **Brintellix** and **Trintellix**) should be a very effective anti-aggressive agent. Besides increasing **serotonin** levels, it also **activates serotonin 1A and 1B receptors**. And according to a number of studies, vortioxetine should be **safer and more effective** than other SSRIs because of its multimodal mechanism of action.



Other medications similar to SSRIs can also have an anti-aggressive effect. For example, a daily intake of 75 mg of **trazodone** after 7–10 days began to significantly reduce aggressiveness in children with disruptive behavior without significant side effects. Similar results in animal and human experiments have been shown by taking **amitriptyline** in various dosages.



Psilocybin, which **activates serotonin 1A and 2A receptors**, although currently illegal in many countries, is being actively researched for its therapeutic potential. Even its single administration has a strong and long-lasting empathic effect. In addition, psilocybin consumption is associated with a significantly reduced propensity to commit violence and has been suggested by researchers for the treatment of psychopathy.



Potentially beneficial, especially in terms of long-term effects, can be **probiotics** (these include **Bifidobacterium breve** and **longum**, **Lactobacillus plantarum**, **lactis**, and **rhamnosus**; complexes with several probiotics at once may be worth considering). They can increase **tryptophan** and **serotonin** levels in the organism, as well as influence the **serotonergic system of the brain** through the gut-brain axis.

Caution: when using any of these medications, it is important to carefully select dosages and take into account possible side effects. If any of them are present, it is necessary to stop taking the medication that caused them immediately!

All references to research, as well as other information regarding the problem of violence, can be found on the website **ANTIVIOLENCE.IO**

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Therapy for aggressive behavior in pets



Pet owners can sometimes encounter overly aggressive behavior from their pets. And it would be good if this problem were always solved by training or other mild methods of behavior correction. However, there are also such severe and untreatable cases that one may consider abandoning the pet or even resorting to euthanasia. Of course, one should not rush with such a decision because if the situation is so bad, there is no reason not to try another option, which is to restore the normal functioning of the “violence inhibitor” with the help of medications.

It is known that the main regulator of aggressive behavior in animals is the serotonergic system of the brain (the same is true for humans, in which case it is also called a violence inhibition mechanism). The disruptions in its function lead to pathological expressions of aggression, and enhancing its function has an anti-aggressive effect^[1]. Accordingly, it is necessary to look toward agents that positively affect the function of this system.

You can start by using supplements with tryptophan, a precursor to serotonin. This is a highly safe approach in terms of side effects and risk of overdose. In one study, daily supplementation with approximately 5–7 milligrams of tryptophan per kilogram of animal weight in dogs' diets resulted in a significant reduction in their aggressiveness after just one week^[2].

Natural remedies that target specific receptors of the serotonergic system should also be safe. In laboratory experiments on mice, the herbal extract mixture Kamishoyosan (also known as Jia Wei Xiao Yao San in Chinese) has shown promising results. Its daily administration in a dosage of 100 milligrams per kilogram of weight should have an anti-aggressive effect. The Yokukansan herbal extract mixture, or even its single component, Uncaria rhynchophylla extract, should also be effective. Daily administration of 0.5–1 g/kg of Yokukansan or 75–150 mg/kg of Uncaria rhynchophylla extract should be sufficient^{[3][4]}.

If natural remedies do not have the desired effect, you can consider more serious options. Start with triptans, commonly used against migraine. Especially worth mentioning is zolmitriptan, which

demonstrated an excellent anti-aggressive effect in laboratory experiments on mice as well as high safety of administration, including to dogs^{[5][6]}. You can start with a dosage of 1 mg/kg per day. However, given the safety of the drug, we will not exclude the possibility of increasing this dosage if necessary.

Selective serotonin reuptake inhibitors (SSRIs), which are classical antidepressants, are also effective. As one study shows, in the case of aggressive dogs of various breeds, fluoxetine (Prozac) may be a good option. Its daily administration at a dosage of 1.5 mg/kg resulted in a significant anti-aggressive effect a month after the start of therapy, and six months later, there was practically nothing left of the previous aggressiveness. At the same time, no toxic effects were observed during the experiment^[7]. Another study on the administration of fluoxetine to dogs at a dosage of 1 mg/kg per day also demonstrated the presence of a significant anti-aggressive effect as early as 3 weeks after the start of therapy^[8]. A similar approach can be used in aggressive cats: daily administration of fluoxetine at a dosage of up to 1.5 mg/kg^[9].

Amitriptyline, which is similar to SSRIs, is also worth mentioning. In one experiment, it was administered to an aggressive cat, initially in a dosage of 3 mg, then due to insufficient effect, it was increased to 6 mg, but to avoid side effects, it was gradually reduced to 1.5 mg afterward. As a result, the aggressive behavior disappeared. It was also shown in experiments on mice that amitriptyline can be used to reduce aggressiveness without causing sedation or interfering with sex drive^[10].

Of course, SSRIs are known for causing unwanted side effects. They are also not recommended for use if the pet has specific health problems, such as seizures. Therefore, instead of using SSRIs, which lead to a general increase of serotonin levels in the brain, it is worth trying agents that affect specific receptors (1A and 1B) of the serotonergic system, such as the previously mentioned herbal extracts or triptans. Although such drugs have so far been tested for an anti-aggressive effect only on laboratory animals (mice and rats), the result, which is the elimination of offensive aggression without causing any side effects, is impressive.

When administering any of the mentioned medications, it is important to ensure that the pet takes the full dosage. Animals may refuse to eat food containing some drugs due to the bitter taste or specific odor. It is advisable to put the drug in a large amount of food to reduce discomfort for the animal. **But it is also necessary to make sure that there is no overdose, which, in the case of some drugs (especially SSRIs), can be dangerous for the pet's health. And in case of side effects, you should immediately stop using the drug that caused them and consider other options!**

We hope this material will help you solve the problem of aggressive pet behavior if it occurs. At the very least, it is definitely worth trying the approach suggested here if there are no alternatives left because it may be the one that will work best in your case.

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The theory of moral nativism and moral intuitions



Moral nativism is a theory that responds to the question of where moral intuitions, moral judgments, and other important elements of moral psychology come from, with the answer that they are, to some extent, innate and have developed as a result of human biological evolution^[1]. Moral nativism relies on a two-step argument. The first argument is that the mind contains a moral grammar: a complex system of principles, rules, and conceptual building blocks that generates and relates the various mental representations upon which moral intuitions depend. The second argument is that at least some core attributes of this moral grammar are innate and do not rest solely on experience but rather derive “from the original hand of nature.” Cultural factors clearly have an influence on moral development; nevertheless, a significant body of evidence suggests that **at least some aspects of moral cognition are innate**.

What evidence do we have for moral nativism? Darwin, de Waal, Kropotkin, and other biologists have noted that **empathic and altruistic behaviors appear to have deep evolutionary origins**. Rats experience distress when exposed to the screams of other rats, and they will perform altruistic acts to protect other rats from harm. Great apes react with palpable grief to the death or disappearance of those to whom they are attached; in addition, they often seek to console the victims of an attack. Human babies cry more in response to the cries of other babies than they do to comparable, computer-generated noises or even to tape recordings of their own crying, implying that “they are responding to their awareness of someone else's pain, not merely to a certain pitch of sound.” Human children also appear to be biologically predisposed to recognize and comfort others who are experiencing emotional distress. More broadly, young children are predisposed to help others achieve their goals, to share valuable resources with them, and to provide them with helpful information. Also, clinical and experimental studies have confirmed that distinct brain regions underpin moral cognition and that damage to these areas can lead to moral judgment deficits while leaving other cognitive functions unimpaired.

We can also refer to norms that are universal to all societies. A study of hundreds of jurisdictions shows that the prohibition of homicide appears to be both universal and highly invariant. All of the known justifications and excuses for homicide appear to consist of a relatively short list of familiar defenses. Moreover, the attitude specifically towards intentional homicide is even stricter. And a study of ten cultures from different parts of the world, including rural, urban, and even nomadic populations, shows that battery, rape, theft, defamation, and perjury are judged as wrongful (that is, “bad” or “extremely bad”) acts by about 95% of people.

Finally, we should also mention the theory of the violence inhibition mechanism, according to which many animal species and humans have strong restraints against harming conspecifics^{[2][3]}. In animals, these restraints are often expressed by the ritualization of fights. In humans, they consist of unconditioned (innate) and conditioned (acquired during socialization) reflexes, primarily causing an aversive reaction and inner resistance to observing the suffering of other people and committing aggressive acts towards them. Many studies, including anthropological and military ones, confirm that the average and healthy individual has a strong inner resistance to harming others^{[4][5]}. And only a few dysfunctional individuals do not experience the slightest resistance even to committing murder; they are also called psychopaths.

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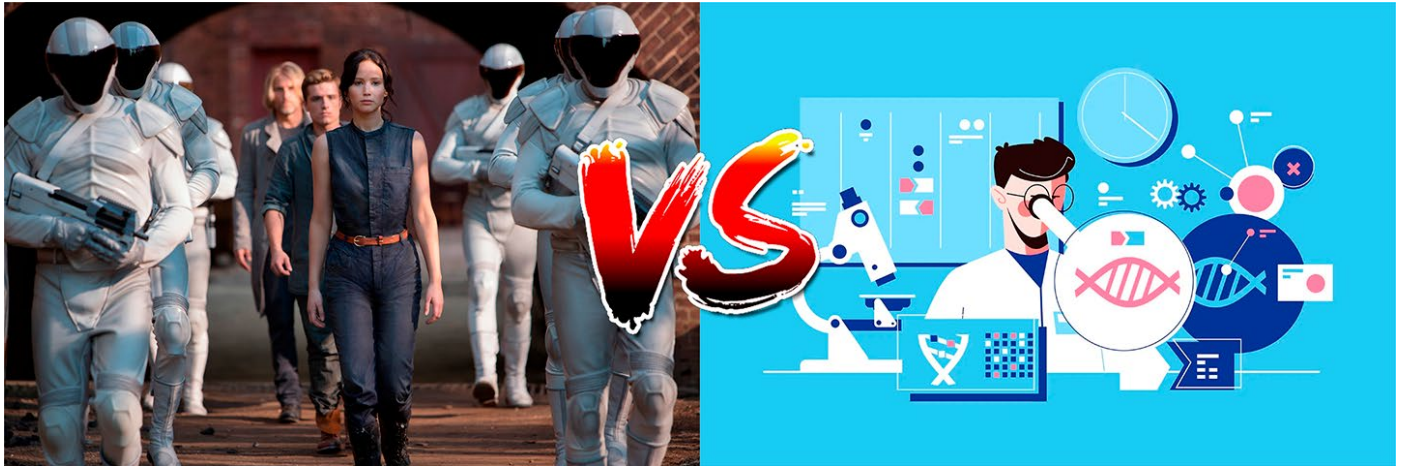
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Moral bioenhancement: the only alternative to global totalitarianism and the destruction of humanity



Many existential threats can stand in the way of humanity's long-term existence and prosperity: natural disasters, such as the eruption of a supervolcano or the fall of a huge asteroid; complex processes that are partially influenced by humans, such as climate change; or purely anthropogenic risks, such as the failure to cooperate in solving common problems, the overexploitation of shared natural resources (the tragedy of the commons), or the misuse of biotechnology to create and intentionally use deadly pathogens. These are existential threats that can annihilate all the values that humans have already created and that they and their descendants may create in the future. Therefore, they cannot be overlooked in moral philosophy in general and in bioethics in particular. As researchers have pointed out, **an existential catastrophe would result in a loss of values that has never before occurred in human history, so preventing and mitigating it is the most important imperative our species has ever faced**^{[1][2]}.

We can imagine the solution to preventing natural threats in the form of applying certain technologies that have already been created (we can recall NASA's asteroid orbit deflection test) or may be created in the future. But how are we going to deal with anthropogenic risks, i.e., the potentially catastrophic results of human actions? Let's look at this problem in more detail, relying on several studies and supplementing them with some other ideas and our own considerations.

Possible scenarios of existential catastrophe and other negative outcomes

There are many scenarios where existential threats can be created by a single individual or a small group of people (terrorist organizations, apocalyptic cults). With the advancement of technology, causing “ultimate harm” is becoming increasingly realistic. Particular attention should be paid to the problem of creating new pathogens in “basement labs” that can be easily hidden and moved.

An illustrative example of the accessibility of biological weapon creation is the scientific work published in 2018 by a group of Canadian researchers on recreating the causative agent of the horsepox virus, the closest relative of smallpox, which is one of the most deadly diseases in the history of humanity. The estimated cost of this project is approximately \$100,000. The researchers sought to create a new, even safer vaccine against smallpox. However, a significant part of the scientific community was critical of this study and accused the journal PLOS One of allowing the publication of work that could

help terrorists in the creation of bioweapons^[3]. In 2011, virologist Yoshihiro Kawaoka conducted experiments to create a flu vaccine. He was trying to recreate the strain of the virus that preceded the 2009–2010 epidemic to see how the virus had changed over the course of 4 years. As a result, he modified it so that it became resistant to human immunity. Of course, his work began to be criticized because humanity would be helpless if the virus leaked out of the lab^[4]. Also, in 2023, in California, an illegal medical lab that contained about 1,000 mice, hundreds of unknown chemicals, refrigerators and freezers, vials of biohazardous materials, including blood, incubators, and at least 20 infectious agents, including SARS-CoV-2, HIV, and the herpes virus, was shut down^[5]. This shows that covert experiments on dangerous pathogens by private subjects are implementable.

Indeed, the potential threats are not limited to this particular one. For example, there is a fear that in the near future, drones will become very cheap, and everyone will be able to buy them en masse or produce them in their basements, including for combat purposes. If they are made autonomous, operating according to a predetermined program without real-time control by an operator, this will make it safer for the people using them (who will be difficult to track) and impossible to stop them through the suppression of radio signals. Such a practice, if it becomes widely used by individuals and groups with violent intentions, would effectively make war a normal state of society, and the line between peace and war would be blurred^[6].

This problem seems unsolvable without drastically expanding surveillance and reducing individual freedoms, which would inevitably turn even fairly liberal states into totalitarian dictatorships. In addition, there is a claim that the risk of global catastrophes that are very distant in time, such as climate change, may require a high level of cooperation and unity of purpose among people that democratic and liberal societies cannot achieve because of the relaxed system of international deliberation and decision-making. This means that the totalitarian world has a better chance to cope with such threats if they and the methods of their solution are identified.

It should also be mentioned that future totalitarianism will be extremely resilient compared to any historical example. The development of the understanding of social and psychological mechanisms, as well as means of surveillance, up to and including the creation of molecular nanotechnology, will completely eliminate private space from the gaze of the state. Increasing longevity will help alleviate leadership succession crises; one will not be able to count on a dictator simply dying sooner or later. Also, the biotechnology of the future could be used in unethical ways to brainwash people. At least considerations in such a direction already exist. For example, one military study suggests using oxytocin (by spraying it into the air) for police and military purposes, including scenarios in which people who are protesting or rebelling against the authorities have to be stimulated to build trust and make agreements^[7]. Of course, the efficacy of such an idea is debatable, but we will not rule out the scenario that totalitarian regimes of the future will resort to similar practices that will work.

Finally, we should not forget such a phenomenon as the “tragedy of the commons.” If some resources are shared, such as the world ocean, the atmosphere, national parks, or pastures, some people will overexploit them because the costs of such behavior are distributed to all members of society instead of being passed entirely to those who engage in such exploitation. Furthermore, overexploitation by the current generation could potentially deprive future generations of these resources. Among the possible solutions to this problem are the following options, not all of which are good, but they were chosen because of the lack of alternatives: abandoning the very idea of common use of resources, including their complete transfer to private ownership (private and enclosed property will seldom be overexploited, as the losses will be paid by concrete people), limiting the birth rate, and making it mandatory for all users of a common resource to participate in a democratic process of coordinating their actions^{[8][9]}. But perhaps we should also look at the people themselves, who tend to overexploit resources, openly and intentionally ignoring the interests of others. Why would anyone, for example,

dump toxic waste into the environment when it is common knowledge that this can cause serious harm to the ecology and even the health of others? We will answer this question a little later.

The idea of moral bioenhancement and researchers' views on it

There can only be one alternative to global totalitarianism and the destruction of humanity: moral bioenhancement, which implies the use of biomedical technologies for the moral improvement of people. This procedure does not necessarily mean **changing the very nature of a human being**, which, as we will see a little later, **is simply unnecessary**. However, before that, it is important to note that many of the authors who promote this solution have proposed unreasonable practical implementations of it involving exactly such a change. Most likely, this happened due to unawareness or a lack of understanding of the violence inhibition mechanism theory, which states that the average and healthy individual has an inner resistance to harming other people and that only a minority of individuals with psychopathic tendencies do not have it^[10]. Also, they certainly did not follow the principle of permitting only the minimum necessary intervention to solve the problem, which we will follow in this article.

Ingmar Persson and Julian Savulescu focus too much on criticizing liberal states. Based on their inability to justify in front of society and implement a program of moral bioenhancement, these authors lean towards rather authoritarian positions, as noted by Vojin Rakic and Milan Cirkovic. However, their proposal to create on a voluntary basis some “morally enhanced post-persons” we cannot accept either. This approach will not help stop people who are capable of causing harm. Not only that, but these authors strongly emphasize that the decisions and actions of post-persons should be considered superior to those of ordinary people because of their higher moral status. This also seems like an authoritarian stance, especially considering that although they describe post-persons as not inclined to harm ordinary people, it is allowed in certain situations where post-persons would consider it the morally right thing to do. Also, allowing such a thing would contradict the presence of a biologically enhanced morality if we equate this morality with a strongly expressed and fully functioning violence inhibition mechanism.

In addition, the first two authors rely on the parochial altruism hypothesis, according to which, biologically, humans are only adapted to live in very small societies and, in more global terms, have rather weak morality. However, this view will only be partially true if we take into account the violence inhibitor theory, according to which aggression inhibitions are present at the level of intraspecies interactions, not only intragroup ones. The other two authors clearly distinguish between ordinary people and bioenhanced post-persons, suggesting that there is currently no single individual whose morality we can use as a standard.

What standard of morality we need to follow

As a standard of better morality, one can easily take the absence of violence inhibitor dysfunction and primary psychopathic traits. People who meet this standard are capable of strong empathy and guilt. Even if they hurt someone, they will take responsibility without blaming the victim or the circumstances. These people will not deceive and manipulate others for personal benefit through the deterioration of their well-being. And these characteristics are present in a large number of individuals. According to non-criminal and non-psychiatric samples, more than 80–90% of people have low levels

of psychopathy^{[11][12][13][14]}. Also, many studies, including anthropological and military ones, confirm that the average and healthy individual has a strong inner resistance to killing other people^{[15][16][17]}.

The real problem is the presence of individuals with psychopathic tendencies who, because of violence inhibitor dysfunction, have no inner resistance to harming others and have underdeveloped moral emotions, including empathy and guilt. It is these individuals who, when striving for high social positions, such as CEO of a company or politician, have no moral problems with “going over the heads” of competitors and others they can profitably exploit. For example, while in the general population, there are no more than 1% of individuals who meet the criteria for clinical psychopathy, among CEOs, there are already from 3% to 21% of them^[18]. Politicians cannot be expected to do well either; despite the lack of reliable statistics, practically any expert in the field of sociopathy/psychopathy/antisocial personality disorder would not dispute that there is a higher percentage of individuals with psychopathic tendencies among them than in the general population^[19]. Psychiatrist Andrew Lobaczewski explains the very emergence of authoritarian and oppressive regimes as the result of the seizure of political power by psychopaths^[20]. In general, **psychopathy is the purest and the best explanation of antisocial behavior and can be labeled as a unified theory of crime**^[21].

It is psychopathic individuals who, once in a high social position, pursue purely personal benefits and tolerate causing harm to others are most likely to be the main obstacle to the establishment of good coordination between different societies in solving global problems. They are the ones who care the least about the appropriate use of shared resources. And it is they who, when faced with the need to solve some problems, would rather resort to coercion and total surveillance than promote a moral bioenhancement program.

A proposal for moral bioenhancement in psychopaths and the rule of universalization

According to Elvio Baccarini and Luca Malatesti, it is psychopathic individuals who require moral bioenhancement, and mandatory bioenhancement is permissible^[22]. Psychopathic individuals do have a rational preference for living in functional cooperative societies. Although they tend to manipulate, deceive, and even commit violence, they do not want others to harm them. As research shows, they react to a dishonest deal with an even greater desire to punish the person who offered it than other people. Despite their problems with moral emotions, they still have the ability to feel outrage.

It can be stated that they expect other people to follow social norms and morals. But the preference to cooperate with those who will never behave antisocially toward them or harm them also means that psychopaths have reason to prefer moral bioenhancement for other psychopaths, at least those they will inevitably encounter on their path. And according to the Kantian rule of universalization, when you prescribe something to other people, you must also prescribe it to yourself if you share with them the same characteristics relevant to this prescription. So, psychopaths have to prescribe moral bioenhancement for themselves.

Of course, psychopaths can claim that they deny the Kantian rule and have every right to be the exception, possessing the ability to easily harm others even if others cannot harm them. However, by doing so, they would effectively exclude themselves from social cooperation and its benefits.

The covert moral bioenhancement and the question of human freedom

It is important to briefly mention the idea that if a moral bioenhancement program is to be mandatory, it must also be covert. According to Parker Crutchfield, the overt application of such a program will result in some individuals avoiding it, creating the need for some forms of punishment that restrict their freedom and reduce their well-being. At the same time, the covert application of appropriate therapy will not lead to such consequences and is, therefore, the most humane option^[23].

Of course, as Baccarini and Malatesti point out, psychopathy can provide various benefits to the individual, and its treatment can take them away. However, the use of punishments for violent crimes may completely prevent individuals from implementing many of their plans and exclude them from social life. In turn, moral bioenhancement leaves individuals with wide freedom of action to implement their plans, imposing only some restrictions. So, moral bioenhancement is preferable to punishments.

The idea of mandatory treatment of psychopathy may raise questions about the free will of the individual. In this case, it is important to understand that everything is subject to causality. So, unless we reject the very existence of free will, we have to consider it in terms of the human ability for reasons-responsive behavior, according to which if individuals are unresponsive to a range of rational considerations, then they are not acting of their own free will (e.g., as individuals with schizophrenia or obsessive-compulsive disorder). And psychopaths, in fact, partly exhibit unresponsive behavior because they have trouble understanding the suffering and taking the perspective of others, which is important in making moral judgments. At the same time, the treatment of psychopathy will enable them to take more considerations into account in decision-making^[24].

In the end, it is worth noting that psychopathic individuals have no reason to fear or resist moral bioenhancement. If they do not currently have the desire to harm other people in practice, then nothing will change in their lives; there will only be a guarantee that such a desire will never arise in the future. If they have such a desire, they should be afraid of punishments for its implementation, which can completely destroy their lives and plans, rather than moral bioenhancement, which will simply bring a small number of moral norms into their psyche. And if they cannot see their lives without committing violence, if it is an important value for them, then they must realize that they are a great threat to everyone else, and it is reasonable not to ask them if they are willing or unwilling to undergo the procedure of moral bioenhancement.

There are many disturbing scenarios in which **existential risks** are produced by actions of individuals or small groups (terrorist organizations, apocalyptic cults). Particularly worrying is the possibility of the intentional or accidental creation of new pathogens in “basement labs” lacking any biosafety measures.

Mitigation of such threats seems impossible without a drastic expansion of surveillance and curtailing of privacy, since illegal biotech labs could easily be hidden and moved.

Future totalitarianism is a stable configuration, possibly much more stable than historical totalitarian regimes due to ongoing improvements in technology and understanding of social and psychological mechanisms. Ubiquitous miniaturized surveillance is already a commonplace – and has already eroded parts of the traditional concept of privacy.

We submit that moral enhancement, both traditional (education) and **moral bioenhancement**, is the most promising way of “navigating between Scylla and Charybdis,” that is, avoiding both the threat of human extinction (or a milder form of “ultimate harm”) and “safe” global totalitarianism (or a milder form of authoritarian rule).

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The costs of psychopathy to individuals and society



As psychopathy researcher Winifred Rule writes, the cost of psychopathic damage is exorbitant and largely incalculable^[1]. Of course, some costs can be estimated. The cost of prosecuting some psychopaths who have committed multiple murders can run into the millions of dollars. And as psychology professor Dylan Gutner calculated, the economic burden of crime resulting from psychopathy as of 2020 ranges from \$245.5 billion to \$1.59 trillion per year (1.1–7.4% of GDP) in the case of the United States and from CAD12.14 to CAD53 billion per year (0.5–2.3% of GDP) in the case of Canada^[2]. These are staggering numbers, but even they do not come close to reflecting the full costs of psychopathy.

Psychopaths destroy the lives of their victims, cause great harm to their health and well-being, and make them lose faith in other people and even themselves. Those who have been victimized by psychopaths experience physical, mental, and emotional distress that often leaves them traumatized for the rest of their lives. And this, among other things, has an impact on countless other people who interact with victims of psychopaths.

It is absolutely impossible to calculate the costs to each of the victims of psychopaths, as well as their financial impact on society as a whole. Who can calculate the costs of the many treatments and protocols it takes to heal from the suffering and misery that one psychopath can cause? Consider the many trips to doctors, the cost of medication, the absence from work, and the expense of mental health recovery. And in many cases, the suffering caused by psychopaths will never be ameliorated.

However, that is not all. As psychiatrist Andrew Lobaczewski points out, individuals with primary psychopathy who, because of emotional deficits, have no conscience, lack guilt and remorse for harming people, and behave like predators toward them create pathocracy, a system of government in which a pathological minority takes control over a society of normal people. Exactly such individuals holding political and administrative positions resort to terror and repression in pursuit of their goals. They also make wars, which help to redirect the attention of the population from significant problems

to imperialist ambitions and to divide it into loyal and disloyal parts^[3]. The damage that primary psychopaths have done to all of humanity is so enormous that it cannot be quantified in any way.

Despite this, we should not resort to blaming and punishing individuals suffering from psychopathy. The punitive and vindictive approach does not allow people to understand the true nature of their behavior, making it impossible to effectively prevent such behavior in the future. By seeking retribution rather than healing, we will leave future generations with exactly the same problems we have now.

Because the problems we have listed here result from pathology, they must be treated by medical and therapeutic methods, including mandatory therapy for psychopaths. We know that at the core of this pathology is a dysfunction of the violence inhibition mechanism that, in the case of most healthy people, causes an aversive reaction and a strong inner resistance to harming others^[4]. Accordingly, individuals with psychopathic tendencies should be provided with treatment for this dysfunction.

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The philosophy of biological voluntarism



Voluntarism is a philosophy according to which **all forms of human activity, agreement, and association should be as free as possible**. It categorically rejects violence as a method of achieving goals. However, being oriented toward non-violent struggle, it permits defensive actions and self-defense against individuals who have violent intentions and initiate attacks since it is, first of all, a philosophy of specifically “non-initiation” of violent attacks.

Voluntarism rejects political methods of struggle as counterproductive and immoral since achieving a free and non-violent society through political instruments would require the initiation of violence. It favors non-political methods of struggle, such as disobedience, education, counter-economics, etc. Ideologically, voluntarism does not designate any particular arrangement of society as obligatory; it only puts forward the necessity of achieving freedom of activity, agreement, and association. Therefore, anyone with any non-authoritarian and non-violent views, including both right-wing and left-wing libertarians, can be a voluntarist.

What would an ideal voluntarist society look like? Trying to imagine it, we will realize that there should be no prerequisites for initiating violence by anyone, and the morality of non-violence should be generally accepted. The aggressive impulses of all its inhabitants must have inhibitory limits; they may be directed toward non-violent activity or defensive behavior, but in no case toward deliberate harm and assault. All of them should feel inner resistance (psychological discomfort) to the suffering of others, be empathic, and any harm they do, if for some reason this does happen, should cause them to feel a strong sense of guilt. In such a society, no one would violate freedom of activity, agreement, and association.

As we can see, the problem of why we do not yet live in a voluntarist society has a biological basis. Not all humans have a functional and strongly expressed violence inhibition mechanism that gives us the ability to automatically, spontaneously, and reflectively experience the reactions listed above^[1].

However, **this does not mean that we need to change human nature itself**. Based on the position of moral nativism, we can argue that humans still possess, to a certain extent, innate and biologically determined morality, including the propensity for altruism and empathy^[2]. According to a large number of studies, including anthropological and military ones, normally, the violence inhibitor is still functional enough for an individual to experience strong inner resistance to committing violent attacks^{[3][4]}. Only a few dysfunctional individuals do not experience the slightest resistance even to committing murder; they are also called psychopaths. In society, there are 1–2% of such people, although in some samples, such as violent offenders, CEOs, and politicians, their proportion is much higher, which in itself explains a lot^{[5][6][7]}.

Understanding all of this allows us to propose a biological direction to the development of the ideas of voluntarism, showing us the ideal to aim for and suggesting concrete approaches in this undertaking. We need to consider violence and psychopathy not as something natural and normal, just socially unacceptable and harmful, but as a pathology and disorder. Moreover, such a condition in an individual meets the Wakefield disorder criteria: it leads to harm to oneself or others and is associated with the failure of some internal mechanism to perform a function for which it was biologically designed (in our case, the violence inhibition mechanism)^{[8][9]}. This means that we need to find and develop cheap, accessible, easily produced and distributed, effective, fast-acting, and safe therapies and practices that restore and enhance the function of the violence inhibitor. We should then administer them to violent and psychopathic individuals as a voluntary practice aimed at improving the individual's capacity for healthy socialization, as an alternative to punishment for prior violent acts, or even as a mandatory measure in defensive actions against individuals who directly express violent intentions and attempt to commit attacks.

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The ability to experience empathy and take the perspective of other people in psychopathic individuals



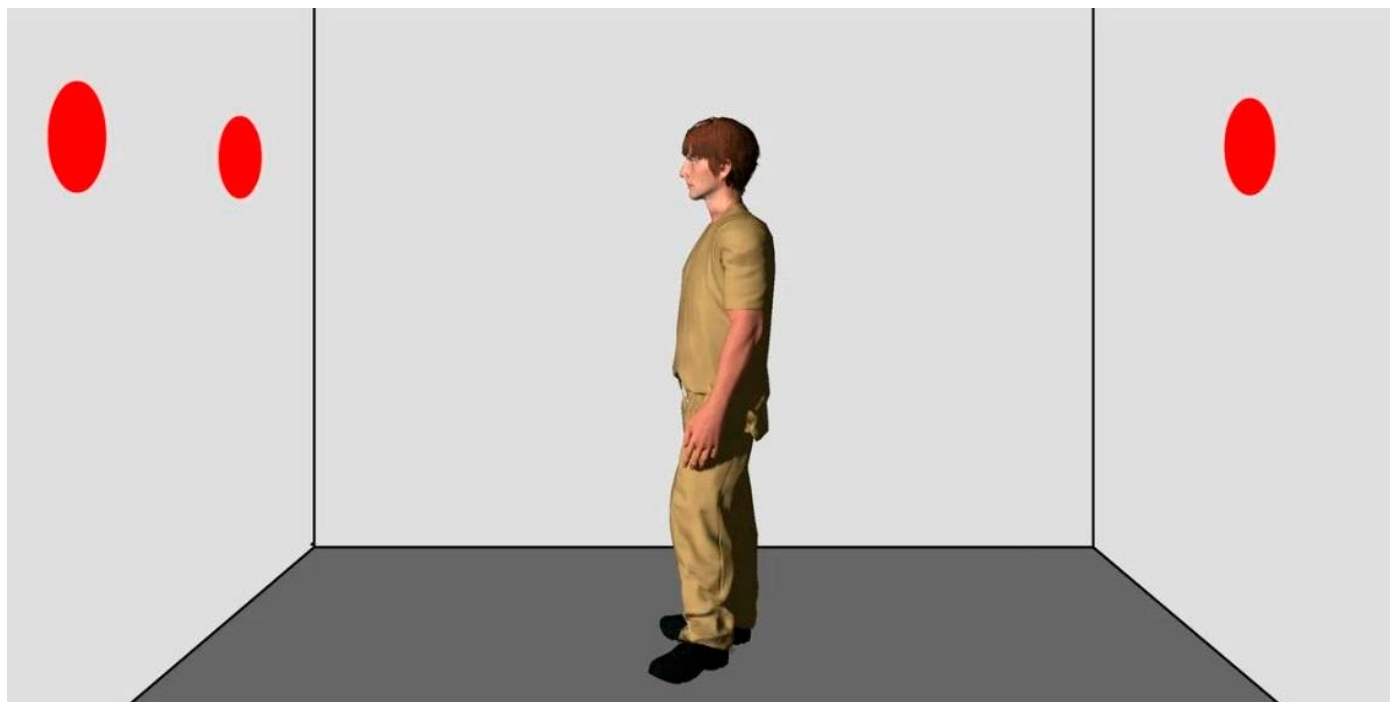
It is generally accepted that psychopathic individuals have little or no empathy. This, of course, makes them cold-blooded and callous, even capable of easily committing murder when there is a reason and no significant risks. In addition, this lack of empathy has long cast doubt on the possibility of simple and effective treatment for their condition.

However, a study of psychopathic criminals found that they can experience empathy. Not only that, but in the experiment conducted, they had the same level of activation of mirror neurons as healthy individuals. These neurons are responsible for the ability to learn by imitating other people and are thought to be involved in empathy. But psychopaths have one significant difference. While in normal people, empathy is spontaneous, psychopaths can deliberately control this process. Their normal state is deactivated empathy; they only show it when they want to. And within the experiment, normal activation of mirror neurons in psychopaths was observed only when the researchers directly asked them to show empathy^[1].

Researchers do not yet know how to turn the empathy that psychopaths can show intentionally into the spontaneous empathy that is common to most people. However, the fact that psychopaths can show empathy, at least under certain conditions, gives therapists something to work with.

There is also a suggestion that violent behavior arises from an individual's inability to take the perspective of others, i.e., to see the situation from their point of view and to understand their condition and thoughts. Individuals with psychopathic tendencies were hypothesized to have exactly this deficiency. However, empirical experiments have disproved this. They are capable of taking the perspective of others. But they do demonstrate one very important difference.

In one of the experiments, criminals were given a theory-of-mind task. They were shown images on the screen of a human avatar standing in a room and looking to the left or right. Up to three dots were drawn on the walls of the room, which could be either in front of or behind the avatar. The participants' task was to say how many dots they themselves could see and how many the avatar should see. The measures assessed were egocentric interference, which was the amount of time it took for a person to answer how many dots the avatar should see if any of the dots were out of the avatar's view, and altercentric interference, which was the amount of time it took for a person to answer how many dots they themselves could see if the total number of dots was different from the number of dots in the avatar's view. Participants' levels of psychopathy were also assessed using the PCL-R test.



As it turned out, highly psychopathic individuals show the same levels of egocentric interference as normal people. But at the same time, they have strongly reduced levels of altercentric interference. This result suggests the following: they are able to take another person's perspective if it is an intentionally pursued task; however, they have trouble taking it automatically, i.e., unintentionally and spontaneously, as normal people do. Also, higher levels of psychopathy were associated with a worse ability to automatically take the perspective, and this impairment, in turn, correlated with the number of violent assault charges against the offender^[2].

In addition to all of the above, these results may answer one important question. One may point to examples of individuals who, in their normal social life, were good family members, friends, and colleagues, law-abiding citizens, i.e., full members of society, despite the fact that under certain conditions, such as being a soldier on the battlefield or following state propaganda, they easily committed violence and even murders without the slightest inner resistance. Perhaps such cases are explained by the fact that some psychopathic individuals can be empathic when they intentionally want to be, for example, when they want to have a full social life while being able to commit violent acts with ease.

¹⁾ Meffert, H., Gazzola, V., den Boer, J. A., Bartels, A. A. J., & Keysers, C. (2013). Reduced spontaneous but relatively normal deliberate vicarious representations in psychopathy. *Brain*, 136(8), 2550–2562. doi:10.1093/brain/awt190

How large-scale or political evil arises



Why do large-scale evils that affect entire societies and nations, such as dictatorships, repressions, genocides, and wars, exist? Psychiatrist Andrew Lobaczewski, in his book “Political Ponerology: A Science on the Nature of Evil Adjusted for Political Purposes,” concludes that mental abnormalities play a crucial role in their emergence. People with them often try to impart meaning to their pathological perception of the world, especially by creating and spreading their own myths and ideologies. And particularly dangerous are individuals with primary psychopathy who, because of emotional deficits, have no conscience, lack guilt and remorse for harming people, and behave like predators toward them. In some circumstances, a small number of psychopaths with wild ambitions can strike at the weaknesses of society and plunge it into conditions that inevitably lead to large-scale horrors and tragedies.

Initially, pathological ideologies like fascism or authoritarian communism are often developed and promoted by schizoid individuals, although readers of “schizoid declarations,” unaware of the mental state of their authors, usually do not notice this. These ideologies are then adopted and actively promoted by characteropaths, who are individuals with brain impairments that negatively deform their character. In turn, psychopaths join social movements adhering to such ideologies, in which they can hide their shortcomings and successfully fulfill their desire for power. They easily pretend to be sincere followers of the ideology, do all the dirty and cruel work for the movement that no one else would do, infiltrate its leadership, ousting characteropaths from it, contribute to the further degradation of the already schizoid ideas, and gradually take power over the movement. Psychopaths eventually create **pathocracy, a system of government in which a pathological minority takes control over a society of normal people.**

In a pathocracy, people with mental disorders, and especially primary psychopaths, who make up about 0.5% of the population, take over all leading political and administrative positions. To suppress resistance, they resort to terror and propaganda, eliminating individuals dangerous to them and forcing everyone else to adopt pathological thought patterns. Such patterns are particularly well accepted by the approximately 6% of the population who have the least resistance to the influence exerted by psychopaths. They become active supporters of the pathocracy and participate in its crimes. Thus, a minority of people get the right to impose their will on the rest of the population. War is also one of the tools for strengthening the pathocracy, which helps to redirect the attention of the population from significant problems to imperialist ambitions and to divide it into loyal and disloyal parts.

Another important tool of the pathocracy is strict control over science. This is necessary to distort it to suit the views of the regime. Control in the field of psychiatry, which can be used for punitive purposes against people who disagree with the regime, plays a unique role. In addition, giving this field complete freedom can help reveal the regime's pathological nature, something it would like to avoid. It is worth noting that Lobaczewski himself was persecuted for his ideas and could not publish his book for half a century. Even after he left communist Poland and moved to the United States, he could not escape the pressure.

According to Lobaczewski, **the only solution against evil is knowledge about its existence and its true nature**. Based on this knowledge, it is necessary to fight evil in the same way as any other pathology, that is, by medical and therapeutic methods, including mandatory therapy for primary psychopaths. At the same time, mitigating punishments and forgiving individuals who have committed evil is very important. They should be exposed in public as suffering from the disorder, not as guilty, because the punitive and vindictive approach does not allow people to understand the true nature of their behavior, making it impossible to effectively prevent such behavior in the future. By seeking retribution rather than healing, we will leave future generations with exactly the same problems we have now, including the problem of pathocracy. Finally, existing ideologies need to be evaluated for the degree to which they are contaminated with pathological and pathocracy-fueling material contributed by mentally disturbed individuals with distorted perceptions of the world and cleansed of such material.

The hypothesis of selective psychopathy and critical remarks on it



How can we explain the participation of many psychologically normal people in premeditated violence, genocides, and massacres? Why did battalions of seemingly ordinary men commit brutal massacres against civilians during World War II? Why was the “architect of the Holocaust,” Adolf Eichmann, evaluated by many psychologists as a “terrifyingly normal” person without any mental abnormalities? And speaking of the Holocaust, it would not have been possible without the participation of tens of thousands of psychologically normal individuals who abandoned their moral principles toward a particular group of people.

There is a hypothesis that explains this as a phenomenon called “selective psychopathy”^[1]. It argues that a psychopathic leader, together with his close associates, who are also psychopaths, can exert a strong influence on the population through manipulation, propaganda, and compulsion. He may label a group of people as enemies and “subhumans” who must be eliminated for the greater good, thereby stimulating selective psychopathy in the population. It is hypothesized that this influence may affect the functioning of people's brains, making them more similar to the brain of a psychopath. It suppresses the activity of brain regions involved in empathy, guilt, impulse control, pain, fear, and moral behavior, thereby removing the inhibition of violence. To confirm or refute this hypothesis, experiments on people of far-right and far-left political views are proposed, assessing their reactions and brain activity to viewing images and videos depicting supporters of their own and opposing (enemy) positions in different situations. So far, no such experiments have been conducted.

We can partially agree with this hypothesis. However, psychiatrist Andrew Lobaczewski estimated that **only 6% of the population tend to be easily influenced by psychopathic individuals and join them in their crimes**. This figure may vary slightly from society to society, but in any case, it is a small

minority of people. While the majority may be disoriented by such influence, they will not actively participate in the crimes of psychopaths^[2].

When it comes to the ability of humans to commit violence directly, numerous studies have demonstrated the importance of mediating factors: genetics, neurophysiology, and psychological state. **Individual predispositions always mediate the impact of external influences on human perception and behavior.** Certain variants of genes associated with violence inhibition lead to “immunity” to various forms of influence such as social isolation (in animals), childhood abuse, and low socioeconomic status; individuals who carry them do not become more prone to violent behavior and the development of psychopathy in such circumstances^{[3][4][5]}. And high scores of psychopathic traits explain aggressiveness due to alcoholism, as well as a tendency to indirect aggression, totalitarian attitudes, religious radicalization, and extremism^{[6][7][8][9][10][11][12][13][14]}. Finally, psychological trauma may play an important role. There is historical evidence of widespread, abusive child-rearing practices in Germany at the turn of the 20th century. Many of those who were psychologically traumatized in childhood later became Nazi supporters. Some researchers believe that punitive political attitudes, including the favoring of war as an instrument of national policy and capital punishment, are consequences of punitive upbringings that cause individuals to displace their childhood anger onto political issues and outgroups^{[15][16][17]}.

Another consideration concerns individuals who have committed violent acts but seem completely non-psychopathic and healthy. In this matter, it is crucial not to forget that the farther people are from the direct perpetration of violence, the weaker their inhibition of violence will be. It is hard to make a valid argument about human vulnerability to propaganda, citing the examples of some office workers in oppressive structures. But even the case of individuals who were fully aware of what they were doing, observed their victims directly, and even killed them, yet appeared to be completely normal, can be explained by one interesting ability of psychopaths. There are claims that they are not necessarily incapable of empathy. Not only that, but they may be just as capable of it as healthy people. The only difference is that in the norm, empathy is spontaneous and reflective. Psychopaths, on the other hand, can control when and under what circumstances to show it^[18]. It is not hard to imagine that **some psychopathic individuals would be able to pretend to be normal in front of others in a fairly believable way while remaining capable of violent acts when they wanted to commit them.** It should also be kept in mind that **some psychopaths may well be able to fool even skilled psychiatrists** (but testing for psychopathy can still be useful, for example, to show voters which politicians have worrisome personality traits)^[19].

Considering all this information, we will draw the following conclusion: the hypothesis of selective psychopathy may be valid to some degree, but not all people are affected by this phenomenon to the same extent. We must also consider the extent to which a particular person has been involved in committing violence and the possibility that a psychopath may successfully pretend to be a perfectly normal and mentally healthy person. **Any future experiments aimed at confirming or refuting the hypothesis of selective psychopathy must take all of these issues into account in order not to lead to false conclusions.**

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²⁾ Łobaczewski, A. (2006). Political Ponerology: A Science on the Nature of Evil Adjusted for Political Purposes. Grande Prairie: Red Pill Press. ISBN: 978-1-897244-25-8

³⁾ Beck, A., & Heinz, A. (2013). Alcohol-Related Aggression. Deutsches Aerzteblatt Online. doi:10.3238/arztebl.2013.0711

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The problem of indirect violence

DIRECT AGGRESSION



INDIRECT (RELATIONAL) AGGRESSION



Psychopathic tendencies are significantly associated with the violence inhibition mechanism dysfunction, and the more pronounced they are in people, the more likely they are to commit acts of violence. However, will this rule be true if we talk not only about direct violence but also about some indirect aggressive actions aimed at harming other people without coming into physical contact with them?

A series of experiments were conducted to test the hypothesis that indirect aggression is associated with psychopathy^[1]. **Indirect, relational, or social aggression was defined as a type of social manipulation whereby the aggressor manipulates others to attack the victim or, by other means, makes use of the social structure in order to harm the target person without being personally involved in the attack.** A study conducted on 103 students found that such behavior had a strong association with the level of psychopathy, and this association persisted even when the influence of social desirability (the respondents' tendency to give answers that appear preferable in the eyes of others) was taken into account. Especially indirect aggression was associated with impulsive antisociality and coldheartedness.

Two more studies on 201 students showed that the relationship between psychopathy and indirect aggression was significantly mediated by deficits in affective (emotional) but not cognitive empathy. However, this is more characteristic of males, whereas such deficits play a lesser role in the case of females, indicating a difference in the manifestations of indirect aggression between male and female psychopaths. For example, men are more likely to resort to malicious humor than women, who are more likely to induce guilt in others. Also, a study of social skills in 107 students found that, in general, they had little effect on the relationship between psychopathy and indirect aggression. Although specifically nonverbal social skills did significantly mediate it in the student sample, this result was not replicated in two other studies with community samples of 204 and 117 participants. However, these studies confirmed the other findings.

As we can see, the problem of indirect violence, when a person seeks to harm other people, resorting not to physical attack but to social manipulation and various kinds of pressure, is strongly associated with the presence of psychopathic tendencies. In addition, it is primary psychopathy, which includes the previously mentioned coldheartedness and affective empathy deficit, that plays a significant role, which is explained by the violence inhibition mechanism dysfunction.

Violence inhibitor dysfunction is a cause of abusive relationships



When entering into any kind of relationship, and especially when it comes to romantic relationships and starting a family, people, as a rule, expect to receive mutual benefits. Of course, there are rarely relationships without flaws and problems that, one way or another, have to be solved or accepted as they are. But what people definitely do not want from them is harm in any of its forms, including physical and psychological. The problem of abusive relationships has a fairly significant place in our society. It can be given many possible explanations and different solutions. But what we should pay attention to in the first place is the people themselves who seek to harm their close ones.

It is known that the ability to perceive the suffering of other people plays an important role in the inhibition of harm. This is what the Violence Inhibition Mechanism (VIM) model tells us about^{[1][2]}. People with a fully functioning violence inhibitor will obviously be predisposed not to harm others. Often, the very intention to take the actions leading to harm will already cause an aversive reaction and inner resistance in them. And such a reaction will necessarily appear as an unconditioned reflex in response to direct observation of another person's suffering, especially non-verbal distress cues such as sad and fearful expressions or crying. The result of violence inhibitor dysfunction in humans is increased levels of instrumental aggression, antisocial behavior, and even psychopathic traits.

As one Canadian study of victims of abuse in heterosexual relationships shows, up to 30% of abusers meet the criteria for psychopathy, and it is exactly these people who are the strongest predictor of long-term violence in relationships. Also, due to a dysfunctional violence inhibitor, they easily ignore distress cues from their partners unless they can use them for their own manipulative purposes. For

example, by manipulating fear, they can intimidate their partners, force them to have sexual contact, or take substances. And the main conclusion of the study is that psychopathic abusers have the worst effect on the mental health of their partners, leaving them with post-traumatic stress disorder^[3].

Another study confirmed that, according to the VIM model, violence by husbands toward their wives is associated with diminished sensitivity to expressions of fear. Also, their psychopathic tendencies were associated with misidentifying fearful expressions as neutral^[4]. And one more study found that reduced relationship satisfaction is associated with the presence of callous and unemotional traits in a partner. Psychological aggression and short relationship duration, in turn, are associated with antisocial behavior. And physical aggression is associated with three components of psychopathy at once, including the two already mentioned and impulsivity^[5]. The situation is similar with sexual satisfaction; it is lower in those women whose partners have psychopathic traits^[6].

A huge review of research on the impact of psychopathy on family and other relationships was made by Professor Liane J. Leedom^[7]. It addresses the claim that psychopathic individuals change their partners very easily, so they are characterized by sexual promiscuity and multiple short-term marital relationships. Such a claim is questioned in view of the evidence of psychopathic individuals who maintain long-term relationships and, unfortunately, cause harm to their partners. Relationships with them are often assessed as unsatisfactory, characterized by frequent conflicts and even physical violence. Also, psychopathic individuals tend to stalk their former partners and can behave vindictively when threatened with abandonment. And finally, cheating is common in such relationships.

Why does anyone get into relationships with psychopaths in the first place? As research shows, psychopathic men tend to mimic prosocial personality traits in order to appear appealing to women, and they do so to a more pronounced extent than non-psychopathic men. They skillfully present themselves as attractive romantic partners, even if they have absolutely no interest in committed relationships^{[8][9]}.

It is worth briefly mentioning how psychopathic individuals behave in other types of relationships. When making friendships, they only try to satisfy their material and social needs while being cruel and often not helping others. However, their friends are reluctant to break off such relationships, which can be explained by the psychopaths' effective manipulation and the establishment of a strong social bond with them. As parents, psychopathic individuals act in an obsessive, hostile, and neglectful manner toward their children, leading them to psychological traumas, behavioral problems, problems with settling down in life, poverty, and substance use. Problems are also encountered when normal parents have children with psychopathic tendencies. From such children, they can expect abuse, ignoring their problems, and parasitism. Also, a significant problem occurs when there are both normal children and those with psychopathic traits in the family. It is violence against siblings that is the most common form of domestic violence in Western countries. The same is also true for domestic sexual violence^[7].

By reviewing all the facts listed here, we can see how terrible the consequences of relationships with individuals who have the violence inhibition mechanism dysfunction are. It is this pathology and the psychopathic traits that arise from it that well explain why some partners can behave cruelly, spoil relationships, manipulate others, and negatively affect the mental state of their close ones. Relationships with them should clearly be avoided, and in the long term, we need to work on developing therapeutic approaches to treat such a pathology. The quality of romantic, family, and other relationships in society will greatly increase if people begin to take seriously the problem of violence inhibitor dysfunction in some individuals.

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How psychopaths behave towards other people



Here is a list of traits that characterize the behavior of psychopathic individuals but do not necessarily involve direct and overt acts of violence^{[1][2]}. It is important to familiarize ourselves with them in order to identify such individuals in our community. It will also allow us to better understand that harming people is not limited to acts we can clearly identify as violations of social norms and condemn accordingly. This means that some forms of intentional harm will never be eradicated as long as a

disorder like psychopathy exists. Of course, some of the traits listed here may be shared by many people, but if someone has multiple matches on the list, we should be wary of them.

1. Superficial charm. Psychopathic individuals adapt their personalities to others in order to take advantage of them. Accordingly, different people in their environment will give different, even contradictory descriptions of their personalities. They are also capable of changing their commitment to something instantly, with no second thought, which they use to establish trust when introducing themselves to others.

2. Turning against each other. Psychopathic individuals love to gossip and make themselves look like victims of other people. Therefore, if you suddenly have a bad opinion about someone without a real reason, consider whether you are being manipulated. They also provoke the emergence of envy between people, love triangles, etc.

3. Intentionally causing chaos. They can systematically provoke you, and when you get openly angry with them, they will make themselves look like the victim, and you will look like an impulsive person who attacks other people for no good reason. Also, in discussions and debates, they will provoke you to react emotionally in order to weaken your position.

4. Lack of guilt and regret. They will never apologize for their harmful actions unless it is beneficial for them or necessary to preserve their reputation.

5. Pathological lying. They will lie even without a reason, as they often have to lie for their own benefit, causing them to become lost in their lies.

6. Causing doubt. Even if you rationally realize that you are not guilty of anything, psychopathic individuals will try to change your mind so that you doubt yourself and don't have time to doubt them.

7. Success is the first priority, and norms are not important. Psychopathic individuals only care about success, money, or power. They don't care about social or moral norms. They consider themselves "special" to whom the rules accepted by people do not apply.

8. Lack of empathy. If the only thing that stops someone from harming others is fear of the consequences and nothing more, then that person is a psychopathic individual.

9. Poor impulse control. Psychopathic individuals are easily involved in committing violence, promiscuous sexual activity, and risky behavior.

10. Narcissism. They have an inflated, unrealistic view of their own qualities and achievements and tend to treat others as "stupid."

11. Inability to get along. They find it easier to imagine themselves ruling others rather than cooperating as equals.

12. Manipulating emotions. They will intentionally try to trigger some feelings in you to get you to do what they need you to do.

13. Early behavioral problems. Psychopathic individuals, even in childhood, have abused animals, lied, or caused harm in other ways.

14. Simulating emotions. Psychopathic individuals demonstrate precisely the emotions that other people expect them to demonstrate in order to get a benefit. They have little of their own emotions or will not demonstrate them.

15. They are very bored. Psychopathic individuals are always bored and in constant need of stimulation, and if it is not provided, they will create their own “drama.”

16. Sabotage on important dates. They may try to intentionally bring you to tears on your birthday or provoke you into an impulsive reaction at a family celebration.

17. Exhaustion. They will lead you into sleep deprivation, for example, by constantly having arguments late at night, or they will exhaust you somehow else so that your mind and body are always tired and you don't understand whether your own actions are benefiting you.

18. Ignoring. Psychopathic individuals will end a conversation before it even begins, will not respond to your requests, or their responses will not match them. This is intended to make you anxious and self-doubting.

¹⁾ 20 Ways to Spot the Psychopath in Your Life: <https://www.myfloridalaw.com/twenty-ways-to-spot-the-psychopath-in-your-life/>

²⁾ 5 Terrifying Ways Narcissists and Psychopaths Manufacture Chaos and Provoke

You: <https://psychcentral.com/blog/recovering-narcissist/2019/10/5-terrifying-ways-narcissists-and-psychopaths-manufacture-chaos-provoke-and-manipulate-you>

The history of the development of anti-aggressive agents for clinical use



The idea that it is possible to selectively eradicate violent behavior exhibited by some individuals is not new. Of course, many animal experiments in different models of aggression have shown that some drugs can suppress offensive aggression towards conspecifics without affecting defensive behavior or other forms of activity^[1]. But what about humans? Can the results obtained in animals be transferred to humans, and have there ever been clinical trials on the use of such drugs for the treatment of violent behavior?

There has been at least one major project in the past that aimed to develop a selective anti-aggressive agent^[2]. The project was led by a number of researchers, including Berend Olivier, working for the Dutch pharmaceutical company “Duphar.” The launch of the project in the mid-70s of the past century was prompted by the lack of effective means for “inhibition of destructive behavior without other significant behavioral, psychiatric, or somatic side effects.” The agents already used for this purpose in clinical practice were associated with severe side effects, for example, neuroleptics with tardive dyskinesia (involuntary movements), beta-blockers with hypotension (decreased blood pressure), lithium with renal problems, and most importantly, they did not have a selective effect on behavior.

The necessary effect on animals was produced by agents affecting the serotonergic system of the brain. They were also called “serenics.” In 1980, the drug called fluprazine was synthesized, which was probably an agonist (leading to activation) of serotonin 1A and 1B receptors. It had potential for development but was later rejected due to toxic effects when administered to rats. In 1984, the closely related drug eltoprazine was selected for further development. In various experiments in mice and rats, including social isolation and resident-intruder paradigms, this drug had a selective anti-aggressive effect that did not impair the social or non-social activity of individuals. It was also safe. It is worth noting that later, in more recent studies, the function of the violence inhibition mechanism in humans would be associated with the serotonergic system^[3]. Apparently, a similar mechanism is activated in animals when such agents are used.

In the 1990s, a number of pilot clinical trials were conducted on various groups of aggressive patients with the administration of eltoprazine. The results were as follows:

- on 20 patients with dementia, it was shown that eltoprazine did not lead to improvements in their overall condition but significantly reduced aggression, especially in individuals exhibiting high levels of it, with no side effects;
- eltoprazine showed a similar result in 17 mentally disabled patients, especially in the case of those who exhibited medium to high levels of aggression;
- the same was observed in 23 patients suffering from psychotic and personality disorders; however, a slight decrease in aggression was also observed in the control group taking a placebo, and among the side effects, sleep disturbances and anxiety at the end of the treatment were occasionally observed;
- in the case of eltoprazine administration to patients with depression, there was a general improvement in their condition (decrease in depression and increase in mood), and in patients with chronic psychotic and personality disorders, it was shown that combined administration of eltoprazine with neuroleptics has no additional side effects (and causes an anti-aggressive effect in patients with medium to high levels of aggression);
- when eltoprazine was administered to 119 mentally disabled patients, a significant reduction in aggression was also observed in the control group (which consisted of 41 patients), although the results were slightly better in the group taking eltoprazine, especially in the case of severely aggressive patients^[4].

As a result, eltoprazine was shown to be effective to a certain extent, especially in patients who exhibited high levels of aggression. However, the clinical trials were abandoned at this point. Some problems arose, such as the observation of improvements in control groups, the limited availability of useful tools to assess patients, and the unwillingness of regulatory agencies to approve medicines for a “non-disease”^{[2][5]}. Of course, we can now easily link violent behavior to the dysfunction of the violence inhibition mechanism and impairments in the serotonergic system. But back then, this made the field of aggression risky for clinical research and investment in drug development.

Practically all further experiments in this direction were and still are conducted on animals, and in the case of some agents, they, as before, demonstrate excellent results. We can mention an attempt to start in 2006 a clinical trial on the administration of naratriptan, which is a full agonist of serotonin 1B/1D receptors and a partial agonist of serotonin 1A receptors, to violent offenders undergoing psychiatric treatment. It should be noted that Berend Olivier can also be seen among the co-authors of this study. However, it was terminated due to the lack of the required number of test subjects^[6]. Although triptans definitely have potential in the treatment of violent behavior. A drug called zolmitriptan has been successful in selectively reducing aggression in mice and attenuating alcohol-heightened aggression in humans^{[7][8]}. As an exception, we can also mention a study in which aggressive patients with Alzheimer's disease received eltoprazine; the results, published in 2015, showed a clinically significant reduction in aggressive behavior^[9].

Some researchers have characterized this state of affairs as “calamitous.” At least, that is what Miczek, Faccimodo, Almeida, Bannai, Fish, and Debold said in a study of new pharmacotherapeutic approaches and opportunities for the problem of escalated aggressive behavior^[5]. As Tuinier and Verhoeven wrote in their review of the history of serenicis, “modern research suggests that aggressive behavior should be studied as a separate functional disorder”^[10]. And Coccaro, Fanning, Phan, and Lee, in a study of serotonin and impulsive aggression, expressed hope “that new insights into the

neurobiology of aggression will reveal novel avenues for treatment of this destructive and costly behavior"^[11]. To all of this, we would only add that in such a state of affairs, perhaps it is time for some biohackers to consider this problem.

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Proactive epigenesis: upbringing and education as a method of epigenetic fixation of non-violence



As we know, the human brain has certain innate dispositions, including a disposition to violence inhibition. However, it is also essential to take into account the influence of culture and society. In this case, we should consider epigenetic mechanisms that play an important role in how the structure of the brain develops in response to ethical and social norms. This can greatly help us eradicate violence from human relationships.

To begin, it is worth briefly reviewing what epigenetics is. This branch of genetics studies changes in gene activity during cell growth and division, that is, changes in protein synthesis caused by mechanisms that do not change the DNA structure itself. Such changes can persist during cell division and even be inherited, but this heredity is temporary and does not pass for more than several generations. From an evolutionary point of view, this is a mechanism for creating temporary adaptations to temporary changes in environmental conditions. An excellent example of this is a study that found that the grandsons (but not granddaughters) of men who went through a famine in Sweden in the 19th century were less prone to cardiovascular disease but more prone to diabetes^[1]. It is also known that factors such as stress, hunger, and environmental temperature that affect the mother during pregnancy determine the epigenetics of the child. However, it is worth noting that epigenetic changes, unlike mutations, are reversible.

The existence of epigenetic mechanisms has led some researchers to the idea of such a concept of the upbringing and education of children as proactive epigenesis. This idea suggests that the moral education of children from kindergarten onward should rely on understanding how human neurophysiology works and how it interacts with cultural and social influences. It is also necessary to understand that inspiring models and gentle encouragement have a strong positive effect, while violence, for example, corporal punishment, can seriously harm a child^[2]. And for a better understanding of this idea, we should consider some of its points in more detail.

Based on it, **if new cultural circuits, such as a better ability to control violence, become epigenetically stored in our brains, more peaceful societies might hopefully develop.** However, it is unlikely that societies that encourage violence will be able to stabilize non-violent traits because they will conflict with them. The solution to this is using special education programs for many generations, which, in any case, will have a positive impact.

We should add that there is definitely no conflict with the biological nature of humans in an education aimed against violence since humans are naturally predisposed precisely to the inhibition of violence. However, the real problem may be authoritarian governments in some countries that normalize violence as an acceptable, if not necessary, tool in the control of public order.

Also, the idea of proactive epigenesis itself does not say which particular biological features of humans should be paid attention to in the formation of educational programs. But it is obvious that, first of all, it is important for us to be familiar with the theory of the violence inhibition mechanism, based on which we can connect the innate disposition to inhibition of violence with the serotonergic system of the brain, as well as the genes and proteins that affect its function^{[3][4]}. For example, we can consider the MAOA gene. As one study shows, it mediates the impact of maltreatment in childhood on violent behavior in adulthood. Compared to the more stable carriers of the high-activity variant of this gene, carriers of its low-activity variant are exposed to certain risks. Maltreatment makes them 4 times more likely to commit violent crimes. However, under normal treatment, they do not become more violent than carriers of the high-activity variant^[5].

The idea of proactive epigenesis involves the search for some universal ethical norm that must be fixed epigenetically. But, again, it is not clearly stated what kind of norm it should be, although, in general, the idea is about creating a non-violent society. Ethics can be a subject of heated debate, so it is important for us to define some minimum standard that everyone can actually agree on, and non-violence is just that. Furthermore, the existence of an innate violence inhibitor in humans indicates that this norm is a natural aspect of human behavior, whereas many other norms may be more influenced by culture and environment.

It should also be noted that the idea of human biological enhancement has negative connotations associated with its use by some dictatorships to create a society predominantly populated by “good citizens” or “racially pure citizens.” We understand that such formulations can be determined by a long list of claims coming from the subjective opinion of authorities. In turn, the norm of non-violence is the minimum possible norm, it is already inherent in the vast majority of people from birth, and the ability to easily harm people due to violence inhibitor dysfunction can be clearly defined as a pathology and mental disorder. The caution called for by the researchers who put forward the idea of proactive epigenesis is already provided in the norm of non-violence; the main thing is not to go beyond it and not add any other norms. The norm of non-violence is sufficient to achieve a better society.

Finally, researchers are also cautious about the idea of pharmacological and gene therapy for violent behavior because of a lack of understanding of the effects of this on the functioning of the human brain. Of course, based on the available research and the concept of the violence inhibitor, we can see great promise for this approach, especially given that dysfunction of the violence inhibitor is a pathology and, therefore, needs to be treated. But nothing prevents the development of both ideas in parallel. While there are no reliable and effective therapeutic solutions to the problem of violence, it can be mitigated by proactive epigenesis, which is a more cautious solution. Also, keep in mind that epigenetic influences can be temporary and reversible, so we cannot drop the search for a more effective therapeutic approach.

Proactive epigenesis is a great idea for those who would like to change society in a better, more non-violent direction through upbringing and educating children. Anyone who does or plans to do this should study human neurophysiology better and become familiar with the specifics of the violence inhibition mechanism. If you get a good understanding of what an individual needs to experience inner resistance to violence and be able to show empathy, your efforts will definitely not be in vain.

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Why psychopaths tend to deny their disorder and what to do about it



Identifying violence as a pathological form of behavior may face the problem that people who, due to a dysfunctional violence inhibition mechanism, are able to commit it easily will unlikely consider themselves unhealthy individuals. Many disorders result in negative symptoms that are clearly felt by the individual, such as anxiety, mood deterioration, depression, suicidal thoughts, and so forth. But the case is more complicated if the disorder itself does not cause suffering, and violence inhibitor dysfunction is just such a disorder.

According to Robert Hare, who developed the well-known Psychopathy Checklist (PCL-R), psychopaths have a narcissistic and grossly inflated view of their self-worth and importance, a truly astounding egocentricity and sense of entitlement. They see themselves as the center of the universe, as superior beings who are justified in living according to their own rules. Hare also addressed the issue of treating psychopaths. According to him, the term “treatment” implies that there is something to treat: illness, subjective distress, maladaptive behaviors, and so forth. But, as far as we can determine, psychopaths are perfectly happy with themselves, and they see no need for treatment, at least in the traditional sense of the term^[1].

Psychopaths definitely have an inflated view of themselves. They see themselves as important and entitled. They often feel justified to live according to their own rules, and they think that the laws don't apply to them. They tend to have grandiose ideas about their potential. They believe that they deserve to be the CEO, or they are convinced that they are the best at everything they do^{[2][3]}.

Such personality traits in psychopathic individuals are not surprising. Since childhood, they have not experienced any bad feelings when they caused harm to others, and accordingly, they considered this to be the norm. They view empathy, compassion, and the inability to commit violent attacks, which are characteristics of the average healthy individual, as weaknesses. Perhaps this is what predisposes them to put themselves above others.

All this, of course, prevents the eradication of violence from society since its perpetrators often do not consider themselves abnormal and ill. They should always be reminded of this by referring to the theory of the violence inhibition mechanism and the pathological nature of their condition. One may recall the Wakefield criteria for disorder: a condition is a disorder if it leads to harm to oneself or others and is associated with the failure of some internal mechanism to perform a function for which it was biologically designed. And violence inhibitor dysfunction meets these criteria^{[4][5]}.

Violent individuals can also be encouraged in any way possible to undergo therapy, or it can be offered as an alternative to punishment for their offenses. Finally, social pressure can be applied. Individuals with violence inhibitor dysfunction need to realize that no one will risk having a relationship with them until they agree to therapy that restores inhibitory control over aggression. It is worth noting that in some circumstances, such people can be even more dangerous than, for example, those suffering from contagious infectious diseases, who, if they refuse to undergo treatment, are now unlikely to be accepted to study or work and few people will risk having a relationship with them; in general, everyone who knows about their condition and unwillingness to be treated will not go near them. This is a perfectly understandable and normal safety practice. And violence inhibitor dysfunction is also a serious safety threat. If significant parts of society understand this and act accordingly, many violent individuals will undergo treatment based on rational considerations.

Indeed, there will be those who will not undergo therapy to restore violence inhibitor function, even under social pressure. They must be monitored closely, and we must be prepared to apply therapeutic intervention as part of a defensive response to any attempted violent attack by them. Obviously, it is reasonable not to ask a person who is directly committing acts of violence about their willingness or unwillingness to undergo such therapy.

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The influence of diet on the propensity for violence



There are many studies on how the presence or absence of certain compounds in the diet can affect the development and functioning of the brain. In particular, some of them address the topic of aggression, if not directly the influence of diet on the functioning of the violence inhibition mechanism. Given the importance of some of the evidence they provide, which may even suggest new possible approaches to the treatment of violent behavior, it would not be unreasonable to list them.

Omega-3, physical aggression, and the electrophysiology of the violence inhibition mechanism

Omega-3 polyunsaturated fatty acids have been studied a lot in relation to aggression and antisocial behavior^[1]. Low levels of eicosapentaenoic acid (EPA) are associated with increased aggression in animals and humans. And its inclusion in the diets of substance-using patients, patients with borderline personality disorder, prison inmates, and children exhibiting both reactive and proactive aggression reduced anger, aggression, and violent behavior. In children with attention deficit hyperactivity disorder (ADHD), EPA blood levels were negatively correlated with callous and unemotional traits, which are prerequisites for psychopathy in adulthood, but in their case docosahexaenoic acid (DHA) played an important role too.

A study of 63 participants who completed a questionnaire assessing the presence of omega-3s, including EPA, in their diet over the past 6 months showed a significant negative correlation between EPA intake and physical aggression. In the other 47 participants, it was also demonstrated that higher EPA intake was associated with reduced physical aggression. In addition, it positively correlated with successful motor extinction in response to observing fearful facial expressions from other people, but there was no such relationship with motor extinction in response to observing sad expressions (both of these cues lead to activation of the violence inhibitor in a healthy individual). Electrophysiological measures such as N170 and Stop-P300 amplitudes are important in assessing violence inhibitor functioning. Neither EPA nor DHA intake correlated with N170 amplitude, but EPA intake positively correlated with Stop-P300 amplitude responses to both sad and fearful expressions.

As a result, we find that intake of EPA, but not DHA, mediates electrophysiological measures related to the recognition of the need to inhibit behavior and the efficacy of motor extinction. And a meta-analysis of 29 trials with 3,918 participants showed that omega-3 intake can lead to a 30% reduction in aggressiveness, including both proactive and reactive aggression^[2]. This suggests the importance of further exploring the possibility of omega-3 intake as a therapy for individuals with dysfunction of the violence inhibition mechanism.

How important tryptophan is not only for physical health but also for mental health

Tryptophan, a precursor to serotonin, is one of the most studied amino acids. Tryptophan supplementation can increase serotonin levels in the brain, and for this reason, numerous studies have examined whether it can positively influence social behavior through serotonergic function^[3]. For example, in the case of aggressive men, taking tryptophan resulted in less aggressive reactions to provocations. Also, in some studies, it led to a reduction in anger, hostile attitudes, and irritability.

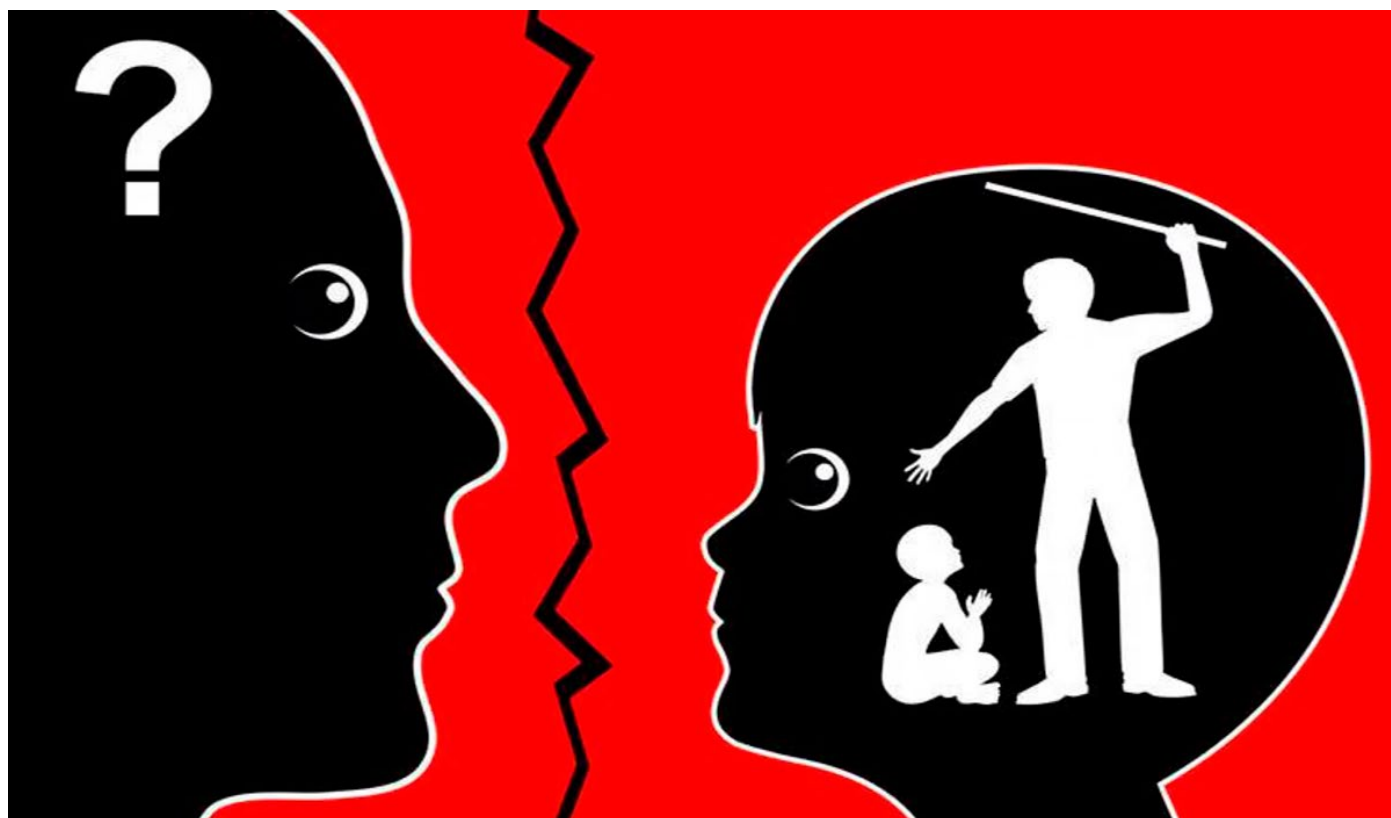
The history of the populations for which corn was a staple food is very interesting^[4]. For example, this was the case with the Native American population (especially the Aztecs) and the rural population of various European countries in the 19th century. Such a diet led to a skin disease called pellagra, which is caused by reduced tryptophan intake. Of course, it also reduces serotonin levels in the brain, which can lead to antisocial behavior, mania, and aggression, often seen in those suffering from pellagra. Also, at least two studies of criminal offenders have found an increased percentage of those suffering from pellagra among them. Among murderers who were characterized as “insane,” more than one-third had pellagra.

At the time of 1973, it was noted that even the poorest diet of North Americans had two times more tryptophan than the recommended allowance (500 mg/day). The recommended allowance is enough to prevent pellagra, but it may not be enough to maintain “psychic balance.” One study showed that taking twice the recommended amount of tryptophan for a year led to psychological improvements that were not seen when taking only the recommended amount. And in North America at that time, there were still populations that could suffer from tryptophan deficiency, such as the Native American population. As it was noted, about 10% of medical patients from a large Indian community in Saskatchewan, Canada, suffered from subclinical pellagra, which, among other things, was accompanied by increased irritability and aggression.

Today, pellagra is still common in South American and African populations and is also found among chronic alcoholics. It is caused by a diet consisting mainly of starch-rich foods. And a diet rich in fruits, vegetables, milk, and meat prevents this disease.

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Why physical punishment for children is absolutely unacceptable



Physical (corporal) punishment, or spanking, is the practice of using violence on children to modify their behavior. Unfortunately, there are still parents who consider this practice acceptable, if not absolutely normal. It is also supported by some public figures with ultra-conservative and authoritarian views, such as the American psychologist James Dobson. He believes that gentle parenting methods alone are not enough; they must be mixed with the infliction of pain on children for disobedience and challenging the authority of parents, as this is the best method of preventing bad behavior^[1]. In addition, he argues that authoritarian parenting should help preserve social order and prevent social unrest like that which occurred in the United States in the 1960s. Most people will probably find Dobson's position extremely cruel, misleading, barbaric, inadequate, and even delusional. However, we will still look at the specific arguments against the use of violence towards children.

First of all, it should be noted that corporal punishment is simply ineffective. An analysis of 75 studies involving 161,000 children demonstrates that it does not eliminate unwanted behavior^{[2][3]}. Furthermore, it leads to 14 significant harmful effects:

- Poorer moral reasoning;
- Increased childhood aggression;
- Increased antisocial behavior;
- Increased externalizing behavior problems (disruptive or harmful behavior directed at other people or things);
- Increased internalizing behavior problems (symptoms of anxiety or depression);
- Child mental health problems;
- Impaired parent-child relationship;
- Impaired cognitive ability and impaired academic achievement;
- Lower self-esteem;
- Increased chance of becoming a victim of physical abuse;
- Antisocial behavior in adulthood;
- Mental health problems in adulthood;
- Alcohol or substance abuse problems in adulthood;
- Support for physical punishment in adulthood (it is appropriate to mention Dobson again, who was also beaten when he was a child).

The effects of physical punishment are similar to those that occur due to trauma caused by some other types of childhood experiences, including physical and emotional abuse, neglect, sexual abuse, domestic violence, and family mental illness. Also, research has shown that when children are exposed to harmful experiences, they become hypervigilant to the emotional expressions of others, as some of them, such as anger, become associated with subsequent bad actions. In children who have been physically punished, the brain begins to work in the same way as in children who have been exposed to other forms of violence^[4]. In addition, adverse childhood experiences can increase the risk of certain physiological problems, such as poorer muscle metabolism^[5].

Finally, some researchers believe that punitive political attitudes, including the favoring of war as an instrument of national policy and capital punishment, are consequences of punitive upbringings. Those who have been beaten, terrified, and shamed by parental authorities as children and who have not subsequently benefited from psychotherapy displace their childhood anger onto political issues and outgroups. It is believed that the widespread, abusive child-rearing practices in Germany at the turn of the 20th century played a significant role in the subsequent rise of Nazi supporters^{[6][7][8]}.

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Animal abuse, violence towards humans, and psychopathy



Actions that mistreat or kill any animal without just cause, such as torturing, tormenting, mutilation, maiming, poisoning, or abandonment, will be seen by many people as a clear indication that the person resorting to them is mentally disturbed and may well be capable of committing violence towards humans with the same ease. Actually, many studies have found a link between animal abuse and various forms of violence.

As one Swiss study demonstrates, people who abused animals in childhood are 3 times more likely to commit serious acts of violence during their lifetime, such as robbery, snatching, or assault^[1]. And another study, conducted on two samples of women, showed a link between a propensity to abuse animals and proactive aggression, sadism, psychopathic tendencies, and callous-unemotional traits^[2]. About 60% of individuals who have witnessed or perpetrated animal cruelty in childhood also report

experiences with child maltreatment or domestic violence. As it turns out, animal cruelty is a “red flag” for family violence^[3]. Finally, according to various studies, between 23% and 77% of households where intimate partner violence occurs also show the presence of animal abuse^[4].

People who abuse animals have higher average psychopathy scores. The torture of animals has the strongest association with psychopathy. The mean PPTS (Psychopathic Personality Traits Scale) score for individuals who committed it was 13.04 points, while for those who did not torture animals, it was 10.19 points (the average difference was 2.85 points). Killing animals comes next (the average difference was 2.65 points), followed by harming animals (the average difference was 2.34 points)^[5].

We can confidently state that a greater propensity to commit violence towards humans is indeed associated with animal abuse. There is also a significant association with psychopathic tendencies. Particular attention should be paid to the impairments in the violence inhibition mechanism, which explain the inability of certain individuals to recognize animal distress as well as their callous and disregarding attitude towards animals^[2]. Therefore, if some individuals abuse animals, it is worth considering how they will behave towards other people and whether they need to receive treatment for violence inhibitor dysfunction and psychopathic tendencies.

^[1] Lucia, S., & Killias, M. (2011). Is animal cruelty a marker of interpersonal violence and delinquency? Results of a Swiss National Self-Report study. *Psychology of Violence*, 1(2), 93–105. doi:10.1037/a0022986

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The relationship of extremism and radicalization to psychopathy and other socially negative personality traits



There is an interesting question about the role of the individual's personality in extremism (i.e., support for the use of violence in achieving political goals) and in radicalization, including aggressive religious radicalization. In this issue, it is especially worth considering the fact that psychopathic tendencies are the strongest predictor of violent behavior, and thus, it can be assumed that they explain these phenomena to some extent as well. And a number of studies have explored this issue.

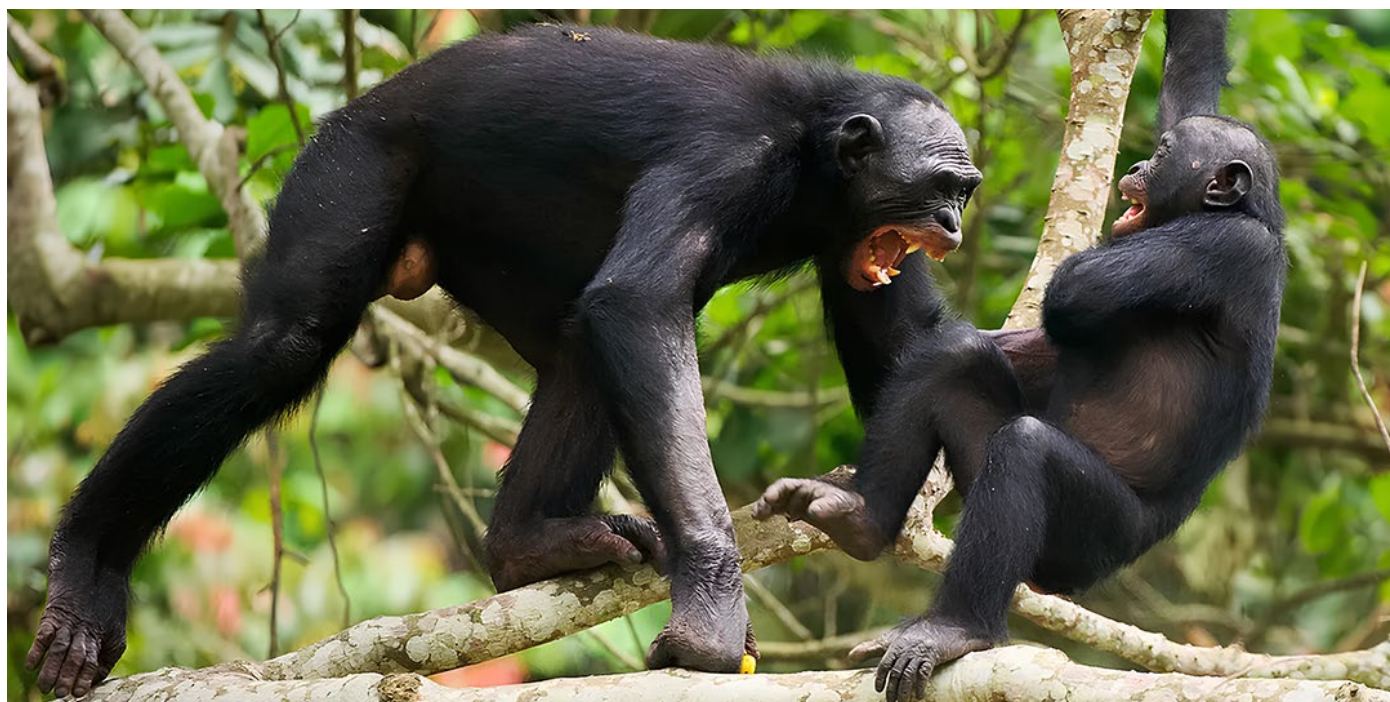
For example, one of them examined the extent to which the presence of a Militant Extremist Mind-Set in an individual could be explained by psychopathy, sadism, and Disintegration (psychosis proneness). In a sample of 306 students, sadistic and psychopathic tendencies were shown to be associated with Provivence (i.e., support for violence as a means for achieving goals). Also, psychopathy and Disintegration were linked to the belief that the world is a corrupt and vile place. In addition, Disintegration was a good predictor of an individual's propensity to rely on supernatural forces as a rational justification for extremist acts. These results were replicated when a similar study was conducted on a sample of 147 male prisoners^[1].

In another study conducted on a sample of 643 women, it was shown that those with high scores of the dark triad traits (narcissism, Machiavellianism, and psychopathy) had the highest levels of radicalized cognitions and behaviors and were prone to aggressive religious radicalization^[2]. Also, in a sample of 299 students, the positive association of the dark triad traits with Provivence and support for extremism was confirmed^[3]. The significant positive association between psychopathy and extremism is supported by another study conducted on 954 volunteers^[4]. In addition, in a sample of 469 students, it was found that psychopathy and narcissism directly explained Provivence, whereas psychopathy and Machiavellianism directly explained religious radical behavior^[5].

As we can see, psychopathy, as well as other socially negative personality traits such as narcissism, Machiavellianism, sadism, and Disintegration, are factors that, according to many studies, predict an individual's propensity for Proviolence, extremism, and radicalization. It is necessary to be aware of this in order to understand the problem of such behavior better and to search for possible methods to solve it more effectively.

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 - ²⁾ Chabrol, H., Bronchain, J., Morgades Bamba, C. I., & Raynal, P. (2019). The Dark Tetrad and radicalization: personality profiles in young women. *Behavioral Sciences of Terrorism and Political Aggression*, 12(2), 157–168. doi:10.1080/19434472.2019.1646301
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 - ⁴⁾ Dil, S., Kazmi, S. F. (2022). Moderating role of personality types in relationship between psychopathy and extremism. *Russian Law Journal* 10(3):11.
 - ⁵⁾ Zulkarnain, Z. & Dwiningrum, N. (2023). Religious Radicalism Behavior: The Role of Pro-Violence and Dark Personality. *International Journal of Multicultural and Multireligious Understanding*. 10. 133. doi:10.18415/ijmmu.v10i12.5181
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Are chimpanzees and humans innately predisposed to commit killings and wars?



Why do wars happen? One explanation is that chimpanzees and humans have an innate predisposition to kill “outsiders” when there is little risk because this behavior has provided a reproductive and resource advantage to groups of killers in the course of biological evolution. Such a theory began to be actively developed after a case when two groups of chimpanzees engaged in a “war” in Gombe National Park in 1974–1977. Researchers such as Richard Wrangham, Michael

Ghiglieri, and others have stated that this phenomenon is identical to human wars and that both species have a natural predisposition to kill their neighbors, which gives the group of killers an advantage over other groups. However, there is also an alternative view that refutes this theory. Anthropologist Brian Ferguson describes it well in his 2023 book “Chimpanzees, War, and History: Are Men Born to Kill?” and we will now review some of the important evidence presented in it.

To begin with, the number of chimpanzee killings in Gombe is unreasonably exaggerated. Missing individuals are explicitly counted as killed, although they may have simply moved beyond the boundaries of the observed area. Ferguson cites the example of shifting horticulturalists of the Amazon basin, who end conflicts simply by moving farther away from each other. Human impact must also be considered, including the destruction of the chimpanzee habitat and researchers' highly intrusive observation of them. And what may have had a particular impact was the researchers' decision to provide bananas to the chimpanzees. When this led to a number of problems, including clashes between the chimpanzees at the banana distribution site, they had to abruptly stop this practice, which could have resulted in severe frustration for the chimpanzees. It is also important to consider that particular individuals were notably aggressive. For example, two females who were mother and daughter were known for frequently attacking other females and eating their infants. One male was also famous for such behavior, and it was this male, being a belligerent leader, who led the first attack in the “war.”

Observations of chimpanzees after the Gombe “war” reject a number of claims about their behavior. For example, it was thought that if a group of males met one male from another group, they would definitely kill him. But after the “war” in hundreds of intergroup encounters, this did not happen. Attacks provoked by the imbalance of power between groups did not occur anymore as well, although this imbalance was observed very often. There was also very little data to support the assumption that intergroup killings were profitable. What is confirmed, however, is the idea that the “war” was provoked by human impact, such as deforestation and the provisioning of bananas, followed by a cessation of this, causing intense intergroup competition for food.

When the chimpanzee population in Gombe recovered, competition and conflicts returned, but killings were rare. Also, most of them were intragroup, not intergroup, which does not fit with earlier assumptions. And most often, these killings were committed by males who were born and spent their first years of life at the peak of violence, including the attacks of the two previously mentioned females. Moreover, one extremely aggressive male who committed particularly brutal killings, led attacks on other chimpanzees, and even once killed a human child stood out among them. Individual differences definitely play a role in aggressive behavior. Also, chimpanzees, like humans, can carry a low-activity variant of the MAOA gene (also known as the “warrior gene”), which, according to research, predisposes humans to violent behavior, but only in the case of childhood abuse (which the male chimpanzees discussed here were exposed to). And the peak in killings in this case coincided with a new increase in human intervention in the chimpanzee habitat.

We can also mention the example of the disappearance of one group of chimpanzees in Mahale National Park, which is often explained by their extermination by another group. However, it is important to understand that disappearance does not mean killing. These chimpanzees could have simply moved to another location, and there has already been a case in Mahale where an entire population of 70 chimpanzees abruptly disappeared due to deforestation but was later found in another location. And even if they died, it could be due to many causes, such as predator attacks or diseases (which were quite common, also due to human impact).

As strong evidence in favor of the demonic perspective, the case of intergroup violence and killings in Kibale National Park, committed by the Ngogo chimpanzee community, is cited. However, although

the chimpanzee habitat was described as pristine, there was, in fact, massive deforestation and growth of agricultural activity. This could eventually lead to a rapid increase in the density of chimpanzees in the remaining areas and problems with food supply. Although there was no general shortage of food and the chimpanzees were generally well fed, preferred foods such as fruits became scarce, and this was a factor causing clashes between them.

Considering all observations of chimpanzees, most adult killings occurred in just two cases: in Gombe between 1974 and 1977 and in Kibale between 2002 and 2006. Of the 27 clearly confirmed intergroup killings of adult or adolescent chimpanzees, 15 occurred in these cases, and 12 occurred in the rest of the long history of chimpanzee observations. As noted, Ngogo killings of outsiders are 23–75 times higher than the median rate suffered by individuals in nine well-studied chimpanzee communities. Overall, **the two cases we cited are exceptional; they represent only 2% of the entire history of chimpanzee observations, and without them, intergroup killings of adult chimpanzees would be extremely rare.** And if this were an adaptive behavior developed during biological evolution, wouldn't it occur much more frequently? There is very little evidence that such behavior is adaptive, and even if we take the strongest adaptive predictor of killings among those found, which is the population density growth, it was closely related to human impact in all cases.

It has also been claimed that it is common for chimpanzees to conduct raids in which they may exterminate other groups. But this was observed only once in Gombe. There was no “war” in Mahale, and in the case of the Ngogo community, no extermination of neighbors was observed. This means that raids don't even happen sometimes. It was just one case. The common claim that group exterminations are common is without foundation. In addition, the issue of infanticide is not clear, as many of its cases were intragroup, not just intergroup, and there were cases where males were not unlikely to kill their own infants, which clearly does not indicate such behavior as adaptive.

Finally, it is important to note that the demonic perspective, even if it had a foundation, would not apply to modern wars between states, in which leaders command rather than fight themselves, and soldiers follow orders. And in the case of “simple societies,” there is no reason to think of them as predisposed to kill members of other groups. Of course, some hunter-gatherers with complex social structures make wars, but mobile foragers (simple hunter-gatherers), which existed most of human history, are not characterized by this. Although there is individual violence and killings among the members of such societies, with rare exceptions, which some researchers like to focus on, there is no intergroup violence among them.

Upper Paleolithic archaeological evidence (dates to 50,000–12,000 years ago) does not indicate cultural differentiation across space. Everyone, across continental spaces and over long stretches of time, was making the same kinds of tools and participating in open continental-wide social networks, and all of the issues of group boundaries, “traditional enemies,” different ethnicities, and territoriality are simply incompatible with this. Simple societies were extremely flexible, and it would have been impossible if any male outsider trying to contact other groups of men would have been killed immediately. And wars between different groups of people only began to occur when higher levels of social organization emerged. **An expanding state is what can introduce violence into an otherwise peaceful population of foragers or horticulturalists.**

Graphical materials

Graphical materials that didn't make it into other materials on the website are posted here.



With humanity in its present cultural and technological situation, we have good reason to consider intraspecific aggression the greatest of all dangers. We shall not improve our chances of counteracting it if we accept it as something meta-physical and inevitable, but on the other hand, we shall perhaps succeed in finding remedies if we investigate the chain of its natural causation.

— Konrad Lorenz

Antiviolence.io



Douglas P. Fry



Marta Miklikowska

Most intraspecific aggression in the animal kingdom is nonlethal ... attempting to kill conspecifics is rarely favored by natural selection. This corpus of evidence provides an important precedent for proposing that evolutionary selection pressures have favored restrained forms of aggression over lethal patterns in humans also.

Although homicide rates vary tremendously from one society to the next and also change over time within the same society, the vast majority of people never kill or attempt to kill anyone.

Bountiful theoretical and empirical reasons exist for making the prediction that killers will be found to average less offspring than nonkillers across a variety of social circumstances. This prediction stems from an application of evolutionary theory and observations of animal and human behavior.

Miklikowska, M. & Fry, D. (2012). Natural Born Nonkillers A Critique of the Killers-Have-More-Kids Idea. More details on the concept of a violence inhibitor can be found on the website **Antiviolence.io**

Where Normal Managers [whose psychopathy scores were less than 9 out of 16 on the PM-MRV test] were present, most respondents (89.3%) agreed that the organization was doing business in **a socially responsible and environmentally friendly manner**. Where Dysfunctional Managers [whose scores were 9–12] were present, this figure dropped down to 66.0%, and where Corporate Psychopaths [whose scores were more than 12] were present, this figure dropped down further to 52.5%.

Where Normal Managers were present, most respondents (85.8%) agreed that the organization was doing business in **a manner that benefits the local community**. Under Dysfunctional Managers this drops to 75.0%, and where Corporate Psychopaths were present, this figure dropped down to a significantly lower 55.1% of respondents who agreed with this statement.

When Normal Managers were present, 79.6% of employees reported that they agreed that their organization does business in **a way that shows commitment to employees**. Where Corporate Psychopaths were present, this figure was just 23.7%.

The existence of Corporate Psychopaths should be of interest to those involved in corporate management and corporate governance because their presence influences the way corporations are run and how corporations affect society and the environment.

Boddy, C. R., Ladyschewsky, R. K., & Galvin, P. (2010). The Influence of Corporate Psychopaths on Corporate Social Responsibility and Organizational Commitment to Employees. *Journal of Business Ethics*, 97(1), 1–19. doi:10.1007/s10551-010-0492-3

More on the problem of psychopathy and the theory of the violence inhibition mechanism can be found on the website **Antiviolence.io**



Matthew DeLisi

American criminologist, author,
forensic consultant.

There is a synergy between the violent criminals' personality traits, lifestyle, and observed behavior that dovetails so exquisitely that it is as if their criminality is wrapped up in a box. That box is psychopathy.

Psychopathy is the purest and the best explanation of antisocial behavior. Indeed, psychopathy is the unified theory of crime because it mirrors the elemental nature and embodies the pejorative essence of antisocial behavior, accommodates dimensional and categorical conceptualizations and examinations of antisocial behavior, facilitates the study of antisocial phenotypes over the life span, accommodates the general overlap of antisocial behaviors among diverse populations, and facilitates emerging biosocial explanations of antisocial behavior.

DeLisi, M., & Vaughn, M. G. (2008). Still psychopathic after all these years. In M. DeLisi & P. J. Conis (Eds.), *Violent offenders: Theory, research, public policy, and practice* (pp. 155-168). Boston: Jones & Bartlett. DeLisi, M. (2009). Psychopathy is the Unified Theory of Crime. *Youth Violence and Juvenile Justice*, 7(3), 256-273.

More on the problem of violence and psychopathy on the website **Antiviolence.io**

The most interesting findings were that the mean PCL-R (psychopathy) total scores of the CAH (men convicted of crimes against humanity) and prison samples were about the same but differed widely on the pattern of factor/facet scores ... these men (from the CAH sample) generally were extremely grandiose, manipulative, deceptive, callous, and remorseless, about as impulsive, irresponsible, and sensation seeking as other offenders, yet not burdened with a manifest history of delinquent or severe antisocial behavior.

It appears that ambitious, callous, and ruthless officers were suitable candidates for roles dedicated to suppressing and eliminating proclaimed enemies of the state.

From a study of police and military officers convicted of committing crimes against humanity during the Pinochet regime in Chile: Hare, R.D., León-Mayer, E., Salinas, J.R., Folino, J., Neumann, C.S. (2022). Psychopathy and crimes against humanity: A conceptual and empirical examination of human rights violators, *Journal of Criminal Justice*, Volume 81. More details on **Antiviolence.io**



American psychologist
and author Martha Stout

Yes, politicians are more likely than people in the general population to be sociopaths. I think you would find no expert in the field of sociopathy / psychopathy / antisocial personality disorder who would dispute this ... That a small minority of human beings literally have no conscience was and is a bitter pill for our society to swallow – but it does explain a great many things, shamelessly deceitful political behavior being one.

Source: https://www.huffpost.com/entry/are-politicians-psychopaths_b_1818648
More about the problem of violence and psychopathy on the website **Antiviolence.io**

Thirty societies (5 percent of the total [of the 590 studied]) were found to lack warfare: The literature revealed no evidence of warfare, no military organization, and no special weapons. Another 346 societies (59 percent of the sample) were rated "to be unwarlike or to engage only in mild warfare, provided that no indication was found of fighting for definite economic or political purposes in the more specialized literature."

Combining these two groups leads to the observation that nearly two-thirds of this large worldwide sample (64 percent) are nonwarring or mild-warring ... the rest of the societies engage in war for economic or political purposes (29 percent and 7 percent, respectively).

War is either lacking or mild in the majority of cultures. The cross-cultural picture is not nearly as Hobbesian as is often assumed.

Wright, Q. (1942). *A Study of War*. Chicago: University of Chicago Press.
Fry, D. P. (2006). *The human potential for peace*. New York: Oxford University Press.

More details on
Antiviolence.io