

2. The Main Symptoms of the AHA-Syndrome: Relationships Between Anger, Hostility and Aggression in a Normal Population

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Abstract: The purpose of the present study is to analyse the relationship between the main symptoms of the AHA-Syndrome – anger, hostility, and aggression – summarising the main empirical results of our research in normal people. The different definitions of aggression may be grouped according to whether the primary goal is distress or harm, focussing primarily on the objective infliction of harm, or on the subjective intention of harming. Most classifications in the literature show two kinds of aggression, even if different names are used: (i) hostile aggression – also known as reactive, impulsive, or affective – is an act, primarily oriented to hurt another individual; and (ii) instrumental aggression – also known as proactive, premeditated, or predatory – is a means or tool for solving problems, or for obtaining a variety of objectives. As predicted, there was a positive correlation between the experience and expression of anger. Anger involved physiological arousal and prepared for aggression. Finally, hostility positively correlated with anger and different kinds of aggression, but not its degree of justification.

Keywords: AHA-Syndrome, Anger, Hostility, Aggression.

Introduction

The concepts of anger, hostility, and aggression, are part of a cluster often referred to as the AHA-Syndrome [1]. Anger refers to an emotion but can also be considered a personality trait. Hostility, in itself, is a multidimensional concept that can be categorised into attitudinal, emotional, and behavioural components [2]. Aggression, usually, refers to behaviours toward others; it has traditionally been classified into two distinct subtypes that, even if using many different terms, consistently follow a common dichotomy: reactive or proactive [3].

Since the design of experiments, methodologies, and therapies employed in the AHA-syndrome are strongly influenced by the definitions adopted, it is important to start with a description of its main symptoms, in the hope that a good profile may help in a better and more comprehensive understanding of the AHA-syndrome. This article will first present a brief theoretical consideration of the aforementioned three concepts. The aim is to present some information of how these

different constructs – anger, hostility, and aggression – may be interrelated, on the understanding that a useful framework would be of fundamental importance for improving the diagnosis, prevention, and treatment of the AHA-Syndrome, which comprise emotion or affective feelings (anger), temperament or attitude (hostility) and, obviously, overt behaviour (aggression, in its strictest sense).

Even if one is obviously aware that the patients with health problems and psychiatric disorders are the closest subjects to the AHA-syndrome, when dealing with the different symptoms and their interrelations, it may be prudent to leave aside the clinical populations and, instead, start understanding the nature and functional value, if any, of these constructs in ‘normal’ subjects, with a relatively homogenous environment and no significant differences in age and education. This is the main reason why undergraduate students have been chosen from a community sample for the experimental analysis, which forms the basis of the present article.

Aggression

Concept of Aggression

Before distinguishing between forms of aggression, one must be clear about the meaning of the term, because if other researchers want to replicate a research, at least there has to be a previous agreement about a precise working notion, i.e. what one is looking for, so that it allows clear operational definitions. In spite of the enormous literature available on the topic and the continuous efforts by many scholars dedicated to the scientific study of aggression, there is still considerable disagreement about its precise meaning and causes, with no singular or even preferred definition. Far from being a univocal term, aggression is often ill-defined, used with ambiguity and with a surplus of meanings. This multitude of different conceptualisations is one of the main problems in the literature. Part of the task of understanding aggression, therefore, would be to clarify its meaning.

Which definition should be chosen? Traditionally, stress has been laid on the intention to harm another living being [4], and not simply the delivery of harm, i.e. a manifest response “aimed at the injury of a target” [5-7]. This intention seems clear in some kinds of aggression but, in others, the perpetrators of the harm may be able to deny any intent to cause harm. For example, aggression would simply be the infliction of harm on others, in a behaviourist approach “that delivers noxious stimuli to another organism” [8], or as described elsewhere, “the delivery of any form of definite and observable harm-giving behaviour towards any target”, without mentioning the eventual intention of the actor [9-13]. Spielberger et al. [14] did not include the intention either, when they said that the concept of aggression “implies destructive or punitive behaviour directed towards other persons or objects”.

A recent analysis [15] tried to clarify these different definitions, distinguishing between proximate and ultimate goals. Intention to harm is viewed as a necessary feature in any kind of aggression, but only as a proximate goal (as in purely hostile aggression models). At the level of ultimate goal, though, there is a clear difference between different types of aggression. Thus, both robbery and physical assault are acts of aggression because both include intention to harm the victim at a proximate level. However, they typically differ in ultimate goals, with robbery serving primarily profit-based goals and assault serving primarily harm-based goals. In short, this

distinction allows the discussion of the commonalities in different kinds of aggression and the distinctions between them, while including aggression with mixed motives.

Kinds of Aggression

However, difficulties inherent in defining aggression appear simple in comparison to the difficulty in establishing a classification of such an ambiguous construct. Far from being a term describing a singular dimension, aggression consists of several phenomena, which may be similar in appearance but have separate genetic and neural control mechanisms, show diverse phenomenological manifestations, have different functions and antecedents, and are instigated by different external circumstances.

Early work by Arnold Buss [8], thinking in terms of the way of doing it (how) distinguished three, not quite independent but rather overlapping dimensions [16], on which one might categorise several types of aggression: physical-verbal, active-passive, and direct-indirect. The *physical-verbal* dimension distinguishes between whether one uses physical means or words to harm another person [17, 18]. The *active-passive* dimension refers to the extent to which the aggressor actively engages in a behaviour aimed at harming someone, with passive aggression referring to causing harm by not doing something. The *direct-indirect* dimension is also relevant [8, 18-20]. Direct aggression involves face-to-face confrontation between the aggressor and the target. It is defined as any behaviour aimed at the goal of harming another living being [4]. Consistent with Buss' original formulation, this form of aggression may be either verbal or physical, e.g. direct aggression may involve screaming at another person or hitting that person. Indirect aggression is defined as any behaviour aimed at the goal of harming another living being that is delivered circuitously through another person or object, even if it must nevertheless be intended to harm someone [21]. It is a mode of aggression that avoids counterattack. It may involve both 'round about' aggression – the hated person is not attacked directly, but by devious means – and undirected aggression – there is discharge of negative affect against no one in particular [8]. Norma Feshbach [22] defined it as “responses, which result in pain to a stimulus person through rejecting and excluding him”, including such actions as ignoring or denying requests. It may be either physical or verbal, e.g. indirect aggression may involve causing harm to someone's property, or talking behind someone's back.

Some researchers have also considered *non-direct* forms of aggression that cause harm by disrupting relationships [23]. Crick and Grotpeter [24] defined relational aggression as “harming others through purposeful manipulation and damage of their peer relationships”, including behaviours such as exclusion and telling the target they would not be friends anymore. These forms of relationally oriented aggression include both direct and indirect behaviours. For example, telling a target they would not be friends is a direct, verbal approach, and denying a request is similarly direct. This form of aggression also involves primarily verbal aggression that causes harm by disrupting relationships.

A recent study has proposed a new typological construct of aggression, elaborated through a structural equation modelling, and assessed its statistical validity. This theoretical classification of aggression and the empirical data showed an adjusted goodness of fit index = 0.102, providing empirical support for a structural typology of aggression composed of three dimensions – biological, social, and situational. Physical and verbal aggressions were classified in a construct

named *biological dimension* of aggression; indirect and critical aggression were classified in a construct called *social dimension* of aggression; and, finally, reactive and instrumental aggression were included in a construct named *situational dimension* of aggression [3].

Many other proposed classifications of human aggression, even if using different terms, consistently follow a common dichotomy – in terms of purpose (why) or goal (inferred or otherwise) – depending on whether the primary intent is distress or harm, show qualitatively different phenomenology and neurophysiology, and appear clearly distinct at the factorial level. For instance, Rosenzweig [25] delineated a specific typology of aggressive responses to frustration: a *positive/constructive* profile (need-persistence), which is adaptive as well as prosocial, and a *negative/destructive* one (ego-defence), which is maladaptive as well as antisocial. Recent studies [26, 27] suggest something similar. Loeber and Schmalting [28] applied, practically, the same criteria to antisocial conduct, proposing *overt* and *covert*.

Some researchers [29-31] distinguish between *proactive* and *reactive* aggression, whereas others [7, 32-36] prefer to talk about *instrumental* and *hostile* aggression. Some others [37, 38] prefer to call them *impulsive* and *premeditated* aggression. Among psychiatrists [39], it is usual to talk about *predatory* and *affective* aggression. Other researchers [40, 41] have also proposed to extend to humans another bimodal scheme classification originated by ethological observations in animals [42, 43]: affective *defence* and predatory *attack*. However, its application can be difficult in our species since both these components of aggression may appear together [3]. The assessment of the validity of these two constructs by factor analysis shows good internal consistency ($\alpha = 0.73$). A cluster analysis confirmed this predicted dichotomy – they are independent, existing in varying degrees, with qualitatively different phenomenology and neurobiology, and appearing clearly distinct at the factorial level [30, 39, 44].

Thus, we find that aggressive behaviour has traditionally been classified into two distinct subtypes. These independent constructs, which are referred to as hostile and instrumental aggression consistently emerge in varying degrees among ‘normal’ persons [45]. Their more specific characteristics are as follows:

- The *hostile-impulsive-uncontrolled unplanned-reactive-hot blooded-overt-defensive-affective negative/destructive* type may be defined as an act that is primarily intended, as ultimate motive, to harm another individual. This kind of aggression has historically been conceived as being impulsive, thoughtless or thought confusion [44], emotionally charged – driven by anger and characterised by loss of behavioural control – and occurring as a reaction to some perceived provocation. Psychologically, it is associated with disruptive behaviour, hostile attribution biases, intention-cue detection deficits in interpretation, internalising problems such as, depression or somatisation, and victimisation [30]. It typically occurs with hostile facial expressions and a strong negative affect. Physiologically, it is characterised by a marked sympathetic over-arousal. Some cognitive and neurobiological deficits have been repeatedly associated with this type of people being more likely to have lower IQ [39], as well as poorer verbal skills, lower P300 amplitude [46, 47], impairment of prefrontal function [40, 48], and lower levels of CSF 5HIAA [49].
- The *instrumental-premeditated controlled-planned-proactive-cold blooded-hidden-offensive-predatory-positive/constructive* type is conceived as a non-provoked aversive act aimed at influencing others [30]. It is a premeditated means or tool for solving problems, or for

obtaining a variety of objectives other than harming the victim such as, some reward, profit, or advantage for the aggressor – power, money, control and domination, gratification with sex or drugs etc. It is purposeful and goal-oriented, thus, requiring neither provocation nor anger [50], and more likely to be acquired and reinforced [51]. Psychologically, it is associated with a positive evaluation of aggression and social gain and dominance: leadership, socialisation, reciprocal relationship and friendship with other proactive persons, aggressive models etc. Physiologically, it is marked by under-arousal. In contrast to hostile aggression, the instrumental form exhibits relatively normal psychophysiological and neuropsychological variables, with an intact control system and average IQ, similar to the ones of non-violent controls [46, 52], having relatively normal prefrontal function [40] and P300 amplitude [47]. They are not thought to be different from ‘normal’ people [49]. Their scores on personality measures, however, are high [52].

Distinguishing this dichotomy is an important first step in understanding the multifaceted nature of aggression, which, if forgotten, may confuse our understanding of anger and hostility [3].

Anger

Understanding the role of emotions in human aggression may be helpful in illuminating its developmental origins and outcomes. Unfortunately, most investigations have been conducted independently of research on emotions. Anger refers to feelings and represents the emotional or affective component of at least of some kinds of aggressive behaviour.

State anger is defined as a psychobiological, subjective experience that, over time and across situations, “usually refers to an emotional state that involves displeasure and consists of subjective feelings that vary in intensity, from mild irritation or annoyance to intense fury and rage” [14, 53, 54]. This internal state is embedded in a specific situational context, assuming that it would fluctuate over time as a function of perceived affronts, injustice, or frustration [55]. Anger would escalate if the source is seen as being intentional, preventable, unjustified, and blamed, as well as when values are compromised, promises and expectations are broken, rules violated, personal freedom and rights abridged. It is typically accompanied by autonomic nervous system arousal such as increases in heart rate and perspiration, cognitive distortions and deficiencies, and socially constructed and reinforced scripts [56, 57].

Trait anger may be considered to be a general temperament of low threshold reactivity in which angry feelings are experienced in response to a very wide variety of relatively innocuous triggers – e.g. a short delay on a cashier’s line, a slightly late mail delivery by the postal service, or noticing that a student has made unexpected spelling errors – or a more narrow pattern of reactivity to specific classes of stimuli for the person such as competition, rejection, or perceived unfairness. Anger proneness may be seen as a personality trait or characteristic conceived in terms of individual differences in the frequency over time to appraising emotional situations in an angry way (anger experience), as well as to responding in anger (readiness to act angrily) [54-56, 58-60]. Its corresponding action readiness mode is that of correcting the harm received, either in a constructive way (assertion) or in a destructive way (aggression).

Hostility

Hostility is a negative evaluation of persons and things [8], often accompanied by a clear desire to do harm or to agreed them [61]. Plutchik [62] considered it as a negative attitude that mixes anger as well as disgust, and it is accompanied by feelings of indignation, disgust, contempt and resentment towards others. On occasions, it can even become bitterness and violence. This cluster of negative feelings towards others, known as *hostile attribution* is its subjective component [63], being reflected in a disfavourable judgment on them, perceived as antagonistic and threatening [64]. According to him, hostility is expressed when we say we do not like somebody, especially if we wish him ill. A hostile person is somebody who usually does negative evaluations of and towards others, showing an overall dislike and contempt for others [14].

This attitude of resentment and suspicion can be reflected in verbal and motor responses, such as the aggressive ones [65]. Others have used the term *hostility* to describe the broad construct involving affect, cognition and behaviour, but this term has a more specific meaning involving cognitive factors [66]. The cognitive phenomenon of hostility consists of negative beliefs about and attitudes toward others, including cynicism, mistrust and denigration. Cynicism refers to the belief that others are motivated by selfish concerns and, often, mistrust is the co-occurring expectation that others are likely to be provoking and hurtful. When these cognitive factors are considered together, hostility can be seen as a general trait connoting “a devaluation of the worth and motives of others, an expectation that others are likely sources of wrongdoing, a relational view of being in opposition toward others, and a desire to inflict harm or see others harmed” [67].

Hostility in itself is a multidimensional concept that can be categorised into attitudinal, emotional and behavioural components [2]. The attitudinal component refers to negative attitudes and appraisal towards others – mistrust and cynicism. The emotional component includes emotions like anger, irritability and annoyance. The behavioural component refers to aggressive, antagonistic behaviour.

Bendig [68] reported a factor called *covert hostility*, consisting mainly of irritable acts, and *overt hostility*, consisting mainly of assault and verbal aggression. Another distinction offered more recently [66] is between the experience and expression of hostility. Experimental hostility primarily refers to subjective factors, notably the affective processes of anger and related emotions as well as the cognitive processes comprising hostility, e.g. suspicion and cynicism. In contrast, expressive or behavioural hostility refers to overt verbal or physical aggressiveness, or both.

Psychologically, hostility has a close relationship with irritability and aggression. Consequently, it is necessary to clarify in some way the complex relationship between anger, hostility and aggression. *Anger*, the easiest concept of the three, has been described earlier. *Hostility*, on the contrary, implies an attitude that usually is accompanied by feelings of anger. Both show similar physiological effects on the autonomic as well as somatic nervous systems, and in both there is a predisposition towards aggressive behaviours mainly directed at the destruction of objects, insults, or at the infliction of some harm. If anger and hostility refer to feelings and attitudes, *aggression* implies a further step, in the sense that it includes the appearance of behaviours that may be destructive, harmful or punitive when directed towards other people or objects.

Some Correlations Between the Different Constructs

This section addresses some findings to probe that there should be some correlation between the three main symptoms of the AHA-syndrome. Specifically, the following questions are going to be addressed:

- (a) Are there different types of aggression? If yes, which would be the main commonalities and distinctions between them?
- (b) Is there any correlation between aggression and anger and hostility?
- (c) Is there any correlation between the above-mentioned related constructs?

Hostile vs. Instrumental Aggression

Two decades of research on moral approval of aggressive acts – applying the Cuestionario de Actitudes Morales sobre Agresión (CAMA) questionnaire to urban populations of different cultures throughout the world – brought out interesting conclusions:

- (1) Aggressive acts of milder intensity were more acceptable than those of stronger aggression, as expected.
- (2) A factorial analysis of the principal components of CAMA and varimax rotation showed two groups of situations (> 0.35):
 - (i) Those leading towards instrumental aggression, which include self-defence, defence of others, and defence of property.
 - (ii) The rest of the situations with hostile responses, which include lack of communication or emotional agitation.
- (3) Both kinds of aggression – instrumental and hostile – as measured by CAMA, across the studies, were significantly correlated with one another ($r = 0.34$), with a shared variance and some independence between both subscales.
- (4) The level of justification of instrumental aggressive acts such as, those conducted in protection of self or other, was clearly higher than that of hostile acts with no such justification, e.g. as an expression of emotions, as a result of communication difficulties etc.
- (5) Within instrumental aggression, situations defending others and in self-defence received more moral approval than did those defending property.
- (6) Provoked aggression led to more approval than unprovoked aggression. For example, killing was considered more justified for altruistic reasons than as a mere expression of bad temper, whereas punishment, emotional reaction, and communication problems were seen as the least justified circumstances for aggression [3, 69, 70].

In other studies [71-73] interesting differences were found analysing social representation of aggression by the Aggressive Questionnaire (AQ) [65] and the correlations between AQ and CAMA. Physical aggression obtained a significant negative correlation with hostile representation of aggression ($r = -0.48$, $p < 0.05$) but, by contrast, a high positive correlation with instrumental representation of aggression ($r = 0.44$, $p < 0.05$). Finally, justification of aggression was significantly correlated to physical aggression ($r = 0.37$, $p < 0.05$) but not to verbal aggression ($r = 0.04$, n.s.).

These findings support the contention that aggression, far from being homogeneous, shows two distinct forms, which are different from one another, and differentially related to a host of other variables. There were pronounced personality differences [52]. The observed differences suggest that the physiological aspects of behavioural control play a key role in the type of aggressive behaviour displayed. For instance, under arousal is related to hostile aggression [74, 75], while instrumental aggression shows relatively normal psychobiological variables [76] and psychophysiological functions [47].

Their moderate correlates, however, suggest that instrumental and hostile aggression are similar in some ways, as one might expect. Thus, it was predicted that those who engage in both types of aggression are less likely to be able to control their behaviour. Also, they are more likely to experience anger as well as be more impulsive and more irritable than those who do not engage in these types of aggression. Grouping aggression according to different criteria, and applying the AQ, positive and significant correlations were found between physical and verbal aggression ($r = 0.35$, $p < 0.05$) [77].

Experience of Anger vs. Expression of Anger

A careful assessment of the differences between the intensity of anger experience and the frequency with which it is expressed is not only essential for understanding problems rooted in anger, but it is also a necessary first step in treatment planning.

It was predicted that even if a certain positive correlation should be expected between subjective anger experience and objective proneness toward an angry action, its experience would be shown in greater proportion. Studies have shown a positive correlation between both, in accordance with the working hypotheses, i.e. those who experienced anger more frequently were also more likely to express anger [56, 59]. This result also matched with another previous study [78], where a significant correlation of these variables with subcortical arousal was also found. Anger involves physiological arousal and prepares for aggression.

The feelings of anger, however, were much more frequent than the readiness to commit an angry action ($r = 0.30$, $p < 0.0001$), even if a positive correlation might be expected between them [54]. This is, of course, reasonable as one is likely to show restraint particularly when one's actions may be harmful to others, as often happens in the expression of anger.

Though it should be added that an over-control of anger, characterised by very low levels of anger expression, in the long term may risk an inappropriate and explosive expression of anger resulting in extreme violence [79].

Anger vs. Aggression

Anger, as well as other emotions, may almost certainly be involved in some forms of aggression. Those who engage in aggression of any kind are less likely to be able to control their behaviour and more likely to experience anger. They are also likely to be more impulsive and more irritable than those who do not engage so often in aggression. Barratt [80] hypothesised that trait behavioural approach sensitivity (BAS) would be positively related to the personality traits of anger/hostility, as well as with physical aggression [81]. Anger, thus, would be a negative but approach-related emotion associated with aggression [82]. Generally speaking, people high on trait anger would be more likely to accept aggressive responses. Precisely, this was also found

by comparing CAMA and AQ, i.e. there is a low, even if significant, correlation between anger and justification of aggression ($r = 0.10$, $p < 0.05$) [71].

More specifically, one would expect that trait anger would relate positively to one's measure of hostile aggression because it reflects intention of harming others, i.e. it is motivated by anger. Therefore, it would be relatively likely for irritable individuals to express hostile aggression [80]. This hypothesis was supported by a small, but significant, positive correlation between anger and the hostile representation of aggression ($r = 0.11$, $p < 0.05$), and, more specifically, between anger and communication, included within hostile situations ($r = 0.22$, $p < 0.05$), being the highest one between the AQ sub-scales verbal aggression and anger ($r = 0.60$; $p < 0.05$) [70, 73, 77].

Instrumental aggression, in contrast, may have a weaker relationship with irritability and, consequently, it would not necessarily relate positively to trait anger, because it is not directly motivated by angry feelings. Making the distinction between hostile and instrumental aggression, thus, may clarify when aggression may be maladaptive and when it may not.

Hostility vs. Aggression

A comparison between the four sub-scales of AQ showed significant positive correlation between all of them, supporting the hypothesised correlation between the personality traits anger/hostility and physical aggression, given the direct relation of both with trait BAS, as already mentioned [80, 82]. More specifically, hostility showed a higher correlation with verbal aggression ($r = 0.34$, $p < 0.05$) than with physical aggression ($r = 0.20$, $p < 0.05$) [77]. This moderate correlation between hostility and both physical and verbal aggression was mainly due to their connection with anger. For example, when anger is less, the correlations between hostility and both physical and verbal aggression would be even lower. The partial correlation with anger controlled was 0.08 between hostility and physical aggression and 0.05 between hostility and verbal aggression [73].

No correlation was found between hostility and justification of aggression ($r = 0.07$, n.s.), measured by AQ and CAMA, respectively [71]. Rather than assessing aggressive acts directly, one must remember that the CAMA questionnaire assesses attitudes and beliefs about aggression. In other words, both constructs – hostility and justification of aggression – are related to cognitive and affective facets, but not to behavioural ones, as is physical or verbal aggression. This may explain why physical aggression is moderately correlated to the justification of aggression ($r = 0.37$; $p < 0.05$) [71].

Hostility vs. Anger

It is predicted that those who engage in aggression are more likely to experience anger and be more impulsive. Consequently, some correlation between these two constructs could also be expected. In fact, an analysis of the AQ sub-scales showed the same, i.e. the highest correlation between the different sub-scales was precisely between anger and hostility ($r = 0.60$, $p < 0.05$) [77].

Conclusion

The findings reviewed in this chapter support the contention that instrumental and hostile aggression are two distinct forms of aggression, and different from one another. They are referred to being independent of one another, or as if a person does either one or the other, even if, in fact, there

is also a moderate correlation with one another. Both forms of aggression share considerable variance. This significant relationship between them actually suggests that people who report using one kind of aggression also report using the other, and that aggression may be associated to a distinctive personality style, regardless of its type [74, 75].

What is the picture of both kinds of aggression that is revealed by their relationships with other aggression-related variables? Reports of engaging in hostile aggression are associated with expressing rather than controlling anger, with a more general irritability, and an inability to inhibit action. The personality traits of anger/hostility would be significantly related to aggression. An individual who uses hostile aggression might be characterised as one who is not inhibited in social interaction and is likely to experience as well as express anger. On the contrary, reports of engaging in instrumental aggression show that if one wants to be really skilful in one's pretended goal, one should control anger. An aggressive act does not have to be necessarily accompanied by anger or by the desire to hurt [83]. The traditional assumption that anger necessarily causes aggression should be questioned [64].

Finally, anger modulates aggression. First, it reduces inhibitions against being aggressive in at least two ways. Anger sometimes provides a justification for aggressive retaliation – it is part of the decision rule in the aggression script. But anger may also sometimes interfere with higher level cognitive processes, including those normally used in moral reasoning and judgment, which are part of the re-appraisal process. Second, anger allows a person to maintain an aggressive intention over time. Anger increases attention to the provoking events, increases the depth of processing of those events and, therefore, improves recall of such events.

Key Points

- ❑ The positive correlation empirically found between hostile or reactive aggression, anger, and hostility showed a high adjustment with the prototypical description and characteristics given to hostile aggression, which is also known as impulsive or affective.
- ❑ In contrast, instrumental or proactive aggression did not significantly show most of the above-mentioned characteristics.
- ❑ The use of personality measures, therefore, may help to clearly differentiate aggressive subjects from 'normal' population and, perhaps, even between them.

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