Country Level Social Aggression Using Computational Modelling

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Abstract:

Computational Modelling is emerging field to model the cognitive as well as social interactions between individual and society. Aggression is social evil which is instance response and its impact last for long time. Different societies have different norms and values based on ecological, environmental and cultural attributes so aggression level also varies among individuals and societies. Aggressive behavior is based on different factors, racism, hate violence self-control and education are the main factors. Racism is the idea that certain human groups have hereditary characteristics that correspond to particular behavioral features, and that these groupings can be split according to the superiority of one race over another. Current study is based on psychological and temporal aggressive behavior different individuals and societies in same habitat. In this paper we have proposed a frame work to model human social and psychological behaviors. Results are based on simulation which are according to our assumptions.

Keywords: Aggression; Tolerance; Hate; Violence; Racism

1. Introduction

Aggression is often harmful, social interaction with the intention of inflicting damage or other unpleasantness upon another individual or group (Anderson & Bushman, 2002). Human aggression is instant behavior to harm other individual where culprit suspect that behavior will harm the target, in response to which target will avoid (Anderson & Bushman, 2002; Berkowitz & emotion, 1993; Geen, 2001; Zak, Kurzban, & Matzner, 2004). Aggression is social as well as individual behavior which is composed of sequence of behavior, inflicting harm, escalation desecration (Andersson & Pearson, 1999). Findings of social learning theory about Aggression is that it is acquired by observations as well as direct experience by observational learning processes as other social behavior (Bandura & Walters, 1977; Greene & Abuse, 2005).

In many countries ethnically or culturally diverse population groups have lived and worked together peacefully for centuries. In others permanent conflict persist, often ending up in bloody civil wars. Often a seemingly insignificant incident escalates out of all proportion into armed conflict costing thousands of lives that must finally be stopped by external forces (Mischel, Shoda, & research, 1999). We are dealing with dynamic processes that can either amplify into dangerous conflict following an initial perturbation, or calmly settle down to some equilibrium state tolerated by sides.

There are many factors and processes that play a role in such aggression dynamics such as strengthens of another culture, the tolerance of people involved, the hate which gradually buildup, the inhibition threshold controlling actions harmful to others. These factors and processes interact and can set in motion an ominous dynamic but we can neither accurately describe the sequence of events nor reliably predict their outcome (Van Lange, Rinderu, Bushman, & sciences, 2017). These are the fundamental reasons for this:

- Important quantities for such dynamic developments like hate or tolerance can only be described

in terms of qualitative and subjective terms and cannot be measured in terms of quantification and are only indirectly measurable

▪ Relationships between factors and processes are vaguely identifiable and cannot be uniquely identified

Despite these reservations we can connect generally accepted concepts in logically correct manner quantify these approximations and use the computer model to compute possible developments. Simulation results depict that proposed model generate corresponding results.

2. Overall System Model

There are two major entities cognitive process of one entity depends on other entity and vice versa. Figure 1 illustrates over structure of all process.
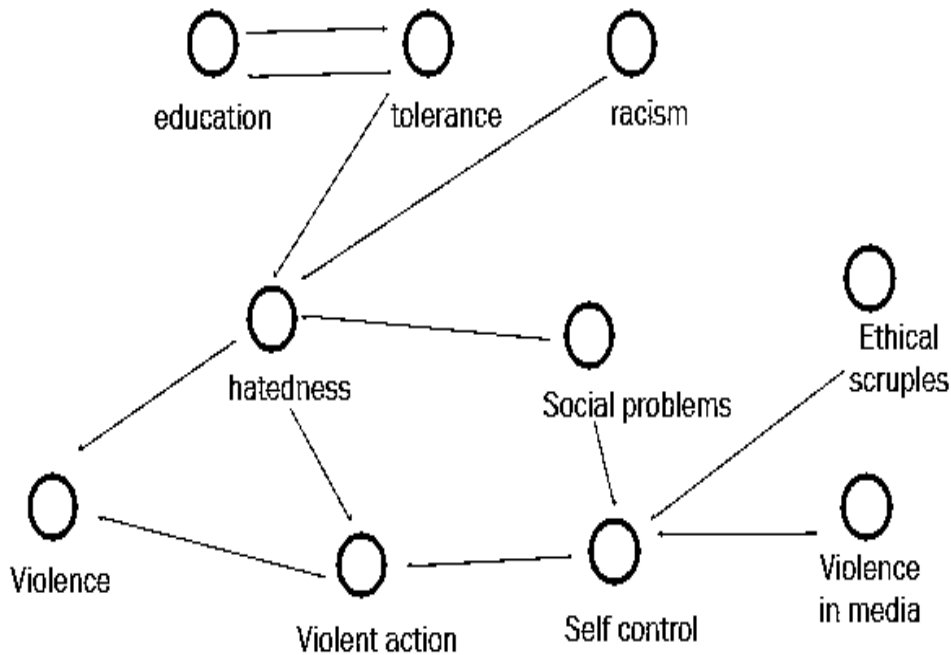

Figure 1: Overall structure of process

3. Proposed Model

The proposed model is shown in Figure 2. The details are provided in the following sections.

4. Analysis of Main Concepts

The model uses and connects four state variables tolerance, racism, hate and self-control.

4.1 Tolerance

Tolerance is the ability or willingness to tolerate the existence of opinions or behavior that one dislikes or
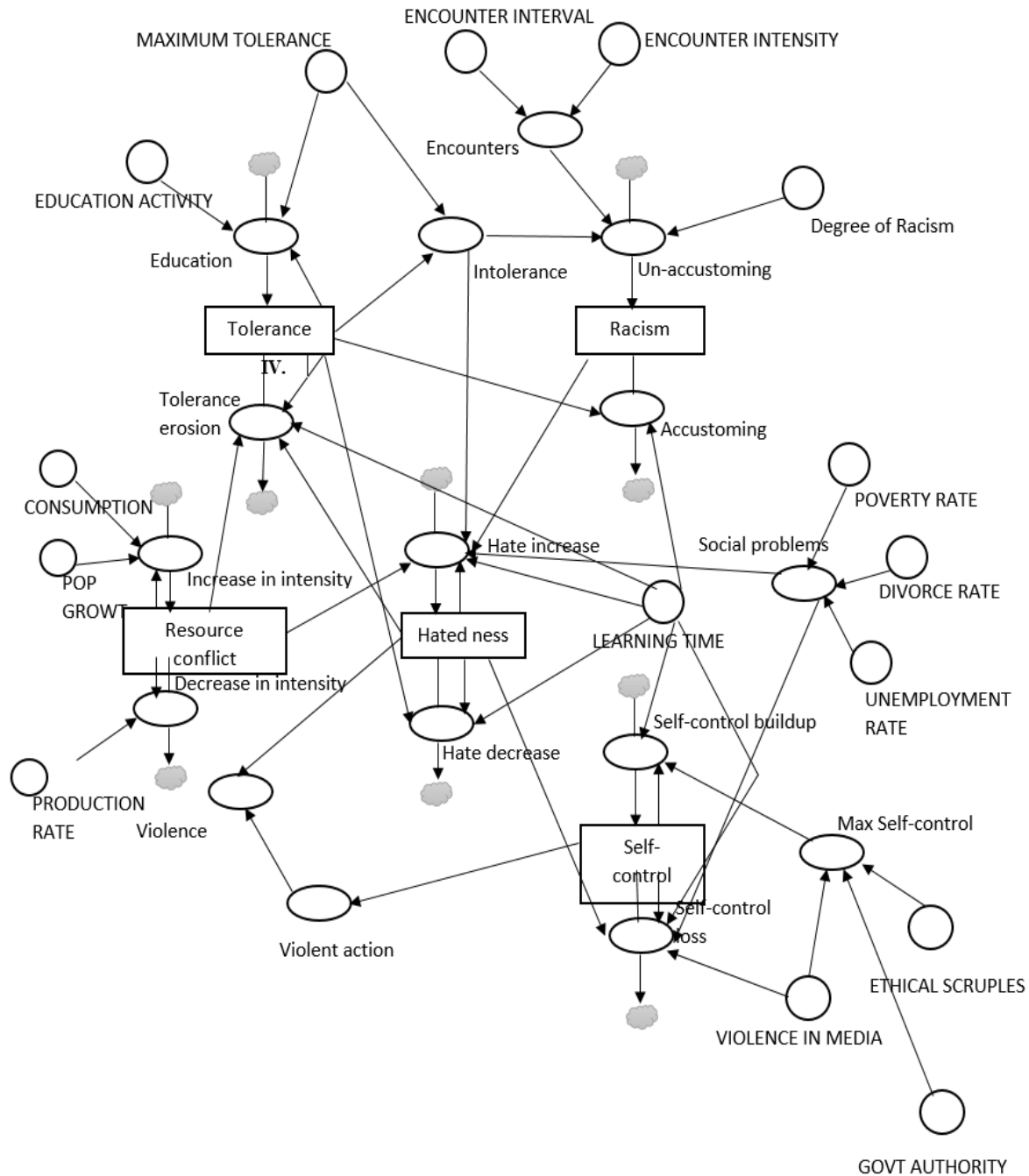
Figure 2: Proposed model

disagrees with. It is an essential aspect of living an ethical life. It is the wish to solve problems in the most ethical way, respecting the fundamental rights of all people. It's relatively easy to be tolerant of others' actions that don't affect other people.

4.2 Education

One of the fundamental roles that education plays is to increase tolerance which, in turn, underpins democracy and strengthens the bonds that hold peaceful communities and societies together.

4.3 Tolerance Erosion

Tolerance erosion refers to those factors which contribute to disintegrate tolerance from society and increase the feelings of discontentment among people or society.

4.4 Hate

Hate is a deep and extreme emotional dislike, especially invoking feelings of anger or resentment. It can be directed against individuals, groups, entities, objects, behaviors, or ideas. Hatred is often associated with feelings of anger, disgust and a disposition towards hostility. Hat is cause of aggression in which individual intent to harm target but it also serves instrumental functions for culprits (Cohen & psychology, 1998) Some causes of hate and violence are guns (O'Donnell, 1995), human activities e.g. global warming, child violence (Anderson, Bushman, Groom, & psychology, 1997).

4.5 Racism

Racism is presence of superior behavior and discrimination of one race over another. which often results in prejudice towards people based on their race or ethnicity (Hyman & Psychology, 1995). The term "racism" has been defined in a variety of ways by scholars working in a variety of fields of stud y. Racism, in general, is the idea that some races of people are naturally superior to others, and it frequent ly entails prejudice or discrimination based on race or ethnicity.
Racism is described by MerriamWebster as "belief that some races of humans are superior to others by bir th and nature". Racism is defined more specifically by Britannica as "the view that some races are fundam entally superior to others; that there is a causal relationship between inherited physical traits and attributes of personality, intellect, morality, and other cultural and behavioral features".

4.6 Self-control

It makes the people increase their self-control and decrease their feelings of hate or discontent towards the society or other individuals or groups .Self-control and aggression are interdependent, it is observed that aggression starts when self-control stops, forgiveness is key to enhance self-control and reduce aggression (Lentin, 2004).

4.7 Relationship Between Identified Concepts

The temporal relationships between identified concepts are as follow: Hated-ness is affected the amount of tolerance and racism. The racism is affected by unfamiliar experiences. The tolerance is affected by the education activity in a country. Self-control in a person is affected by the violence in media and ethnical scruples. Violence is affected by the amount of hateness and violent actions.

5. Concept Formalization

- Hate
- Tolerance
- Self-control
- Violence in media
- Ethical scruples
- Social problems

- Racism
- Intolerance
- Violent actions
- Education

Table 1: Concept formalization

Concept	Formalization
Educational Activities	$Educational_{Activity}$
Maximum Rate of Tolerance	$Max_{Tolerance}$
Hated ness	Hate
Tolerance	Tolerance
Racism	Racism
Self-control	$Self_{Control}$
Violence	Violence
Violence in media	$Violence_{In.Media}$
Erosion of tolerance	$Tolerence_{Erosion}$

5.1 Formalization of Concepts

$$Education = Educational_{Activity} \times Tolerance(t) \times \left(\frac{1 - Tolernce(t)}{Max_{Tolerance}}\right) \qquad (1)$$

$$Tolerance_{Erosion} = \frac{Tolerance(t) \times Hate(t)}{Learning_{Time}} \qquad (2)$$

$$Tolerance(t + \Delta t) = Tolerance(t) + \left(Education_{Tolerence_{Erosion}}\right) \times \Delta t \qquad (3)$$

$$Intolerance = Max_{Tolerance} - Tolerance(t) \qquad (4)$$

$$\begin{aligned}Unaccustoming \\ = Intolerance \times degree_{of_{Racism}} \times Encounter_{Interval} \times Encounter_{intensity} \\ \times Racism(t)\end{aligned} \qquad (5)$$

$$Accousting = \frac{Racism(t) \times Tolerance(t)}{Learning_{Time}} \qquad (6)$$

$$Racism(t + \Delta t) = Racism(t) + (Unaccusstoming - Accousting) \times \Delta t \qquad (7)$$

$$\begin{aligned}Social_{Problems} \\ = Unemployment_{Rate} \times Poverty_{Rate} \\ \times Divorce_{rate}\end{aligned} \qquad (8)$$

$$Hate_{Increase} = \frac{Racism(t) \times Intolerence \times Social_{Problems} \times Hate(t) \times \left(\frac{Hate(t)}{Max_{Hate}}\right)}{Learning_{Time}} \qquad (9)$$

$$Hate_{Decrease}$$
$$= Hate(t) \times \left(\frac{Tolerance(t)}{Learning_{Time}} \right) \tag{10}$$

$$Hate(t + \Delta t) = Hate(t)$$
$$+ (Hate_{Increase} - Hate_{Decrese})$$
$$\times \Delta t \tag{11}$$

$$Max_{Selfcontrol} = Govt_{Authority} \times (1 - Violence_{in_{Media}}) + Ethical_{Scruples} \tag{12}$$

$$SelfControl_{Buildup}$$
$$= \frac{Max_{Selfcontrol} \times Self_{COntrol}(t) \times \left(\frac{1 - Self_{Control}(t)}{Max_{Self_{Control}}} \right)}{Learning_{Time}} \tag{13}$$

$$Self_{control_{Loss}}$$
$$= \frac{Hate(t) \times Social_{Problems} \times Violence_{in_{Media}} \times Self_{Control}(t)}{Learning_{Time}} \tag{14}$$

$$Self_{Control}(t + \Delta t)$$
$$= Self_{Control}(t)$$
$$+ \left(Self_{Control_{Buildup}} - Self_{Control_{Loss}} \right)$$
$$\times \Delta t \tag{15}$$

$$Violent_{Action} = 0 \; if \; (Hate - Self_{Control}(t)$$
$$< 0 \; 1 \; else \tag{16}$$

$$Violence(t + \Delta t)$$
$$= Violent_{Action}$$
$$\times Hate(t) \tag{17}$$

5.2 Formalizing the Relationships

The temporal relationships can be formalized in the following manner. Here the time t is taken in months.

Education_Activity	=	0.5;
Max_Tolerance	=	1;
Encounter_interval	=	2;
Encounter_Intensity	=	5;
Degree_of_Racism	=	0.5;
Unemployment_Rate	=	2.5;
Poverty_Rate	=	2;
Divorce_Rate	=	0.75;
Govt_Authority	=	0.6;
Ethical_Scruples	=	0.1;
Poverty_Rate	=	2;
Violence_In_Media	=	0.4;
Learning_Time	=	5;
Tolerance(1)	=	0.5;
Racism(0)	=	0.1;
Hate(0)	=	0.1;

Self_Control(0)	=	0.5;
Violence(0)	=	0.5;

If educational activities are zero the violence shows a linear increasing trend. Educational activities and violence are inversely proportional to each other. Intolerance increases the rate of hated-ness. When amount of hate is greater than the self-control, violent actions show a linear increasing trend. When amount of hate is less than the self-control, violent actions show a linear decreasing trend. Violence in media decreases the rate of self-control buildup.
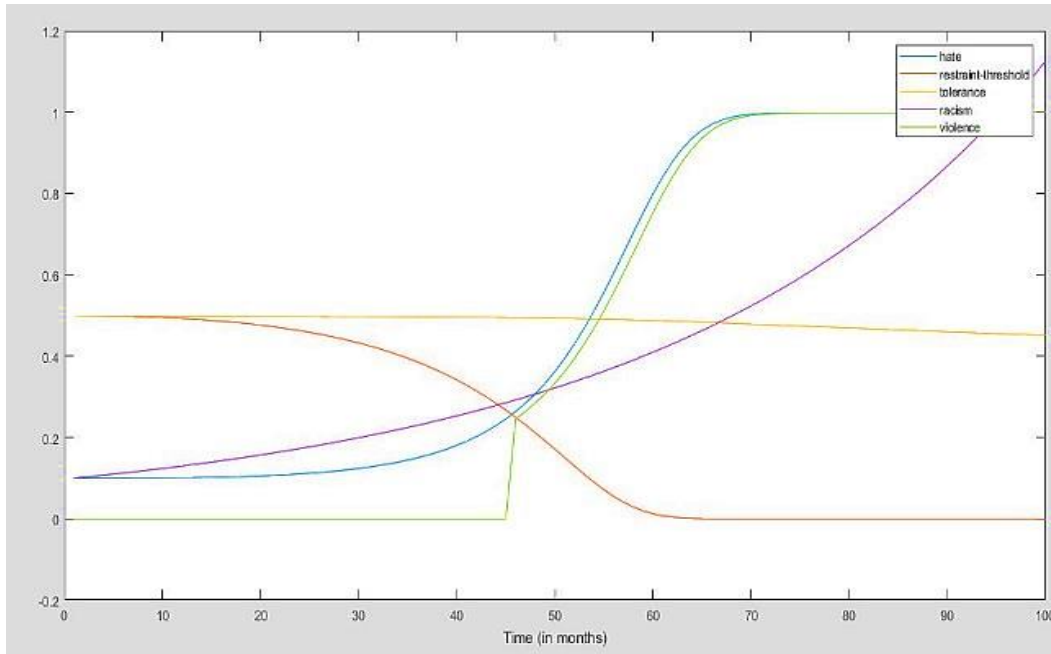
6. Simulation Results

Figure 2: Aggression procedure

Figure 2 depicts temporal behavior of violence, hate, racism and tolerance. It is obvious that hate and violence increases as there is racism less tolerance. As tolerance depends on previous behavior of community, hate of people and learning time so multiple factors e.g., Racism, intolerance, social problems collectively decrease tolerance level and generate minimum threshold which results aggression.

Figure 3 shows that aggression between individuals and society decreases and remain minimum when there is reasonable increase in tolerance. Following figure depicts the temporal behavior of our proposed model.

Simulation results in Figure 4 depict temporal Behavior and monotonically decreasing relation between self-control and hate. There is maximum limit of hate when there is very less or minimum self-control present, when self-control increases hate become minimum.

Figure 5 shows that Racism and Hate are directly proportional to each other. When there is no Racism hate is not present at all. When we feel racism and racism increases ultimately hate will increases.

Figure: 6 depicts the behavior of self-control on violence both are reciprocal to each other. Violence is much aggressive than hate, it decreases when there is self-control and remain minimum when self-control increase at specific point.
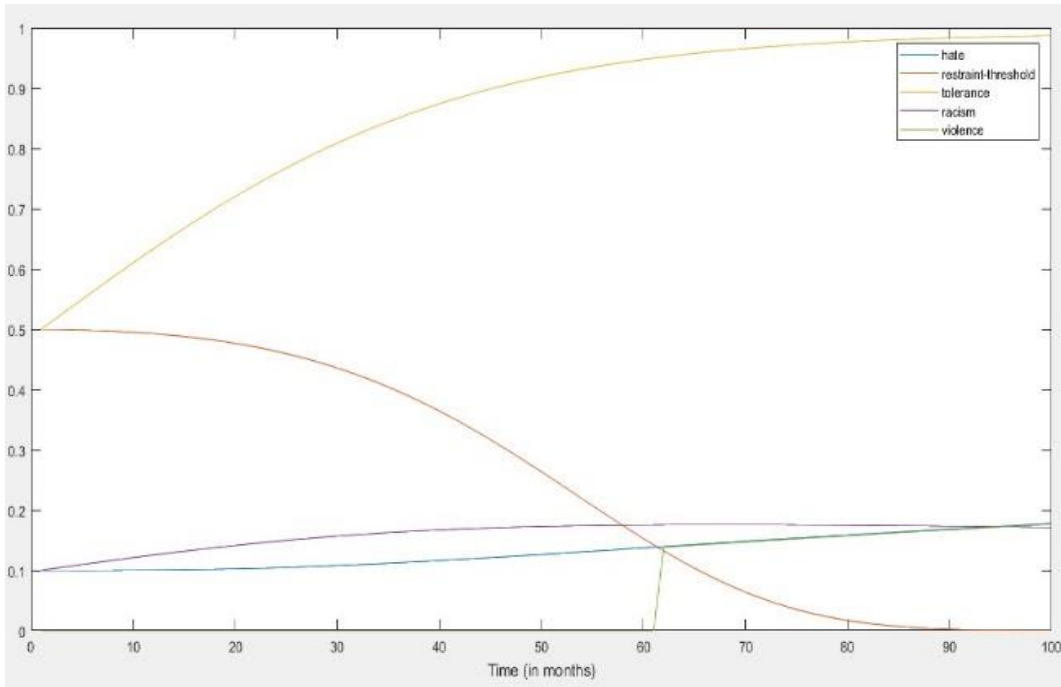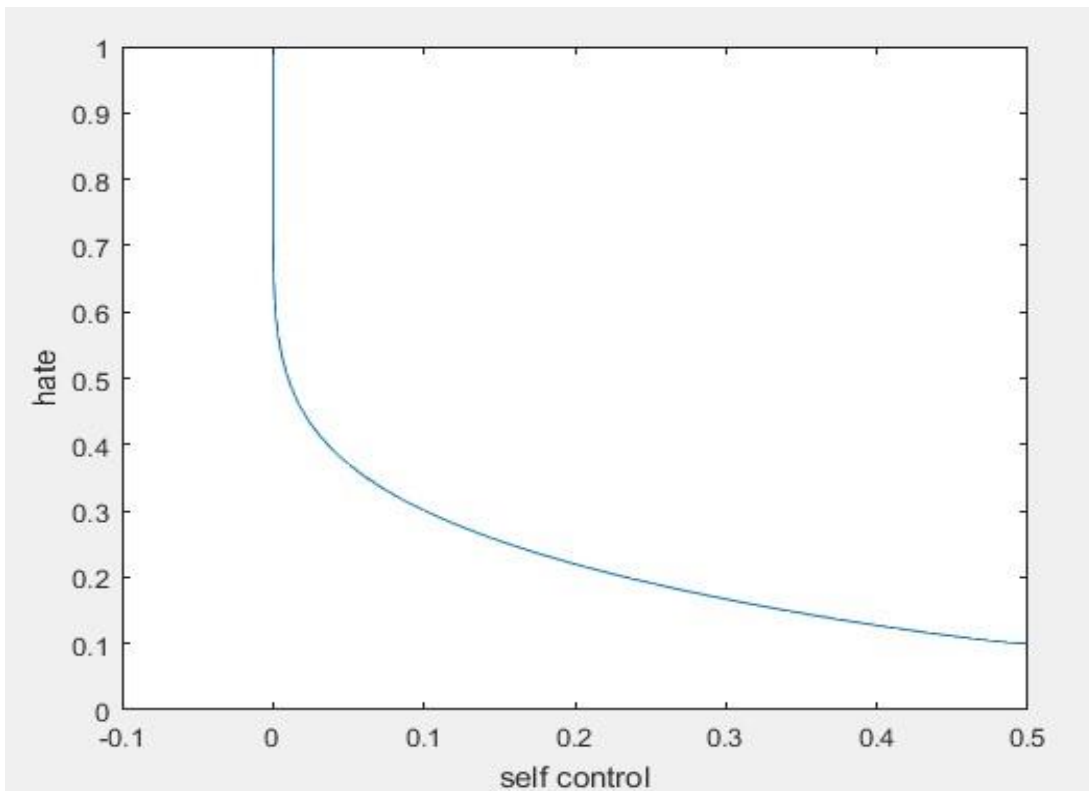
Figure 3: Decline of violence and hate

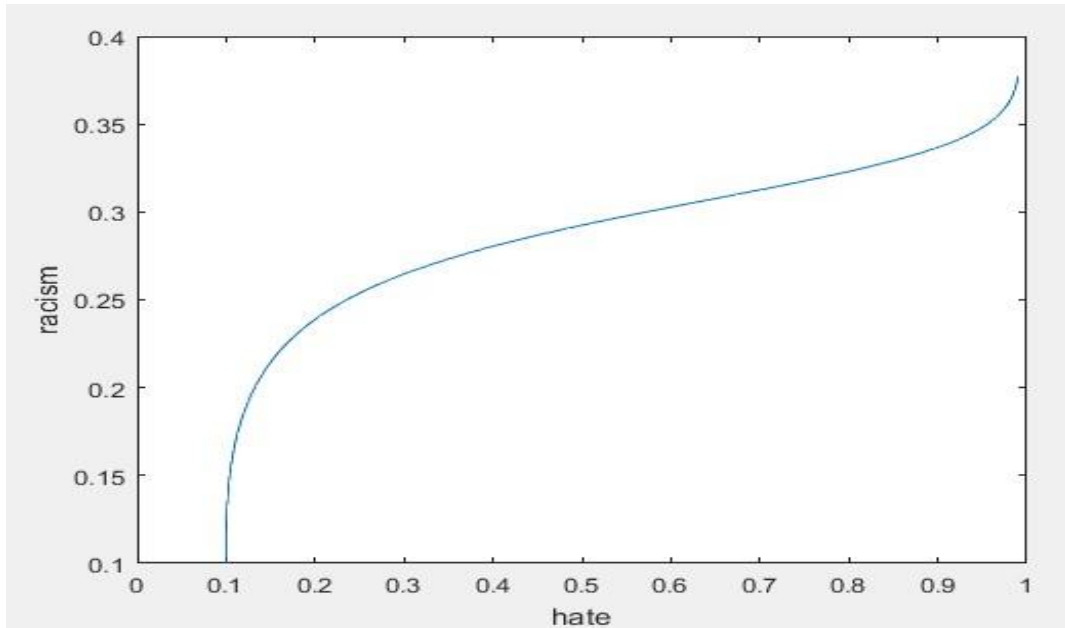*Figure 4: Relation between hate and self-control*
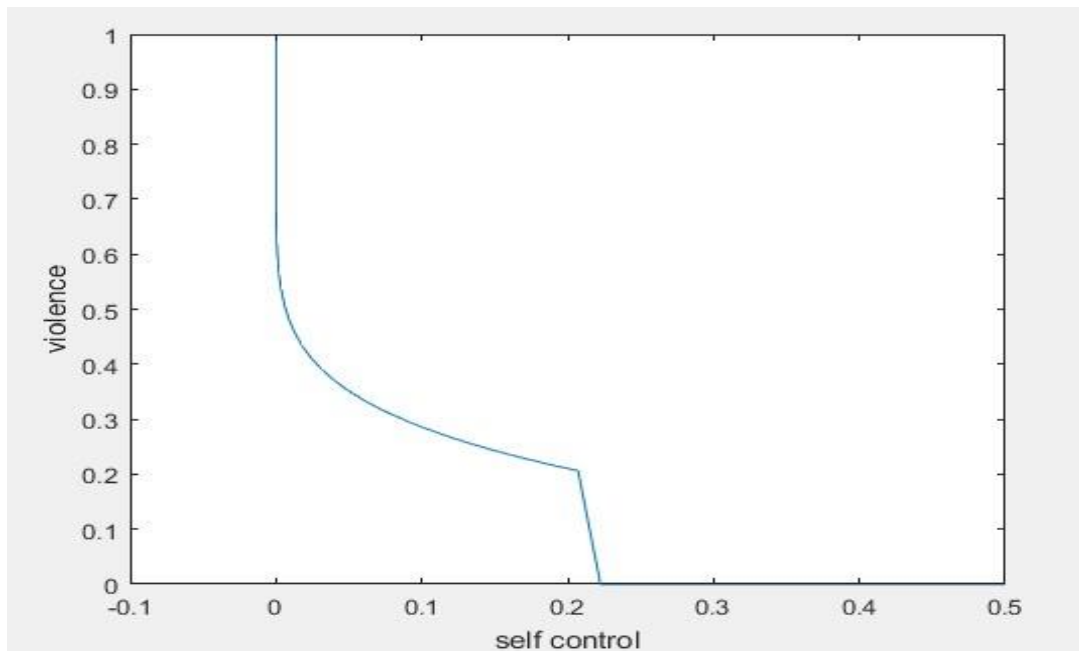
Figure 5: Racism verses hate

Figure 6: Effect of self-control on violence

- Assumptions behind the model:
- The time stamps of 0.01 month are taken.
- Rate of educational activities are considered content.
- Violent activity value will be either 0 or 1.
- Value of maximum tolerance is 1.

7. Discussion and Conclusion

Aggression at a habitat using computational modelling was presented in this article. Aggressive behavior depends on social, psychological and cognitive behavior of societies. Racial discrimination is described by the American Psychological Association (APA), as "a form of prejudice that argues that the members of racial categories have distinctive traits and that these differences result in some racial groupings being inferior to others".

Racism can also take the form of a system that structures opportunities and assigns value based on race, unfairly favoring some people and communities while unfairly disadvantaging others. In conclusion, racism refers to a wide range of ideas, attitudes, and actions that are motivated by the idea that some races are fundamentally superior to others. It can appear as bias, discrimination, or prejudice and have detrimental effects on both individuals and communities.

Aggression in educational activities can have various underlying causes and consequences. One factor that contributes to aggression in educational settings is violence against educators and school personnel, which has been identified as a global epidemic affecting Pre-K through 12 grades (Miles, 2004). Additionally, school-based aggression and violence are major concerns that require a comprehensive framework for understanding and responding to them, including implementing evidence-based programs and strategies to reduce violence (Greene & Abuse, 2005). In terms of individual factors that contribute to aggression, research has found that exposure to media violence, such as through television, can increase aggressive behavior in both males and females and can have long-term effects, as early childhood exposure to TV violence has been found to predict aggressive behavior in adulthood. However, there is debate surrounding the link between violent video games and aggression, with some studies finding a connection and others finding little to no connection.

Individual factors, such as genetic, neural, and biochemical influences, can also contribute to aggression, with the amygdala being one area of the brain that can be stimulated to increase rage in animals. Additionally, self-control is a key factor in reducing aggression and violence, as individuals with lower self-control are more likely to engage in violent behavior. Finally, the erosion of tolerance can contribute to aggression and violence in communities, with violence limiting business growth and prosperity, straining education, justice, and medical systems, and slowing community progress. America's youth and young adults are particularly vulnerable to community violence, which can further exacerbate the erosion of tolerance.

Relational or social aggression, such as gossip, social exclusion, or spreading rumors, can also contribute to the erosion of tolerance and social standing within peer groups. In conclusion, aggression in educational activities is a complex issue that can be influenced by individual factors, societal factors, and exposure to violence in various forms. Addressing these factors through evidence-based programs, strategies to reduce violence, and promoting self-control and tolerance can help reduce aggression and violence in educational settings and communities. Simulation results depicts that aggressive behavior of individuals become moderate with the passage of time.

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