The effect of heat on aggression

Student’s Name

Institution

Date

**Introduction**

Over the years, several assumptions have been in regard to the link between the heat and aggression. However, it has been observed that hot weather and violence go hand in hand. It is established that temperature has effect on aggression and therefore, some of the violence are been experienced due to unfavorable temperature. The unfavorable temperature can cause increase in aggressive motivation and under a comfortable condition, a better behavior is established (Anderson, Anderson, Dorr, DeNeve, & Flanagan, 2000). It is noted that several people believe that hot temperature can lead to increased feeling of anger and hostility. It is also decreases energy, alertness and therefore, increases aggression and violence. It is pointed out that how people perceived and think about the thinks around them and especially the world around them is always shaped by deep link between psychological and physical (Anderson C. A., 2001). Research has established that cities, regions or countries with hot or higher temperature experience more violent crimes compared to cool regions (Anderson C. A., 2001). A good climate condition control several institutional settings such as prison, school and workplace help in controlling aggressive and therefore, rate of violence in these settings may reduce despite the climate condition.

**Hypothesis**

This study, therefore, focuses on aggressive hypothesis parsimony. It illustrates that hot temperature can increase in aggressive motivation. It is also essential to point out that the heat effect is regarded as the empirical observation is an increased in violent behavior in places which experiences hot temperature. The study is therefore, conducted to determine whether hot or uncomfortable temperature can cause an increase in aggressive or violent crime. In this study, the dependent viable is the temperature and independent variable is the aggressive or violent crime.

**Literature review**

Research shows that there is a correlation between uncomfortable temperature and a behavior of person (Fay & Maner, 2014). According to Fay and Manner (2014), unfavorable hot temperature increase temper, irritability and the likelihood of violence and physical aggression. This can be illustrated by several, laboratory studies done by APS Fellow Craig. According to a series of studies conducted by APS Fellow Craig Anderson and his colleagues there is a persistent anger and hostility in an unfavorable temperature (Anderson C. A., 2001). It was hypothesized that people who live in a hot environment have hostile reaction to various issues. They would demonstrate a lot of hostility, anger and aggressive to any change in the condition. A study conducted by Craig Anderson and his colleagues pointed that several studies conducted by undergraduate participants to measure a perceived anger, hostility and behavioral aggression established that the behavior of participants changed based on temperature of the room (Anderson C. A., 2001).

Although laboratory measure of aggressive can be regarded as trivial and disregarded, other studies have illustrated similar deadly implication of the findings. As illustrated by researchers Aldert Vrij Van de Steen and leendert Kopperlaar human reaction of human is based on the environmental condition and usually get stimulated by the any little changes made in the vicinity (Fay & Maner, 2014). In a study conducted by Aldert Vrij de Steen and leen dert Kopperlaar regarding the temperature and aggressive, 38 (thirty-eight) police officers were given firearms under (700) Celsius. In a simulation, the police officers were asked to respond to different situation under different temperature. The result of the quantities study established that police officers are more likely to withdraw their firearms in warmer rooms compared to a cooler room. As stated by Baron and Bell (2015), temperature is an important factor in determination of the reaction of people. The reaction of people is based on social, psychology and physical condition and the change in the environment stimulates the adrenaline, which compels aggressive reaction (Baron & Bell, 2015). The investigation by Federal Bureau of Investigation (FDI) on the occurrences of violence across the country also established a unique trend. The study shows that there are several violence crimes in South States than in the North. In a similar study, the rate of homicide related to mafia is higher in the southern compared to northern Italy (Tiihonen, Halonen, Tiihonen, Kautiainen, Storvik, & Callaway, 2017). Therefore, despite of the location whether locally or globally the relation between aggressive and temperature seems to having a similar trend.

The bigger picture is represented in a recent meta-analysis on conflict and climate, which established that climate has direct relations with violence in 82% of studies that were published (Baron & Bell, 2015). It is pointed that violence is associated with 20 of 24 of the studies published. Baron and Bell (2015) pointed that effect of violence is strong in a higher temperature than for rainfall and other groups. This meta-analysis presents a strong empirical reason to make the conclusion that large different in climate can create a huge impacts on the several incidences of violence and conflict across different context (Baron & Bell, 2015).

In another study, it is established that temperature and aggression have strong connection. In a study where participants were placed in cold and hot room and some in a comfortable room showed different reactions or state of hostility. It is indicated that participants who were in a warmer and cooler room which is relative to those in a comfortable room, reacted very ambiguous provocative during the time for competitive aggression task was conducted. The research stated that most of the participants in warmer and cooler rooms reacted with outburst and noise. The study then concluded that comfortable hot temperature increases the aggression or violence behavior of people.

The analysis of several studies shows a clear association of temperature and aggression. Based on this study, the occurrence of violence across the global has always been trigger by change of temperature. It can be concluded that hot temperature is directed associated with aggression and violence crimes. The study supported the hypothesis that hot temperature increases the chances of violence crime and therefore, temperature and aggression are directed related. Hot temperature increases violence rate in major states and it could be the reason most states in southeast usually experience many violence incidences.

**Methods**

The study was conducted using quantitative research method. Quantitative method is the method of conduct a study through the use of questionnaires, surveys or through the manipulation of the existing data. In order to complete a quantitative research two variables are used. In this study temperature and aggression and violence crime are used as independent and dependent variables.

**Participants**

A group of 65 adults of 35 males and 30 female aged 21 and 40 years. The participants were 20% African American, 55% Caucasian and, Asia 10%, Hispanic 5% and others 5%. The participants were gathered from the Southeast coast states.

**Design**

The study was conducted through the use of experimental between violence and temperature and quantitative design. Quantitative is described as the process of building a survey along with a survey design to conduct a research. In the study, the independent variable was the temperature and the dependent variable was the aggression and violence crime.

**Procedures**

The participants were first grouped and then separated and then placed on a corner. The questionnaire forms were then issued to each participant and instructed not to fill until everyone received copy. The participants were then informed of what expected from them in regard to the study and also not to write their names on the questionnaire forms. There were twenty (20) simple questions for each participant to answer. Each questions required a simple of answer of yes or no, agree or disagree. The participants were also asked to think of violence, aggression and irrational action as they sit in a corner with dim lights. It is also important to point out that participants were asked to image of different environment dark, dim light and hot and normal condition and how they can react to each every condition. Next, the participants were then moved to a hall under normal condition and asked to sit comfortable. They were also then asked to image of the transition from dim, high temperature and crowded environment and the reaction they can provide. Next, the participants were asked to fill in the questionnaires honestly. After filling in the questionnaires the forms were then collected for analysis. They participants were thanked for participating and then debriefed before being allowed to leave at will.

**Result**

The Excel and SPSS apps were used to analysis the data to obtain an accurate result. In this regard, a t-test was used to test the hypothesis and to discover the relationship between temperature and aggression or violence crime. The result obtained indicates that there is significant difference between the aggression and temperature. It is therefore, means that the result established that there is a direct correlation between temperature and aggression or violence crime.

**Discussion**

The result indicates that the hypothesis of the study was supported. The study shows that participants exposed to high temperature express a lot of frustrations, which result to anger which leads to violence. The implication of the finding are that temperature can be able to dictate the changes on how people react and therefore, the reaction of people is based on the temperature. In hot or high temperature, people exhibit violence reaction due to frustration. The violence reaction happens due to the process of adaptation the conditional change. The study agreed with some of the previous research that hot temperature increase aggression motivation. A study by Anderson, Anderson, Dorr, DeNeve, & Flanagan (2000) stated that uncomfortable temperature cause a lot of pressure on people to react in most causes the reaction would be violence. The current study also agree with a study conducted by Aldert Vrij Van de Steen and leendert Kopperlaar related to reactions of human being and therefore, it is evident that the violence reaction is experience as a result of environmental condition and usually get stimulated by the any little changes made in the vicinity (Fay & Maner, 2014).

Majority of participants placed in normal condition within the room indicated less aggression. The result indicates that participants in hot envrionment were more angry based on the their response to the questions and how they resposnded. It is estyablished that 48% of particiupants showed a a lot of aggression were in hot or crowded environment compared to 12% when students are in more light and conduisive environemt. As stated by Fayer and Maner (2014) the body reaction of people ius casued by stilumation and therefore, the indication of violence reaction is due to dsicomfort being experienced when expeosed to an extreme condition such as hot temeprature. It can be concluded that hot or higher temeprature increases chances of violence and therefore, violence can be reduced if the temeprature is controlled. It is therefore, evident that temeprature affect aggression and in hot or high temperature, there is high chance of experiencing violence reaction which anticipant to high crime rate in most states with high temeprature.

A major limitation of the study is lack of finances to conduct detailed and intensive study. First, the research was conducted using only sixty-five (65) participants which are fewer based on expectation. Ideally it is recommended to use several people to ensure that a larger population is covered to obtained more accurate and elaborate result. The samples used for the study were only collected from Southeast states, which narrow the result to reflect only on few studies instead of 52 states. It could have been better to get a diversify samples from south, north and east coast as well. This could have provided detailed and elaborate results with a larger data representation. The study focused on aggression and violence without much attention to the process which lead to it.

The future studies should therefore, focus on the process which lead to violence and aggression to understand transition which occurs on people when in a hot or a high temperature environment. It would also be important to use several samples in the future studies of at least 2000 samples from across the country. It will be helpful in enhancing the result and therefore, provides much information needed regarding the relationship between temperature and aggression and violence. The future studies should also be extended to other states and also to countries such as Iraq, Italy and Iran to have a convincing result on the relationship between aggression and temperature. This is because of the violence nature in other countries such as Iran and Iraq. However, it would be important for future studies to use different mechanism to determine the cause of aggression or violence reaction. This would necessary in southeast and other violence regions globally to establish whether hot or higher temperature is the cause of violence crime and aggression in most of these regions which have been experiencing high rate of violence.

**Conclusion**

In conclusion, the study established that the hypothesis is accepted and therefore, the result of the study supported the hypothesis that hot temperature increases the aggression or violence reaction. It can be concluded hat temperature of a region or a room determines the reaction of people. People would react more violent in high temperature condition due to the discomfort caused by such extreme condition. The study established that many people perceived change of environment differently and it would be better to conduct further research to establish how to control violence or aggression reaction as a result of temperature. There has been consistence violence in n most of the southeast states and other regions globally, where temperature is high. It would be essential to come up with controllable mechanism to reduce the violence in most of these areas. It is therefore, evident that violence in most of the regions is due to environmental issues and it is recommended for more collaboration approach instead of proactive approach in addressing some of the issues. This would help in addressing the effect of temperature on aggression hence it will be important in solving issues related to violence.

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