**The Effect of Geographical Condition on Aggression: Example of Turkey**

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**1. Introduction**

“When people in one culture differ from those in another in their beliefs, it can’t be because they have different cognitive processes, but because they are exposed to different aspects of the world, or because they have been taught different things.”

-Richard E. Nisbett, *the Geography of Thought (2003)*

Even though people who live in same country speak same language, live under the same rules of law, have the same history and moral values; their behaviors, attitudes and values are geographically classified. According to Richard Nisbett who is one of the world’s most respected social psychologists; these differences are originated from the fact that they are exposed to different aspects of the world. In the case of Turkey, people live in Black Sea region are known as hot-tempered, vicious, rebellious and sometimes unstable. People live in Aegean and Mediterranean region are known as friendly and unstressed. Additionally, people live in Central Anatolian regions are known as more hospitable. Characterizations made in such a widespread format are strictly stereotypical, but they raise the question of whether really there are geographically clustered psychological differences across the Turkey. Starting from this question, specifically we focus on whether geographical differences result in different aggression levels in the example of Turkey.

Aggression and violence break down the fabric of society. They often threaten their sense of security and confidence, weaken healthy relationships among people, and in many countries bring about serious suffering and cause unnecessary loss of life (Anderson 2001, Hsiang et al. 2013; Van de Vliert 2009). Recently, violence becomes a reality in our everyday life that we hear, watch, or live together more often. The scope and dimensions of violence are increasing day by day; It is almost like an ordinary incident in school, workplace, street, stadium, hospital, court corridor, traffic, public transportation. Despite its frequent and widespread use in both scientific literature and ordinary language, there is an ongoing debate about the definition of aggression. As a result of the debate, a latest and the most comprehensive definition which  social psychologists introduced is any behavior enacted with the intention to harm another person who is motivated to avoid that harm (e.g., Anderson and Bushman, 2002; Bushman and Huesmann, 2010). As specified in the definition, intention is the key point to be able to describe a behavior as an aggressive behavior. It allows to differentiate acts which hurt someone whereas target person willingly consents from the acts which hurt someone and target person is motivated to avoid the harm. Most researchers have solved this problem by adding an intent to the definition of aggression (Brewer and Crano, 1994). That is, not all acts of harm or hurt, but only those with intent to harm or hurt are seen as aggression.

There are different forms of aggression that each points out the different aspects. As stated in the definition of aggression, harming or hurting can be physical or psychological. At this point it is necessary to distinguish between aggression and violence. Violence is a deliberate act of serious physical abuse (Feldman, 1998; p. 297). In that case, violence is not psychological, it is only physical. As aggression can be active, physical violence, it can also occur in a passive, verbal or other form. Passive aggression is defined as ineffectiveness aimed at harming the opposition, even though no action is taken (Bilgin, 2000; p. 276). In order to better understand aggression, it is necessary to make another distinction: instrumental aggression and hostile aggression. instrumental aggression is the act of harm or hurt to achieve a particular goal. Contrary to instrumental aggression, in hostile aggression, the aim is to harm or hurt someone by the desire to express anger and hostile feelings.Both instrumental aggression and hostile aggression are intentional actions (Feldman, 1998).

Self-control is considered as a powerful indicator of aggression and violence. Indeed, poor self-control is one of the “strongest known correlates of crime” (Pratt & Cullen 2000, p. 952), especially violent crime (Gottfredson & Hirschi 1990; Henry et al. 1996). People who have more control over their emotions, more self-control, and a stronger capacity to prevent their impulses, are less aggressive (Moffitt et al., 2011). Self-control is the ability of a person to regulate his/her behavior in relative autonomy and it is necessary so that the person can avoid any external pressures, their innate or learned automatisms, and physiological impulses (Baumeister & Tierney, 2011; Krug & Carter, 2011; Muraven & Baumeister, 2000).

It is important to uncover the mechanisms which underlies the aggression to be able to come up with solutions that take it under control. Based on the literature, there are so many factors which contribute to aggression such as genetic factors, hormones, gender differences, temperature, age, education level, situational factors, alcohol consumption, learning to behave aggressively via reinforcement and modelling. Firstly, it is believed that aggressive behaviors are inherited and thus transferred from generation to generation through the DNA of the individual. Genes or the genetic component of individuals have an effect on trait disorders and personality. The behaviour of an individual is occurred by personality and trait disorders. If parents have biological background for aggression behaviour, children are more likely to show aggressive behavior. The second is hormonal imbalance that contributes aggressive behaviour in the individual's body. Aggressiveness is determined by high levels of testosterone in all species. Usually men have high testosterone levels and this explains why men are more aggressive than their females. Serotonin is another hormone related with aggression. Individuals strengthened with artificial serotonin have reduced aggressive behaviors (“Factors Influencing Aggression”, 2013).

The third and important one factor is gender. Universally, men are more violent than women Both of them feel same amount of anger, but they shows their anger in different aggression types. While girls show indirectly or relationally aggression, boys generally show physical aggression.

“Boys may use their fists to fight, but at least it’s over with quickly; girls use their tongues, and it goes on forever”  (Britt Galen and Marion Underwood, 1997).

The fourth factor is the effect of situational cues. Situational cues are contextual cues in the environment that signal a person that an action or event may occur. It can also be a signal that the person needs to respond in particular ways ("Situational Cues Definition | Psychology Glossary | Alleydog.Com". *Alleydog.com*. N.p., 2017. Web. 18 Mar. 2017). According to many researcher it is known that many situational cues increase the possibility of aggressive behaviour of a person. Alcohol consumption and the media are the most common causes of aggression among situational cues. Firstly, one of the biggest factor that increase aggressiveness is alcohol consumption. Researchers suggest that alcohol consumption change the working way of brain and it is the reason why some people are confrontational. Professor McMurran who is a psychologist at the University of Nottingham says "Alcohol reduces our ability to think straight, narrows our focus of attention and gives us tunnel vision. If someone provokes us while we're drunk, we don't take other factors into account, such as the consequences of rising to the bait. This can lead to violent reactions from people who would usually shrug things off. (McMurran, M. (2012). Alcohol-Related Violence: Prevention and Treatment Wiley-Blackwell). In addition according to blood chemistry researchers alcohol decrease self-awareness of people and therefore it is the reason of decreasing ability to correctly perceive the results of aggressive behaviors. (Glicksohn, 2002, pp. 120). Secondly, It is the fact that many media programming contains violent and people be predisposed by aggression-eliciting cues in the media. In recent years media consumption is one of the most popular activity. For example, average turkish people watches approximately 3 or 4 hours television per day and this average hour for watching television is increasing over time. According to research that conducted to prove that showed exposuring of media violence increase aggressiveness ("404 - Medyaradar.Com". *Medyaradar.com*. N.p., 2017. Web. 18 Mar. 2017).

Temperature is also associated with aggression and violence in many studies. A study completed in the midst of the civil rights movement found that rebellions were more likely on cooler days than cooler ones. The students were found that they were more aggressive and anxious after entering the hot class. It was determined that drivers in without air conditioning vehicles tend to show more aggression (Turner, Charles W.; Layton, John F.; Simons, Lynn S. ,1975).

On the other hand, climate has large impact on the aggression  across a variety of context (Burke et al. 2015, p. 610). Climate is considered differences in average temperature, seasonal variation in temperature. Some of studies have shown that Southern states with warmer climates typically have higher violent crime rates than Northern states with cooler climates (e.g., Anderson & Anderson 1996; Lombroso 1988/1911; United Nations Office on Drugs and Crime [UNODC] 2013).

Furthermore, according to a recent study, a new model was created with the name of CLASH. Warmer climates and less variability in seasonal temperature cause a faster life strategy, less focus on the future, and less self-control. People lived in this climates get used to take more risk and to be less planned. All of these contribute to more aggression and violence. Faster life strategy is not related to the future and leads to a decrease in self-control, because there is less need to plan for major changes between hot and cold weather. If there is less seasonal variation, now you are free to do whatever you want, because you do not have to cook for the winter, prepare firewood or winter clothes. You may also be more concerned about the immediate stress that comes with other risks of hot climates such as parasites and poisonous animals. On the other hand, culture is affected by strong seasonal variation in temperature. Planning in agriculture,  making stocks or preparing for cold winters shapes the culture in many ways. So, people lived in this climates get used to take less risk and to be more planned. All of this teaches people to use time well and gain high self control. This also means that they shows less aggression and violence. For example, a study found that Northern European countries (e.g. Scandinavian countries, Iceland) show higher levels of self-control than in Southern European countries or the USA. This finding shows that countries farther from the equator have greater levels of self-control (Van Lange et al., 2017).

Although there are large differences in aggression and violence within and across countries, explanations for these differences are lacking. We should also consider regional differences in geographical condition.

**Research Overview**

We hypothesized that the geographical conditions have effect on aggression in the example of Turkey. In order to test our premise, firstly, we recruited participants from Aegean, Black Sea and Central Anatolian regions and we measured participants’ aggression and self control levels by conducting survey. Then, we considered whether regional differences in geographical conditions (i.e. the average temperature, seasonal variation in temperature of region that participants live, the description of participants’ settlementand the distance of participants’ house to the nearest neighbor) have effect on aggression level.

**2. Method**

**2.1. Participants**

In total 194 voluntary participants participated in this study. Participants (93 female, 101 male, *Mage*= 34 years, ±11.19*SD*, age range 17-66) were public people from different cities and villages of Turkey and participants were selected randomly from in each city and village.

**2.2. Materials and Procedure**

To conduct our study, researchers went to crowded places to find enough participants in each city and village. Participants were volunteers who randomly selected in the street. Researchers asked people to participate research survey. To examine the whether there is an effect of geographical conditions on aggression self control scale and aggression questionnaire used for this study.

**2.3. Personal Information Form**

Personal information form was used to control confounding variables which have effect on aggression. The personal information form questions include, for example the amount of alcohol consumption, gender, the number of family members, education level and marital status.

**2.4. Self Control Questionnaire**

Self control scale was used to measure participant’s self-control. In Self Control Questionnaire there was 13 questions and participants rated from one to five  how well each of statements describe them(When they were rating on scale 1 meant complete disagreement and 5 meant complete agreement). The Self Control Questionnaires include, for instance, ‘I have a hard time leaving my bad habits’, ‘I wish I had more self-discipline’, ‘I reject things that are bad for me ‘and as the cumulative score increase, level of self control also increase. After all the data has been completed, measurements done through evaluations done by using statistical analysis software.

**2.5. Aggression Questionnaire**

Aggression Questionnaire was used to measure participants anger-related arousal and sense of control. In aggression questionnaire, there was seven question participants rated how characteristic or uncharacteristic each of the statements describe them. The aggression questionnaire include,  for instance, ‘at times I feel like a bomb ready to explode’, ‘some of my friends say I am a hothead’, ‘I have trouble controlling my temper’.

**3. Result**

**3.1. Strategy of Analysis**

Firstly, descriptive and bivariate analyses were conducted for our study variables. After that, One-Way ANOVA analyses were run to test whether there is a significant difference between the regions in their aggression level. All analyses were performed in SPSS software, version 21.0.

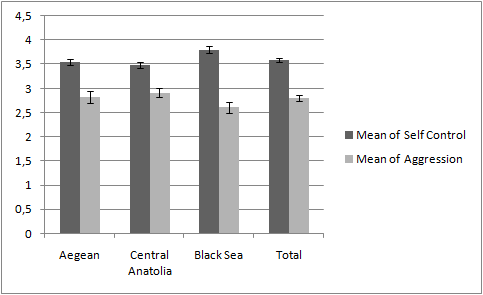
**3.2. Main analysis**

One-Way ANOVA analyses were run to test our premise which is  whether regional differences in geographical conditions have effect on aggression level. or these three different parts of questionnaire and for questions below them, different methods were used to look at relationships and correlation between them.

**3.2.1. Differences in Aggression Levels between Regions**

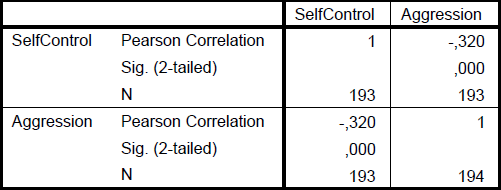
Anova is  used  to investigate whether there are significant difference in aggression level between the participant from different regions of Turkey. As a result of this analysis; it was found that aggression levels are not significantly different among the regions, F(2, 175) = 1.91, p = .15.

**3.2.2. Differences in Self Control Levels between Regions**

Anova is used to test whether participants from different regions of Turkey are significantly different in terms of their self control levels. Test results demonstrated that region has a main effect on self control, *F*(2, 174) = 5.96, *p*< .05. It means that there are significant difference in self control levels between the regions.

**3.2.3. Relationship between Aggression and Self Control**

To investigate the relationship between self control and aggression; we conducted a correlation analysis. According to correlation test, there is a negative correlation between self control and aggression,  r = -0.32, *p* < .0001.



**3.2.4.The Description of Participants’ Settlement vs Self control & Aggression**

Anova is  used  to investigate whether the description of participants’ settlement has an effect on aggression and self control. As a result of this test, the description of participants’ settlement has not significantly an effect on aggression, *F*(2,193)= 0.19, *p*= .84,  and self control, *F*(2,192)= 0.28, *p*= .75. It means that the size of settlements like village or big city does not significantly affect people's aggression and self control levels.

**3.2.5.The Distance of Participants’ House to The Nearest Neighborvs Self control & Aggression**

Correlation method is used to find the relationship between independent variable the distance of participants’ house to the nearest neighbor and dependent variables self control and aggression. There is a non-significant positive correlation between the distance of participants’ house to the nearest neighbor and aggression, r=0.01, p= .89, and also non-significant negative correlation with self control, r= -0.008, p= .91. It means that the distance of participants’ house to the nearest neighbor does not significantly affect people’s aggression and self control level. It doesn’t matter to live in the house which is far away from other houses.

**3.2.6. Relationship between Alcohol consumption and  Self control & Aggression**

Correlation method is used to find the relationship between independent variable alcohol consumption and dependent variables self control and aggression. There is a significant positive correlation between alcohol consumption and aggression, r = 2.30,  *p* < .05. There is a significant negative correlation between alcohol consumption and self control, r = -0.14, *p* = .05.

**3.2.7. Differences in Alcohol Consumption Level among the Regions**

Anova test is used to investigate whether participants from different regions of Turkey have considerably different levels of alcohol consumption. Results revealed that there is a significant difference between the regions in the alcohol consumption;  *F*(3,194) = 3,46, *p* = .018.

**3.2.8. Relationship between Being Planned and Self control & Aggression**

Correlation method is used to find the relationship between independent variable being planned and dependent variables self control and aggression. There is a significant negative correlation between to be planned and aggression, r= -0.20, *p* < .05 and a significant positive correlation between to be planned and self control, r= 0.20, *p* < .05. It means that when people become more planned, they are more likely to show high aggression and low self control.

**3.2.9. Differences in Being Planned among the Regions**

Anova test demonstrated that there is no significant difference in being planned between the participants from different regions of Turkey; *F*(3,193) = 0,99, *p* = .40.

**3.2.10. Relationship between Taking risk and Self control & Aggression**

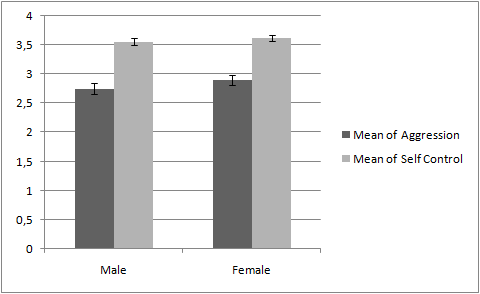
Correlation method is used to find the relationship between independent variable taking risk and dependent variables self control and aggression. There is a significant positive correlation between risk-taking and aggression, r = 0.18, *p* < .05, and nonsignificant negative correlation between risk-taking and self control, r = -0.11, *p* = .13. This means that as people take more risks, they become more aggressive.

**3.2.11. Age vs Self control & Aggression**

Correlation method is used to find the relationship between independent variable age and dependent variables self control and aggression. There is a significant negative correlation between age and aggression, r = -0.16, *p* < .05, and significant positive correlation between age and self control, r = 0.27, *p* < .0001. It means that as people get older, they are less likely to show aggressive behavior. Young people are more likely to show aggressive behaviour.

**3.2.12. Gender vs Self control & Aggression**

T-Test is used to investigate whether gender has an effect on aggression and self control. There is a non-significant relationship between gender and aggression, *t*(187) = 1.19, *p* = .23, and also non-significant relationship between gender and self control, *t*(186) = 0.88, *p* = .37. This means that there is no significant differences in aggression and self control between male and female.



**3.2.13. Education Level vs Self Control & Aggression**

There is a non-significant relationship between education level and aggression, *F*( 5, 188) = 1.09, *p* = .19. However, there is a significant relationship between education level and self control *F*(5,182) = 2.97, *p* < .05. Generally, people had high education level are more likely to have high self control.

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| --- | --- | --- | --- |
| Education Level | Sample Size | Mean of Aggression | Mean of Self Control |
| None | 4 | 2,4643 | 3,3077 |
| Primary School | 26 | 2,7704 | 3,7722 |
| Secondary School | 11 | 3,1299 | 3,2238 |
| High School | 85 | 2,6916 | 3,5195 |
| Undergraduate | 46 | 3,0365 | 3,709 |
| (Post)Graduate | 16 | 2,7054 | 3,6538 |
| Total | 188 | 2,8078 | 3,5904 |

**3.2.14. Avarage Temperature and The Seasonal Variations in Temperature**

The climate of the Aegean Region is Mediterranean climate which yearly avarage temperature is 16,3 °C and seasonal variation in temperature is 18-20 °C. In the Black sea climate which is influential in Black Sea Region yearly avarage temperature is 13 °C and seasonal variation in temperature is 15-17 °C. The climate of the Central Anatolia Region is Continental climate which yearly avarage temperature is 10,8°C and seasonal variation in temperature is 20-25 °C.

**4. Discussion**

In our research, it was found that aggression levels are not significantly different among the regions while self control levels are significantly different. There is also significant negative correlation between aggression and self control. The reason why aggression level is not significant among regions may be because of we use only the part of Bussy Perry Aggression Questionnaire(1999)which measure the anger level. In fact, the questionnaire includes twenthy-nine question and intents to measure physical aggression, verbal aggression, and hostility levels alongside of anger. Therefore, the scale we used could be insufficient to give well-supported data about the agrresion levels of participants. On the other hand, the method we used to gatherdata (self-report technique) also has some disadvantages like social desirability, being unable to assessoneself introspectively, variation among the participants in understanding and interpretation of questions and also rating scales.In addition to them; according to our observations and their expressions, people in Black Seaseem much more aggressive and hot-tempered than people from other regions. However, according to our results, they are less aggressive compared to people live in other regions of Turkey. We thought that the reason may be the education levels of participants, as seen in result section the education level of participants in Black Sea is highest compared to other regions and we found a significant positive correlation between the education level and self control. Thus most probably aggression is negatively correlated with education level.

Contrary to our knowledge comes from CLASH model of aggression, eventhough The Central Anatolia region has highest temperature variation than Eagean and Black Sea Region it has lowest self control level.On the other hand, Black Sea region has the lowest seasonal variation in temperature so in the light of CLASH model it has a potential to get highest level of aggression and lowest level of self control than other regions.

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