

Attribution Bias in the context of Intergroup Relations: The Case of Natives and Immigrants

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Abstract

Ultimate attribution error (UAE) is the tendency to attribute negative outgroup behavior to disposition factor and negative ingroup behavior to external circumstances. This study investigates the UAE committed by Turkish individuals in the context of intergroup relations between Syrian immigrants and Turkish citizens in. The purpose of this study is to investigate the impact of the other's out-group status and perceptual salience on the UAE. We intended to investigate these effects using a Virtual Reality configuration with virtual agents of a Turkish national and a Syrian immigrant. We hypothesized that Turkish citizens will make more dispositional attributions toward the Syrian immigrant agent in a negative scenario. Plus, the perceptually salient agent is expected to be attributed with more causality about the conversation and more dispositional. Results on the UAE yielded a significant interaction effect of Salience and Ethnicity. For the Syrian agent in a negative scenario, being visually salient resulted in higher ratings for the attribution of the negative behavior to personal decision. For the condition that Turkish agent is talking about a negative behavior, when Syrian agent is salient, the ratings for the same question were higher than the condition that Syrian agent is talking about a negative behavior, when Turkish agent is salient. Emotional and physiological (heart rate) reactions were also assessed, but yielded no significant results. This study contributes to the social and political psychology and cognitive science research by investigating both the perceptual salience and negative behavior effects in the context of ethnicity in VR environment.

Keywords : Emotions; heart rate; intergroup relations; perceptual salience; ultimate attribution error; virtual reality

1. INTRODUCTION

According to the attribution theory, individuals use cognitive processes to explain the causes of a behavior. This includes their own behavior and that of others (Weiner, 1974). The theory distinguishes dispositional attributions, referring to internal causes like personality traits, from situational attributions, referring to external causes like environmental factors (Jones & Davis, 1965). This process of causal inference lets individuals understand and define behavior by attributing it to internal or external causes.

However, attributions may be subject to bias. Attribution bias is a cognitive distortion that occurs when an individual makes systematic mistakes when explaining the fundamental causes of a behavior. This includes their own as well as others' behavior motivations. As described by Ross, "the fundamental attribution error" is a common mistake made by individuals. Ross (1977) defines the fundamental attribution error as the tendency for individuals to attribute the behavior of others to dispositional rather than situational causes. When contemplating a negative circumstance, this fallacy leads to negative evaluations of another person's demeanor regarding the behavior's causes.

In the context of intergroup relations, evaluating an outgroup member on the basis of dispositional causes can result in prejudice and stereotyping (Berry, 2015). Regarding attribution bias in intergroup relationships, Pettigrew postulated the "ultimate attribution error" (UAE) in 1979. The ultimate attribution error is the tendency to rationalize positive ingroup behavior with dispositional attributions, despite the fact that this is invalid for outgroup members. This judgement reverses itself in the case of a negative scenario. Examining the causes and outcomes of the ultimate attribution error is crucial for gaining insight into intergroup relations in societies with underrepresented minority groups. This study examines the ultimate attribution error within the context of intergroup relations between Syrian immigrants and Turkish citizens in Turkey. Due to the rising number of Syrian immigrants in Turkey, the two groups are likely to coexist in the foreseeable future, making it an investigation-worthy topic.

This study concentrates on group categorization and perceptual salience, the two most influential factors on attributional bias, to examine the ultimate attribution error committed by Turkish citizens against Syrian immigrants. Taylor & Fiske (1975) define perceptual salience as the degree to which a particular characteristic of a person or object stands out and attracts perceptual attention. People tend to make dispositional attributions rather than situational attributions when perceptual salience is high (Taylor & Fiske, 1975). In addition, group categorization, as defined by Tajfel and Turner (1986) as the identification of individuals as members of a specific social group, can result in in-group favoritism and out-group contempt (Tajfel et al., 1971), thereby influencing attributions. Despite the extensive research on intergroup relations and attributional biases, there is little empirical evidence on how perceptual salience and group categorization affect attributional biases toward immigrant groups. In order to contribute to this goal, the current study investigates the impact of these factors on immigrant actor attributions, concentrating on Turkish natives and Syrian immigrants.

The emotions elicited by intergroup relations are a second focus of the study. According to Stephan and Stephan's (2000) Integrated Threat Theory, intergroup bias is activated by perceived threat and anxiety. According to the literature, negative emotions toward an outgroup result in negative attitudes and behaviors toward the outgroup members. Therefore, we will also be interested in the emotions elicited by an in-group member (a native Turkish) and an out-group member (a Syrian immigrant) in a negative scenario. In order to comment on possible implicit and explicit bias, physiological measurements of heart rate will support self-reported emotional responses.

Using Virtual Reality (VR) technology in this context is possibly the most significant contribution of this study. The majority of attribution studies utilize vignettes, videos, or trained actors as confederates to examine social interactions. These instruments have disadvantages in terms of reproducibility, maintenance, and simulating the actual world. By utilizing VR technology, we hope to enhance ecological validity and provide participants with an immersive experience.

1.1. Attribution Theory and The Ultimate Attribution Error

Attribution theory provides a framework for comprehending the causal search that individuals engage in when explaining events and behaviors (Heider, 1958; Ross, 1977; Weiner, 1985). Nevertheless, people tend to make mistakes when making attributions. Support was provided for “fundamental attribution theory,” which states that individuals tend to over-rely on dispositional explanations for the negative behavior of others while failing to acknowledge contextual information (Ross, 1977). This was expanded by Pettigrew (1979) to include in-group versus out-group member behavior attributions. Pettigrew (1979) showed that the fundamental attribution error is increased when attributing causality to outgroup members. In addition to relying on internal attributions to justify their own positive behavior, individuals are more likely to do the same for in-group members. Pettigrew's (1979) research indicates that using arguments in favor of positive causal inferences would not be representative of that out-group and proposed this as the “ultimate attribution error”. An important study for the ultimate attribution error was Duncan's inter-racial study (1976). In this study, white American college students were asked to view a videotaped interaction of an increasingly violent argument that ended with one person pushing the other. The important independent variables were the race (black or white) of the protagonist and victim of the incident portrayed on videotape. The attribution portion of the study required participants to designate the extent to which the target behavior should be attributed to situational forces, personal factors, the topic at hand, or a combination of them. Intergroup effects were significant for both situational and personal attributions. When the protagonist was black, the subjects attributed his violent behavior less to situational factors and more to personal factors. As a result, there was more dispositional attribution than situational attribution in the black protagonist conditions and the opposite in the white protagonist conditions.

Taylor and Jaggi (1974) provided evidence of the divergent causal attributions used for out-group members in a Hindu population. When evaluating the actions of a Muslim, participants tended to attribute negative events to internal causes, whereas when evaluating the actions of a Hindu, they appealed to external causes. These results suggest that, when

asked to evaluate the actions of others, individuals may attribute distinct moral causes based solely on their group membership.

Chatman and von Hippel (2001) asked Black and White participants to assign reasons for the firing of a fictional Black or White woman. Participants relied on circumstantial attributions more for in-group members. In addition, Coleman (2013) observed ultimate attribution error among Democratic and Republican college students. When assessing political out-group members, participants over-relied on dispositional attributions for negative events, but used external attributions for positive events.

All these studies emphasize the fact that group membership influences individuals' explanations and attributions for identical situations in the context of social and ethnic backgrounds.

1.2. Perceptual Salience in Attribution Literature

A significant factor that influences attributions is perceptual salience. Two studies conducted by Taylor and Fiske in 1975 determined the relationship between perceptual salience and attribution bias. In the first study, the researchers made six observers watch a conversation between two people. Among these six observers, two of them were seated so that they could see one of the actors in the conversation from the front, two of them the other actor and the other two could see both of the actors in a circle. Therefore, perceptual salience was manipulated by the seating positions of the observers. After a get-acquainted conversation, the observers were asked questions about the causality of the conversation. Results indicated that observers rated the perceptually salient actor as more causal in directing the conversation, setting the tone, and affecting the behavior of the other actor. In their second study, the researchers showed the participants a video of a conversation between two people in which the observers were to attend to one of the actors, thereby making the specific actor visually salient. After viewing the video, participants were asked to assess the causes of the conversation, like in the first study. The results were parallel to the first study, where the observers rated the causality of the actor they attended to higher

than the other actor. These suggest that factors such as point of view and attention, providing perceptual salience, affect causal attributions. In these two studies, Taylor and Fiske did not find dispositional-situational causality attribution differences.

However, there are studies suggesting that saliency can also determine dispositional and situational causality. This depends on the presence and salience of the information present for the observer. As Taylor and Fiske (1978) put it, “relative prominence determines perceived locus of causality” (p. 259). Situational and dispositional attributions are made to the extent that the actor or the situation is salient.

Numerous studies have created a salience effect by manipulating mechanisms of spontaneous selective attention. These included the brightness, movement, complexity, and novelty of the observed. McArthur and Post (1977) conducted several studies to examine the salience effect on attributions of dispositional and situational causality. Three studies included a two-actor conversation set up, actors being under bright vs. dim light, a physical movement pattern vs. a steady position, and an outfit with pattern complexity vs. a monochrome shirt. They found that the perceptually salient actor was attributed less situationally than the non-salient actor. In their fourth study, novelty manipulation was created by a group of people with one of them wearing a different shirt from the others. The fifth study also included a group of people, where in one group there was one male among other females, and in the other group there was one female among males. In these two studies, the opposite of the first three studies was found. The novel person’s behavior was perceived more situationally than the non-novel group members. McArthur and Post suggested that, when an actor is salient with respect to its environment, attention to the actor creates dispositional attributions, but when it is the opposite, when the environment is made salient, the observer tends to make attributions about the situation/environment (1977).

1.3. Intergroup Threat, Emotions and Attitudes

As addressed before, perceptions of others affect the attributions made about them. As the ultimate attribution error, negative perceptions, biases, and prejudice lead to negative dispositional attributions in a negative scenario for an out-group member. The main reason for intergroup prejudice and bias has been addressed as the intergroup threat. As Riek et al. put it: “intergroup threat occurs when one group's actions, beliefs, or characteristics challenge the goal attainment or well-being of another group.” (2006).

There have been theories proposed to explain the intergroup threat and attitudes. An early theory was the Realistic Group Conflict Theory, suggesting mainly that the intergroup threat emerges from competition or conflicting goals (Sherif & Sherif, 1969). As it was suggested, when conflicting goals exist for scarce resources such as money or power, this creates hostility towards out-group members. Later, Tajfel and Turner (1979) proposed Social Identity Theory, suggesting that competition for resources does not necessarily promote intergroup conflict. Rather, competing identities are sufficient for intergroup hostility.

Bobo (1983) also showed that, even though the threat is not assumed to be directed individually, out-group bias can be held by the individual. For instance, even if he is not directly affected by affirmative action, a White male may perceive it as a threat to the ingroup's overarching interests (Riek et al. 2006).

As examined by Brown et al. (2001), perceived threat can lead to aggression. They examined a situation where French fishermen blocked a port used by the British ferry, thereby endangering the objectives of the British passengers. They observed that conflict between the groups was associated with increased aggression towards the French.

Kinder & Sears (1981) explained intergroup threat with Symbolic Racism. As they suggested, intergroup hostility and racism were based more on conflicting values and beliefs (Riek et al. 2006). Studies by Esses, Haddock, and Zanna (1993) and Esses, Hodson, and Dovidio (2003) on immigrants, found that perceived threats to ingroup values increase negative attitudes toward immigrants.

The Integrated Threat Theory proposed by Stephan & Stephan (2000) proposes four counterparts for intergroup threat. Aside from realistic and symbolic threat they suggest that intergroup anxiety and negative stereotypes are also part of intergroup threat (1996, 2000). Intergroup anxiety has been shown to indicate negative outgroup attitudes and bias (Ho & Jackson, 2001; Islam & Hewstone, 1993; Voci & Hewstone, 2003; Riek et al., 2006). Moreover, an outcome of intergroup anxiety was also found to be hostility toward out-groups. (Plant & Devine, 2003).

The last counterpart, negative stereotypes, is associated with negative emotions towards out-groups. These negative emotions mainly include anger and fear, which lead to negative attitudes directed at out-groups (Stephan & Stephan, 1996).

Another explanation for intergroup threat was the Biocultural Model of Threat by Neuberg and Cottrell (2002). Neuberg and Cottrell focused on the emotional and attitudinal outcomes of the threat rather than its reasons. They proposed that anger comes along with the vast majority of intergroup threats, despite the fact that various threats are expected to elicit distinct emotions. They found out that anger and fear are the main emotions elicited when a threat is perceived towards the economic security of the ingroup, which may include immigrant employees. As a result, an aggressive response is promoted to maintain economic security (Riek et al., 2006). In addition, envy and anger are two main emotions elicited when threat is perceived towards the reputation of the in-group's competence, which may include the perception that Asians are intellectually superior to Whites. These feelings are then followed by actions that diminish the outgroup's achievements or enhance the ingroup's capabilities (Riek et al. 2006).

In accordance with the Biocultural Model of Threat, emotional outputs, perceived threats, and prejudice levels of White individuals were measured with respect to different out-groups. As a result, the participants' perceived threat and emotional responses varied across out-groups (Neuberg & Cottrell, 2002). An example is the out-group consisting of Black individuals. White participants declared a high perceived threat to their safety, as

well as feeling fear and anger when compared to the feelings elicited by the other out-groups. Another outcome was that Native Americans elicited pity and guilt when perceived threat was towards the shared values of the in-group (Neuberg & Cottrell, 2002).

As a result, it has been demonstrated with various theories and studies that intergroup relations can lead to perceptions of threat when it comes to competing for resources or conflicting beliefs and values. This perception of threat can lead to negative emotions and behaviors towards the out- group.

1.4. Syrian Immigration to Turkey and Inter-group Relations

Since 2011, the Syrian Civil War has severely affected the stability and security of the country. This led to a wave of migration that forced millions of Syrians to flee their homes. Turkey has been one of the countries receiving the most Syrian immigrants, providing them with basic needs such as shelter, health care, education, and employment opportunities. According to the UNHCR 2020 mid-year statistical report, there are nearly 3,5 million Syrian refugees hosted in Turkey, with the biggest population residing in Istanbul, besides border cities such as Gaziantep and Şanlıurfa.

With employers hiring immigrants with no social security and lower wages than Turkish employees, Syrian immigrants became a “cheap labor force” in employment. Thus, this increasingly cheap workforce started creating a realistic threat regarding competition on economic resources (Karaoğlu, 2015). This threat promotes prejudice toward Syrian immigrants. A study by Erisen (2018), conducted on a representative sample of the Turkish population, showed that the low-income population has a significantly higher level of prejudice toward Syrian immigrants, than the mid and high-income populations, supporting the Realistic Group Conflict Theory. Competition for resources increases intergroup conflict and this has demonstrated itself through concrete behaviors of rage and hostility towards Syrian immigrants.

An example of a hostile attack was reported by Habertürk, where Turkish porters claiming that Syrian porters were working for lower wages and causing unemployment, chased the

Syrian porters with sticks (Habertürk, 2014, 8 August). Another wild attack happened in 2018 in the capital city, Ankara. A crowd of Turkish citizens gathered in a neighborhood destroyed and looted some shops and vehicles allegedly belonging to Syrians (Bianet, 2021, 12 August) In 2014, a Syrian construction worker was also beaten up to death by Turkish citizens (Radikal, 2014, 14 August).

Demonstration of loath against Syrian immigrants is not only led by competition upon scarce resources but also by stereotypes and biases. In 2015, a Turkish employee of a food chain in Istanbul beat up a Syrian immigrant child because the child intended to eat the leftovers of a customer. In his defense, the employee claimed that the customers were irritated by the immigrants who usually beg for food (Radikal, 2015, 31 January).

Perceived threat against beliefs and values also build tension between the two groups. As reported by Hurriyet Daily News, a huge protest with nearly 300 Turkish residents armed with knives and sticks occurred in Istanbul after claims about a Syrian men harassing a girl. The crowd attacked the shops and cars belonging to Syrians (2015).

A similar demonstration took place the week before this event in the city of Iskenderun, which is located in the Hatay province on the Syrian border. This demonstration was sparked by allegations that a Syrian refugee had abused a Turkish child (Hürriyet, 2014, 25 August).

The most recent elections in Turkey have served as a further convincing indicator that immigrants from Syria are not desired in Turkey. Election promises of the candidates of the main opposition party (CHP) and Zafer Partisi, mainly supported by nationalist voters, to repatriate refugees received a lot of sympathy in the last elections.

All in all, Turkish people may have unfavorable prejudices and feelings which have the potential to trigger wild behaviors toward people who have immigrated from Syria. In this regard, the tension between these two groups, who are expected to coexist within the same borders for the foreseeable future, merits investigation. Our primary objective will be to

examine this intergroup relation through Turkish individuals' attributions and emotions towards Syrian immigrants.

1.5. Research on Virtual Reality and Its Applications in Social Psychology

Virtual Reality (VR) technology has become an increasingly important tool in social psychology research. VR technology provides an immersive environment that can simulate authentic social situations, allowing researchers to examine the effects of various variables on social cognition and behavior (Slater, Khanna, Mortensen, & Yu, 2009).

An important advantage of using VR technology in social psychology research is the reproducibility. VR provides the user with the ability to manipulate variables that are difficult or impossible to manipulate in real-world situations. In many studies, social interactions are examined via creating scenarios with trained actors as confederates. These environments are hard to reproduce and maintain.

Immersion and creating an interactive experience for the participant are a second advantage of utilizing VR technology. A VR environment is closer to a real-life experimental environment when compared to the videotapes or vignettes. However, as Pan and Hamilton (2018) put it, virtual characters should have human-like animations to be perceived as more plausible. Additionally, VR helps create safe and feasible solutions for situations that are hard to create in real-life settings (Pan & Hamilton, 2018).

Blascovich et al. (2002) developed a model of social influence in IVEs (Immersive Virtual Environment). According to their model, social influence effects are present when there is sufficient social presence and behavioral realism. Therefore, an immersive virtual environment has the ability to elicit emotions and attitudes similar to real-life social environments.

One example is the study by Williams et al in 2000. They found that online gamers can feel ostracized during the game with competitors they visualize, even when the competitors are only simple colored representations on the screen (Williams, Cheung, and Choi 2000).

In addition, Zadro et al. discovered that the effects of ostracism are comparable even when individuals are informed that the game is controlled by a computer, as opposed to when they are ostracized by actual individuals (Zadro, Williams, & Richardson, 2004). In addition, according to Persky & Blascovich's study in 2008, immersive virtual environments create more violent attitudes when playing a violent video game when compared to less immersive environments.

As one can manipulate the physical properties of virtual actors, such as the skin color and body features, virtual environments are fruitful resources to examine intergroup relations based on race and ethnicity differences. Dotsch and Wigboldus (2008) examined how native Deutch individuals maintain distance and impulsive discriminatory responses when encountered with virtual avatars with White or Moroccan facial features. They found that participants maintained more distance when approaching Moroccan avatars. Their skin conductance level was also higher which implied impulsive discriminatory responses.

In a study by Eastwick and Gardner (2009), they manipulated the race of virtual avatars with different skin colors- light and dark. Participants were presented with these avatars, requesting help. The study demonstrated that the Door In The Face effect was lower for the participants encountered with dark-skinned avatars. Eastwick and Gardner suggest that real-life racial biases have the potential to affect attitudes in virtual environments (2009).

McCall et al (2009) examined hostility and aggression in their study where participants first encountered with Black or White agents in IVE to examine the proxemic behavior. Later, they engaged in a shooting game with the agents. The results yielded that minimum distance between the participant and the agents was significantly higher in the Black agents condition. In addition, as the minimum distance increased, so did the percentage of the aggressive head shots during the game (McCall et al., 2009). This is an example of a noteworthy experiment in that virtual environments provide an opportunity to observe hostile and aggressive behaviors towards others.

As a result, the use of VR technology in social psychology research provides a unique opportunity to investigate the effects of various variables on social cognition and behavior in a controlled and immersive environment.

1.6. Research on the Relationship Between Heart Rate as a Physiological Measurement, and Emotions in Social Psychology

In social psychology research, physiological measures are commonly employed to better comprehend the relationship between the body and the mind, particularly in the context of stress, prejudice, and negative emotions. Heart rate, blood pressure, and electrocardiogram (ECG) recordings are among the most frequently employed cardiovascular-related physiological measurements. Particularly, it has been demonstrated that heart rate (HR) measurement is the mostly used sensitive indicator of physiological arousal when examining emotions (Kreibig, 2010).

In her review, Kreiberg notes that, HR increases often for emotions such as: anger, anxiety, disgust and embarrassment whereas decreases often for emotions such as: affection, contentment and pleasure (2010). Moreover, the most commonly used experimental tools to elicit emotions are noted to be film clips, followed by real-life standardized images.

A study by Vrana, using standardized imagery, showed that disgust, anger and joy imagery resulted in higher heart rate with respect to pleasant imagery. In addition, heart rate increases during fear and fear imagery (Vrana, 1993). Another study, conducted by Wu et al. in 2019 used affective videos to trigger emotions of fear, anger and amusement. They measured the heart rate of the participants during the video displays. The results revealed that heart rate was significantly higher in the angry, fearful and neutral conditions when compared to the amused condition.

Anger and fear were also found to be causing an increase in the heart rate when compared to the neutral condition. In their study, Multivariate Response Patterning of Fear and Anger, Sinha and Parsons discovered significant increases in heart rate during fear and

anger imagery conditions compared to neutral imagery conditions. Moreover, anger led to the greatest increase in heart rate (1996).

Physiological measures, such as heart rate measurement, can therefore provide valuable insight into the emotional correlates of biased intergroup perceptions. As was previously mentioned, the perception of a threat to an outgroup can elicit emotions such as anger and fear. Physiological measurements coupled with self-reports can provide a deeper understanding of the affective processes elicited by biased intergroup relationships.

1.7. Aim of the Study

The present study aims to investigate the effects of perceptual salience and out-group status on the ultimate attribution error in a negative scenario. The study specifically aims to examine this relationship between Turkish citizens and Syrian immigrants. Using a virtual reality (VR) experiment, we intend to investigate these effects through an immersive experience. As the previous research suggests, we expect to see more dispositional attributions made towards the Syrian agent in the negative scenario, whereas more situational attributions will be made for the Turkish agent in the same scenario. Moreover, we expect to see more dispositional attributions made towards the perceptually salient agent than the non-salient agent. As the perceptual salience literature suggests, we expect to find differences between the general causality attributions about the conversation regarding the perceptually salient agent. Specifically, the perceptually salient agent is more likely to be perceived as the cause of how the conversation unfolds in the sense of directing the conversation. Additionally, participants are expected to feel more negative emotions, such as anger, fear and hostility, towards the Syrian agent talking about a negative behavior, when compared to the Turkish actor within the same scenario. Physiological changes with respect to emotional arousals will be measured via heart rate. Therefore, in parallel, the heart rate measurements of the participants in the conditions where the Syrian agent talks about a negative behavior are expected to be higher than in the condition where the Turkish actor talks about the same behavior. This study aims to fill a gap in social and

political psychology research on intergroup relations by utilizing VR technology to create an immersive environment with high ecological validity, and by focusing on a timely issue in Turkish-Syrian relations.

1.8. Method and Procedure

Participants were 128 voluntary adults, which were all citizens of Turkey (71 male, mean age= 25.54, SD= 7.31). Current study was conducted with an approval from the Science-Ethics Committee of Yeditepe University.

The study is an experimental study with 2*2 between subjects factorial design, with 0.8 power and effect size of 0.25. Perceptual salience (whether you can see the VR agent's (who is talking about a negative behavior) face and body from the front or not) and ethnicity of the actor (Syrian or Turkish) talking about his behavior creates four experimental conditions: Salience (Salient- NonSalient) and Ethnicity (Turkish-Syrian). n=32 for every condition.

First, every participant was scheduled a spot for the experiment, and they were randomly assigned to the four conditions. The experiment was held in the VR Laboratory of Yeditepe University in Istanbul. Participants first confirmed a voluntary participant form for the experiment. Before the VR experiment, every participant was made sure with a demo scene that they could see the scene and hear the voices. Later, VR experiment scenes were displayed.

The flow of the VR experiment included: an instruction scene to welcome to the experiment in the beginning, a demo scene similar to the treatment scenes including a male and a female Turkish virtual agents having a daily conversation, to prepare the participants what they will encounter in the treatment scene, an instruction and informative display for the treatment scene in which the names of the virtual agents are written as well as if they are Syrian or Turkish, the treatment scene with a Syrian and a Turkish virtual agent, an informative display instructing the participant to wait for 10 seconds and an informative scene about the end of the experiment (Figures 1-3).

The treatment conditions included a scene where one male Turkish agent and one male Syrian agent were sitting across the table from each other in a cafe. The participant is seated on a table in the same cafe next to the agents and at an angle where s/he can only see the face of one agent from the front and the other from the back, in the virtual environment. The conversation between the two agents is a daily conversation, giving information on the origin of the Syrian agent and followed by the information given by one of the agents about the local bus journey he had coming to the cafe. The bus journey includes a socially negative behavior where the agent tells that his bus ticket ran out of balance but he continued his journey on the bus, coming to the cafe. In the end, the agents agree to check the bus timetable.

After the VR session, every participant filled out the post-test questionnaire about the scene they have watched. The questionnaire includes questions about the causality of the conversation, attribution questions about the bus journey of the agent and emotion questions. Before analysis of the data, first questions of the questionnaire were controlled in order to make sure every participant understood the context of the scenes they have watched. So, no data was excluded before analysis.

3. RESULTS

3.1. Perceptual Salience and Ethnicity Effect on the UAE

Responses to the post-test UAE questions were analyzed in order to examine the effects of perceptual salience and group categorization on the UAE. A descriptive table for the four conditions and for each of the six questions can be referred at Table 1 and Figure 4. For every condition for each question $n= 32$.

A two-way ANOVA was performed for each question to analyze the effect of salience and ethnicity on the UAE. The analyses revealed significant results for only the question about how much the participant agrees that the action of the actor was his personal decision.

Table 2 shows the results of the two-way ANOVA for this question.

Simple main effects analysis showed that ethnicity has a statistically significant effect, $F(1,124)= 4.23, p = .04$). The direct effect depends on the values of the other factor. There is a statistically significant interaction between the effects of Salience and Ethnicity, $F(1, 124) = 9.99, p <0.01$.

Post hoc Tukey HSD test was employed to better understand the interaction effect. The analysis showed that Syrian-Salient ($M=7.41, SD=2.67$) and Syrian-NonSalient ($M=5.06, SD=3.39$) conditions differed significantly at $p<0.01$. Moreover, Turkish-NonSalient ($M=7.72, SD=2.30$) and Syrian-NonSalient ($M=5.06, SD=3.39$) conditions differed significantly $p<0.01$. The interaction plot of two variables can be seen in Figure 5.

It is seen that ratings given to the personal decision question are higher for the Salient condition when the agent is Syrian. Additionally, the question ratings are significantly higher for the Turkish agent when the agent is NonSalient.

The same analysis was conducted after the elimination of the two outliers. An interaction effect was observed again, which can be seen in Table 3.

Post hoc Tukey HSD test was employed to better understand the interaction effect. Similar to previous data, the analysis showed that Syrian-Salient ($M=7.41, SD=2.67$) and Syrian-NonSalient ($M=5.06, SD=3.39$) conditions differed significantly at $p<0.01$. Moreover, Turkish-NonSalient ($M=8.1, SD=1.81$) and Syrian-NonSalient ($M=5.06, SD=3.39$) conditions differed significantly $p<0.01$.

In addition, investigation of the outlier data yielded no data entry or measurement errors. Besides, there was no violation of the target population. That is why, outliers were considered to be a natural part of the sample.

3.2. Effect of Group Categorization and Negative Behavior on Agency Attribution

Post-test causality (agency) questions were analyzed for the four conditions based on two factors: whether the salient actor was the actor talking about his behavior (Behavior with two levels: Yes or No) and Ethnicity (Turkish or Syrian). Descriptive statistics can be seen in Table 4 and Figure 6. For every condition for each question $n = 32$. A two-way ANOVA analysis was performed for each question but the results yielded no significance.

3.3. Effect of Perceptual Salience and Ethnicity on Emotions

Post-test questionnaire included questions about how much the participant feels specific emotions for the agent who talked about his behavior on the bus. As stated before, these emotions were recruited from the PANAS scale (Watson et al., 1988). Mean values for each emotion state for four conditions with standard errors can be seen in Figure 7. Pairwise correlations for both Salience and Ethnicity factors were calculated for all emotion states. The results yielded no significant correlations.

3.4. Heart Rate Response

3.4.1. Perceptual Salience and Group Categorization Effect on Heart Rate

Out of 128 participants, heart rate data of 99 participants were measured successfully. 29 measurements were excluded from the data because of desynchronization of time measurement. First, every participant data was standardized to z-scores to be comparable. Then, Perceptual Salience and Ethnicity effect on HR. The descriptive statistics can be found in Tables 5-6 and Figure 8. Normality of HR data was examined by Shapiro Wilk normality test and observed to be non-normally distributed ($W = 0.96982$, $p\text{-value} = 0.02$). Box-cox transformation analysis was performed to obtain normally distributed data. The analysis yielded a lambda value of 1, so the analysis was advanced with the current data.

A two-way ANOVA analysis was conducted for the two factors (Table 7). No significant effects were observed on the HR data. Analysis was furthered by eliminating the outlier points. 3 outlier points were eliminated and Shapiro Wilk normality test yielded normality

for the revised data ($W = 0.97378$, $p\text{-value} = 0.051$). A two-way ANOVA analysis was performed for the revised data. Again, no significant effects were observed.

3.4.2. Emotions and Heart Rate

As previous research suggests, some emotions such as fear, anger and anxiety increase heart rate. To investigate this, the relationship between heart rate and emotions were examined by correlation analysis. Pairs of discrete emotion states and heart rate variable did not yield any significant results.

3.5. Feeling Thermometer and Heart Rate

The feeling thermometer introduced by the American National Election Studies in 1964 was used to measure how much the participants feel warm/cold and favorable/unfavorable for the agent that was perceptually salient.

Four conditions were analyzed based on two factors: whether the salient actor was the actor talking about his behavior (Behavior with two levels: Yes or No) and Ethnicity (Turkish or Syrian). The descriptive statistics can be found in Tables 8-9 and Figure 9. $n=32$ for all conditions. Normality of Feeling Thermometer data was examined by Shapiro Wilk normality test and observed to be non-normally distributed ($W = 0.90668$, $p\text{-value} < 0.001$). Box-cox transformation analysis was performed to obtain normally distributed data. The analysis yielded a lambda value of 1, so the analysis was advanced with the current data. A two-way ANOVA analysis was conducted for the two factors (Table 10). No significant effects were observed on the Feeling Thermometer data. Analysis was furthered by eliminating the outlier point. Shapiro Wilk normality test yielded no normality for the revised data ($W = 0.89696$, $p\text{-value} < 0.001$). Box-cox transformation analysis was performed to obtain normally distributed data. The analysis yielded a lambda value of 1, so the analysis was advanced with the current data. A two-way ANOVA analysis was conducted for the two factors and again yielded no significance. Later, the relationship

between the feeling thermometer and heart rate data was examined by correlation analysis. Correlation yielded no significant results.

4. DISCUSSION

The significant interaction effect of Perceptual salience and Ethnicity on the participant's responses to the question on how much the participant thinks the negative behavior was the agent's personal decision, reveals an important finding for the literature on the ultimate attribution error and intergroup relations and immigration attitudes studies more broadly. There is a significant difference in the participant's likelihood of attributing the negative narrated behavior by the Syrian agent to a personal decision. The direction of this difference significantly depends on whether the agent's face is visible or not. When the Syrian agent's face is visible while talking about the negative behavior, he is more likely to be viewed as acting out of his personal decision compared to when his face is not visible while talking about the same behavior. In the condition where the Syrian agent talks about how he continued his bus journey without payment when his bus ticket ran out of balance, participants were more likely to attribute his narrated behavior to the agent's personal decision in the Salient condition (Salient agent is Syrian) more than the NonSalient condition (Salient agent is Turkish). If the opposite case was also significant, i.e. Turkish-Salient condition was significantly higher than Turkish-NonSalient condition, this could be interpreted with a reference to McArthur & Post's studies (1977). For both cases, the salience of the pair-wise context would be same, but the salience of the agent would differ leading to more dispositional attributions for the non-salient case. However, the results suggest that when the context is created by the out-group member's negative behavior, salience leads to increment in the judgments about the behavior being triggered by personal choices.

In addition, there is a significant difference in the participant's likelihood of attributing the negative narrated behavior to a personal decision when the Turkish agent talks about a negative behavior, but the Syrian agent is visible, and when the Syrian agent talks about a negative behavior, but the Turkish agent is visible. It is seen that, even though the negative

behavior is not told by the salient agent, salience of the Syrian agent results in higher judgment levels on internal attribution when compared to the Turkish agent.

These findings might have important implications for the literature on how intergroup relations are studied and for political communication. Studies in intergroup relations in non-immersive experimental settings where the attitude objects, oftentimes the out-group members, are presented to the participant in a two dimensional visual or in a news headline or in text (Brader, Valentino & Suhay, 2008), the attitude effects found may not be replicable in a more immersive setting which better mimics real life. In fact, this thesis provides evidence on how the immigration attitude detected in a study may depend on how the immigrant is viewed and that this condition may work totally differently depending on whether the attitude object is an in-group native or an out-group immigrant. The conditionality of the effect of the native immigrant divide on attitudes may also have implications on how immigrants are presented in the media. One may think that the individuating cues such as viewing the face may work for the benefit of the out-group member when the behavior is deemed negative. This thesis has found that the opposite is true. Thus, more immersive media such as social media compared to traditional news outlets such as newspapers may lead to a bigger disadvantage regarding native attitudes towards immigrant out-groups compared to native in-groups when the same negative behavior is displayed with physically humanizing individuating cues such as viewing the face, gesture, and posture. Plus, salience of an out-group member seems to be disfavoring the in-group member. Internal attribution is lower for the out-group member when the salient agent is the in-group member when compared to the internal attribution for the in-group member when the out-group member is salient, in the same kind of narrated behavior. Although the subject of the negative behavior is the in-group member, a display with physically humanizing individuating cues of the out-group member causes stronger negative attribution about the in-group member. Ethnicity of the salient agent may determine attribution about the in/out-group agent. Further research is needed whether these effects are conditioned on the demographics of the agent in question and the kind of out-group studied.

5. CONCLUSION

The main aim of the study was to investigate the perceptual salience and group categorization effects on the ultimate attribution error in the context of ethnicity. Focusing on Turkey and the growing number of Syrian immigrants, we believe that intergroup relations between these two groups are worth further research. Our results suggest an important finding on the ultimate attribution error in an immersive experimental environment. Perceptual salience augments internal attribution on whether a negative behavior stems from personal choices for an out-group member. Also, salience of an out-group member has an augmenting effect on the internal attribution about the in-group member. This study can at least shed light on how to display contents about Syrian immigrants to help reduce bias and attribution error. Overall, this study contributes to the field with its innovative technological approach at the intersection of cognitive, social and political grounds.

Preprint

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Tables and Figures

Tables

Table 1

Descriptive statistics of the UAE questions for four conditions

Experimental Conditions		Ultimate Attribution Error Questions											
		Personal Decision		Character		Situation		May Repeat		Frequent Behavior		Enjoyed	
Saliency	Ethnicity	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
NonSalient	Syrian	5.06	3.39	6.38	2.97	6.59	2.38	8.34	1.84	4.97	2.32	3.84	2.45
NonSalient	Turkish	7.72	2.30	5.88	3.16	5.66	3.17	7.69	2.24	4.59	2.53	3.63	2.64
Salient	Syrian	7.41	2.67	5.69	3.16	7.03	2.78	7.63	2.59	4.59	2.69	3.44	2.06
Salient	Turkish	6.84	3.04	5.56	2.79	6.84	2.94	7.38	2.54	4.03	2.57	3.66	2.60

Table 2

ANOVA results for the personal decision question

Source of variation	Sum Sq	Df	F value	p value	Partial eta sq
Saliency	17.26	1	2.08	0.15	0.02
Ethnicity	35.07	1	4.23	0.04	0.03
Saliency:Ethnicity	82.88	1	9.99	<0.01	0.07
Residuals	1028.28	124			

Table 3

ANOVA results for the personal decision question after the elimination of outliers

	Sum Sq	Df	F value	Pr(>F)	pes
(Intercept)	820.13	1	104.39	0.00	0.46
Saliency	87.89	1	11.19	<0.01	0.08
Ethnicity	142.86	1	18.18	<0.001	0.13
Saliency:Ethnicity	101.98	1	12.98	<0.001	0.10
Residuals	958.5125	122			

Table 4

Descriptive statistics for the causality attribution questions for the four conditions

Experimental Conditions		Causality Attribution Questions					
		Tone		Context		Influence	
Behavior	Ethnicity	mean	sd	mean	sd	mean	sd
Yes	Turkish	4.63	2.20	5.41	2.59	4.31	2.42
No	Turkish	4.56	1.85	5.66	2.38	3.88	1.96
Yes	Syrian	4.56	2.15	5.19	2.63	4.22	2.70
No	Syrian	4.19	2.58	4.94	2.85	3.94	2.46

Table 5

Descriptive statistics for HR data for factor levels

Saliency	mean	sd	n	Ethnicity	mean	sd	n
NonSalient	0.32	0.26	49	Turkish	0.28	0.26	48
Salient	0.22	0.24	50	Syrian	0.26	0.25	51

Table 6

Descriptive statistics for HR data for four conditions

Saliency	Ethnicity	mean	sd	n
NonSalient	Turkish	0.35	0.28	22
NonSalient	Syrian	0.29	0.24	27
Salient	Turkish	0.22	0.24	26
Salient	Syrian	0.22	0.25	24

Table 7

ANOVA results for the HR data

Source of variation	Sum Sq	Df	F value	Pr(>F)	pes
(Intercept)	2.29	1	36.24	0.00	0.28
Saliency	0.06	1	0.98	0.33	0.01
Ethnicity	0.04	1	0.56	0.46	<0.01
Saliency:Ethnicity	0.02	1	0.27	0.61	<0.01
Residuals	6.01	95			

Table 8

Descriptive statistics for the Feeling Thermometer for factor levels.

Behavior	mean	sd	Ethnicity	mean	sd
No	41.31	18.45	Syrian	41.046875	18.47
Yes	39.09	18.17	Turkish	39.359375	18.18

Table 9

Descriptive statistics for Feeling Thermometer for four conditions

Behavior	Ethnicity	mean	sd
No	Syrian	42.94	16.85
No	Turkish	39.69	20.06
Yes	Syrian	39.16	20.04
Yes	Turkish	39.03	16.40

Table 10

ANOVA results for Feeling Thermometer

Source of variation	Sum Sq	Df	F value	Pr(>F)	pes
Behavior	157.53	1	0.46	0.50	<0.01
Ethnicity	91.13	1	0.27	0.61	<0.01
Behavior:Ethnicity	78.13	1	0.23	0.63	<0.01
Residuals	42065.94	124			

Figure



Figure 1

Sequence of the VR experiment



Figure 2

Treatment scene with Syrian agent perceptually salient

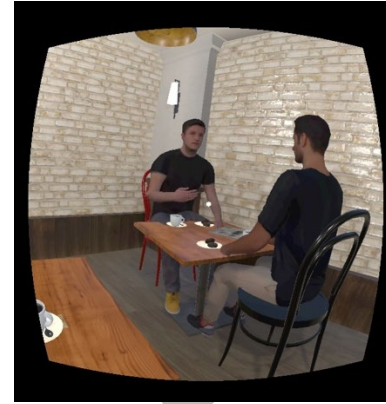


Figure 3

Treatment scene with Turkish agent perceptually salient

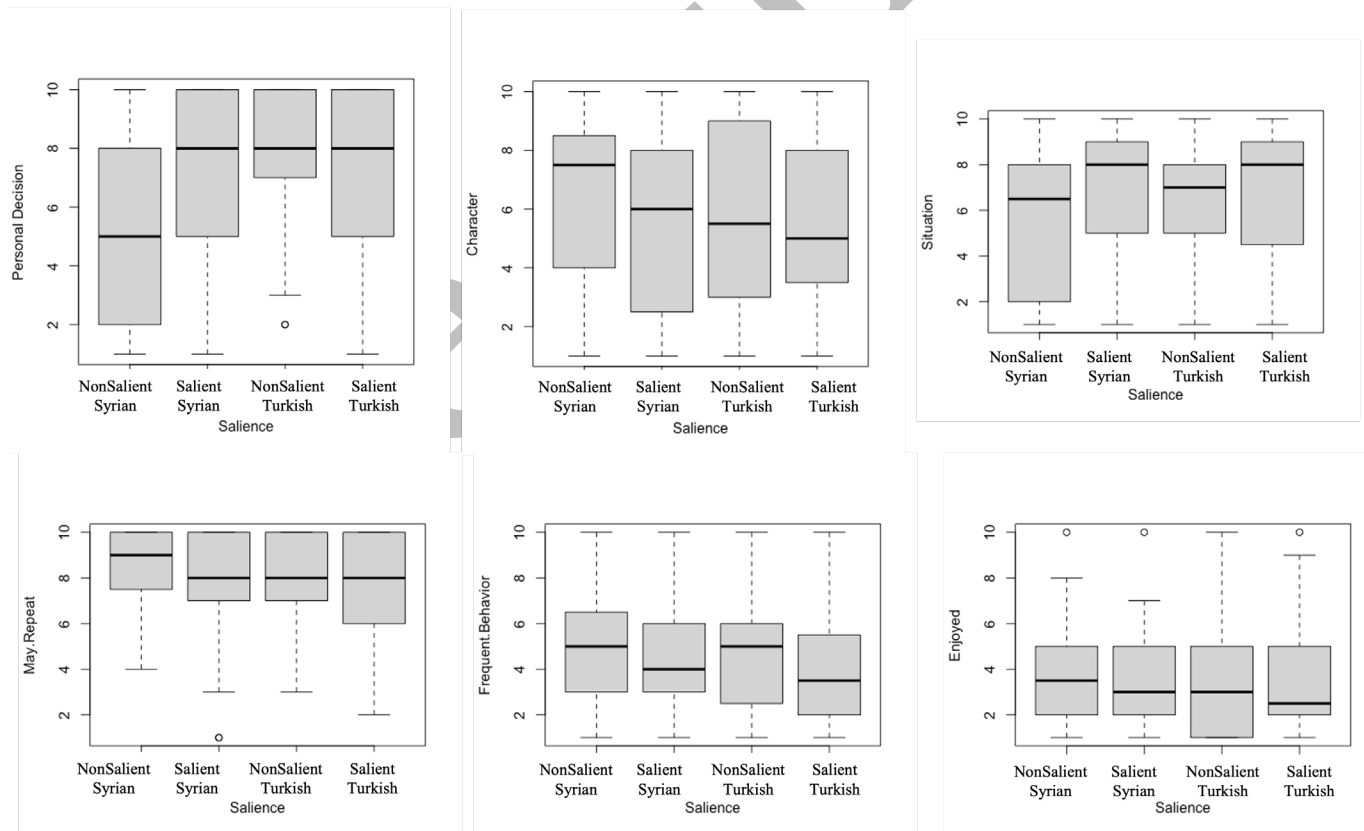


Figure 4

Box-plot graphs for the UAE questions

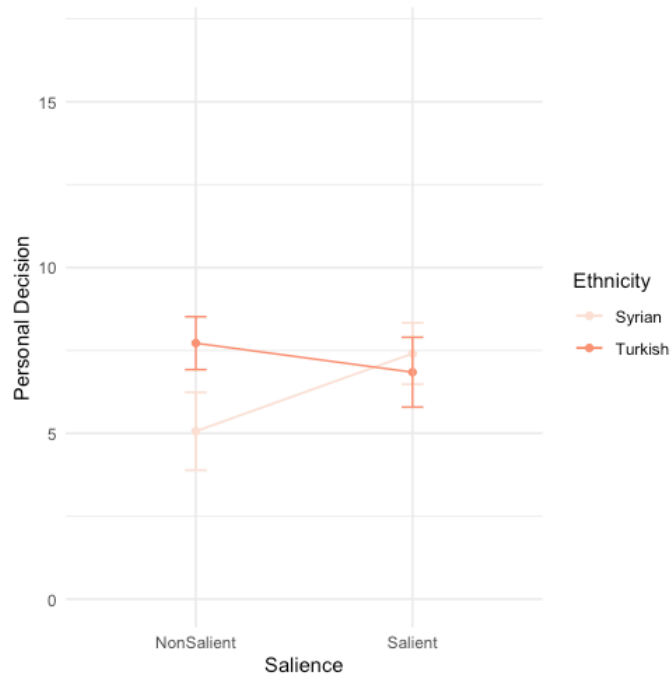


Figure 5

Interaction plot for Salience and Ethnicity for the personal decision question

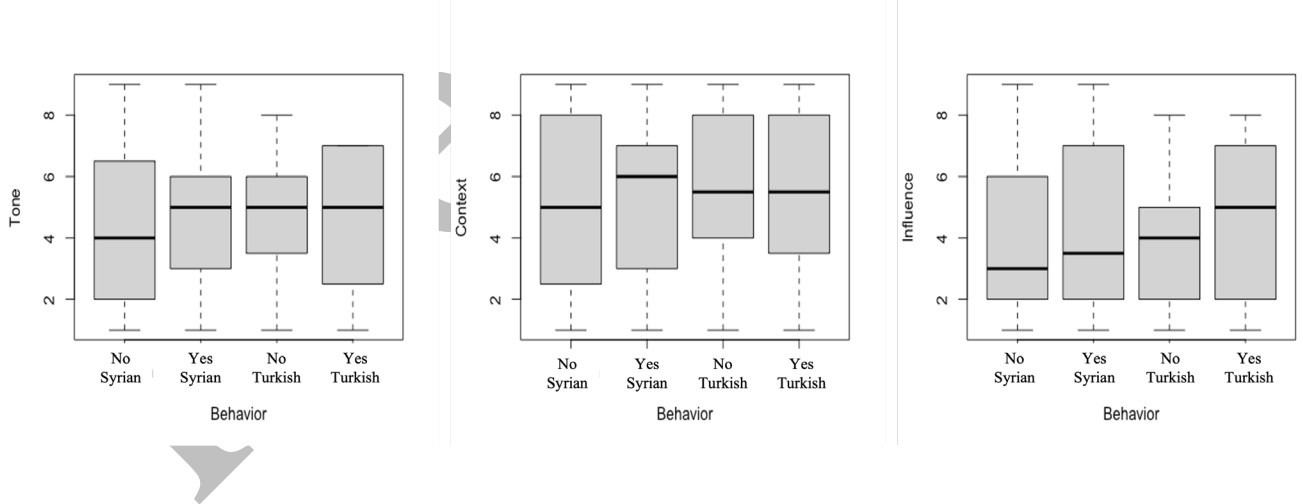


Figure 6

Box-plot graphs for the agency questions

NOTE: This preprint reports new research that has not been certified by peer review and should not be used as established information without consulting multiple experts in the field.

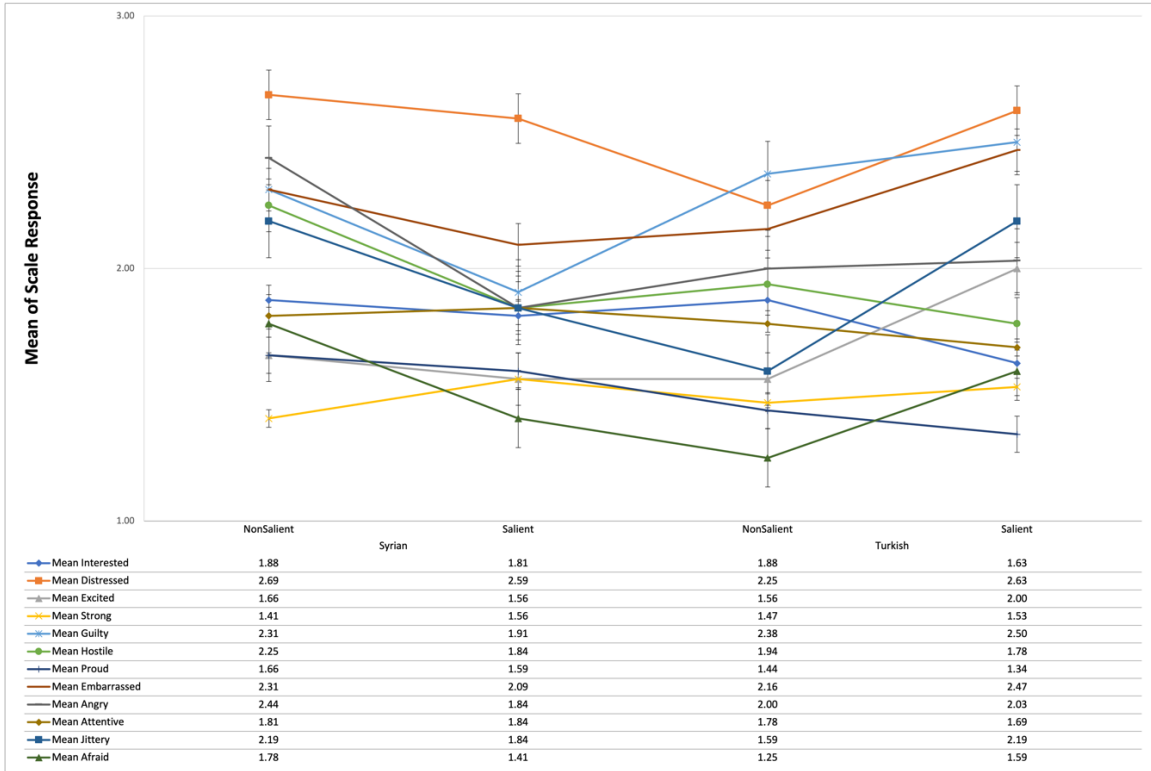


Figure 7

Mean values for discrete emotion states with standard errors

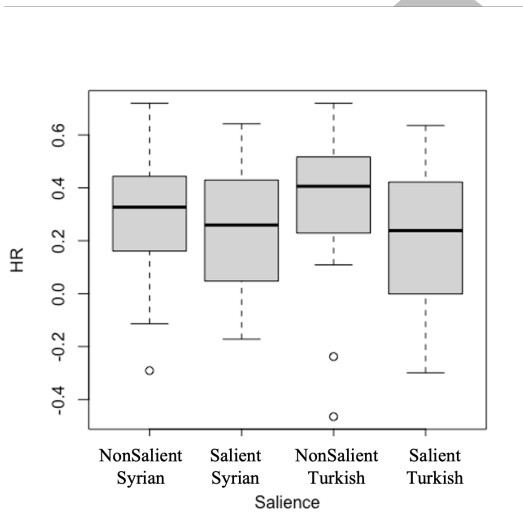


Figure 8

Box-plot graph for the HR data

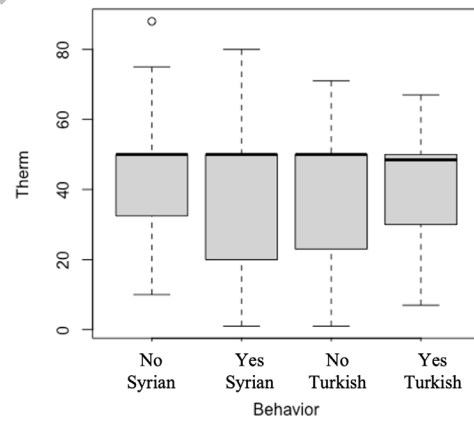


Figure 9

Box-plot graph for Feeling Thermometer