EDITORIAL BOARD

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EDITOR'S NOTE

I am very pleased and honoured to present the 7th issue of Koç University Undergraduate Psychology Journal. It was almost 2 years ago that we started this incredible journey with the first team of KUUPJ and it is reassuring to see that our energy and devotion are in place like the very first day. As you keep supporting us and send us your works of great value and effort- we, as the journal team, will be here to do our part.

KUUPJ is the product of a genuine team work between our authors, advisors and us editors. We appreciate our dear advisors Dr. Tilbe Göksun and Dr. Fuat Balcı, for their time and guidance. And I would like to individually thank each and every one of my team members for their great work and patience that was put into this issue and emphasise that every second devoted into our journal is done so voluntarily. I am hoping to work with them in next issues to come.

Lastly, I want to thank all of our authors as it is good Science -doing and -writing that our journal, as all other journals, relies on. We, as the journal team, hope you will find the brilliant articles in this issue as interesting as we did and wish you a pleasant reading. We support, encourage and admire honest and precise research and hope to see more of it in the world!

Editor-in-chief
Y. Kağan Porsuk

The Relationship Between Visual Exposure and Risk-Taking Regarding Impulsivity

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This study investigates how the initial impulsivity levels and the visual exposure to risk-depicting pictures affect young individuals' behavioral outcomes in terms of risky-behaviors regarding their impulsivity levels. We hypothesized the exposure to risk-taking related images will increase the propensity of risk-taking behaviors in all participants. We further predicted that the effect of visual exposure to risk-depicting images on the propensity of risk-taking behaviors will be stronger for participants with lower levels of impulsivity. Turkish-speaking Koç University students (N=90) firstly filled out the Barratt Impulsiveness Scale, then they were shown either risk-depicting or neutral images and lastly, they filled out the Domain-Specific Risk-Taking Scale. Although an effect of exposure to risk-depicting images and its interaction with impulsivity levels could not be found, impulsivity alone appeared to be a determinant for risky behavioral outcomes, with individuals having a high level of impulsivity being more inclined to perform risky behaviors. These findings might have implications for managing potentially dangerous behaviors of highly impulsive individuals.

Considering the accelerating technological advances, the use of social media has in-creased across all age groups (Roberts and Foehr, 2008). Since the content of social media is be-coming more extensive, it is more likely for individuals to be exposed to the stimuli of social media, which results in more observation and internalization of the content as supported by Social Learning Theory (Bandura, 1977). In this regard, it is important to think that the overuse of social media might have an effect on behavioral outcomes and intentions, especially among young individuals, considering that they are more susceptible to the negative effects of social media (e.g., Brown & Witherspoon, 2002; Escobar-Chaves & Anderson, 2008; Pardun, L'Engle, & Brown, 2005; Young & Jordan, 2013). A significant part of these behavioral outcomes consists of risky behaviors, which might be crucial to study regarding the potentially dangerous, even fatal, implications of such behaviors in daily life (e.g., Fischer, Guter, & Frey, 2008; Fischer, Greitemeyer, Kastenmüller, Vogrincic, & Sauer, 2011; Harvey, Towner, Peden, Soori, & Bartolomeos, 2009).

Additionally, personality characteristics might be important determinants of how individuals will be affected by the content on social media. In this respect, impulsivity, as a personality trait, has been found to have a close relationship with risky decision-making and risk-taking (Ber-ry, Sweeney, Morath, Odum & Jordan, 2014; Stanford, Greve, Boudreaux, Mathias, & Brum-below, 1996). Therefore, the effects of visual exposure to risk-depicting images on risky behaviors can be influenced by individual differences in the levels of impulsivity.

A meta-analysis conducted by Fischer, Greitemeyer, Kastenmülller, Vogrincic, and Sauer (2011) aimed to investigate the effects of exposure to risk-glorifying media on risk-taking inclina-tions and behaviors. The researchers used four dimensions of risk-taking measures (overall combined risk-taking, risk-taking behaviors, risk-positive cognitions and attitudes, and risk-promoting emotions) to analyze various studies on the relationship between media and risk-taking. The me-ta-analysis showed that exposure to media glorifying risk-taking increases the risk-taking inclinations of exposed participants, reflecting a reliable connection between the two. More

importantly, this positive link was found for all dimensions of risk-taking measures and across different re-search methods (experimental, correlational, longitudinal), media types (video games, movies, advertising, TV, music), and risky outcome measures (e.g., risky driving, risky sexual behaviors, excessive or irresponsible drinking).

Similarly, the study by Branley and Covey (2017) questioned whether exposure to risk-inducing social media influences offline behaviors in young adults. Participants in the study completed a survey in which they were asked to indicate their exposure to risk-depicting content in social media which encouraged risky behavior by portraying it in an enjoyable fashion. They were also asked about the possible offline behavioral outcomes of this exposure by asking how frequently they have performed behaviors like "illegal drug use, excessive alcohol consumption, unprotected sex" (Branley and Covey, 2017, p. 285) in the last 12 months. Their results indicated that exposure to risk-depicting content on social media was a predictor of offline risky behaviors in six of the behaviors that they have investigated, including drug use, excessive alcohol consumption, eating disorders, self-harming, exerting violence on others, and lastly, dangerous pranks. Therefore, these results emphasize that exposure to social media can trigger the manifestation of certain risky behaviors.

In light of these studies presented above, the focus of this study was to investigate whether there is an inhibiting effect of the color on people's performance on an achievement-related task, and we were also curious whether people had awareness (i.e. knowledge or perception of a situation or a fact) about the colors' effects on their performance, especially the inhibitory effect of the color red. In the literature, to our knowledge, there are no fulfilling studies about the awareness of the effects of these colors on the performance of people in achievement contexts. Therefore, in this research, we wanted to examine the awareness that people had about their performances, and to create an achievement context, as well as to replicate the previous findings in a feasible manner, we used anagram puzzles. Anagram puzzles were previously used in various studies as a cognitive performance measure (e.g. Miura, & Itoh, 2016;

Kezilas, Kohnen, McKague, Robidoux, & Castles, 2016).

The study by Fischer, Guter and Frey (2008) investigated a parallel relationship, more specifically, whether exposure to risk-related content on social media resulted in an increased number of thoughts about risk-taking or increased amount of risk-related behaviors among young people. Their study consisted of three experiments using different types of media tools, but only the first study will be mentioned due to its similarity with the current study. The participants were ex-posed to either images of high-risk or low-risk sports and asked to perform a word-completion task in which words could be completed either with a risk-related word or a neutral word. This phase aimed to assess the risk-related cognitions. In the second phase, to assess the explicit attitudes on risk-taking, the participants were shown a magazine article talking about either the bene-fits of high-risk sports or the potential dangers, and they were asked to rate the article on certain dimensions like danger, perceived risk, or conveyed fascination. Their results indicated that exposure to risk-related images and risk promoting media increased the propensity of risk-related cognitions as well as a more belittling attitude towards the potential dangers of high-risk sports. Yet, the existing inclination of participants towards risk-taking behavior was not assessed prior to the experiment.

One possible determinant of individuals' inclination towards performing risky behaviors might be their level of impulsivity, defined as "the tendency to engage in inappropriate or maladaptive behaviors" (De Wit, 2009, p. 2). In this regard, Stanford et al. (1996) conducted an influential study aiming to find out the possible link between risk-taking behaviors and impulsivity. The data collected from high school and college students showed that the participants high on impulsivity engaged in risk-taking behaviors more than the participants who had low levels of impulsivity. It was therefore concluded that highly impulsive adolescents and young adults were at greater risk of causing harm to themselves and others. In this respect, examining the association between risk-taking and impulsivity might be also useful in designing preventions for potentially dangerous

behaviors which may be reinforced by an exposure to social media (Romer, 2010).

In the study by Berry et al. (2014), the relationship between visual exposure and impulsive decision-making was investigated, and they tested specifically if the visual exposure can reduce individuals' impulsivity levels. They defined the term impulsivity broadly as "the failure to wait, inability to withhold a response, and lack of sensitivity to negative or delayed consequences, all of which likely represent different underlying processes" (Berry et al., 2014, p. 1). Therefore, it can be deduced that impulsivity is closely linked to decision-making process (impulsive decision-making), which is also suggested by the study. They used three types of visual exposure in their study to see their effects on impulsive decision-making processes: natural images, built images, and geometric images. In a previous study, it was found that geometric images function as restorative factors since they require less mental energy to view, so they restore attention (Berto, 2005). Based on this, Berry et al. (2014) used geometric images as the control factor, and they used natural and built images as manipulative factors. It was found that the natural condition significantly reduces impulsive decision-making. Since this study suggests that expo-sure to the natural images promote healthier decision-making, it is relevant to investigate if risky images induce an opposite reaction, promoting impulsive decision-making in relation to the existing impulsivity levels of the individuals.

The existing literature focuses more on the relationship between social media use and risky behaviors, or impulsivity and risk-taking. In light of the previous research, the present study investigates if visual exposure to risk-depicting images has an effect on the intentions of individuals to perform risky behaviors. Taking the literature a step further, the existing levels of impulsivity are also taken into consideration to observe the possible differences they create among individuals. Parallel to the existing literature, this study also used self-report to assess the intentions to perform risk-taking behavior. However, the effects of exposure to risk-depicting images and the differences they create on individuals' behaviors were not studied before. To observe the differences, the participants were assigned to two different conditions: One group was exposed to risk-depicting images as the experimental condition and the other group was exposed to geo-metric images as the control condition. Hence, our hypotheses were (1) participants with high impulsivity levels will be more inclined to engage in risk-taking behaviors, (2) the exposure to risk-taking related images will increase the propensity of risk-taking behaviors in all participants, and (3) the effect of visual exposure to risk-depicting images on the propensity of risk-taking behaviors will be stronger for participants with low levels of impulsivity.

Method

Participants

The sample consisted of 90 Turkish-speaking Koç University students between the ages of 18-25, balanced for gender (45 males, 45 females). The sample was not balanced for the majors of the students. The participants were recruited by convenience sampling, they were chosen according to their availability and proximity to the researchers. The data was collected in one session in various quiet places at Koç University, such as the library and empty classrooms. The participants were randomly assigned either to the experiment or to the control group (46 experimental, 44 control).

Materials

Barratt Impulsiveness Scale: The participants' levels of impulsivity were measured using the Barratt Impulsiveness Scale (BIS-11; Patton et al., 1995) (See Appendix A). The participants anonymously completed the Turkish version of the scale translated and validated by Tamam et al. (2013). The scale contains 15 items comprising of general statements related to impulsivity. With-in a four-point Likert scale, consisting of rarely/never, occasionally, often, almost always/always, the participants chose one of the answers according to the extent to which they agree with the statements. 5 out of 15 items were reverse coded in order to increase the consistency. It is found that the scale has good reliability and validity (Spinella, 2007; Tamam et al., 2013).

Domain-Specific Risk-Taking Scale (DOSPERT):

DOSPERT is a psychometric risk-taking scale assessing risk-taking behavior in five-domains: financial, health/safety, recreational, ethical and social decisions (See Appendix B). A 7-point Likert scale ranging from 1 meaning extremely unlikely, to 7 meaning extremely likely is used, and participants rated the given statement in accordance with their agreement. The shorter 30-item version of the scale was administered to the participants, which was also validated (Blais & Weber, 2006). Since there is not a validated Turkish version of this scale, it was translated into Turkish and then back translated into English by two of the experimenters.

Stimuli

As the stimuli, a set of 25 images were shown to the participants in each condition. For the experimental condition, participants looked at 25 risk-depicting images (e.g., bungee-jumping, alcohol consumption), 5 seconds each (See Figure 1). Each image in the experimental condition corresponded to each item on the DOSPERT scale. For the control condition, participants looked at 25 images of various

Risk Depicting Stimuli (Experimental)

Neutral Geometrical Stimuli (Control)

Figure 1. The participants were shown either risk-depicting images as the experimental condition or geometric images as the control condition.

geometrical shapes (e.g., squares, triangles), 5 seconds each (See Fig.1). The images in both conditions were gathered from the Internet, ordered randomly by using a random number generator, and presented to the participants as a slideshow.

Procedure

A 3x2 between-subject factorial design was used in this study. The participants were recruited from various locations on campus. Each participant was given the consent form upon their arrival to confirm their voluntary participation. The participants were randomly assigned to either one of the conditions (experiment or control). After reading and signing the consent forms, the printed version of Turkish BIS-11 was given to the participants and they filled it out by hand. After completing the Turkish version of the BIS-11, the participants were shown either 25 images related to risk-taking behaviors (experimental group) or neutral images consisting of geometric shapes and patterns (control group) as our manipulation. Then, they were asked to fill out the printed version of the DOSPERT scale which was translated into Turkish. The score that the participants had on the DOSPERT scale represented our dependent variable. All data was collected in one session, which lasted approximately 10 minutes. All participants received the scales and were shown the images in the same order. The participants were debriefed at the end of the experiment. The gender was counterbalanced in each condition to control for the possible gender effect. To control for other possible extraneous variables, all the trials were conducted in similar quiet environments.

Results

Our independent variables consisted of levels of impulsivity (low, medium, high) and exposure to visual stimuli (risk-depicting or neutral images), and our dependent variable was risk-taking inclinations. Considering the scores of participants on the BIS-11, they were divided into three subcategories in accordance with their levels of impulsivity, constituting our first independent variable. The subcategories were determined based on the frequencies of impulsivity scores, meaning that the scores of impulsivity were divided into three as low (15-28), medium (28-32), and high (33-60) in

accordance with the frequency that they occurred. The scores of participants on the DOSPERT scale was taken as a measure of inclination to perform a risky behavior.

A 3x2 between-subjects two-way ANOVA was conducted to see the effect risk-depicting images and the initial levels of impulsivity on risk-taking scores of participants. This analysis was conducted because the independent variables in our design were categorical (low, medium and high levels of impulsivity; experiment or control for condition) and the dependent variable was continuous (risk-taking scores), therefore a 3x2 factorial design was used, and between-subjects two-way ANOVA was conducted.

The analysis indicated that the exposure to risk-depicting images did not have a significant main effect on risk-taking behaviors, $F(1, 86)=1.69$, $p>.05$. The interaction of exposure to risk-depicting images and levels of impulsivity was also not significant, $F(1, 86)=.08$, $p>.05$. However, it was observed that different levels of impulsivity alone significantly altered the inclinations for risk-taking behaviors, $F(1, 86)=8.97$, $p<.05$. A post hoc analysis demonstrated that individuals with high levels of impulsivity (M=113.18, SD=18.72) were significantly more inclined to perform risky behaviors than individuals with low levels of impulsivity (M=99.54, SD=16.37), $p<.05$.
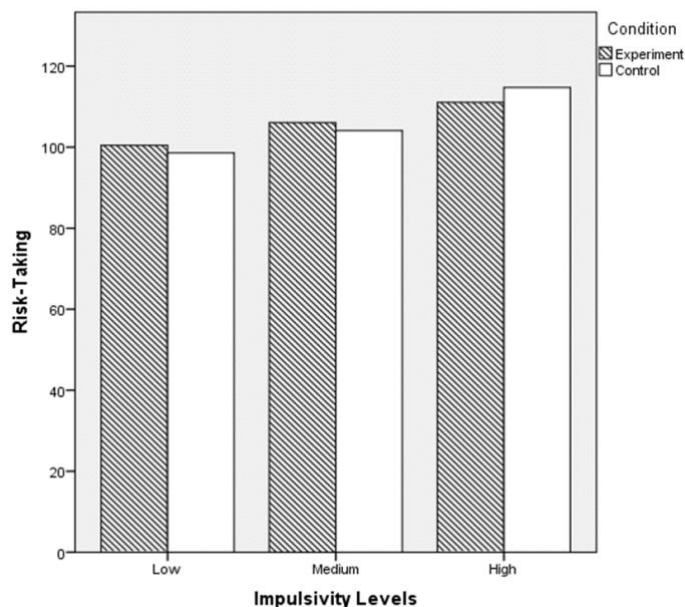

Figure 2: A bar graph showing the relationship between the impulsivity levels, conditions and the risk-taking scores.

Discussion

This study investigated the effect of risk-depicting images and existing impulsivity levels of individuals on the propensity of risk-taking behavior. This study can add valuable information to the existing literature, since there was not any study that investigates the effect of both impulsivity and risk-depicting images on risk-taking behavior. Although we predicted that exposure to risk-depicting images would increase the likelihood of participants' risk-taking intentions regard-less of their impulsivity levels, our results did not confirm our hypothesis. Moreover, we hypothesized that risk-depicting images would have a stronger effect for the participants with low levels of impulsivity; however, the results did not support our hypothesis. The current study's results showed that exposure to risk-depicting images alone did not have an effect on risk-taking behaviors and the effect of risk-depicting images on risk-taking intentions did not depend on participant's initial impulsivity levels. We hypothesized that participants' initial impulsivity levels would predict risk-taking intentions, and the results supported our hypothesis. Participants with high levels of impulsivity demonstrated a higher inclination for overall risk-taking behaviors compared to participants with low levels of impulsivity.

The results of our study supported the findings of Stanford et al. (1996) indicating that individuals with high impulsivity levels engage more in risk-taking behaviors; therefore, might be more inclined to harm themselves or others. Different than the study of Stanford and his col-leagues (1996), we tested risk-taking inclinations of the participants in five different domains. Our results showed that the participants with high levels of impulsivity had more risk-taking inclinations in ethical and health/safety domains than the participants with low levels of impulsivity. Since such a difference was not found in financial, recreational, and social domains, it might be meaningful to investigate the effect of impulsivity levels on risk-taking behaviors in various domains. In this way, it might be possible to intervene risky behaviors in a more specific form.

On the other hand, our findings were not in line with the literature on the relationship between

exposure to visual stimuli on social media and the manifestation of offline risky behaviors. Prior research demonstrated that exposure to risk-depicting images in social media resulted in significant changes in risky behavioral outcomes such as excessive alcohol consumption, drug use, or engagement in high-risk sports (Fischer et al., 2011; Branley & Covey, 2017). One limitation in the current study might have been the content of risk-depicting images. Even though some of the previous research used risk-depicting visual stimuli for risk-inducement, our intention to use images as visual stimuli was primarily based on the study by Berry et al. (2014), who found that exposure to images of nature reduced impulsive-decision making significantly. Based on the idea that the use of images might be effective for creating a behavioral change, we wanted to induce risk through using images of individuals consuming alcohol, gambling, or engaging in un-ethical behaviors such as stealing and cheating. However, it is questionable to what degree they conveyed the desired message and perceived as inducing risk by the participants. Future research might conduct a pilot study to see the effectiveness of the pictures in conveying the intended message. In this respect, further studies could focus on implementing a manipulation that reflects the content of the visual stimuli in a more accurate way. If the content images could successfully convey the message intended, the results for risk-taking might be more indicative of the actual intentions for performing the behavior.

In addition, since the scale we used, BIS-11, only measures the intentions of risky behaviors rather than the actual behavior, future research might be more informative if both the intentions of risky behaviors and actual risk-taking behaviors are measured. In this regard, using a performance-based measure of risk-taking in further studies might be more influential in making inferences about the risk-taking inclinations of individuals, considering that the intentions about performing a behavior might differ from the actual performance itself.

Another limitation might be that the cultural context in which the previous research was conducted differs from the cultural context of this study, and this difference might be relevant in terms of what behavior indicates risk or not. In this regard, if the measure of risk-taking propensity can include items consisting of culture-specific perceptions of risk, the results might be more revealing and accurate.

Also, since our participants were recruited with a convenience sampling, there might be a problem with external validity. All of our participants were students at Koç University; therefore, the possibility of generalization of the results to the general population might be questionable. Additionally, considering that most of the participants knew the researchers to some extent, it might be likely that the answers they gave were affected. In this respect, social desirability bias might be another issue to consider while evaluating the non-significant results of our study.

Nevertheless, this study indicates that individuals who have high impulsivity levels are more susceptible to perform risky behaviors. The items that measured the individuals' inclinations for risky behaviors on the DOSPERT scale consisted of contents such as alcohol consumption, safe sex, financial stability, driving, etc. Considering that these are events that are encountered frequently in the daily life, preventions are important in terms of eliminating possible risks and dangers arising from these events. In order to develop a prevention program for these kinds of possible dangers, our study might be used as a reference point.

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The Influence of Accents on Perceived Credibility

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A newly growing body of psycholinguistics literature has been investigating language-based discrimination, especially in terms of accent. Studies consistently showed that accent-based discrimination is prevalent across many different areas such as consumer market, employment decisions, evaluations of perceived competence, housing situations, evaluation of status and traits by children and educational settings. Based on this literature, this study examined whether such discrimination would be observed in the context of a university's Student Council Presidency elections in Turkey with regard to perceived competence and perceived warmth, sincerity and friendliness. Also, the association between the students' level of prejudice and her likelihood to vote for the candidate with the Eastern accent was analyzed. It was found that while a candidate's perceived chances of being elected to a higher position were significantly influenced by the accent; the candidate with the Eastern accent was also found significantly warmer, friendlier and sincerer than the candidate speaking in the Standard Turkish accent. Further, the level of prejudice against different ethnic backgrounds did not influence the likelihood to vote for the candidate with an Eastern accent.

There has been a worldwide effort to reduce or end discrimination on all grounds. However, in some grounds, discrimination may remain unnoticed even by both policymakers and people who are part of those discriminatory acts. Language-based discrimination is one of such "elusive" grounds, as Ng (2006) puts it. By elusive, it is meant that although language-based discrimination does exist and significantly affect people's lives, its existence and effects are not fully comprehended or recognized. Lippi-Green (1997) believes that there are generally explicit laws or social customs which directly prevent us from using some attributes of people (such as race or homeland) for discrimination. On the other hand, she states, there seems to be no such barrier when it comes to language, "thus, accent becomes a litmus test for exclusion, and excuse to turn away, to recognize the other" (p. 64). Drawing on these arguments, we have decided to investigate the assumptions of language being an "elusive litmus test" for discriminating people. As studies investigating the existence and the effects of language-based discrimination in different domains have recently been increasing, accent continuously

appears as a domain in which language-based discrimination can be observed. Therefore, we have decided to examine whether such discrimination can be observed in the context of a university's Student Council Presidency election. Particularly, we have asked whether the accent of candidates running for the presidency can influence the perceptions about their competence and their chance of being elected.

A study by Nesdale and Rooney (1996) was done to investigate the prevalence of accent discrimination in evaluations of status and traits by children. The researchers hypothesized that children's evaluative ratings of status, solidarity, and traits will be affected by the accent of the person they listen to. In order to test their hypothesis, they recruited forty 10-year-old and forty 12-year-old children with either monocultural or multicultural Australian backgrounds. They asked children to listen to an audio recording of a passage read by a boy who speaks in a strong or mild Italo-Australian, a strong or mild Viet-Australian, or a strong or mild Anglo-Australian accent. After listening to the recording, the children were asked to rate the accent of the boy. For half of the participants, the name and the ethnicity of

the voice were not revealed; but for the other half, they were. Both the strength (whether it is mild or strong) and ethnicity of the accent affected children's evaluations. The results therefore confirmed the hypothesis of the researchers. Interestingly, older children's evaluations were also influenced by accent identification (whether name and ethnicity were revealed or not) and ethnic contact (whether the children had been exposed to the relevant ethnic group before or not) while this effect was not observed in younger children.

In the domain of housing, with a series of experiments, Purnell, Idsardi, and Baugh (1999) investigated whether landlords can distinguish the accents of prospective renters through phone calls and whether they discriminate prospective renters based on their accent. A confederate called various landlords located at different cities in California, the United States, spoke in Standard American English, African American Vernacular English, or Chicano (Mexican) English and asked for an appointment for seeing the advertised rental property. The results showed that landlords can indeed distinguish between the accents and do discriminate prospective renters based on their accent (i.e. give fewer appointments to renters with non-standard accents).

Another study by Hosada, Nguyen, and Stone-Romero (2012) investigated whether accent-based discrimination is observed during hiring-decision processes. The participants reviewed the applicant's curriculum vitae and then listened to a recording of the applicant either in Standard American English or Hispanic English, explaining his motivation for the job. Based on these data, the participants were asked to make hiring and job-related decisions about the applicant. The results showed that the applicant with the Hispanic accent was employed less, seen as less competent for the job and rated less suitable for managerial positions; but seen as warm as the applicant with the Standard American English. A similar study by Carlson and McHenry (2006) found quite similar results; that is, employability of the applicant was significantly influenced by the accent they spoke.

Souza et al. (2016) investigated whether prejudiced-individuals show discrimination against job applicants due to their accent and whether having a different accent is perceived as a legitimizing cause of not hiring these applicants. They hypothesized that only prejudiced individuals discriminate against non-native speakers. A sample of seventy-one Portuguese university students was told to recruit one candidate for a job position by reviewing two CVs then listening to one interview recording. Thirty-six of them listened to the candidate with a Brazilian accent, and the rest listened to the candidate with a Portuguese accent. The results showed that prejudice clearly moderates the effect of accent on discrimination.

In the domain of consumer behavior, Lalwani, Lwin, and Li (2005) studied how the accent affects the perceived credibility of spokespersons in audio advertisements, and whether the country of origin of the product affects the perceived credibility when matched with different spokespersons. During the experiment, the accents participants listened to were either British English or Singlish, the local English accent in Singapore where the experiment was conducted. The results indicated that the speakers with British English accents were rated higher on reliability and professionalism than Singlish-speakers. While the British English accent gained favor when matched with foreign products, it was not the case for Singlish when it was matched with local products. However, Singlish attracted more attention to the advertisement than British English.

Such studies are systematically conducted in countries such as the United States, Australia and Japan where ethnic diversity and immigration rates are high, and thus various distinct accents are quite prevalent. Although Turkey seems to have a similar profile in terms of ethnic diversity and high immigration rates, to our knowledge, no study has been conducted on accent-based discrimination in Turkey. We speculated that a similar form of accent discrimination may exist in various settings (e.g., job market, housing, education, etc.) in Turkey. More specifically, we predicted that accent spoken in negatively stereotyped regions (e.g. regions of Eastern Anatolia and Black Sea) may be subject to discrimination compared to the accents spoken in Western regions. We further speculated that we can observe this in a setting of university Student Council elections where the representatives of different

departments compete for the position of presidency. Thus, we hypothesized that relative to the candidate with a Standard Turkish accent, the candidate with Eastern Turkish accent will be rated (a) as less competent for the position of student council presidency, (b) viewed as having a lower chance of being elected to higher student council and (c) will receive fewer votes.

As the findings of Hosoda, Nguyen, and Stone-Romero (2012) showed that individuals with Mexican-American accents were perceived as warm as the ones with Standard American English, it is predicted that this would implicate the Eastern accent being perceived at least as warm as the Standard Turkish accent in the Turkish context. However, we cannot directly argue that the Eastern accent will be perceived much warmer than the Standard Turkish accent for the following reasons: First, there is not enough evidence to argue that friendliness and sincerity are characteristics identified with the Eastern populations in the general Turkish public. It should be taken into account that if one assumes that the differences in perception of certain attributes of different accent groups are based on certain stereotyping processes, every 'stereotype' attributed to a specific accent group would still have unique characteristics depending on many social factors and the distinct context of each country. Therefore, no speculations could be made whether the Eastern accent would be perceived warmer than the Standard Turkish accent. However, although there are many studies showing that accents belonging the minority or non-dominant groups led to decreased perceived competence (Nelson Jr., Signorella & Botti, 2016; Tsurutani, 2012), professionalism (Lalwani, Lwin & Li, 2008) or employability (Carlson & McHenry 2006; Timming, 2017), a positive correlation between these attributes and the perceived warmth of non-dominant accent groups was not found. Hence, we have hypothesized that in the Turkish context, there will not be a significant correlation between the accents spoken and the perceived warmth of individuals. Therefore, our second hypothesis was there will not be significant differences between the Eastern-accented candidate and the candidate with a Standard Turkish Accent in terms of perceived warmth, friendliness, and sincerity.

The study by Souza et al. (2016) suggested that prejudice moderates the relationship between accent and discrimination, and there was no evidence to suggest that this effect is only culture-specific and not global. Therefore, we have hypothesized that individuals who are found to be more prejudiced against different ethnic backgrounds (that is, scoring higher on the related prejudice scale) will be less likely to vote for the candidate with an Eastern accent. Hence, our third hypothesis was participants who are found more prejudiced against different ethnic backgrounds will be less likely to vote for the candidate with an Eastern accent.

Method

Participants

The final sample of the current study consisted of 95 (60 female, 35 male) Koç University students, randomly assigned into two groups: One group listened to the candidate with an Eastern accent (N = 50), and the other group of participants listened to the candidate with a Standard Turkish accent (N = 45). The students' ages ranged from 18 to 25 years (M = 20.88, SD = 1.46). Students were on different standings such as English preparation year (N = 1), freshman (N = 18), sophomore (N = 23), junior (N = 17) and senior (N = 35). Data were collected at Koç University, mostly via Koç University Subject Pool for Psychology Experiments. Participants who enrolled through the Subject Pool were rewarded 0.5 credit for psychology courses.

Materials

The experiment was conducted on Qualtrics. The participants read a brief description of the tasks and responsibilities of the elected Koç University Student Representative and University Representative in Higher Education Board (YÖK). Then they read a short CV of one candidate and listened to his self-descriptive speech for 50 seconds. The participants either listened to the candidate with an Eastern accent or the candidate with a Standard Turkish accent, both recorded by the same person. Demographic information was collected from the participants regarding gender, age, standing at Koç

University and the culture which they identify with the most.

Other measures used in this study are the Turkish adaptation and reverse-translation of the scale used in Hosoda, Nguyen and Stone-Romero (2012) to measure the effect of Hispanic accents on employment decisions and the Turkish adaptation of Ethnocentrism Scale (Neuliep & McCroskey, 1997). The first scale had various measures such as position suitability, the likelihood of promotion which meant the chance of the candidate to be selected as the president in the upper council of Higher Education Board (YÖK), voting decision and perceived personal characteristics; namely competence and warmth. Position suitability was measured with a three-item summated scale (∂ = .87). Participants responded to the items through a seven-point Likert type scale (1 = strongly disagree, 7 = strongly agree). The likelihood of promotion (being elected to a higher position) was measured with a one-item scale, participants responded to the item along a seven-point Likert type scale (1 = very low, 7 = very high). The voting decision of the participants was also investigated through a nominal scale asking whether they would vote for the candidate for the presidency or not. This item was coded as either '1' or '2'. Higher scores on these measures reflected a greater likelihood of being selected and being promoted, and the items were highly correlated (r = .86, p < .001). The personal characteristics of the candidate were measured in terms of perceived competence (∂ = .85, successful, upper class, intelligent, social, educated, advantaged, confident, competent) and perceived warmth (∂ = .90, good-natured, warm, friendly, likable, pleasant, considerate, honest). Both perceived competence and perceived warmth had seven items which were equally distant from each other. The last two items on both scales were reverse-coded, so lower scores on these measures meant higher perceived competency and perceived warmth by the participant. This scale was adapted and translated into Turkish population for the purposes of the present study.

The last measure used in this study was the Turkish adaptation of Ethnocentrism Scale (Neuliep & McCroskey, 1997) (∂ = .92) which investigated the levels of cultural prejudice of the participants.

Ethnocentrism is defined as participants' perceptions of their own cultures as being superior to others and evaluating other cultures based on the values on their owns (Neuliep & McCroskey, 1997). The Ethnocentrism Scale was a 22-item scale, summated, which participants responded to its items along a six-point Likert type scale (1 = strongly disagree, 6 = strongly agree). Items 4, 7, 9, 12, 15 and 19 in the scale were reverse-coded. For the determination of the language equivalence of this scale, the t-test was conducted between Turkish and English applications. The relationship between two applications was evaluated according to the Pearson Correlation Coefficient and Kolmogorov Smirnov Test was also conducted to investigate normal distribution. The results showed the high reliability of Turkish adaptation of the scale (Z_i = .66, Z_t = .80, t = -2.57, r = .80 p < .05) (Üstün, 2011).

Procedure

The experiment consisted of one session, and at least one researcher was present during each session to make sure the voice recordings were listened in their entirety. The participants were randomly assigned by Qualtrics into two different groups: The Standard Turkish accent group or the Eastern accent group. In the beginning, the informed consent form was signed by the participants, and they started the experiment by reading a brief description of the tasks and responsibilities of the elected Koç University Student Representative and University Representative in Higher Education Board (YÖK). Then they read a short CV of one candidate and listened to his self-descriptive speech for 50 seconds. As the participants either listened to the candidate with an Eastern accent or the same candidate with a Standard Turkish accent, the accent was manipulated in the current study. Then the participants were asked to evaluate the candidate regarding the position suitability, likelihood of being elected to a higher position, and voting decision; as well as perceived warmth and perceived competence. Afterward, the participants were asked to fill the Turkish adapted version of the Ethnocentrism Scale (Neuliep & McCroskey, 1997). Finally, the participants were asked to respond to the demographic questions about

their gender, age, standing at Koç University and the culture which they identify with the most.

Results

Accent's Influence on the Perception of Competence

First, we analyzed how the perception of competence of the candidates was influenced by their accents (Standard Turkish or Eastern). Perception of competence was examined in three different domains corresponding to the first hypothesis. We analyzed the interaction between the accent of the candidate and a) the means of competence scores directly assigned to the candidates by the participants, b) perceived chances of the candidate to be elected to a higher position (the higher Student Council), and c) whether the participants voted for the candidate or not ('Yes' or 'No' votes). An independent samples t-test showed that there was not a significant difference between the perceptions of competence for the position of Student Council Presidency ($t(93) = 1.31$, $p > 0.05$), of the candidate with the standard Turkish accent ($M = 4.97$, $SD = 1.00$) and the candidate with the Eastern accent ($M = 4.65$, $SD = 1.32$). However, another independent samples t-test yielded significant differences ($t(93)=2.86$, $p<0.05$) between the perceived chances of the candidate to be elected to the higher student council. The candidate with the Eastern accent was rated as significantly less likely to be elected to a higher position ($M = 3.26$, $SD =1.37$) than the candidate with the Standard Turkish accent was ($M = 4.09$, $SD = 1.46$). As the final domain of perceived competence, we analyzed the effect of accent on how many votes the candidates eventually received.

A Chi-Square independence test was conducted to examine the dispersion of the 'Yes' and 'No' votes each candidate received. No interaction was found between the accent and the 'Yes' votes received, ($x2(1) = 0.23$, $p > 0.05$) such that the votes the candidate with the Eastern accent received (46%) did not significantly differ from the votes the candidate with the Standard Turkish accent received (44.4%) (see Figure 1).

Accent's Influences on Perceived Warmth, Sincerity and Friendliness

Candidates' scores of perceived warmth, sincerity and friendliness were calculated by taking the mean scores of the responses given in Perceived
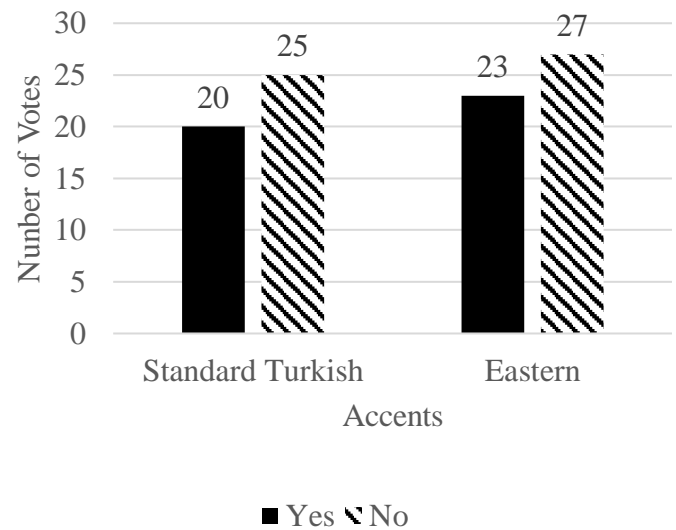

Figure 1. Votes Received by Candidates

Warmth Items section of the measure adopted from the Hosada, Nguyen, & Stone-Romero (2012) study, such that lower scores indicate higher perceived warmth, sincerity and friendliness. An independent samples t-test was used to analyze accent's influences on perceived warmth, sincerity and friendliness of the candidates, and the results yielded a significant difference between groups ($t(93) = 2.70$, $p < 0.05$). As shown in Table 2, the candidate with the Eastern accent was perceived as significantly warmer, friendlier and sincerer ($M = 3.08$, $SD = 1.02$) than the candidate speaking in the Standard Turkish accent ($M = 3.63$, $SD = 0.97$).

Cultural prejudice and voting behaviour

Lastly, we analyzed how participants' levels of cultural prejudice influenced their likelihood of voting for the candidate speaking in the Eastern accent. The level of cultural prejudice was measured by the Ethnocentrism Scale. The High and Low Prejudice groups were determined using a median split of the mean scores of the level of prejudice. A Chi-Square independence test was conducted for this analysis, and the results yielded no significant effects of the level of cultural prejudice on voting behavior, ($x2(1) = 0.349$, $p > 0.05$). As shown in Table 1, there were no significant differences in the frequency of

voting for the candidate with the Eastern accent between High-Prejudice (%50) and Low-Prejudice (%41.6) groups.

Table 1. The Interaction between Level of Prejudice and Voting for the Candidate with the Eastern Accent

			Votes Counted		
			Yes	No	Total
Prejudice Score	High	Count	13	13	26
		Expected Count	12	14	26
	Low	Count	10	14	24
		Expected Count	11	13	24
Total		Count	23	27	50
		Expected Count	23	27	50

Discussion

While many studies have been conducted on various forms of accent-based discrimination, this study was the first to examine such discrimination in Turkey, at least to our knowledge. Based on the previous findings in the literature, we focused on how speaking in a Standard Turkish or Eastern accent influences one's perceived competence, as well as the perceived warmth, sincerity and friendliness. Further, we examined the interaction between the levels of cultural prejudice and the likelihood to vote for the candidate speaking in the Eastern accent. We have found that 1) a candidate's perceived chances of being elected to a higher position was significantly influenced by the accent; 2) the candidate with the Eastern accent was found significantly warmer, friendlier and sincerer than the candidate speaking in the Standard Turkish accent; and 3) the level of prejudice against different ethnic backgrounds did not influence the likelihood to vote for the candidate with an Eastern accent.

The results related to the perceived competence of candidates did not confirm our hypothesis (1a) that the candidate speaking in the Eastern accent would be perceived as less competent

for the position of Student Council Presidency compared to the candidate speaking in the Standard Turkish accent. This result also contradicts with the prior findings in the literature in which speaking in a minority accent has been significantly associated with lower perceived competence (Tsurutani, 2012; Nelson, Signorella, & Botti, 2016) or lower credibility (Lalwani, Lwin, & Li, 2005). In this respect, this finding is noteworthy in the sense that contrary to what the literature would suggest, there was no directly-reported accent-based discrimination among Koç University students towards the Eastern accent with regard to competence. This could be due to the specific characteristics of the sample or might imply that the competence-related perceptions of the Eastern accent in the Turkish context are different from their counterparts in other countries. Nevertheless, as stated earlier, this finding reflects the results of the first study of this kind which was conducted with a Turkish sample, and all participants were university students. Therefore, to determine whether this finding is generalizable to wider populations, or to conclude that it is representative of the Turkish population as a whole, further research is required.

As the candidate with the Eastern accent was rated as significantly less likely to be elected to a higher position, Hypothesis 1b was confirmed, and the results were parallel to those of prior studies. Nevertheless, this can be considered the most outstanding finding of this study when other results related to competence are also taken into consideration: Although the participants' own answers on the perceived competence of the candidates did not yield a significant influence of the accent, the participants still thought that the candidate with the Eastern accent had lower chances of being elected to a higher position. This suggests the possibility that although the participants did not demonstrate accent-based discrimination themselves, they thought that the others would. In other words, it can be inferred that the participants did not discriminate regarding perceived competence based on accent, but they still recognized the competence-related cues in the accents and found likely that it can result in discrimination. This finding is crucial as it demonstrates that although the perceived competence

was not found to be influenced by the accent in the other domains where participants answered questions about their own perspectives on the issue; the association between the Eastern accent and lower competence was still present.

The results showing that the Eastern candidate did not receive significantly fewer votes than the candidate speaking in a Standard Turkish accent did not confirm our Hypothesis 1c. Similar to the findings regarding our Hypothesis 1a, the results also contradicted the results of prior studies in which the accent of a different ethnic group was associated with lower perceived competence (Tsurutani, 2012; Nelson, Signorella, & Botti, 2016), lower credibility (Lalwani, Lwin, & Li, 2005), lower chances of being employed (Carlson & McHenry 2006; Timming, 2017), or being called back for a house rental appointment (Idsardi & Baugh, 1999). Therefore, although it is remarkable that our results differ significantly from prior findings, further research is required to determine if the results are generalizable.

The candidate with the Eastern accent was found significantly warmer, friendlier and sincerer than the candidate speaking in the Standard Turkish accent; and therefore, our hypothesis that there will not be significant differences between the Eastern-accented candidate and the candidate with a Standard Turkish accent in terms of perceived warmth, friendliness and sincerity was not confirmed. This finding is contradictory to prior findings which showed that having a minority accent did not have a significant influence on perceived warmth (Hosoda, Nguyen and Stone-Romero, 2012). We did not assume such an association in our hypothesis because there is not enough evidence in the literature to predict how this would apply to the Turkish context: It has not yet been clarified whether the indifference in perceived warmth is related to having an ethnic minority accent, or the characteristics of only particular ethnic groups. For instance, although Mexican-Americans were found as warm as those with Standard American accents (Hosoda, Nguyen and Stone-Romero, 2012); this might only reflect the characteristics associated specifically with Mexican-Americans and might not apply to other ethnic minority groups. Further, to our knowledge, there is no public opinion or scientific evidence on whether

friendliness and sincerity are characteristics identified with the Eastern populations in the general Turkish public. Thus, the findings of this study might imply either that warmth, friendliness and sincerity are characteristics associated more with those speaking in Eastern accents than those who speak in the Standard Turkish accent; or it could be taken as a novel body of evidence which differs from prior findings that showed no relationship between having an ethnic minority accent with higher perceived warmth (Hosoda, Nguyen and Stone-Romero, 2012). While the actual causes behind this finding could be either of these reasons or perhaps both, further research is required to establish any causal relationship.

Finally, the finding that the participants who were found to be more prejudiced against people from different ethnic backgrounds were not less likely to vote for the candidate with an Eastern accent did not confirm our Hypothesis 3, as we had anticipated that higher levels of prejudice would be associated with significantly lower likelihood to vote for the candidate speaking in the Eastern accent. Hence, the findings contradicted not only our hypothesis but also prior findings on this issue (Souza et al., 2016). However, it should be noted that although a High-Prejudice group was designated for the purposes of this study, the overall absolute scores of prejudices of this group were still low, and most of the prejudice scores of those who listened to the Eastern accent were under 3 out of 6. Though the finding that prejudice did not influence whether participants voted for the candidate speaking in the Eastern accent remains statistically significant, it should nonetheless be considered in the context of the low overall absolute scores observed in the sample. Thus, the contrast between the findings of this study and prior results in the literature (Souza et al., 2016) could be related to the relatively low variance of levels of prejudice in the results of this study. However, the findings might also imply the lack of an association between higher levels of cultural prejudice and lower likelihood to vote for a candidate speaking in an Eastern accent, which would be an original and leading finding about the association between prejudice and accent-based discrimination in

the Turkish context. Once again, more evidence is required to establish a valid causal relationship.

Limitations

The current study has had several limitations. The sample used in the study was only limited to a number of university students, and therefore, it might not be representative of the population. Future research should investigate whether the findings are generalizable to the Turkish population. Further, the voice recordings of the Standard Turkish and Eastern accents might have resulted in certain complications. The Standard Turkish accent recording could have created unpredicted negative impressions on the participants, which might have influenced the attitudes toward the candidate. Moreover, as Eastern accent is not quite common in the context of the experiment, namely Koç University, it might have revealed the actual goal of the study to the participants and hence resulted in response sets, leading to social desirability bias.

Conclusion

In conclusion, the results of this study suggest that although no direct accent-based discrimination regarding competence was observed, the participants recognized the competence-related cues in the accents and found likely that those cues can still lead to discrimination by others. This implies that while the association between the Eastern accent and lower competence was present, the participants either consciously or automatically avoided giving discriminatory answers. Therefore, this might reflect some indirect discrimination such that the participants did not discriminate in competence perception themselves but anticipated that the Eastern accent would still be subject to discrimination by others. To our knowledge, this finding is reported for the first time in the Turkish context and might be promising in guiding for further research on this issue. Further, the fact that the Eastern accent was significantly associated with higher perceived warmth, sincerity and friendliness is noteworthy in the sense that this association is again examined for the first time. As the findings differed from those in the literature, they open a new avenue to examine this association, and further clarify the underlying mechanisms. Finally, as the results of the study which demonstrate no significant relationship between levels of prejudice and likelihood to vote for the candidate with the Eastern accent contradicted prior findings; future studies should examine the possible reasons behind these unforeseen findings.

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Eating Disorders and the Brain: Neural and Cognitive Correlates of Eating Disorders

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Eating disorders (EDs) such as Binge Eating Disorder (BED), Anorexia Nervosa (AN) and Bulimia Nervosa (BN) are among some of the most dangerous psychological disorders, and the prevalence rates of these disorders are increasing, especially among young populations. EDs are characterized by extreme behaviors regarding food consumption. Furthermore; for AN and BN, disturbance in body shape experience and intense fear of gaining weight are also seen. It has been previously found that the mentioned attributes of eating disorders also have cognitive and neural correlates. Cognitive rigidity and attentional bias have been identified as the cognitive correlates of eating disorders and also have been found to differ according to the types of EDs. The strategies ED patients employ in order to cope with the disturbances differ among the types and even the subtypes of EDs and thus, their cognitive processes differ as well. The attributes of eating disorders have neural correlates in the brain and studies have found that differences in the functioning of amygdala can account for intense fear of gaining weight. Understanding the cognitive and neural correlates of EDs are important to develop and implement better clinical interventions. In this article, the results of the aforementioned studies will be discussed in detail to provide an understanding of the neural processes involved in eating disorders.

Keywords: eating disorders, cognitive rigidity, thalamo-insular subnetwork

Eating disorders such as Anorexia Nervosa (AN), Bulimia Nervosa (BN), Binge Eating Disorder (BED) and their subtypes have become so prevalent that they affect 5-10% percent of the younger population (Treasure, 2016). Although it is known that easy accessibility of food and a culture promoting thinness are among the major causes of emergence of eating disorders (Treasure, 2016), less is known about the neural and cognitive correlates of such disorders. A better understanding of eating disorders in such domains is crucial for the development of current treatment options (Guillaume et al., 2015). This article will firstly focus on the cognitive correlates of eating disorders followed by a demonstration of the brain areas involved in eating disorders. Later, a comparison of the perceptual processes of healthy individuals with those who have an eating disorder in perceptual processes will be shown. Lastly, studies demonstrating differences between reward and inhibitory control systems of people with eating disorders will be discussed. In doing so, the differences between different types and subtypes of eating disorders will be pointed out.

One of the cognitive correlates of eating disorders has been found to be "attentional bias" (Shafran et al., 2007). Shafran and her collegues, (2007) suggest that patients with EDs engage in symptomatic behaviors such as going on extreme diets by selectively attending to disliked body parts. In light of this hypothesis, they conducted experiments testing ED patients as the experimental group, individuals with anxiety as one of the control groups and people with high to low level of body shape concerns as the other two control groups (Shafran et al., 2007). They tested all groups on a dot-probe task using positive, neutral and negative images in categories of eating, body shape, body weight and included images of animals as controls (Shafran et al., 2007). The images were, for instance, of a knee for the neutral shape stimulus, which is a part of body suggested to carry less concern regarding body image issues and positive shape image were of a model, which reflects the perfectionist beauty standards regarding body shape (Shafran et al., 2007). The authors measured to which category of these stimuli the groups attended the most by looking at

reaction times for each task and suggested a faster response would show greater attention (Shafran et al., 2007). The findings supported their hypothesis: ED patients performed significantly faster in the task for negative eating and neutral weight stimulus, and slower for positive eating stimulus (Shafran et al., 2007). Also, they did not find significant attentional differences for shape stimulus between ED patients and the control groups in the study (Shafran et al., 2007). However, the authors suggested that the subjectivity of the images might have played a role in that, and the patients might not be considering what was presented as a negative shape stimulus as such (Shafran et al., 2007). Therefore, the study concludes that ED patients were more biased on eating and weight-related stimuli than controls (Shafran et al., 2007). Identifying such differences in cognitive processing between healthy individuals and ED patients might be important for both for choosing the right treatment method and within the course of the treatment.

Personality traits seen in ED patients have been found to relate to cognitive correlates of the disorder (eg. Buzzichelli et al., 2018). Perfectionism as a trait has been found to be both a risk and a maintaining factor for eating disorders (Egan et al., 2011). Buzzichelli and her collegues (2018) studied the relationship between perfectionism and cognitive rigidity in (AN) patients. Cognitive rigidity is defined as experiencing difficulty in mentally adapting to new situations (Cohen, 2017). Buzzichelli and her colleagues (2018) suggested a mediation model in which perfectionism mediates the relationship between cognitive rigidity and the drive for thinness. They measured set-shifting abilities of AN patients to explain their level of cognitive rigidity (Buzzichelli et al., 2018). Set shifting refers to the ability to switch between mental operations. It requires the inhibition of irrelevant tasks and engagement with relevant tasks (Miyake et al., 2000). They tested healthy controls and AN patients after grouping them according to their perfectionism scores to assess whether or not they would differ on set-shifting tasks. They have found that AN patients with high perfectionism showed higher cognitive rigidity (Buzzichelli et al., 2018). However, differences were not as significant as those between AN patients and

healthy controls. AN patients with high perfectionism performed worse on most of the tasks measuring set shifting but not all suggesting a "multifaceted interaction between cognitive rigidity and perfectionism" (Buzzichelli et al., 2018, p. 364).

There are also differences in cognitive rigidity between different types of eating disorders, such as AN and BED (Aloi et al., 2015), and between subtypes such as restrictive and bingeing/purging subtypes of AN (Van Autreve et al., 2013). Cognitive rigidity in ED patients has been studied not only in the domain of set shifting but also in decision making and central coherence, which is the ability to think holistically rather than focusing on details (Happe & Firth, 2006). Both central coherence and decision-making abilities are expected to be weaker in ED compared to healthy controls (Aloi et al., 2015). Moreover, patients having different types of ED are expected to perform differently on tasks measuring central coherence and decision making (Aloi et al., 2015).

Aloi and his colleagues (2015) compared healthy controls, BED patients and AN patients on the Ioawa Gambling Task (Bechara et al., 1994) for decision making and Rey-Osterrieth Complex Figure Test (Rey & Osterrieth, 1993) for central coherence in addition to tasks for set shifting conducted in the study of Buzzichelli and her colleagues (2018). They found that ED patients performed worse than healthy controls in all the domains. Also, BED patients performed worse on the decision making and set shifting tasks, while AN patients performed worse on central coherence tasks. The findings suggest a stronger cognitive rigidity and a detail focused central coherence based on details for AN patients and less attention and decreased ability to adapt to changes for BED patients thus supporting the claim that different types of eating disorders are characterized by different cognitive profiles (Aloi et al., 2015).

Van Autreve et al. (2013), tested and compared the restrictive and bingeing/purging subtypes of AN patients (AN-R and AN-BP) on central coherence and set shifting. They found that AN-R patients performed worse than AN-BP patients on central coherence tasks while observing no difference between AN-BP patients and healthy controls on central coherence tasks and two subtypes

on set shifting tasks (Van Autreve et al., 2013). These findings further support the claim that different subtypes of AN would also differ in their cognitive processing (Van Autreve et al., 2013).

Some studies focused on cognitive profiles of patients of BN (eg. Kaye et al., 2005; Brand et al., 2007). BN is marked with high impulsivity suggesting poorer decision-making skills compared to other types of EDs (Peñas-Lledó et al., 2002). Serotonin alterations observed in medial prefrontal cortex and anterior cingulate gyrus of BN patients (Kaye et al., 2005) might have an effect on deficiencies in executive functions involved in decision making (Brand et al., 2007). Brand and his collegues (2007), conducted a study testing healthy controls and BN patients on the Game of Dice Task. The task is structured with fixed winning probabilities, involves rules for gaining and losing money and intends to measure decision making that is only related to executive functioning. The results showed that BN patients chose disadvantageous alternatives offering higher gains but resulting in long-term losses significantly more than healthy controls (Brand et al., 2007). The findings suggest a link between decision making deficits in risky situations in line with impairment of certain executive functions (Brand et al., 2007).

Studies from cognitive neuroscience also investigated the neural correlates for ED patients' cognitive functions such as cognitive rigidity (e.g Zastrow et al., 2009; Ehrlich et al., 2015). Zastrow et al., (2009) compared the fMRI activity of AN patients with healthy controls while performing a target detection task requiring both behavioral response shifting and cognitive set shifting. According to the fMRI results, AN patients showed less activity in left and right thalamus, ventral striatum, anterior cingulate cortex, sensorimotor brain regions and cerebellum, whilst they showed more activation in frontal and parietal brain regions in comparison to healthy controls for behavioral response shifting tasks (Zastrow et al., 2009). According to Zastrow et al. (2009), these findings suggest "cognitive-behavioral flexibility" (p. 615) to be impaired for AN patients represented by fronto-striato-thalamic circuitry dysfunction that is involved in motivational operations whereas altered activation in frontoparietal networks suggest "effortful and supervisory cognitive control" (p. 608) on performing tasks.

Another neural mechanism that is related to EDs is the thalamo-insular subnetwork, comprising amygdala, thalamus fusiform gyrus, putamen and the posterior insula (Ehrlich et al., 2015). Such regions are known to be involved in interoception, which is the perception of one's bodily states (Craig, 2002) and is impaired for AN patients (Ehrlich et al., 2015). Ehrlich et al. (2015) compared healthy controls and AN patients in resting state fMRI using network-based statistic approach which aims to identify between group differences and demonstrates complex networks' whole-brain topology. The results indicated a weaker connectivity in the thalamo-insular subnetwork of AN patients compared to healthy controls, providing an explanation for the gap between perceived and real body image caused by an impairment of interoception (Ehrlich et al., 2015).

There are other studies providing evidence for amygdala activation when presented with stimuli relating to body image in ED patients (e.g., Miyake et al., 2010; Seeger et al., 2002), supporting Ehrlich et al.'s (2015) argument of thalamo-insular subnetwork involvement in the distortion of body image. Seeger et al. (2002) conducted an fMRI study comparing AN patients with healthy controls while they were presented with distorted versions of their own body images. They observed activation in what is known as brain's fear network in AN patients including right amygdala, right fusiform gyrus and the brainstem (Seeger et al., 2002). The study demonstrates how one of the main diagnostic criteria of AN, more specifically, "intense fear of gaining weight" is manifested in the brain (American Psychiatric Association, 2013, p. 346).

Miyake et al. (2010) tested individuals with different subtypes of AN such as restricting (AN-R), bingeing/purging (AN-BP) as well as bulimia nervosa (BN), and healthy controls with fMRI using negative word stimuli regarding body image instead of distorted versions of body image stimulations as in Seeger et al. (2002) study. For AN-R and AN-BP patients, they obtained similar results to the study of Seeger and his colleagues (2002), and found that right amygdala was activated when confronted with

negative word stimuli regarding body image. However, they also observed medial prefrontal cortex (mPFC) activity in AN-BP and BN patients (Miyake et al., 2010) which is known to play a regulatory role in emotion processing (Etkin et al. 2012). Thus, mPFC activation seen in AN-BP and BN patients when confronted with negative body image stimuli can account for different strategies used by patients for weight loss (Miyake et al., 2010).

Other research has been conducted to further examine how the perceptual processing of ED patients differs from those of healthy individuals (e.g. Keizer et. al., 2012; Urgezi et. al., 2012) or among different kinds of EDs (e.g. Uher et al., 2005). Uher and his colleagues (2005) conducted fMRI studies with AN, BN patients and healthy controls, observing brain activity when confronted with body shape versus neutral stimuli. They found the lateral occipito-temporal cortex to be less active for AN patients in contrast to BN patients and healthy controls when they were shown body shape stimulus (Uher et al., 2005). Lateral occipito-temporal cortex involves extrastriate body area (EBA) which is responsible in the representation of a person's own body schema (Downing et al., 2010). Disturbance in one's body image perception (American Psychological Association, 2013) seen in AN patients connects to EBA (Downing et al., 2010), however it is also argued AN patients could also have distorted perceptions of others' bodies (Urgesi et al., 2012). Urgesi and his colleagues (2012) conducted a study comparing AN patients with healthy controls on a delayed matching task of body form and actions suggesting body form matching task would predict a higher EBA activation than action matching. They found that AN patients performed better than healthy controls in the task that requires differentiation of body forms, but not body actions. The findings indicate that altered EBA functioning in AN patients can extend to deficits in perceiving others' bodies as well as theirs since the pictures used for the task were of others' (Urgesi et al., 2012).

Keizer et al. (2012) argued that poorer elementary somatosensory perception in AN patients' can account for overestimated perception of tactile distances in AN patients (Keizer et al. 2011), which correlates to their disturbances in how they experience body weight and shape (American Psychiatric Association, 2013). Keizer et al. (2012) compared AN patients with healthy controls in a pressure detection task to measure elementary somatosensory perception. They found that AN patients performed better than healthy controls when pressure was on the abdomen but not on the arm (Keizer et al., 2012). The findings suggest differences in perceptual processing of body parts that are subject to higher concerns about fatness as well as differences between AN patients and healthy controls (Keizer et al., 2012).

According to Wierenga et al. (2014), there are other neural mechanisms involved in the manifestation of EDs, such as the ventral limbic neural circuitry, involved in the reward system and the dorsal cognitive neural circuit, involved in inhibition. Wierenga et al. (2014) argued that alterations in the balance of such mechanisms are related to extreme behaviors regarding food consumption such as bingeing food or engaging in restrictive diets seen in ED patients. Furthermore, Bartholdy et al. (2016) suggested BN and BED patients to have a weaker reward related inhibitory control mechanism compared to AN patients. The scores that AN, BN, BED patients and healthy controls obtained on the Delaying Gratification Inventory, which could reflect reward related and task based inhibitory control, were compared (Bartholdy et al., 2016). The results were consistent with their argument, as task based inhibitory control was observed to be lower on BN patients and self-report inhibitory control was lower on both BN and BED patients. They found that severity of the disorder did have a correlation for BN and BED patients in self-report inhibitory control as it resulted in weaker inhibitory control (Bartholdy et al., 2016).

In conclusion, the studies show that eating disorders have many neural and cognitive correlates, and such correlates manifest themselves differently for different types (e.g., Aloi et al., 2015) and subtypes (e.g., Van Autreve et al., 2013) of eating disorders. To be more precise, attentional bias (Shafran et al., 2007) and cognitive rigidity (e.g., Buzzichelli et al., 2017; Aloi et al., 2015) can be included among cognitive correlates of eating disorders. Although many areas of the brain are

involved and are functioning differently for people with eating disorders than those of healthy individuals. The ones contributing the most can be summarized as the thalamo-insular subnetwork (Ehrlich et al., 2015) especially the amygdala (Seeger et al., 2001; Miyake et al., 2010) for extreme fear of gaining weight, the lateral occipito-temporal cortex (Urgesi et al., 2012) for disturbance in body shape experience and the dorsal cognitive neural circuit (Wierenga et al., 2014) for extreme behaviors regarding food consumption. Understanding the neural and cognitive correlates of eating disorders as well as how they differ among different types is crucial for therapeutic interventions that will be developed and practiced.

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Getting Out of Gender Binary, Getting Out of Depression:
The Impact of Social Support from Family, Friends and Significant Others

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The purpose of this study is to examine how social support received from family members, friends and significant others is associated with the symptoms of depression among transgender adults. Using the keywords "transgender", "depression" and "social support", the databases PsycInfo and PsycArticle were searched to review literature and also reference pages of these articles were investigated to find relevant papers. The peer-reviewed papers, which discuss the outcomes in the light of minority stress model, were collected. As recently published articles provide overviews of results from previous articles, three newly published articles were analyzed. The findings of these three studies demonstrate that the prevalence of depression is significantly higher in transgender community than that of general population. Even though different research designs and measurement techniques were used to collect data, the significance of the correlation between receiving less social support and having depressive feelings is emphasized by all these three studies. Results suggest that it might be beneficial to invite a family member, friends or significant others into therapy sessions with transgender adults as high level of social support is associated with decrease in depressive feelings. Beyond interventions, more supportive social environments should be created to eliminate the psychological distress that transgender adults experience in their daily lives.

Keywords: transgender, social support, depression

The umbrella term "transgender" describes individuals who disconfirm the traditional gender images and roles such as drag queens, cross-dressers, genderqueers, agenders and other terms that are used to describe non-binary gender identities (Stotzer, 2009). Due to the gender-neutral aspect of this term, it contains individuals having two distinct sex chromosomes (XY) and organs of male reproductive system who perceive and present themselves as females as well as those carrying the same kind of sex chromosomes (XX) and reproductive organs of females who identify and express themselves as males (Stotzer, 2009). Even though the first recorded instances of transgender expressions and performances show the long history of transgenderism, cultural differences are observed in the social position and acceptance of transgender community (Gainor, 2000).

The minority stress model proposes that deeply embedded in social institutions, transphobia

perpetuates systematic discrimination, stigma, prejudice and rejection, which increase psychological distress level experienced by transgender individuals (Meyer, 2003). According to the model, the external factors –being frequently and severely exposed to individual and community levels of violence and harassment- might produce changes in internal processing –how discrimination is perceived or how prejudices are internalized- and both external and internal processes can be considered as sources of psychological distress (Meyer, 2003). The early experience of rape, assault and harassment might accelerate the development of psychological distress and other stress-related mental health problems among transgender individuals (Stotzer, 2009). Individual's reassignment process, availability of social support and the use of coping strategies are the other factors which contribute to increase in psychological

distress among transgender individuals (Budge et al., 2013b).

Several studies point out that one of the major mental health problems among transgender population is depression due to the feeling of distress (Clements-Nolle et al., 2001; Clements-Nolle et al., 2006; Nemoto et al., 2011). Even though it was reported that 16.6% of total population is under the influence of depression, between 48% and 62% of transgender individuals suffer from the same mental health problem (Clements-Nolle et al., 2001; Nemoto et al., 2011, Nuttbrock et al., 2002). Specifically, Clements-Nolle et al. (2001) reveal that the prevalence of depression, suicidal thinking and behaviors are observed much higher among transgender people than in general population. Moreover, the significant positive correlation between gender-related abuse and depression is found among transgender individuals (Nuttbrock et al., 2002). Similarly, discriminative attempts that transgender women of color face are positively correlated with development of depression among this population (Nemoto et al., 2011). They become especially vulnerable to poor health outcomes due to depression triggered by transphobia in society (Nemoto et al., 2004).

To reduce and/or ameliorate depression among transgender individuals, it is crucial to investigate factors that might prevent the development of psychological distress. Several researchers emphasize the importance of self-acceptance and integration of minority identity to reduce the effects of psychological distress (Bockting et al., 2013). Benefiting from coming out procedure, transgender individuals can eliminate the influences of distress that negative self-evaluation causes (Bockting et al., 2013). Thus, individuals who accept their transgender identities and experience prideful feelings about them are less likely to feel depressed (Devor, 2004). The use of facilitating coping skills such as learning new skills, finding alternative ways to seek help or changing behavior to adapt predict lower levels of psychological distress (Hoffman, 2014). Moreover, having an occupation and steady income might serve as protective factor against depression among this population (Rotondi et al., 2012). The availability of social support is another factor whose effects on depression are deeply analyzed by researchers. Based on the literature review about depression in transgender individuals, this present study aims to investigate the relationship between social support and depression among this targeted population.

For this present study, the databases PsycInfo and PsycArticle were searched by using the keywords "transgender", "depression" and "social support" to review literature and also reference pages of these articles are investigated to find relevant papers. A variety of sampling methods are used to measure the effects of social support on depression, like sampling specifically transgender males or transgender females or recruiting transgender research participants without making sexual differences. Even though the data are collected from both late adolescents and adults, this present study is specifically analyzing the articles recruiting adult participants as the transgender research largely focuses on adults. The relationship between social support and depression has been investigated by using different theoretical frameworks; however most of the research examine this relationship by taking the perspective of minority stress model. Thus, the current study primarily reviews the articles which discuss the outcomes in the light of this theoretical model. As recently published articles provide overviews of results from previous articles, specifically three peer-reviewed, newly published articles are analyzed for this current study.

Investigating how racial/ethnic differences influence social support, experience of violence and transphobia, and the factors that contribute to the development of depression among male-to-female transgender women with a history of sex work, Nemoto et al. (2011) recruited 573 transgender adult women having different ethnic backgrounds (African American, Asian Pacific American, Latina, White) and living in San Francisco, California. In this survey research, participants were requested to complete structured questionnaires including measures of social support, depression, suicidal ideation, suicide attempts, and exposure to violence, harassment and transphobia (Nemoto et al., 2011). The data about the frequency of social support

received from both friends and families (α = 0.72-0.76) and the satisfaction gained from this social support (α = 0.83-85) were collected through the modified social support scale (Nemoto et al., 2011). The results pointed out that the significantly higher proportion of these adults (48.7%) could be classified as being depressed (Nemoto et al., 2011). The thought of committing suicide is expressed by more than half (55.6 %) of the participants (Nemoto et al., 2011). The responses of participants revealed that they generally received little support from their biological family members and transgender or non-transgender friends; however, the level of social support that they received from their friends was higher than the amount that family members provided (Nemoto et al., 2011). The multiple regression analyses demonstrated that receiving little social support, gaining less satisfaction from social support and having more suicidal thoughts significantly correlated with depression among these transgender adults (Nemoto et al., 2011).

In the article "Stigma, Mental Health and Resilience, in an online sample of the US Transgender Population", Bockting et al. (2013) focused on the relationship between felt and enacted stigma, disclosure of transgender identity and mental health by controlling the factors of resilience such as social support and identity pride. Following the procedures of online recruitment, the data about experiences of stigma, social support, feelings about transgender identity and mental health were collected from 1093 transgender adults whose ages were 18 years and older and lived in the United States (Bockting et al., 2013). In this survey research, the online questionnaires were distributed through certain computer programs (Bockting et al., 2013). Two items were developed to measure family support and test-retest reliability ($n = 10$) was 0.88. Similarly, to calculate peer support, two items were used and test-retest reliability ($n = 20$) is 0.87 (Bockting et al., 2013). Answers ranged from "not at all supportive" to "extremely supportive" on a 7-point Likert scale (Bockting et al., 2013). The results revealed that high rates of depression (44.1%) were observed among transgender population and there was a significant negative correlation between depression and both family support and peer support (Bockting et al., 2013).

Aiming to analyze the influence of social support on mental health outcomes of depression and anxiety for both transgender men and women, Budge et al. (2013a) approached social support as a type of coping mechanism. They also tested the differences in outcomes between transgender women and men in their research study (Budge et al., 2013a). Aged between 18 to 78, 125 transgender men and 226 transgender women are recruited as participants. In this online survey research, participants were asked to complete Multidimensional Scale of Social Support, (MSPSS) which included items about the relationships with friends, family members and significant others, and Cronbach's alpha for this scale is .91 (Budge et al., 2013a). The findings of this research demonstrated that 51.4% of transgender women and 48.3% transgender men to report high rates of depression (Budge et al., 2013a). However, there was no significant difference between transgender men and women in terms of the level of depression according to the t-test results $t(322) = 0.66$, $p = .51$ (Budge et al., 2013a). The feeling of being depressed is significantly influenced by the levels of social support and the difference in this correlational path for both gender groups is not statistically significant (Budge et al., 2013a).

Discussion

These three studies confirm previous research findings that the prevalence of depression is significantly higher in transgender community than that of general population. Each of these studies reveals different findings about the associations between the feelings of depression and several factors such as having a preoccupation with the idea of suicide, not being open about gender identity, intense experience of stigma and exposure to violence, harassment and transphobia. However, the significance of the correlation between receiving less social support and having depressive feelings is emphasized by all these three studies. Even though different research designs and measurement techniques were used to collect data, this same

conclusion increases our confidence about the generalizability of this association; high level of social support predicts less subsequent depression among transgender population.

Two out of these three research studies conceptualized "social support" as receiving physical, psychological, social and financial assistance from both friends and family members in times of need (Bockting et al., 2013; Nemoto et al., 2011); however, the questionnaires that Budge et al. (2013a) use include additional items that assess "the relationship with the significant others" as well. On the other hand, both research studies conducted by Bockting et al. (2013) and Nemoto et al. (2011) emphasize the negative correlation between poor mental health outcomes and strong peer relationship that transgender individuals have with similar ones. Thus, the correlation between strong peer relations and the feeling of depression might be moderated by the binary or non-binary gender identity of the friend. For instance, Nemoto et al. (2011) point out that transgender sex workers on the street provide support to each other in the case of violence and harassment coming from the customers and this social support provided by the similar ones reduces the psychological distress that the victims experience. Not only the sources of the social support but also the feeling of satisfaction about this assistance might influence the effect that social support has on mental health outcomes. Different than the other two research results, the findings reported by Nemoto et al. (2011) point out that the feeling of dissatisfaction with social support is correlated with depression among transgender individuals. Therefore, not only the availability of social support but also how the agents perceive this assistance is another dimension that might influence the findings of research constructing the concept of "social support".

Even though these research studies focus on either transgender women or transgender community as a whole while they investigate the impact of social support on the feeling of depression, only one article emphasizes the gender difference in terms of the perceived social support. Conducted by Budge at al. (2013a), the research reveals that transgender males receive more family support than their female counterparts. Reassignment to being a male might be considered as moving up in social hierarchy because of the social power that men traditionally have in the society (Budge et al., 2013a). This transition status might encourage families to provide more social support for their transgender male members (Budge et al., 2013a). The difference between perceived social support might trigger the discrepancy in depression rates among transgender males (48.3%) and females (51.4%) (Budge et al., 2013a). However, gender is not the only factor that influence the amount of support provided by families, friends and significant others. In their research studies, Nemoto et al. (2011) point out that depression rates among Latina transgender women are higher than their African American, Asian Pacific American or White counterparts and this difference might be associated with the discrepancy between their needs to be socially supported and the amount of social support they perceive. Thus, not only gender but also ethnicity has significant influence on the level of social support that transgender individuals perceive. Based on this evidence, future research should investigate the possible impact of factors other than gender and ethnicity such as age, income level and education attainment.

One of the strengths of these three research studies is that they are able to gather data from large and representative samples. The two out of these three (Bockting et al., 2013; Budge et al., 2013a) benefit from internet-recruitment and online survey techniques, which have specific advantages such as saving time and effort, reaching marginalized and dispersed minority groups more easily and quickly, providing strong assurance of confidentiality especially important for minority populations. On the other hand, this recruitment and survey strategies limit the participation of individuals who do not have access to the Internet or enough knowledge or ability to use these programs. All these three articles collect their data from participants living in the US by using survey research design; however, research results demonstrate that ethnicity has an impact on the level of perceived social support. Therefore, similar research studies should be conducted in different countries by using different research

designs to have a broader understanding about the effect of social support on depression levels. Even though the social support questionnaires that these research studies use have high reliability percentages, the MSPSS includes items only about social support received from family of origin rather than family of choice (Budge et al., 2013a). In addition, the four social support items developed by Bockting et al. (2013) are limited to comprehensively assess different dimensions of social and emotional support. Thus, it can be interpreted that these two social support measurements have some limitations as they do not examine all possible aspects of social support. Future research studies should take the limitations of these instruments into consideration while assessing social support levels.

The results from this brief literature review can influence the interventions developed to reduce the high rates of depression among transgender population. Because lack of social support is reported as one of the influential factors on the development of depression, for mental health professionals it might be beneficial to invite family member, friends and significant others into therapy sessions. Considering the age, cultural values or family relations, couple or family therapy might be more useful for transgender individuals that have depressive feelings. In addition to interventions, it is critical to raise awareness about the high rates of depression among transgender individuals as a result of lack of social support. Thus, more supportive social environments should be created to reduce the level of depression that transgender people experience in their daily lives.

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Development of Gender Roles Attitudes Scale in Turkey

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The notion of gender role attitudes includes culture and norms that might differ across societies. Therefore, considering different gender role attitudes across different cultures and having test items based on this consideration is necessary to be able to have a valid measurement of gender role attitudes in different societies. Given the need for developing scales to measure gender role attitudes specific to societies and sociodemographic groups, and the absence of such a reliable scale in Turkey, we wanted to fill this gap in the literature with a comprehensive study of the gender role attitudes of people from various age and sociodemographic groups. This study describes the development and psychometric evaluation of a twenty-six-item scale (EEHK scale) to have a valid and reliable instrument to assess the attitudes of individuals towards gender roles in Turkey. The items of EEHK scale were constructed by the researchers of this study and The Gender Roles Attitude Scale (Zeyneloğlu & Terzioğlu, 2011) was taken as the control scale. 116 participants across Turkey participated in the completion of the surveys. Analyses showed that EEHK scale revealed a high internal reliability (0.88) and convergent validity ($p < .001$). Considering its aim and given results, the EEHK scale is an important attempt for providing a reliable and valid measure of gender role attitudes, and hopefully will encourage other researchers to initiate the development of culture-specific measurement methods.

Gender is defined as the psychological, behavioural, social, and cultural aspects of being male or female contrasting it to the term "sex" which is used to refer to the biological features that differentiate between males and females based on external and internal genitalia, chromosomal and hormonal traits (APA, 2015). Gender is accepted as a social construct that reflects the dynamics, power relations, interpersonal relationships, roles and responsibilities in a society. Contrary to what is widely assumed in the society, it is less associated with an individual's assigned biological sex at birth. Gender roles determine to a great extent what we can and cannot do as women and men by building norms and expectations designated to masculine and feminine characters (Levant & Pollack, 1995; Priya & Dalal, 2016). Although gender roles are shaped mostly by traditional norms and are observed globally, their effects on individuals' attitudes vary across cultures. Based on the Jost and Banaji's (1994) System-Justification Theory, Glick and colleagues (2000) claimed that in cultures in which men are perceived to be hostile, women are likely to value benevolent sexism, such as protection from men. In societies where sexism is more prevalent, hostile sexism, which is perceived as a threat, is countered with benevolent sexism which is presented as a solution. Women are faced with a hard choice between rejecting benevolent sexism and being exposed to hostile sexism, or accepting the benevolent sexism to avoid hostile sexism. Women might have the opportunity to stand against any type of sexism, including the benevolent one in less sexist societies because they are less likely to depend on men. The risk of facing hostile sexism is a force that holds women and men alike to act in ways that label them as deviants of the gender binary. This indicates that different cultures imply different perceptions and attitudes towards gender-related issues. The study of Chia and her colleagues (1994) shows that the Chinese do not agree upon the Western conception of the macho men and prefer

dominant, masculine men, contrast to American women. However, this result does not stem from them being free from traditional gender roles, instead it could be explained by the observation that Chinese men are socialized in the Confucian tradition which suggests that a true gentleman is good at poetry, books, rituals and music. One can argue that how the Confucian doctrine defines the ideal man may lead men in the Chinese society to never be "macho" as defined by the Western culture. Thus, the constituents of the traditional gender role attitudes vary among cultures (Gibbons et al., 1997).

Gender role attitudes are people's own beliefs and views on which behaviours are appropriate for which gender. Traditionally, it also refers to the appropriation of one's behaviours according to their sex, as well as the appropriation of any behaviour in a narrowly gender-specific sense (Reis & Sprecher, 2009). Since the notion of traditional gender role attitudes includes culture and norms might differ across societies, the approach of translating and administering scales developed in Western countries, mostly in the USA, to other world populations is problematic because of the assumption that traditional gender roles measured in different cultures are the same (Gibbons et al., 1997; Chia et al., 1997). Therefore, considering different gender role attitudes across different cultures and having test items based on this consideration is necessary to be able to have a valid measurement of gender role attitudes in different societies, and even in different socioeconomic (SES) groups within a society.

In addition to how culture may influence individuals' gender role attitudes, a study done by Lynott and McCandless (2000) shows that life experiences including education, marital status, employment outside home and increase in income, mediate the relationship between individuals and their gender role attitudes, regardless of their gender. This indicates that having a subject pool consisting of university students, who have mostly limited experience in life, cannot provide results that are generalizable to the society.

There is a limited number of studies in Turkey that aimed to develop a scaling tool to determine people's attitudes towards gender roles.

Zeyneloğlu and Terzioğlu (2011) developed a valid and reliable scaling tool called The Gender Roles Attitude Scale (GRAS), which is used as a control scale in the current study, by collecting data from university students. Although the study shows that the GRAS is a valid and reliable scale, it has certain limitations that fail to fulfil the needs of a gender role attitudes scale valid in Turkish culture. One such limitation is that the data were collected from university students only, which constitute a unique group in the society, especially in Turkey, who cannot be representatives of the normalised beliefs and attitudes. Moreover, the subjects' ages and sociodemographic did not vary significantly to represent a normal curve, which limits the generalisability of the statistical results. According to the research, age was found as a significant correlate of gender role attitudes. The study reported that young people held more egalitarian attitudes; but based on the results, they failed to conclude if this difference was due to an intergenerational effect, a developmental effect or an age-bias. (McHugh and Frieze, 2006).

Given the need for developing scales to measure gender role attitudes specific to societies and sociodemographic groups, and the absence of such a reliable scale in Turkey, we want to fill this gap in the literature with a comprehensive study of the gender role attitudes of people from various age and sociodemographic groups. By extending the subject pool from university students to any individual that is of age and speaks Turkish, we aim to develop a valid, reliable instrument to determine the attitudes of individuals towards gender roles in Turkey.

Method

Participants

116 individuals (68 females, 47 males, 1 did not choose to report), who live in Turkey, participated in this experiment voluntarily through convenience sampling. Females accounted for 58.6% of the total sample. The age of participants ranged from 18 to 62 ($M = 31.23$, $SD = 11.41$). The only prerequisite of being a participant of this research was being a native Turkish speaker older

than 18 years old. Since the study attempted to construct a valid and reliable scale which assesses the attitudes towards gender roles and there were no correlational or causal phenomena being examined, there was no distinction of experimental and control group in the study. Informed consent was obtained from all participants.

Measurement

An Internet link was created through Qualtrics to present the consent form and the surveys that would be filled by the participants. Two surveys were included in the study, both assessing the attitudes towards gender roles, one of which was The Gender Roles Attitude Scale (GRAS) (see Appendix) constructed by Zeyneloğlu and Terzioğlu (2011). The survey was administered to 500 undergraduate students (291 females, 209 males) and consisted of 38 items and five dimensions including egalitarian gender roles, feminine gender roles, marriage gender roles, traditional gender roles, and masculine gender roles. There were statistically significant differences among all survey items ($p <$ .01), and the scale had satisfactory internal consistency as the total Cronbach's alpha coefficient was revealed as .92. Hence, the GRAS was taken as the control scale in the study since it can be considered a well-established, valid and reliable survey capturing the attitudes towards gender roles. Furthermore, the EEHK (Erim-Ezgi-Hande-Kağan) scale, which was again aimed at assessing the attitudes towards gender roles through 26 items, was constructed by the researchers of this study. Both surveys were five-level Likert-type scales with the responses to the items including "I entirely disagree, I disagree, I am indecisive, I agree, I entirely agree".

Procedure

Prior to the administration of the surveys, the consent form, which explains the course and the aim of the study and asks for the participants' consent to participate in the study, was provided to the participants. In the first part of the study, the participants were asked to provide demographic information including their age, gender, sexual orientation, relationship status, their last degree, socioeconomic status, and parents' job status. Then,

the two surveys discussed in the Measurement section were given in a counterbalanced manner. Throughout the experiment, personal information, including name and identification number, were not asked to ensure anonymity.

Results

Before conducting an analysis to test our hypotheses, several descriptive analyses were conducted to depict the frequencies of the variables in our study sample. Regarding sexual orientation, the sample was predominantly heterosexual as 3 participants were asexual, 2 were bisexual, 1 was homosexual, 1 was transsexual, 3 chose not to report, 3 reported as other and 96 participants were heterosexual, accounting for 82.8% of the total sample. In terms of relationship status, the descriptive results showed a fair distribution as 29 participants (25%) were married, 47 (40.5%) did not have any relationship, 24 (20.7%) had a stable relationship, 9 (7.8%) had an unstable relationship, 4 (3.4%) had an open relationship and 3 (2.6%) chose not to report. Furthermore, regarding their highest completed education level, 1 participant (.9%) graduated from elementary school, 36 (31%) graduated from high school, 66 participants (56.9%) graduated from college, and 13 participants (11.2%) had a graduate degree. The sociodemographic questions aimed to assess the participants' SES which indicated that participants were, in average, between moderate and high levels of SES (50 participants (43.1%) reported their SES as average whereas 44 participants (37.9%) reported their SES as above average). The last sociodemographic question was related to parents' job status, which indicated that 37 participants (31.9%) had an actively working father only, 9 participants (7.8%) had an actively working mother only, 24 participants (20.7%) had both their mother and fathers actively working, and 46 participants (39.7%) reported that none of their parents were actively working. The fact that there is a high number of participants with no working parents might be due to the likelihood that older participants' parents are either retired or no longer alive.

Reliability analyses were conducted for both the GRAS and the EEHK scales. Cronbach's alpha, as a measure of internal consistency, refers to how all items in a scale are associated with each other in ensemble. The EEHK scale revealed a high internal reliability as Cronbach's alpha was found to be 0.88.

Furthermore, discarding the items did not lead to an increase in Cronbach's alpha except for one item which would increase the reliability by only .002. Thus, none of the items were discarded from the EEHK scale. In this study, the GRAS demonstrated a high internal reliability as Cronbach's alpha was found to be .93. This finding demonstrates that the GRAS is consistent regarding internal reliability, as the study of Zeyneloğlu and Terzioğlu (2011) also demonstrated a very similar Cronbach's alpha, which is .92. The internal consistency measure was also assessed in terms of subgroups of the GRAS (egalitarian gender roles, women gender roles, marriage gender roles, traditional gender roles, male gender roles). The analysis revealed a moderate to high internal reliability for the subgroups .65, .84, .82, .77, and .76, respectively, which is nearly similar to the results of Zeyneloğlu and Terzioğlu's (2011) scores, that were .78, .80, .78, .78, and .72. The only considerable difference was found between the egalitarian gender roles subscale of the GRAS of Zeyneloğlu and Terzioğlu (2011), .78 and the GRAS in this study, .65. It is important to note that the data of one item in each of the egalitarian, women, and male gender roles subscales are missing. Although discarding a few items of the GRAS in our study could have increased the internal consistency, such a procedure was not done in order to maintain the original scale during the comparison of the GRAS and the EEHK regarding validity. In addition to Cronbach's alpha, split-half method, which assesses the correlation between the two halves of a scale, was conducted and the results indicated high reliability for both the EEHK and the GRAS as Spearman-Brown coefficient was .91 and .92 respectively. Hence, both the EEHK and the GRAS can be considered reliable tools for measuring gender role attitudes.

To understand whether the EEHK can be reduced into two or more dimensions, an exploratory factor analysis- i.e. principal components analysis with direct oblimin rotation- was conducted. An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the sample was factorable (KMO = .778) and Bartlett's test of sphericity revealed that the results were significant ($p < .001$).

Initial factor analysis revealed 8 factors that had Eigen values higher than 1 and loadings less than 0.30 were excluded from the factors, which can be seen in Figure 1.
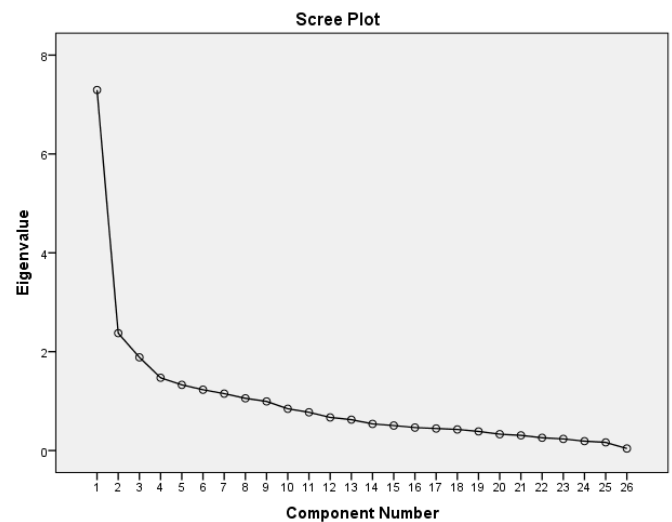

Figure 1 - Depicting the Eigen values of all 8 factors

Five items loaded onto Factor 1, three items loaded onto Factor 2, six items loaded onto Factor 3, four items loaded onto Factor 4, none of the items positively loaded onto Factor 5, three items loaded onto Factor 6, five items loaded onto Factor 7, and two items loaded onto Factor 8. Factor 1 explained 28.06% of the total variance, Factor 2 explained 9.14%, Factor 3 explained 7.25%, Factor 4 explained 5.66% and other factors explained 5.11%, 4.73%, 4.43%, and 4.06% of the total variance respectively. In the further confirmatory factor analysis, three factors were considered as the potential number of factors in the EEHK as a result of the exclusion of factors that explained less than 7% of the total variance. Again, principal components factor analysis with direct oblimin rotation was conducted, this time with three factors to extract. An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the sample was factorable (KMO = .778) and

Bartlett's test of sphericity revealed that the results were significant ($p < .001$).

Factor 1 explained 28.06 of the total variance, Factor 2 explained 9.14%, and Factor 3 explained 7.25% of the total variance and cumulatively these factors explained 44.45% of the total variance. The Eigenvalues can be tracked in Figure 2.
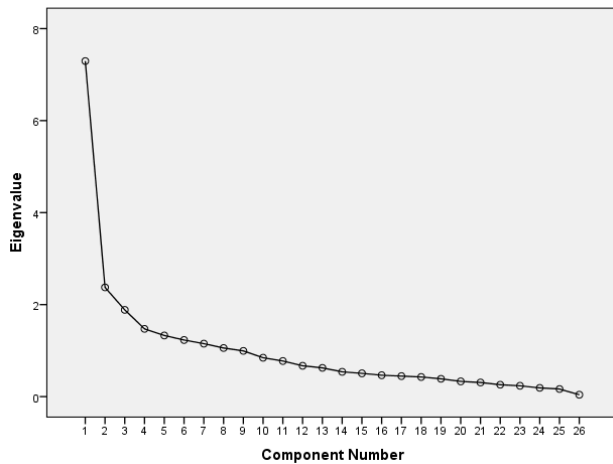

Figure 2 - Depicting the Eigen values of 3 factors

13 items loaded onto Factor 1 (item numbers: 2, 3, 4, 5, 6, 7, 8, 13, 16, 21, 22, 23, 24), 7 items loaded onto Factor 2 (item numbers: 1, 9, 10, 11, 12, 20, 22), and 10 items loaded onto Factor 3 (item numbers: 14, 15, 17, 18, 19, 20, 23, 24, 25, 26). The analysis indicated that 22nd item was shared by Factor 1 and Factor 2, 23rd and 24th items were shared by Factor 1 and Factor 3, whereas 20th item was shared by Factor 2 and Factor 3.

Furthermore, convergent validity was also assessed in the current study. The term convergent validity refers to the condition in which the test undergoing construct validation tends to correlate highly in the predicted direction with another established test that also aims to assess the same construct. Briefly, a scale has fair convergent validity when it measures the same concepts as other scales used for the same purpose. High scores in the GRAS represent an egalitarian attitude towards gender roles whereas low scores represent a traditional attitude towards gender roles. It is the direct opposite case in the EEHK, as high scores in the EEHK indicate that individuals have traditional attitude towards gender roles whereas low scores indicate that individuals have egalitarian attitude towards gender roles. Hence, for EEHK to have

convergent validity, there has to be a negative correlation between the EEHK and the GRAS. Bivariate correlation between the total scores of the EEHK and the GRAS, including all 116 participants, was conducted. The results of the analysis revealed that there was a strong negative correlation between the EEHK and the GRAS, $r(115) = -.72$, $p < .001$ (Figure 3). Thus, the EEHK scale can be concluded to have convergent validity.
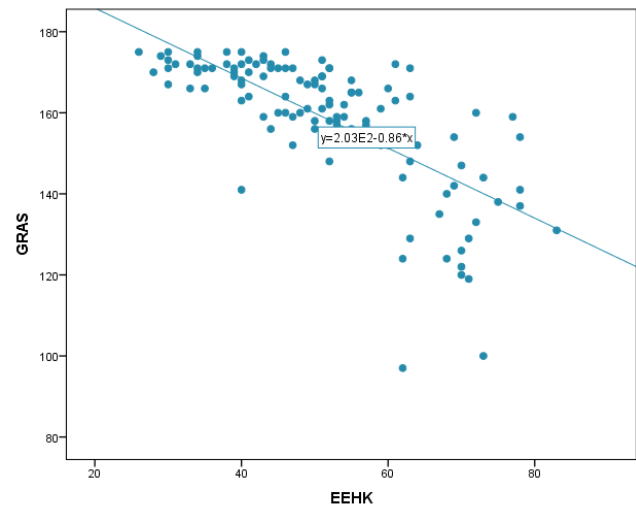

Figure 3 - Depicting the relationship between the GRAS and the EEHK

The descriptive statistics of the total EEHK and the GRAS, and the subscales of the GRAS were also conducted to assess the sample's gender role attitudes. The minimum score that an individual could get from EEHK was 26, corresponding to an egalitarian attitude towards gender roles, whereas the other side of the continuum represented traditional attitude towards gender roles with a maximum score of 130. The sample revealed an egalitarian attitude towards gender roles ($M = 51.58$, $SD = 13.47$) regarding the EEHK. The same results can be seen in the GRAS, in which the lowest score of 35 corresponded to a traditional attitude towards gender roles while the highest score of 175 corresponded to an egalitarian attitude towards gender roles, as the sample again revealed an egalitarian attitude towards gender roles ($M = 158.56$, $SD = 16.26$). The subscales of the GRAS followed the same pattern as well.

Discussion

Gender and gender roles are highly debated topics, and the attitudes towards gender are hard to measure explicitly, since the perception and attitudes towards the issue are strongly dependent on the culture. A wide variety of studies has been conducted worldwide, and GRAS has been found as a highly reliable scale among other scales measuring gender role attitudes. EEHK Scale study is an attempt to create a more reliable, valid and also culturally appropriate scale to measure gender role attitudes in a more subtle and effective way. In this study, we aimed to develop a scale to measure the gender role attitudes of people living in Turkey. The analyses showed that our 26-item EEHK scale had a Cronbach's alpha of .882, which indicates that the scale is highly reliable. Although some similar scales (Altınova & Duyan, 2013; Zeyneloğlu & Terzioğlu, 2011) with reliability were developed before, we believe that their items were chosen based on face validity alone, which limits the conclusions of their studies. GRAS scale (Zeyneloğlu & Terzioğlu, 2011) gave a slightly higher reliability score (Cronbach's alpha of .932) with 35 items, which favours our scale with its lower number of items and high reliability. Furthermore, the way the items were formed in previous scales reflect the outdated ideas and attitudes towards gender roles and women issues in Turkey, which might have caused a social desirability effect in their studies. We claim that our items were as subtly as they could get and the results are more valuable with respect to their ability to reflect the normative attitudes in Turkey. The sample consisted mainly of heterosexual participants, and this is important considering the fact that heterosexual people in the society tend to display more traditional views towards gender roles on average (Green et al., 2011). EEHK Scale can further investigate whether same-sex couples may tend to alter their normative values regarding gender roles in the context of Turkey as an example of generalising the findings of Green and colleagues (2011) to other cultures.

The demographics of the participants in our study make it possible to generalise the results of the study as the mean age was 31.23, females made up 58.6 % of the sample and the relationship status of participants varied. However, the SES data from the participants show that the sample mainly consisted of moderate to high SES individuals, which might limit the scope of our results. Moreover, the sample was also limited on the basis of location. The majority of the sample consisted of individuals residing in İstanbul, which is considered the most developed city in Turkey in terms of education and life standards. Although all participants are living in Turkey and are accustomed to the culture of Turkey, when compared to the Eastern region of the country, Istanbul residents, especially those with high SES, do not represent the entire Turkish society. The participants of the current study live in a more modern and dynamic environment where they may be exposed to discussions of gender inequality more with respect to more conservative parts of Turkey. Even though the exposure does not necessitate a certain way of thinking towards gender roles, it might have had an effect on individuals. We believe that such an effect may be realized not because the participants think in an egalitarian way of gender roles, but due to their background. It is likely that the background of participants would lead them to complete the scale of the current study in a socially desirable manner. Further studies with EEHK scale to reflect the greater population of Turkey should be conducted to reach the normal distribution in the population in all aspects, and especially in those aspects that are considered to have an effect on people's attitudes towards the norms in the society.

The validity analyses that were conducted with a selected convergent scale (GRAS) revealed that our scale is valid with respect to this other reliable scale that was also shown to be valid. The higher scores in our scale corresponded to people having more traditional attitudes towards gender roles while traditional attitudes are represented by lower score in GRAS due to differences in item formation. Consequently, the finding that there was a strong negative correlation between the two scales showed that EHKK has convergent validity. Such a finding is important since other scales may be based on face validity while EEHK was found to have a strong convergent validity.

Furthering the discussion on GRAS, the education levels and the ages of participants in that

study were very limited. Unlike GRAS, our study had a diverse sample with respect to age and level of education. The sample of GRAS consisted of undergraduate students. Regarding the results of TUIK (2014), the ratio of students at undergraduate level among all population is 4.26%. The high ratio of people with a university degree or higher-level education in our study does not provide a representative sample for Turkey. Thus, any result obtained from the data would not be able to be generalised to the population. Even though the sample size was not remarkable, a more heterogeneous sample, like the one in our study, would be more reliable in terms of generalisability.

Another concept which should be considered is the medium on which the survey has been conducted. The number and intensity of questions on GRAS and EEHK combined were overwhelming for an Internet survey. In addition, it should have been made sure that the participant was alone while taking the survey in order to reduce the social desirability effect as much as possible. This kind of a study should have been conducted in a laboratory setting and with one participant at a time, where there are researchers present. Such a setting might have been helpful for the reliability of the answers but also it might have, ironically, increased the social desirability effect as the presence of an experimenter might also interfere with the process (Joinson, 1999). On the other hand, without using an online survey, it would be impossible to reach such a diverse sample of people. Despite the several limitations mentioned above, the findings obtained from this study show that EEHK is a valid and reliable instrument for determining Turkish society's attitudes towards gender roles.

The scale developed in this study makes a significant contribution to both determining the egalitarian and traditional gender role attitudes in Turkey and to be used in policies that may target to enhance the society's gender role attitudes towards more egalitarian views. Thus, this study contributes both to the theoretical and applied areas of the field. Further research and scale development studies would pave the way to a more egalitarian society by helping the development of the policies regarding this issue. We believe that subjects like gender role attitudes are highly dependent on the culture and thus are hard to reason about and measure. This is precisely why it is vital to formulate culture-specific hypotheses about the issues related to gender inequality and discrimination caused by traditional gender role attitudes. We think that EEHK scale is an important attempt in this regard, and we hope to encourage other researchers to initiate development of modern and culture-specific measurement methods.

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