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# **EDITOR'S NOTE**

We present you with the ninth issue of Koç University Undergraduate Psychology Journal. It has been some time since our last issue, and a lot has changed since then. We have been and are still going through some strange times as a species. We all have been individually affected by the pandemic in one way or another. The meaning of *work*, and especially that of hard and worthwhile work, has been questioned. During a quarantine, productivity either seems like a complete joke or the only hope we have left to get through this. Some of us strived to find meaning in their professional lives while some discovered the joy of every day chores. Some were more worried about the uncertainty of future while others realised that they needed to exist in and survive the present first. We believe great works are *not* a result of the pressure for productivity but of internal motivation. KUUPJ is one of the best examples for this.

I would like to thank all the authors and editors for the great and hard work they have put on during these tough times. Good research is at the foundation of good scientific writing, and we were happy to see many students doing good research. Since the beginning, it was our hope to encourage more students to engage in the practice of doing and writing about scientific work and we are glad to see that the number of submissions have been rising with every issue. I am confident that KUUPJ will keep up the excellence it got used to and I am excited for the next generation of editors and authors to come.

I also would like to thank our advisors Dr Tilbe Göksun and Dr Fuat Balcı and our dean Prof Aylin Küntay for being there from the beginning, supporting us in every way and setting great examples as scientists and as individuals.

I am particularly emotional about this issue, because it marks my last as the editor-in-chief of the journal. From the very start, we envisioned KUUPJ to be a journal managed by undergraduate students and now it is time to pass the torch to the next team. However, I will always be here to support next generations to continue the great work we started back in May 2017 with my fellow founding team members. I am so happy and grateful to have been a part of all and have led some of the KUUPJ teams since the beginning. I believe it was the friendships I made along the way that I am thankful the most for. Though the future might scare me with all its uncertainty, I am glad that I have had this experience and proud of the work we have put on.

Keep up the good work. Enjoy the present. Enjoy reading our new issue.

*Editor-in-chief*  
Y. Kağan Porsuk



# The Relationship between Type of Social Media Usage and Depression with Fear of Missing Out

Hilal Öztürk, İrem Gençoğlu, Figen Kırkgöz  
*Koç University*

**This paper examines the association of active and passive social media use with Fear of Missing Out (FOMO) behaviors in individuals. This study investigates the relationship between active & passive social media use, loneliness, and FOMO, by controlling effect of depression. Moreover, the relationship between depression and FOMO was also investigated. We recruited 141 participants (64 men, 77 women) and they filled out an online Qualtrics survey assessing social media use, FOMO, loneliness, and depression. We found a significant correlation between passive social media use and FOMO. Similarly, active social media use and FOMO are significantly correlated. Besides, the relationship between loneliness and FOMO was also found to be significant. However, when the depression was controlled for, interaction effects of types of social media use and loneliness with FOMO disappeared. This might be a result of the relationship between depression and passive social media use which is apparent in the literature.**

**Keywords:** active and passive social media use, fear of missing out, loneliness, depression

Social media has become an important tool for interaction and communication, as well as information in the last couple of years. As the scope of media sites grew, functions of these sites varied such as sharing thoughts, pictures, news, or information about the self, thus, number of people using these sites increased. Today, social media is an alternative platform where everyday life is represented, so people catch up with one another and continuously renewing information about both other people and general news. One phenomenon that is highly related to this state of constant representation and information sharing is called fear of missing out (FOMO) (Przybylski, Murayama, DeHaan, & Gladwell, 2013). FOMO is explained in literature as a need and urge to always be informed about what other people are doing (Przybylski et al., 2013). The concept can be defined as a person's worries about other people's pleasing experiences in the absence of the self, and a constant need for staying in contact with others and their actions (Przybylski et al., 2013).

The FOMO is a relatively new phenomenon, the first study on this topic was conducted in 2013 by Przybylski and colleagues, who also created the scale

for measuring FOMO and introduced the terminology to the literature. They found that FOMO was usually apparent in younger people (especially males), and it was related with negative experiences, lower life satisfaction, and overall lower mood (Przybylski et al., 2013). People with higher FOMO levels were prone to checking their Facebook pages when they wake up, before sleeping or while eating as well as checking their messages or emails while driving or during a lecture (Przybylski et al., 2013). In the growing literature, FOMO was found to be related to neuroticism, problematic Instagram use and phubbing (being engrossed with smartphones and snubbing the person next to them), (Balta, Emirtekin, Kircaburun, & Griffiths, 2018). Increased need to belong and an increased need for popularity were also found to be significantly related with FOMO (Beyens, Frison & Eggermont, 2016). Research also indicates that FOMO has neurobiological correlates. In a study, researchers used electroencephalogram (EEG) to measure brain activity while participants were presented with visual cues that either indicated social inclusion or exclusion and they found that the right middle temporal gyrus, a region related to social

stimuli, was also related to FOMO (Lai, Altavilla, Ronconi, & Aceto, 2016). The results illustrated FOMO's relationship with need for belongingness and they indicate that people with higher FOMO, attend to other people's thoughts more and seek approval more than others, which could lead to frequent social media usage among these individuals (Lai, Altavilla, Ronconi, & Aceto, 2016).

According to self-determination theory, "satisfaction of the needs for competence, autonomy, and relatedness predict psychological well-being in all cultures" (Deci & Ryan, 2008, 183). The theory was perceived as a fitting framework for FOMO model and it was contemplated that FOMO might act as a mediator in the relationship between the need to satisfy relatedness and engagement with social media (Przybylski et al., 2013). There is discrepancy in the literature about social media use and its relationship with mental health outcomes. In several studies researchers found social media use to be related with decreased depression; Ellison, Steinfield and Lampe (2007) expressed Facebook use to be related with increased well-being through the effect of social capital, resources being reachable to people through their relationships with others. Also, another study demonstrated that using the internet for communication purposes with friends and family was related with lower levels of depression (Bessiere, Pressman, Kiesler and Kraut, 2010). However, social media usage does not always predict better mental health outcomes as well as FOMO. In a representative survey of US young adults, researchers found a significant relationship between social media use and mood dysregulation/depression (Lin et al., 2016). Also, another study indicates that frequent social media use on a daily basis was related with higher dispositional anxiety and anxiety disorder in emerging adults, and social media sources were causing stress in individuals, due to negative feedback, awareness of stressful events, or pressure of updating new information (Vannucci, Flannery & Ohannessian, 2017).

Loneliness is defined in the literature, as a distressing and subjective experience, that is different from social isolation, which takes place in a person's social affiliations because of a detachment from human contact (Nilsson, Lindstrom & Laden, 2016).

As Nilsson, Lindstrom and Laden (2016) emphasizes, it stems from the need for psychological security. In one experimental research shows, that restricting social media usage, decreased the levels of loneliness and depression in participants (Hunt, Marx, Lipson & Young, 2018). In the same experiment, participants reported that not comparing themselves to others on social media improved their feelings about their own self-perception. In addition, the researchers found significant decrease in FOMO and anxiety scores when the social media use of participants was limited (Hunt et al., 2018). In another study researchers examined the relationship between interactivity, emotional connection, FOMO and belongingness (the needs suggested by self-determination theory) with the hedonic well-being participants acquired through their Facebook use, in people with low and high loneliness levels (Berezan, Krishen, Agarwal & Kachroo, 2019). They found that in the case of high loneliness, when social exclusion occurred, people were driven by their needs of belongingness and interactivity to use Facebook more (Berezan et al., 2019). Based on the recent study of Blackwell, Leaman, Tramposch, Osborne and Liss (2017) there is a significant relationship between FOMO and social media addiction. Researchers also examined the relationship between neuroticism, attachment types and extraversion relationship with social media use and addiction (Blackwell et al., 2017). Their paper suggested for future research to examine FOMO's relationship with loneliness and narcissism (Blackwell et al., 2017). Drawing from their research, in our study we examined the relationship between loneliness and FOMO.

It is important to note that people differ in the way they use social media. Active social media users are defined such as those who create their own content (audio, text or video), share the moments from their lives and respond to the content other people share (Escobar-Viera, Shensa, Bowman, Sidani, Knight, James, & Primack, 2018). On the other hand, passive social media users are defined such as those who would rather observe others content and do not engage in communication much (Escobar-Viera et al., 2018). In the literature passive social media use was found to be mostly related with anxiety and depressive mood (Escobar-Viera et al.,

2018; Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante, & Sigfusdottir, 2019; Burnell, George, Vollet, Ehrenreich, & Underwood, 2019). Passive social media use was also found to be related with FOMO (Burnell et al., 2019).

### *The Present Study*

Self-determination theory suggests that for the individual's well-being, the needs for competence, relatedness and autonomy should be fulfilled (Przybylski et al., 2013). Today the daily life of humans is shaped by the developments in technology in many areas. Social media is one way for people to interact and share their moments, thoughts, and selves, in order to fulfill their need for relatedness. FOMO is also a phenomenon that taps into this domain of need for relatedness (Przybylski et al., 2013). In addition, the way people engage in social media also differs, while some prefer to only observe the online activity by not engaging very much, and others prefer to be constantly engaging with new posts and responses (Escobar-Viera et al., 2018). The present study examines the relationship between active and passive social media use and FOMO.

Based on Burnell and colleagues research (Burnell et al., 2019), firstly, we hypothesize that passive social media use is positively correlated with FOMO. In addition we hypothesize that active social media use is also positively correlated with FOMO, because people who engage in the active type of use will experience FOMO arising both in the context of the FOMO for other people's content, and they will also experience FOMO for sharing their own content whereas receiving recognition. Secondly, we hypothesized that the relationship between the active social media use and passive social media use with FOMO increases as loneliness increases. Thirdly, we hypothesized that there is a significant correlation between depression and FOMO.

## Method

### *Participants*

We have computed the sample size using g-power and assuming a medium to large effect size, it was found that sample size of 100 would be required for a power level of 80%. After we reached the required number, we continued to collect data. We

have recruited 141 participants (64 men, 77 women). The participants were university students and most of them were recruited from Koç University and the others were from Bahçeşehir University, Kadir Has University and Galatasaray University. The participants ranged in age from 18 to 25 ( $M = 21.07$   $SD = 1.55$ ). Based on previous social media use studies, we identified our sample's age range, and university students were a convenience sample. We collected the data with online survey by Qualtrics. Our research was approved by Koç University's Institutional Review Board.

### *Measures*

#### Demographics Form

Age and the gender of the participants were inquired through a demographics form at the beginning of the online survey.

#### Active and Passive Social Media Use

The active and passive social media use scale was first developed by Zongchao Li (2016) in order to detect different levels of social media usage among individuals. We used the revised version of the scale taken from the study "Passive and Active Social Media Use and Depressive Symptoms Among United States Adults" (Escobar-Viera et al., 2018). For this study, we translated the scale into Turkish version by using back-translation method. The scale consists of 7 items which measures active and passive social media use (Li, 2016). "Read discussions", "Read comments/reviews" and "Watch videos or view pictures", are statements associated with passive social media use (Escobar-Viera et al., 2018). Whereas, "Like/Favorite/Voting", "Share others content", "Comment on or respond to someone else's content" and "Post your own content" are relevant for active social media use (Escobar-Viera et al., 2018). Individuals rated their active and passive social media use with six-point Likert Scale that responses varying from "never" to "several times a day". The internal consistency of the original scale's items was good enough for both active (.80) and passive (.72) social media use (Escobar-Viera et al., 2018). In our study, the reliability (Cronbach's alpha) of the passive subscale consisting of 3 items is .65, and reliability of the active subscale consisted of 4 items is .74.

### Fear of Missing Out Scale (FOMO Scale)

The scale was originally developed by Przybylski et al. (2013) to understand how individuals differ in terms of their FOMO levels. The scale consists of ten items such as “I get anxious when I don’t know what my friends are up to”, “Sometimes I wonder if I spend too much time keeping up with what is going on” and “When I go on vacation, I continue to keep tabs on what my friends are doing”. The scale was designed as five-point Likert Scale which ranged from “Not at all true of me” to “Extremely true of me”. The internal consistency of the scale items was high (.87), (Przybylski et al., 2013). In our study, Cronbach’s alpha for the items of FOMO scale is .79. We translated the scale into Turkish by using back-translation method.

### UCLA Loneliness Scale

The UCLA Loneliness Scale was originally developed by Russell, Peplau, and Ferguson (1978) to assess the loneliness levels of 239 students in UCLA. The UCLA Loneliness Scale consists of 20 items and included items such as “I am unable to reach out and communicate with those around me”, “I feel isolated from others”, “It is difficult for me to make friends” and “My interests and ideas are not shared by those around me”. The scores ranged from “I often feel this way” to “I never feel this way” in four-point Likert Scale. The internal consistency of the measure ( $\alpha=.96$ ) is high (Russell et al. 1978). In our study, the reliability (Cronbach’s alpha) of the scale was  $\alpha=.93$ . We translated the scale into Turkish version by using back-translation method.

### Beck Depression Inventory

The Beck Depression Inventory was originally developed by Beck (1961), in order to have a proper diagnosis tool for depression. There were several other versions developed for measuring depression. In the present study, we used the long-version of the depression inventory (Beck, 1961). The internal consistency of the scale was detected using the split half reliability method and it was high ( $\alpha=.86$ ), (Beck, 1961, p.565). The scale’s Turkish version was taken by the post-graduate thesis study of Sarigül (2014). The scale consists of 21 items and some of the items were related to the concepts such

as “lack of satisfaction”, “loss of appetite”, “sense of punishment” “social withdrawal”, and “loss of libido”. Each question had some statements which score between 0 and 4. The participants chose the statements considering how they felt themselves last week. The statement which associated with 0 was related to minimal depression and association with 4 implies severe depression. The severity of depression was found based on the total of scores on each question. Total score ranged between 0 to 63. In our study the Cronbach’s alpha for the items of Beck Depression Inventory is .91.

### Procedure

After the study was approved by the University’s Institutional Review Board, the survey link was posted to all online platforms which Koç University students participate in, such as clubs’ WhatsApp groups and Koç University Facebook groups. Also, it was sent to online platforms of other universities’ (Kadir Has University, Bahçeşehir University and Galatasaray University) students clubs. The participants filled out the survey through a Qualtrics link and all of the tasks were completed online. They were free to quit the study whenever they wanted to. They could not pass to the next question if they did not answer the previous one. First, information about the study was provided in the consent form and the participants confirmed that they are 18-25 years old university students by giving their consent. Then, they filled the demographic form that contains questions about participants’ age and gender (options were man, woman, and other). After the demographic form, they started filling out the survey. First scale is Active and Passive Social Media Use and it was followed by second scale which is Fear of Missing out Scale. Third, they completed UCLA Loneliness Scale. Fourth, the participants finished the study by completing Beck Depression Inventory. After completing all surveys, their results were saved by Qualtrics.

### Results

The descriptive statistics of variables is presented in Table 1. Besides, the descriptive statistics of each level of our groups is presented in

	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Depression	0	46	13.41	10.809
Fear of missing out	10	49	28.38	6.534
Loneliness	1	60	20.18	13.136
Passive SMU	3	15	10.42	2.948
Active SMU	0	20	8.35	4.787

Table 1 - Descriptive Statistics of Key Variables

Table 2. A Pearson correlation coefficient was computed to see whether a significant correlation existed between active and passive social media use and FOMO. There was a positive correlation between active social media use and FOMO, but the strength of the relationship was weak ( $r = .274$ ,  $p = .001$ ). Moreover, a positive correlation was also found for passive social media use and FOMO, but the strength of the relationship was again found to be weak ( $r = .233$ ,  $p = .005$ ). Although both of them had significant results, correlation between active social media use and FOMO ( $r = .274$ ) was stronger compared to passive social media use and FOMO ( $r = .233$ ). We also looked at correlation between passive social media use and FOMO with controlling the effect of depression. There was a significant positive correlation between passive social media use and FOMO while controlling depression, but the strength of the relationship was again found weak ( $r = .225$ ,  $p = .007$ ).

	<i>N</i>	<i>M</i>	<i>SD</i>
Low Passive SMU	56	2.73	.66
High Passive SMU	85	2.91	.64
Low Active SMU	78	2.71	.61
High Active SMU	63	2.99	.68
Low Loneliness	72	2.62	.58
High Loneliness	69	3.06	.65

Table 2 - Descriptive Statistics of Each Group

A three-way analysis of variance (ANOVA) was conducted on the influence of three independent variables (active social media use, passive social media use, loneliness) on the dependent variable (score of FOMO). Active social media use included two levels (high-active and low-active), passive social media use had two levels (high-passive and low-passive), whereas loneliness consisted of two

levels (high-loneliness and low-loneliness). The main effect for passive social media use on score of FOMO is marginally significant ( $F(1,136) = 3.561$ ,  $p=.061$ ) indicating no significant difference exists between high-passive social media use ( $M = 2.934$ ,  $SD=.064$ ) and low-passive social media use ( $M = 2.741$ ,  $SD = .079$ ).

The main effect for active social media use on score of FOMO is significant ( $F(1,136) = 8.075$ ,  $p=.005$ ) indicating a significant difference between high-active social media use ( $M = 2.981$ ,  $SD = .076$ ) and low-active social media use ( $M = 2.694$ ,  $SD = .067$ ). The main effect for loneliness on the score of FOMO is significant ( $F(1,136) = 13.534$ ,  $p < .01$ ) indicating that there is a significant difference between low loneliness ( $M = 2.633$ ,  $SD = .075$ ) and high loneliness ( $M = 3.042$ ,  $SD = .076$ ) on FOMO scores. A 2x2x2 Factorial ANOVA revealed that there is no significant interaction between the passive social media use and the active social media use ( $F(1, 132) = .173$ ,  $p= .678$ ) which implies that the association of the active social media use with FOMO score does not depend on the passive social media use. There is no significant interaction between the passive social media use and loneliness ( $F(1, 132) = 1.232$ ,  $p= .269$ ) which implies that the association of the passive social media use with FOMO score does not depend on loneliness. There is no significant interaction between the active social media use and loneliness ( $F(1, 132) = .055$ ,  $p=.814$ ) which indicates that the association of the active social media use with FOMO score does not depend on loneliness. There is no significant interaction between the passive social media use, active social media use, and loneliness ( $F(1, 132) = .086$ ,  $p=.770$ ) which shows that association of the active social media use and passive social media use with score of FOMO does not depend on loneliness (see Figure 1 and Figure 2).

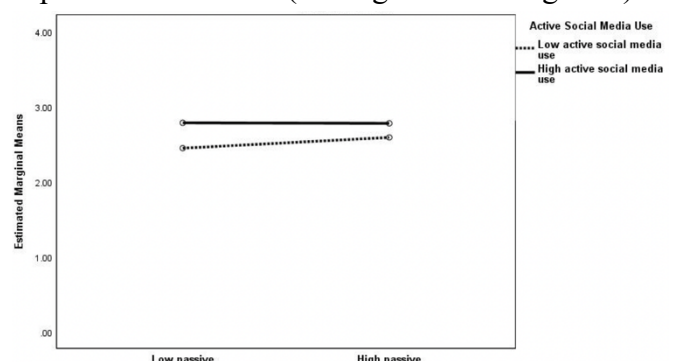


Figure 1 - Estimated Marginal Means of Mean of FOMO Scores

A Pearson correlation coefficient was computed to investigate the correlation between depression and FOMO. There was a significant positive correlation between the two variables, and the strength of the relationship was found to be mild between depression and FOMO ( $r = .300, p < .01$ ).

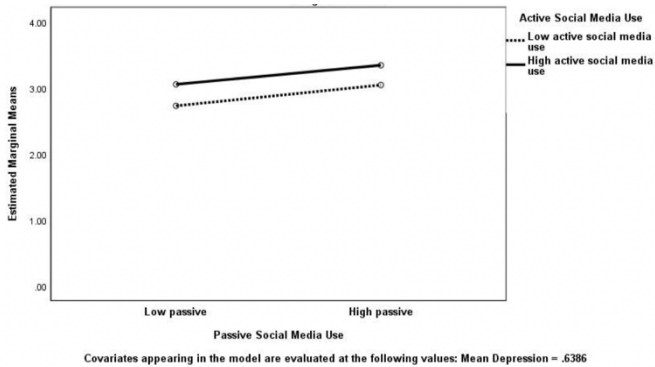


Figure 2 - Estimated Marginal Means of Mean of FOMO Scores at High Loneliness

## Discussion

Our study is conducted in order to understand the relationship between active and passive social media use, FOMO, and loneliness. The terms active and passive social media use was first introduced to the literature by Pagani and Mirabello (2011). Since it is a very current issue which is validated for the social media research by Li (2016), conducting a study which specifically focuses on the active and passive usage of social media is extremely crucial. Following the “self-determination theory”, the reassurance of individual’s three basic psychological needs, “competence”, “autonomy” and “relatedness”, are quite important for efficient self-regulation abilities (Przybylski et al., 2013). Our study focuses on the “relatedness” component in the self-determination theory, since it explains the component as being in contact with other individuals and staying close to them (Przybylski et al., 2013). Therefore, FOMO is an important concept which accounts for individual’s need for relatedness, for individuals who can’t satisfy their need for “relatedness” in adequate amounts (Burnell, George, Vollet, Ehrenreich, & Underwood, 2019; Przybylski et al., 2013).

Individuals stay in contact with their significant others and friends through the usage of several different social media platforms. Because of that, it is important to assess the relationship between active & passive social media use and FOMO to

account for the need for relatedness. First of all, based on our first hypothesis, we found that active social media use and FOMO had a significant positive correlation; although, the strength of correlation was not very high. This indicates that using social media with an active manner such as posting their own content, has a positive relation with the behaviors that was linked with FOMO. Moreover, passive social media use and FOMO again had a significant positive correlation; but the strength of correlation was low. Again, it could be said that people who use social media more in a passive manner like reading discussions, show more FOMO related behaviors. However, other factors might also account for increases in FOMO such as neuroticism and narcissism as personality characteristics (Blackwell et al., 2017). Also, in our study we found a main effect of loneliness on FOMO while controlling for depression. Considering FOMO’s link with need for relatedness (Przybylski et al., 2013) and the link between loneliness and need to belong (Berezan et al., 2019), these results were expected. It could be said that, individuals who felt lonelier, engaged more in the behaviors of FOMO. Moreover, the main effect of active social media use on FOMO was significant, which indicates that low-active social media users and high-active social media users differed among their FOMO scores. This shows us that, the intensity of FOMO experienced among individuals was different in both cases; individuals who are high active social media users and who are low active social media users differed among their FOMO scores.

Also, the main effect of passive social media use on FOMO was not significant, indicating the inexistence of a difference between low-passive social media users and high-passive social media users on FOMO scores. The reliability of our passive social media scale was lower than active social media use scale, therefore this might have accounted for the insignificant results. However, when we controlled the depression while computing correlation between passive social media usage and FOMO, the results showed a significant number. According to the literature, passive social media is related to depressive symptoms (Escobar-Viera et al., 2018; Thorisdottir et al, 2019; Burnell, et al., 2019) and



FOMO is also related with higher levels of depression (Hunt et al., 2018; Barry, Sidot, Briggs, Reiter & Lindsey, 2017). Our results also support the existence of such a relationship; therefore, it can be said that our results are in line with the literature (Burnell et al., 2019).

Moreover, when we looked at the interaction effect of active social media use, passive social media use and loneliness on FOMO while controlling depression, our results were not significant. The finding shows that both loneliness and active social media use lose their significant main effects on FOMO when more than one independent variable affect FOMO.

Depression was another important factor in our study worth consideration in assessing its correlation with FOMO. In an experimental study conducted by Hunt and colleagues (2018), limiting individuals in terms of social media use was related to lower depression scores in individuals. Moreover, there are many other research that focused on the relationship between depression and FOMO (Escobar-Viera et al., 2018; Hunt et al., 2018; Lin et al., 2016; Thorisdottir et al., 2019) therefore we also wanted to investigate the relationship between the two variables to increase the external validity in this topic. We found a mild significant positive correlation between depression and FOMO. In other words, as individuals feel more depressed, their FOMO behavior tended to increase.

Many researchers have investigated the correlation between social media use and psychological well-being. Under psychological well-being, these researchers looked at neuroticism, loneliness, depression, and anxiety by relating it with social media use (Dempsey, O'Brien, Tiamiyu, & Elhai, 2019; Lin et al., 2016; Przybylski, Murayama, DeHaan, & Gladwell, 2013; Reer, Tang, & Quandt, 2019). On the other hand, our study is particularly different than previous research, since we specifically look at the relationship between active social media use and FOMO, and passive social media use and FOMO. Since active and passive social media use are introduced by Li (2016) in the recent years there are not adequate studies in this topic. After the introduction of active and passive social media use, several research has been conducted focusing on this

aspect of social media (Escobar-Viera et al., 2018; Li, 2016; Thorisdottir et al., 2019) and our study uses both of these newly introduced terms by additionally looking at loneliness and depression as other factors which are relevant for FOMO.

### *Limitations*

There are several limitations of our study. First of all, our correlational study is based on filling online surveys. Participants were not observed during the study and the study includes their self-report. According to Dempsey et al. (2019), self-report techniques are not useful to assess validity as the researchers are not able to control the environmental factors that operate on the individuals, therefore it could be thought of as a limitation for our study. Moreover, using an experimental design for assessing active and passive social media use would show causation with FOMO. Instead of correlation, causational relationship can be more advantageous to explain their link. Secondly, our sample is based on undergraduate university students therefore it is not generalizable to the population. Further research should be conducted to assess the external validity of our study among the general population. Finally, our sample size was not adequate. Gathering a larger sample which includes more students from other universities might have been better to have more significant and representative results.

### *Further Studies*

Future research should be conducted by focusing on active and passive social media use rather than only looking at the social media engagement and social media use among individuals. Future research is quite necessary to increase the external validity of the research conducted in this area. Many research has focused on how adults are affected by active social media use (Blackwell et al., 2017; Escobar-Viera et al., 2018; Li, 2016) however, we advise future researchers to also look at active and passive social media use among younger age groups such as children and adolescents. There is a study which looked at active and passive social media use among adolescents (Thorisdottir et al., 2019) however more

research should be conducted to increase the validity. Moreover, most of the studies conducted in this area focused on mediating role of FOMO on problematic smartphone use (Elhai, Levine, Dvorak, & Hall, 2016; Elhai et al., 2018; Wolniewicz, Tiamiyu, Weeks, & Elhai, 2018). We could not find multiple studies which focused on trait and state anxiety levels and its effect on FOMO. Therefore, future research should be conducted to specifically look at the main effects between anxiety and FOMO separately, rather than looking at the interaction effects by putting other variables in the analysis.

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# The Effect of Conformity Pressure and Ambiguity Intolerance on Aesthetic Judgments

İlayda Arslan, Şeref Can Esmer, Mert Aktaş  
*Koç University*

**What factors influence the process of making aesthetic evaluations? As art is an ambiguous way of expression, we come up with two possible explanations for this process. The first one is the effect of knowing others' judgments and the other one is the ability to tolerate ambiguity. We asked a sample of university students (N=90) to evaluate a dance performance by manipulating their knowledge about other people's judgments on the same video and we measured their level of insolubility tolerance, which is the ability to deal with situations having no clear solutions. People were affected by others' judgments when they believe that others did not like the performance, but not when they believe that others liked the performance. Moreover, these results did not depend on participants' ability to tolerate insolubility. This study provides new perspectives of assessing conformity and aesthetic judgments.**

**Keywords:** social conformity, aesthetic judgment, ambiguity intolerance, insolubility

In our everyday lives, we always encounter situations in which we have to judge an artwork's aesthetic value. For example, when we watch a film or listen to music, we have to evaluate them because we discuss the artistic value with others. Moreover, Eaton (1995) argued that perception of an artwork has to be socially constructed, meaning that, our evaluation of the artwork may sometimes differ if we evaluate this artwork in the presence of another person. In that sense, there are some empirical studies on the social factors affecting aesthetic judgments which show that there is a social component of aesthetic judgments (e.g. Madden, 1960; Hesslinger, Muth, & Hecht, 2017). These studies showed us that the social effect is real, but we do not know how exactly social factors affect people's aesthetic judgments. In line with this problem, we wanted to investigate how we are affected by others' aesthetic evaluations and whether the level of social effect is the same for every people or not.

## *Aesthetic Judgments*

Humans' judgments about an artwork is different from other domain of judgments such as economic and managerial judgments, in a way that our aesthetic judgments depend on the pleasure we

get from an artwork (Zangwill, 2003). The other critical difference of aesthetic judgment is that it depends on the good-bad distinction (Zangwill, 2003). For instance, when we evaluate a drawing, we evaluate it as good or bad on the basis of the pleasure we get. We sometimes make our aesthetic judgment by comparing an artwork with another or rate the artwork numerically on the basis of how much we find it good. To illustrate, we can compare two movies with each other, or we can rate a movie on a website. We can even share our aesthetic judgments via social media including expressions of our emotional states. All these cases require aesthetic decision-making processes and how this process happens is an important topic studied under empirical aesthetics.

A five-stage process of aesthetic judgment model by Leder, Belke, Oeberst, and Augustin (2004) is an explanation of how our aesthetic decision-making processes happen. The steps of this model are perception, implicit memory integration, explicit classification, cognitive mastering and evaluation. According to the model, at first, humans analyze the perceptual features of an artwork such as visual complexity (Berlyne, 1970; Frith & Nias, 1974) and color (Zeki, 1980). The second step is

implicit classification in which people discriminate artworks without intending to do so. For instance, familiarity to an artwork may make us prefer that artwork because of the mere exposure (Zajonc, 1968). Then, the third step is explicit classification in which people generally rely on a set of information when judging. We can obtain explicit information through their experiences. In other words, whether we have a training on a domain of art may have an effect on our evaluations of the artwork on the corresponding domain. Next step is the cognitive mastering which is, namely the understanding of the artwork. Some artworks are easier to understand because they include less ambiguity like drawing of a vase. It was shown by Muth, Hesslinger & Carbon (2015) that not only ambiguity but also the degree to which an ambiguous situation could be solved, namely solvability of ambiguity, has an effect on aesthetic judgments due to the insight (the “aha!” effect) of finding the hidden object. The last step of this model is evaluation in which we make a final decision on the artwork with the information we gathered in every stage.

Although these five processes of aesthetic judgment explain some of the variables affecting our decision-making processes, there are also other theories and studies about other variables. One of these other variables is, as discussed above, social factors. The idea of social factors is one of the ignored parts in the Leder et al (2004)’s model. However, aesthetic judgments are argued to be socially constructed, meaning that, the way we respond to an artwork is emotional, which is socially constructed (Eaton, 1995). To illustrate, Hesslinger et al (2017)’s study showed that people are affected by unanimously low ratings when they evaluate drawings. This finding indicates that humans are under the effect of other people’s judgments.

The other important variable in aesthetic research is people’s state of affect when evaluating the artwork. As explained by Leder et al (2004), people’s affective states can predict their aesthetic judgments (Berlyne, 1974). Berlyne’s explanation of this relationships depends on the results of the study of Konecni and Sargent-Pollock (1977), in which the emotional states of the participants are

manipulated, and their preference of artworks is measured. Results of this study showed that people prefer Renaissance paintings, rather than 20th century paintings, when they are in a negative state, and vice versa. This finding clearly indicates the effect of mood. This effect may be due to the implicit memory integration stage of Leder and colleagues’ model (2004) because people may not be aware of their current level of affect and this current level may be integrated with their memories that they retrieve during the process of judgment. Then, we should consider mood as an important variable in aesthetic research.

The factors affecting aesthetic judgments and the model (Leder et al., 2004), as explained above, show us the important variables in empirical aesthetics. Nevertheless, most of these factors explained in Leder and colleagues’ model (2004) were related to paintings, or in general, visual arts (e.g., visual complexity, color). Moreover, social factors and mood were also studied with paintings, too. However, aesthetics includes other types of arts, namely auditory and performance arts. We are not sure that these factors are valid in these other domains because the current literature mainly focused on visual arts. Thus, we should investigate these factors in other domains of art.

#### *Social Conformity*

Conformity can be defined as “the act of changing one's behavior to match the responses of others” (Cialdini & Goldstein, 2004, p.606), and this phenomenon is one of the most important research areas in social psychology. In this line of research, one of the most influential studies was Solomon Asch’s study (1951). In this study, the participants were shown a line and they were asked to decide which line has equal length with the first line shown, among three lines. The results of this study showed that even though the task is easy and obvious, some people answered the questions wrong owing to confederates’ wrong answers. In other words, the judgments of other people have a significant effect on our own judgments. Thus, this finding resulted in a detailed examination of this conformity phenomenon.

After finding the effect of others on our judgments, researchers try to understand how and

why this process happens. For instance, Asch (1951) was also interested in the individual differences in this conformity issue. He observed that conforming to a group is related to a variety of psychological conditions, and personal characteristics. In addition, Asch (1951) indicated that there are also some external factors affecting the conformity. Results showed that majority and unanimous ratings have an influence on whether people conform to the group or not. This would suggest that there are both internal and external factors affecting when and how we conform to the norms of the group.

Most of the studies under the scope of social conformity attempted to explain the external factors affecting people's decisions. These external factors discussed in here are majority size (Asch, 1951), unanimity (Asch, 1951), group size (Nordholm, 1975) the agents in the group (Hertz & Wiese, 2016), and characteristics of task and stimulus (Deutsch & Gerard, 1955; Geller, Endler & Wiesenthal, 1973; Nordholm, 1975; Hertz & Wiese, 2016). The first four factors are about the characteristics of the group. For example, unanimity means whether all group members answer the same or not, and it was found that when the group was unanimous, the person would conform more (Asch, 1951). Also, even if the agents of the group are robots, the conformity effect may be seen (Hertz & Wiese, 2016).

There is also the effect of task and stimulus characteristics on conformity. For instance, people who are competent on the task tend to conform less (Geller et al., 1973). Stimulus or task ambiguity can be the other example of external and task related factors. For instance, Hertz & Wiese (2016) found that ambiguity has a main effect on conformity. This means that people conform more when they are under ambiguous situations. This inference is very intuitive because in ambiguous situations we cannot be sure that we are right, so we may need to compare and adjust our judgments with others' judgments. This kind of reasoning is in line with the Social Comparison Theory (Festinger, 1954), suggesting that people compare their own evaluations with someone else's evaluations in order to understand how they are accurate in their evaluations.

In general, the literature on conformity investigated the effects of the groups more than the personal variables. However, these personal variables may also be important in our decision-making processes, meaning that some specific characteristics of a person may predict the person's conformist behaviors. For instance, people with lower self-esteem were found to conform more than people with higher self-esteem (Baumeister, 1982). These personal variables may be more important in some specific tasks such as subjective evaluations.

#### *Ambiguity Intolerance*

Ambiguity intolerance refers to "the tendency to perceive ambiguous situations as sources of threat", and tolerance of ambiguity means "the tendency to perceive ambiguous situations as desirable (Budner, 1962, p.29). As it can be understood from these definitions, this variable is a personal characteristic which is generally related with a present task or a stimulus (Grenier, Barrette & Ladouceur, 2005). This notion can be confused with the notion of uncertainty which is related with the difficulty of estimating what happens in the future (Grenier et al., 2005).

Ambiguity intolerance includes three main components according to Budner (1962). These three components are novelty, complexity and insolubility. Budner (1962) argued that people's attitudes towards novel and complex situations, and the low possibility of fully achieving something can predict how much people can tolerate ambiguity. To illustrate, some people prefer the options that they are used to but other people like the novel options. This is an example of how people differ in ambiguity preferences because novel situations are ambiguous. Complexity is another important component of ambiguity intolerance because complex situations are hard to analyze and face with, they are multidimensional situations in which we are lost. That is why complex situations are also related to ambiguity. Last component is insolubility which refers to the situations where we cannot come up with a definite and a mere way of explanation.

There are several studies which use this notion of ambiguity intolerance. One of the areas that this concept is studied was the occupational role stress (Frone, 1990). The result of this meta-analysis

study showed that there is an interaction between role ambiguity and ambiguity intolerance on their effect on role stress (Frone, 1990). It can be inferred from this study that people who cannot tolerate ambiguity, get more stressed when their occupational role is ambiguous. We may generalize this finding to other ambiguous domains or tasks such as art, as a new domain which was preliminarily introduced by Muth et al. (2015).

### *The Present Study*

The present study will examine the effect of “presented unanimously low- or high-quality ratings of three would-be previous raters” (Hesslinger et al., 2017) on people’s ratings of a dance video by considering people’s ability to tolerate ambiguity. In line with this, our first hypothesis is that downward conformity pressure will direct people’s aesthetic judgments towards a negative way. Secondly, people who have a higher ambiguity intolerance will show a higher rate of conformity during their aesthetic evaluation process. We choose dance videos in order to investigate these hypotheses because evaluation of performance arts have never been investigated. Also, we believe that dance is an ambiguous stimulus because it does not contain apparent semantic meaning (Leder et al., 2004). As previous literature suggested, people conform to the group more when the stimulus is ambiguous (Nordholm, 1975; Hertz & Wiese, 2016). Also, we add a personal factor called ambiguity intolerance to this process because there was a moderating effect of ambiguity intolerance on role stress (Frone, 1990). Thus, we argue that people who cannot tolerate ambiguity, will conform more to the others’ evaluations in order to reduce the stress of ambiguous situations.

## Method

### *Participants*

The sample for this study was Koç University students who did not have any difficulty in reading in and comprehending Turkish. All participants had intact visual abilities. Our sample consisted of 90 randomly selected participants from different locations at the campus. They participated in the experiment on a voluntary basis, they did not receive anything (e.g. course credit) in return. The

number of female students participating in this study was 49, and the number of males was 41. The participants’ mean age level was 21.76 (SD = 1.72, range: 18-32 years). Then, we randomly assigned them into three experimental groups; 30 participants in each group (upward, downward, and control).

### *Measures/Materials*

The aesthetic judgments of the participants are measured by their ratings on a video of a tango performance. The stimulus was chosen as a tango performance, since it is an ambiguous stimulus for many people who have no specific knowledge or training. The video was chosen based on a previous survey that we conducted among 52 participants. We made sure that the stimulus that we were choosing was being rated as an average performance in terms of its aesthetic properties. We wanted to get the video which had been rated as an average (about 5) in order to have an equal range for both downward and upward conformity effects. The ratings were given on a Likert-type scale out of 10. The video lasts 1 minute displaying a tango dancing couple.

In order to manipulate conformity pressure across the experimental and control groups, we provided three excel sheets which were displaying three fake previous ratings. These ratings were either unanimously low or unanimously high for two experimental conditions. The control group did not see any previous ratings, but they also had an excel sheet open while they were watching the video (see Figure 1 for the visual display of the video and the rating sheet).

We used ambiguity intolerance scale (Budner, 1962) to measure the participants’ level of intolerance to ambiguous situations. This Likert-type scale consists of 16 items and 3 subscales, which are insolubility (3 items), complexity (9 items), and novelty (4 items). The reliability coefficient was reported as .49 for the overall scale (Budner, 1962). To assess the participants’ perception of the dance video as being ambiguous, we only considered their insolubility scores because it was related with content we wanted to assess. However, the subscale contains only three items and its reliability coefficient was not reported. As our

participants were all Turkish speakers, we used the translated version of the original scale. The items translated into Turkish with a back-translation procedure by authors because the scale has not been utilized in a Turkish sample.

In order to control for some potential confounders, we also collected data about the participants' current mood, demographic, specific training and perceived knowledge on dance/tango. To assess their positive or negative affect, we used Positive Affect Negative and Schedule (PANAS) (Watson, Clark & Tellegen, 1988), (see Appendix B for the scale). To obtain information about participants' demographics, specific training and perceived knowledge on dance/tango we formed a short end-test questionnaire.

### Procedure

Before creating the experimental design, we conducted a survey to determine our dance video as an ambiguous stimulus ( $N = 52$ ). The survey asked for ratings of three dance performances (see Appendix D for the links of the videos) which we expected to be rated as average. The aim of this questionnaire was also to collect some basic information about people's rating process before we started this experiment, and to determine the average rating of the video when there is no social conformity pressure. These were used for determining the 3-would-be participants' upward/downward effect in experiment. We selected the video which had the most moderate (closest to 5) level of rating, according to the variance, which represented ambiguity of the tango performance ( $M = 5.29$ ,  $SD = 2.21$ ). The other two videos were rated as higher than our criteria ( $M_1 = 7.30$ ,  $SD_1 = 2.03$ ;  $M_2 = 6.63$ ,  $SD_2 = 1.90$ ).

The participants (90 Koç University students) were assigned randomly to one of the two experimental or the control condition before they came in for the experiment. At the beginning of the experiment, participants signed the informed consent form and started with the PANAS scale which we used to observe if momentary mood had effect on conformity. Then, according to their assigned condition, we opened an excel sheet which

shows 3-would-be-previous ratings (upward or downward pressure effect) or no previous ratings (as control group). In addition, all participants were given the same ID number (D1P16) to increase deceptiveness. Participants were not allowed to scroll the excel sheet up/down. Then, they were asked to watch the video and rate it at the end. They typed their ratings to the excel sheet that was already open on the screen. The video and the excel sheet were opened together on the screen, in order to watch the video and see the previous ratings (if they were in one of the experimental groups) at the same time. For the control group, the screen presentation was the same except from the 3-would-be-previous ratings. Finally, they were given the tolerance of ambiguity scale and the end-test questionnaire.

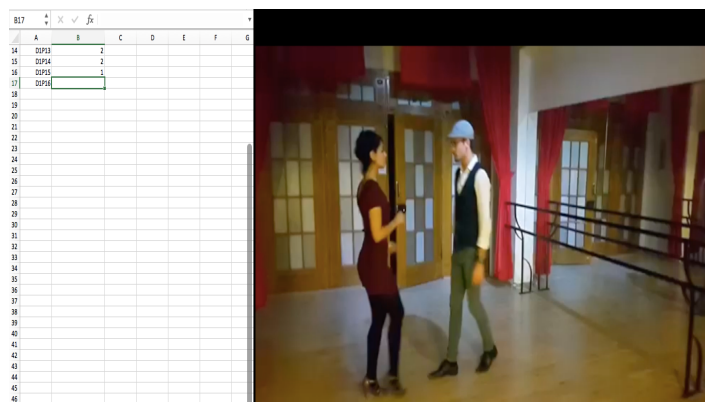


Figure 1 - Visual display of the video and the rating sheets in the downward conformity pressure group.

### Results

Prior to the main analyses, we investigated whether there are baseline group differences. Since we had a marginal sample size, we did not directly assume a perfect randomization, but we had to ensure that we achieved a baseline balance across the experimental groups. In order to do that, we determined the factors that may alter the individual ratings of the aesthetic judgment on the dance performance. To assess if the three experimental groups differed significantly among these criteria, we conducted one-way independent sample analysis of variance (ANOVA) for each type of these scores. The results showed that the three experimental groups did not differ significantly, in terms of positive ( $F(2,87) = 1.90$ ,  $p = .16$ ) and negative affect

scores ( $F(2,87) = 1.02, p = .37$ ), age ( $F(2,87) = 1.04, p = .36$ ), dance training ( $F(2,87) = 2.53, p = .09$ ), tango training ( $F(2,87) = .13, p = .88$ ), self-evaluation scores of dance knowledge ( $F(2,87) = .44, p = .65$ ) and tango knowledge ( $F(2,87) = .23, p = .79$ ). In addition, the three groups did not differ significantly in terms of sex ( $\chi^2(2) = 2.51, p = .29$ ). In line with these analyses, we concluded that they had a baseline balance in terms of all these listed variables. Thus, we did not control for these factors in the main analysis.

Furthermore, regarding the procedure of rating the dance performance, we expected to detect an effect of positive or negative affect scores of the participants on the ratings indicating their aesthetic judgement. To assess this predicted effect, we looked up for the correlations between positive affectivity score (PAS) and rating, and also between negative affectivity score (NAS) and rating. The results of the Pearson's correlation indicated that there was no significant correlation between PAS and rating ( $r(88) = .06, p = .56$ ), and also between NAS and rating ( $r(88) = -.14, p = .20$ ). Therefore, we did not include the positive and negative affect scores in the main analysis.

Next, we analyzed whether there was a significant main effect of sex on the rating of the dance performance. Results of the independent samples t-test indicated that there was not a significant difference in terms of the ratings between males and females,  $t(88) = .24, p = .39$ . From the preliminary analysis, we had also stated that sex was one of the factors which were randomly assigned to the experimental groups, so that it would not be a confounder within the main analysis.

The main statistical analysis of the experiment was based on the relation between the insolubility scores of the participants, the experimental condition in which they encountered the social pressure effect (upward, downward, or control), and their ratings (aesthetic judgement) on the dance performance. We conducted a two-way independent sample analysis of variance (ANOVA), with the insolubility level and the experimental condition type as the between subject independent variables, and the ratings as the dependent variable. Before conducting the main statistical analysis, the

last step needed was to convert the insolubility scores of the participants into a categorical variable stating the level of their insolubility. The descriptive statistics presenting the distribution of the insolubility scores indicated that the scores have the range of 4 to 19, with a median of 12. Thus, the categorical variable of insolubility level was defined with a median split, as consisting of two levels: high (for the range 13 to 19) and low (for the range 4 to 12).

The results of the 3 X 2 factorial between subject ANOVA revealed that the main effect of the condition type on the ratings was significant,  $F(2, 84) = 15.68, p < .001$ , which implies that the mean level of ratings significantly differed according to the experimental condition type. The ratings of the participants who served under the downward condition ( $M = 3.36, SD = 2.17$ ) were significantly lower than the ratings of the people who served under the control ( $M = 5.41, SD = 2.13$ ), and upward conditions ( $M = 5.97, SD = 2.12$ ). On the other hand, the results indicated that there was not a significant main effect of the insolubility level on the ratings,  $F(1, 84) = 1.17, p = .28$ , which implies that the mean level of ratings did not significantly differ according to the insolubility levels of the participants. Next, we analyzed the results to assess the effect of interaction between the variables of insolubility level and condition type on the ratings of aesthetic judgement. However, the results revealed that the interaction effect was not significant,  $F(2, 84) = 0.55, p = .58$ . In other words, the differences among the condition types do not depend on the insolubility levels of the participants (see Figure 2 for the interaction plot).

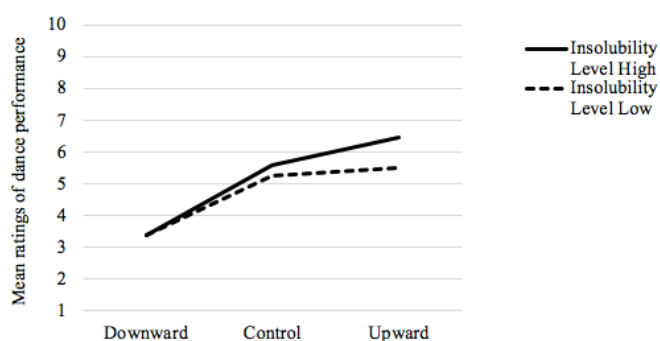


Figure 2 - Participants' mean ratings under the three conditions, given their levels of insolubility intolerance.



## Discussion

This study investigated the effect of conformity pressure and intolerance of insolubility on people's aesthetic judgments. The statistical findings of our study suggested that people were affected by other people's subjective evaluations particularly if these evaluations were more negative. On the other hand, presenting the higher previous ratings did not create a significant effect; those participants in the upward condition did not display a significantly increased rating trend. In addition, people's ability to tolerate insolubility was shown to have no association with their aesthetic evaluations. Although there were some differences among insolubility tolerant and intolerant people's conformity levels under the upward condition, the effect was not significant.

Our first hypothesis was supported with the empirical analysis. As we expected, there was a significant effect of conformity pressure, such that downward conformity pressure led people to evaluate the dance performance towards a negative way. These empirical findings confirmed our hypothesis and the previous literature. As in Hesslinger et al (2017)'s study, we could not find any effect of upward conformity pressure. This difference between the effects of upward and downward conformity pressure is not in line with the theory of social comparison (Festinger, 1954). According to Social Comparison Theory, we should have found an effect of both upward and downward pressure. However, the reason why we have found a significant effect of only downward pressure may be that people avoid deviating from others' evaluations when there is a common social negative perspective, however they could not hesitate to express their negative judgments when the others' perspectives are more positive.

Our statistical findings did not support our predictions about the interaction effect of insolubility level and conformity pressure. The intuition behind our prediction, which was also supported by the literature, was that as especially particular forms of art do not present a semantic meaning, the creations of art are ambiguous subjects for the people who try to interpret them. So that they

will have the need to rely on others' evaluations especially when they do not have the sufficient ability to tolerate this level of ambiguity. Thus, directly rejecting this intuition with these statistical findings will be misleading. The reason why we did not find an interaction effect can be due to a limitation of measure. As we assessed people's insolubility level with a three-item scale, the insolubility scores may be insufficient to capture this insolubility level.

The literature on aesthetic judgments mainly relied on paintings as their stimuli. But paintings are visual arts and visual arts are different from performance arts such as dance in terms of decision-processes. For instance, the aesthetic judgment model includes perceptual characteristics, which are different in visual and performance arts (Leder et al., 2004). Thus, this model may not explain the evaluation process of performance arts. Our study, in comparison with Hesslinger et al (2017)'s study, suggested that the process of evaluation is similar. In addition, with replicating this study, we can conclude that social factors affect aesthetic judgments as Eaton (1995) argued. The other contribution of this study is that we investigated the effect of insolubility intolerance as a moderator. This might provide a new perspective to the current literature on conformity.

These empirical findings suggest further implications for the real life. With this study, it was again observed that people's judgments may change in the presence of others, especially when it comes to decision-making in ambiguous situations (e.g. artworks). People make more polarized evaluations of an artwork even though they would have judged the same artwork as moderate if they were making the decision alone. For instance, we encounter situations such as a group, or a committee evaluating an artwork. In order to make sure that the evaluation process is fair, they should first present their individual opinions both anonymously and simultaneously. Then the next step can be gathering the individual opinions to come up with a final decision.

There are some limitations of this study which needs to be considered while interpreting the data. As we have limited amount of time, we



selected our sample from a particular university in Istanbul, Turkey, and we limited the sample size to 90 assuming that we would have a large effect size. These are threats to both internal and external validity. Because we had a low sample size, we might have been unable to detect some of our hypotheses even in truth they existed. Furthermore, because our sample is not representative, we cannot generalize our findings to all people.

Although assessing the insolubility factor as a contribution, it needs further improvement. A more reliable and valid way of assessing it can be suggested for future research. In addition, another suggestion for further research can be providing new ways of integrating the conformity pressure in the experiment. This may be achieved by using confederates, instead of just using a virtual way of presenting social perspective. With these improvements, we might be able to observe the relationships which were remained insignificant in this study.

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## Partner Selection: In the Context of Personality Characteristics and Social Influence

Beril Can, Selin Öykü Gergeri, Pınar Olgun  
*Koç University*

**This study investigates the partner preferences in relation to personality characteristics and social influence. We ask whether (1) personality characteristics, especially extraversion, affects the potential partner selection of individuals and (2) whether social influence manipulates and alter the individuals' partner preference when the personality characteristics like extraversion are taken into account. Individuals will be less likely to choose partners who are similar to themselves when the potential partner is not validated in society. The validation of the potential partner by the society will influence the mate selection of individuals such that people change their partner preferences with social influence. One-hundred and seventeen participants aged between 18 and 25 who were assessed on their extraversion were asked to determine their preferred partner. According to their extraversion levels, it was found that regardless of the social influence, extraversion levels affected partner preferences. The current study focusing particularly on extraversion showed that people choose partners who are similar to each other.**

**Keywords:** *Social influence, personality characteristics, extraversion, mate selection, similarity*

Do we always prefer partners who are similar to ourselves? Do we tend to be influenced by the society before choosing a potential partner? When considering the partner preferences, previous research mainly focuses on personality characteristics. Personality is indeed a very important concept in partner preferences and desires since relationships depend upon harmony and balance (Ross, 2018). Thus, the concordance between the partners' personalities establishes this harmony. According to the "similarity-attraction hypothesis", individuals feel most attracted to potential partners who, in important domains, are similar to themselves (Lucas, Wendorf, and Imamoglu, 2004). Similar individuals are assumed to be attractive because they validate our beliefs about the world and ourselves and reduce the risk of conflicts (Morry and Gaines, 2005). Ross (2018) carried out a study with 114 undergraduate participants and found that extraverted people were more interested in extraverted people, however, they have found that introverts were attracted in both introverts and extraverts. Hence, this tells that people can be attracted to the ones who are similar or dissimilar to themselves. This is supported

by the "complementary hypothesis" where individuals are attracted by potential partners when their characteristics are different from theirs as those characteristics complete their missing traits (Antill, 1983). Evolutionarily, people have a tendency to choose a dissimilar mate to complete them which eliminates the possibility of producing inbred offspring (Dijkstra and Barelds, 2008). This can be explained by the self-expansion theory where the individual expands herself/himself through the relationships with others. Aron and Aron (1997) concluded that this model explains why people may be attracted to dissimilar potential partners, and one of the reasons they talk about is that individuals want to grow and enhance themselves by adapting the characteristics, beliefs, and views of their partner to themselves. Furthermore, Whyte and Torgler (2017) stated that people's potential partner preferences in terms of personality are prone to fluctuate due to different factors. Having said that, when people are subjected to social influence, their potential partner preferences might be altered. Therefore, when people are manipulated through social influence, they are expected to make their partner preference

accordingly, regardless of their extraversion or introversion. We ask whether the partner preferences are affected by social influence, regarding the extraversion levels.

### *Social Influence*

Social influence, which is an essential subject of social psychology, is a process where people's behavior, thoughts, and judgments affect thoughts or feelings of others and change their behavior accordingly (Leenders, 1997; Turner, 1991). According to the social proof principle, if someone or something is liked and accepted by the majority, people perceive it to be preferable and more attractive (Cialdini, 1984). Turner (1991) states that people rely on the normative consensus of the groups so that they can accomplish a valid reality and social identity with the consensus correspondingly. In a study that was following Japanese Quail, a type of bird showed that females were more likely to choose males that they have observed mating with other females. White (2004) explained it by saying that this was due to the fact that those males were validated by others and were fitting. This shows that the roots of social influence go beyond humans and are deeply ingrained for many species. One form the effects of social influence gets is conformity. Conformity is described as the act of changing one's behavior in accordance with the responses of others (Turner, 1991). One of the motivational aspects of social conformity is the goal of accuracy. Individuals tend to look for valid information in an ambiguous situation (Cialdini, 2004). Self-blame seems to be another factor that contributes to conformity. More a person transgresses from the majority of a group, more self-blame he or she feels (Burn, 2005). Even though conformity is related to achieving accuracy, that's not what happens sometimes (Cialdini, 2004). According to a study by Burn and Ward (2005), when the level of conformity to the norms of masculinity rises, relationship satisfaction decreases. Also, as can be seen from the famous experiments of Asch (1935) and Zimbardo (1971), social influence and conformity may lead to wrong decisions. In our study design, we presented this information by expressing the partner's position regarding validation by society.

### *Personality*

One's personality consists of combined traits in describing the character (Revelle, 1995). Previous studies show that personality traits are one of the factors that contribute to mate preferences (Botwin, Buss & Shackelford, 1997) and they determine or alter one's behavior (Revelle, 1995). According to Kazdin (2000), personality characteristics are assisting and responsible for individuals' behavior, thinking, and sensations. Also, they play an influential and critical role in partner selection, for instance, Botwin (1997) found that satisfaction in a marriage is associated with the personality of partners. Therefore, personality characteristics affect one's perceived attraction towards the potential partner when making a selection.

The Big Five Personality characteristics are used to examine and interpret personality. This approach offers five domains of personality; openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (Goldberg, 1990). In the current research, we have focused on the extraversion personality type based on the previous research carried out in mate selection. Extraversion is a dimension; thus, people can be high or low on extraversion. People who are high on extraversion are objective thinkers (Jung, 2016), sociable, talkative, and energetic (Revelle and Wilt, 2016). On the other hand, people who are low on extraversion, known as introverts, are more subjective thinkers (Jung, 2016), not active communicators, not very social, good listeners and observers (Zelenski, Sobocko, and Whelan, 2013). According to Eysenck (1981), extraversion is commonly used in mate selection literature, that is why we have only focused on this dimension.

### *Mate Selection*

One of the most well-documented theories of human mating is that similarity attracts, that people choose mates that are similar to themselves. (Buss, 1985; Thiessen & Gregg, 1980) This theory was supported by many research showing similarities in terms of age, height, weight, ethnic background, socioeconomic status, and many other aspects. (Botwin, Michael D. et al, 1997). According to the similarity-attraction hypothesis (Byrne, 1971; Walster & Berscheid, 1969), individuals who are

extraverted will prefer extraversion as a trait in their mate preferences. However, the previous research findings regarding the two personality aspects, extraversion and neuroticism do not show such an effect. (Eysenck, 1981) In fact, when it comes to personality, there is little evidence supporting the similarity-attraction hypothesis. Based on this Eysenck (1990) concluded "mating is essentially random for personality differences." On the other hand, J. K. Antill (1983) concluded that individuals are attracted by potential partners when their characteristics are different from theirs as those characteristics complete their missing traits and this is called the "complementarity hypothesis" which is what we are expecting to observe because people might choose dissimilar partners under the manipulation of social influence.

According to Gebauer (2012), the similarity-attraction hypothesis is true to a certain extent but that personality factors such as agency and communion have a strong effect that manipulates the results. People high on communion prefers people similar to themselves (also high in communion) only when that trait is the preferred trait in the community, and prefer people who are high on the agency if that is the preferred trait because of their tendency to fit in. On the other hand, it is the opposite for people who are high on the agency, they prefer people high on agency or communion if those are not the preferred traits in the society because of their tendency to stand out and swim against the norms. In this experiment, similar results were expected but instead of agency and communion, extraversion and introversion were used as a personality dimension.

#### *The Present Study*

The present study examines how extraversion/introversion characteristics of people affect their evaluation of the potential partners under social influence. We investigated the role of social influence regarding the personality traits of individuals that were being manipulated. The research addressed whether social influence would change or affect the mate selection choices of people that were also dependent on their personality traits. The existing knowledge in the field is that people would choose individuals who have similar characteristics to themselves, however, with our

research, we would show that partner preferences might be affected and shaped by social influence. We examined whether people change their expected decisions about a preferred partner if they are told one of the two partner choices is validated by society. This is tested because people tend to pay attention to the consensus among society before making a choice and prone to change their choice accordingly. This research investigates that a similar scenario can be seen in the process of potential partner preference; therefore, we believe that social influence might confute the "similarity-attraction hypothesis". Accordingly, extraverted people will choose the introverted partner if the person is validated by the society and introverted people will choose the extraverted partner if the person is socially validated. Thus, in the case of validation people will choose the dissimilar partner.

## Method

### *Participants*

The sample consisted of 122 Turkish Koç University undergraduate students and other healthy volunteering participants. All of the participants were volunteers. 4 of the participants were excluded due to incompleteness of the Big Five Inventory test and 1 participant was excluded for not choosing the preferred partner. The final sample consisted of 117 participants (60 females, 56 males and 1 unspecified) aged between 18-25. They were recruited randomly from an online student platform to represent the interested population. The link was sent to that platform for the participants to complete the survey. There were 39 participants in experimental group 1, 36 in group 2 and 42 in the control group. It was made sure that each participant only completed one research condition by asking them their university mail which remained private and was not published in the analysis.

### *Materials*

#### Big Five Inventory

In order to assess the participants' extraversion, the Big Five Inventory (John & Srivastava, 1999) was used. Since only Turkish participants are used, we have presented them with

the Turkish version of the BFI (John & Srivastava, 1999) which was developed by Sümer and Sümer (2005) (see Appendix A). Only the extraversion and neuroticism dimensions of the Big Five Inventory were used, and each dimension had 8 items, overall 16 items, that required a 5-point Likert-scale ranging from Strongly Disagree (1) to strongly agree (5) to be rated. BFI (1999) was made available to the participants via an online platform. Cronbach's alpha of internal consistency was .88 and the validity of extraversion was .94 for the extraversion dimension (John & Srivastava, 1999). Similarly, in the current study, Cronbach's alpha of internal consistency is found to be 0.84.

### Hypothetical Profiles

For establishing social influence, participants are provided with two hypothetical people where person A depicts the characteristics of an extraverted person while person B depicts the characteristics of an introverted person (see Appendix B). Revelle and Wilt's (2016) descriptions of extraversion and Zelenski, Sobocko, and Whelan's (2013) introversion characteristics were used. Both descriptions were translated into Turkish. After the administration of the descriptions, the participants were asked to choose one of the hypothetical people after being manipulated by social influence or did not receive any manipulation. The social manipulation was whether one of the hypothetical people were validated and accepted by the majority of the society. It was written at the end of the hypothetical person description whether they were validated by society. As can be seen in Appendix A, the hypothetical people were not describing specific individuals but described only extraversion or introversion level.

### *Procedure*

All of the groups and participants were presented with the consent form and reminded about their rights at the beginning of the online experiment. The experiment consisted of three different groups, experimental group 1, experimental group 2, and the control group where all of the Big Five Inventory items and the hypothetical people were given in the same order to all participants. In the first part of the experiment, participants in the experimental group 1

were asked to complete a survey that included the Turkish version of the Big Five Inventory test by Sümer and Sümer (2005) in order to have the assessments of their extraversion rates. The Big Five Inventory test included items from extraversion and neuroticism. Participants were asked to rate themselves by using the 5-point Likert scale, 1 being "Strongly Disagree" and 5 being "Strongly Agree". The reason we included another trait than "extraversion" is to minimize potentially biased perception. Some participants might have taken an extraversion test before, we did not want them to foresee the purpose of this study. Also, considering the previous literature, Extraversion and Neuroticism are the most investigated personality characteristics in partner preferences (Botwin, 1997). After the personality questionnaire, participants read the descriptions of hypothetical people and were asked to pick one of them which would have the characteristics of either extraversion or introversion with the information written that whether this person is accepted or not by the society. Participants were told that person A who had the extraversion characteristics were validated and approved by the majority of the society. The statement was used as a manipulation to see the effects of social influence on partner selection. Then, they were asked "Which one of the given people would you prefer as a potential partner?" where they have selected either person A or person B. What differs in the experimental group 2 was only that the participants were told the person B who had the introversion characteristics were validated and approved by the majority of the society. For the control group, no information about the validation was given in order to compare them to the experimental groups so that we could see the effect of the social influence. The order of the hypothetical people remained constant among the groups. The Big Five Inventory Test and questions were answered on participants' personal technological devices (either smart-phones or laptops), using Qualtrics. Also, participants were randomly selected and assigned to the groups and a single-blind test was adopted so that the participants were unaware of which group they were participating in. Participants were debriefed at the end of the survey about the actual aim of the study.

## Results

We first analyzed the participants' total extraversion level and compared their extraversion level with their preferred partner's extraversion level. Then, the two-way between-subjects analysis of variance was conducted to determine the effects of personality type and social influence on partner preferences. Independent variables were extraversion level and social influence which was manipulated by a written sentence that the hypothetical person is validated. Our dependent variable was the matching status of participants with their partner choice in terms of their extraversion level. A 2 x 3 Factorial ANOVA revealed that the main effect of the personality type on partner preferences is significant, controlling for social influence,  $F(1, 113) = 4.04, p = .047$ , which implies that preference of a possible partner significantly differed according to the personality type that is compared in extraversion levels. Individuals who were extraverts ( $M = .74, SD = .44$ ) picked extraverted partners more than introverts ( $M = .54, SD = .50$ ), thus, their personality and their preferred partners' personality matched

A 2 x 3 Factorial ANOVA revealed that the main effect of social influence on partner preferences is not significant, controlling for personality type,  $F(2, 113) = .641, p = .528$ , which implies that preference of a possible partner does not differ in relation to social influence. Moreover, Levene's Test of Equality of Error Variances is significant, therefore it is violating the homogeneity of variance assumption. The 2 x 3 Factorial ANOVA did not reveal a significant interaction between extraversion level and social influence,  $F(2, 111) = 2.10, p = .128$ , which implies that association of extraversion level with partner preference does not depend on social influence. Namely, no interaction effect was observed between the extraversion level and the social influence on the preferred partner.

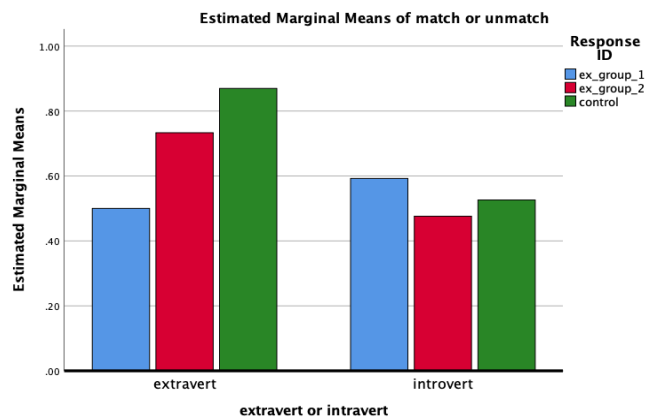


Figure 1 - Estimated marginal means of match or unmatched status of all groups, including experimental group 1, experimental group 2 and control group; separated by their personality type, either extravert or introvert.

50 participants were categorized as extraverts whereas 67 participants were categorized as introverts (see Figure 2). As shown in Figure 1, extraverted participants in the control group chose extraverts as a potential partner at the rate of approximately 85%, however, extraverted participants in the experimental group 1 and group 2 chose extraverts less as a potential partner, at the rate of approximately 50% and 75% respectively. 60% of introverts in the experimental group 1 chose introverted partners whereas approximately 45% of introverts in the experimental group 2 chose introverted potential partners. In general, person A, who was the extraverted hypothetical person, was the most selected from all of the three groups, at the rate of approximately 65% whereas the selection rate of introverted hypothetical person B is approximately 50% considering all of the three groups (see Figure 3).

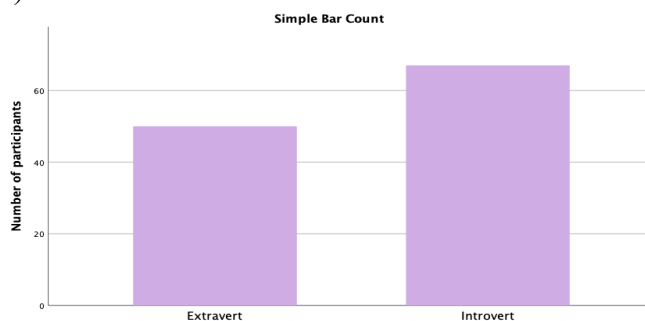


Figure 2 - Simple bar count showing the number of participants who are either extravert or introvert.

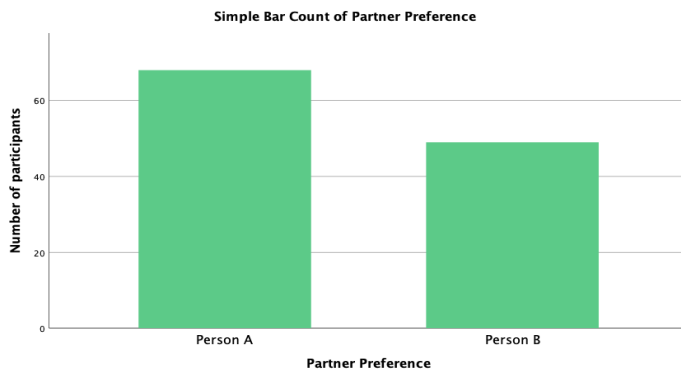


Figure 3 - Number of participants who responded on partner preference, either Person A or Person B.

### Discussion

In our study, we investigated the interaction between personality type and social influence on partner preference. The results of our study notably showed that there is a significant effect of extraversion levels on partner preferences. In other words, extraverted people prefer extraverted partners. This supports the similarity-attraction hypothesis which states that people choose mates that are similar to themselves (Buss, 1985; Thiessen & Gregg, 1980). Accordingly, in our study, people who were extraverts chose extraverted and people who were introverts preferred introverts as hypothetical mates. However, we found no effect of social influence on partner preferences. We expected that no matter what the personality type was (extravert/introvert) people might change their preferences if they were exposed to statements that show what the society in general prefers but found out that personality was, in fact, a stronger predictor for mate choices. At this point, our hypothesis expecting a significant interaction effect between exposure to social influence and the extraversion level on the partner selection is not confirmed. We found that: (1) there was a main effect of the personality type (i.e. the extraversion level) on the partner preference; (2) extraverted people preferred extraverted partners whereas introverted people preferred both introverted and extraverted partners; (3) there was not a main effect of the exposure of social influence (i.e. validation of the partner by the society) on the partner preference; and (4) there was no interaction between the extraversion level of the participants and the condition of validation (social influence) of the potential partner on the mate preference.

The “complementary-hypothesis” (Antill, 1983) suggested that individuals are appealed to the partners who are different compared to themselves in terms of personality. However, the current study demonstrated that individuals choose partners who are similar to themselves more, such that extraverted people chose extraverted potential partners. In this manner, “similarity- attraction hypothesis” (Lucas, Wendorf, and Imamoglu, 2004) is established and confirmed.

Overall, introverted people in all of the three groups matched to their preferred partner's personality type less. This means that introverted people in all conditions tended to choose both extraverted and introverted people as their potential partners. According to Star (1962), extraversion is recognized as an acceptable and attractive characteristic in the society, therefore, people tend to prefer extraverted partners more to conform to this idea. Hendrick and Brown (1971) conducted a research on interpersonal attraction and found that both extraverts and introverts prefer extraverted partners. This indicates that generally, introverts are more inclined to choose dissimilar partners which oppose the "similarity-attraction hypothesis".

One strength of our sample was that we did not include students from Koç University subject pool who are mainly psychology undergraduates and offered course credits for participating in the study. In our study, the participants were recruited from different departments and from outside of Koç University. Thus, we eliminated the possibility of a biased sample.

Both extraverts and introverts chose matching partners (extravert-extravert and introvert-introvert) less when they were told that was the validated choice by society compared to the other two groups. This can be explained in terms of Giskevicius's (2006) findings saying that people's tendencies to go along with or go against the norms or society's opinions may be due to two different factors, a motive to protect oneself and a motive to attract a mate. He concludes that people are more likely to go with what the society thinks is true when they feel they might get harmed, but they showed the opposite tendency when it comes to mate selection and attraction. Suggesting that a different mechanism of social



influence is present when it comes to mate preferences. This effect was stronger in extraverts which supports Gebauer's (2012) findings stating that people with traits closer to extraversion are more likely to go against the norms and society's ideals compared to people with traits closer to introversion. These findings suggest that mate preferences can get affected by other personality dimensions of the big five such as neuroticism, openness to experience, conscientiousness, and agreeableness or by other personality factor theories such as the big two (Gebauer, 2012). People who are similar in all of these dimensions might be better matches for each other and can show higher relationship satisfaction.

A limitation of our study is that participants' current relationship status was not questioned. Participants who are in a romantic relationship can have a biased approach to the last question of the study. When partner preference was asked, participants might have a tendency to relate the hypothetical characters to their current partner. Another limitation of our research is the fact that we used a survey instead of a laboratory setting, thus, this might have decreased our internal validity because we were unable to control for possible extraneous variables. People were instructed not to share the results or their thoughts with other people who might participate. However, still, some people took the survey when they were around other people who did not participate and that might cause the people to answer differently due to their expectations.

Further research is required as we have some limitations in our research, therefore, further studies can investigate the partner bias by considering the relationship status of the participants and additionally can include a different Big Five Personality test for the significant other. Also, a relationship satisfaction scale can be used to see whether the preferences actually predict better relationship quality. Additionally, this research should be replicated in non-Turkish and older samples in order to get reliable results. To increase internal validity, the study can be held in a laboratory setting so that any potential extraneous variables are controlled. Also, the effect of gender is not considered yet it may have caused an interaction effect between social influence and the extraversion level. Therefore, for further research

effect of gender and the relationship status of the participants should be acknowledged.

In conclusion, our study investigated the interaction between extraversion level and social influence regarding partner preferences. The results did not indicate a significant effect on the relation between the two variables, however, it showed that personality characteristics have a significant role in partner preferences regardless of social influence.

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## **A Scale to Measure Perceived Romantic Jealousy: Assessing Psychometric Qualities in a Turkish Sample**

Zekeriya Çağrı Saban, Esra Yavuz, Berfin Şahin and Furkan Taş  
*Middle East Technical University*

**Romantic jealousy is a complex combination of thoughts, emotions and behaviors resulting from a romantic interest. In the current study, we aimed to develop a new scale that measures perceived romantic jealousy from a partner. 41 romantic couples with more than six months of relationship history from Middle East Technical University have participated in the study. Before psychometric evaluation, we conducted an exploratory factor analysis (EFA) on the newly-developed scale. EFA results indicated that Perceived Romantic Jealousy Scale (PEROJE) consists of 3 factors explaining the 54.64% of the total variance in perceived romantic jealousy with an overall .74 Cronbach's alpha reliability. We assessed the construct validity of PEROJE with the Turkish adapted version Romantic Jealousy Scale (Demirtaş, 2004) at the convergent level and Turkish adapted version of the Short Form of Oxford Happiness Questionnaire (Doğan & Çötök, 2011) at the discriminant level. In order to assess concurrent validity, we used the Turkish adapted version of the Short Form of Perceived Relationship Quality Components Inventory (Sağkal & Özdemir, 2018). Results supported the discriminant validation hypothesis. There was no significant pattern between subfactors and convergent and concurrent validity measures. We discussed the possible limitations of the study and suggestions.**

**Keywords:** romantic jealousy, psychometric qualities, happiness, relationship quality

Besides its being a prominent phenomenon in the history of humans, jealousy has been widely investigated in the area of relationship research. From an evolutionary perspective, behaviors associated with jealousy, such as mate guarding and derogation of alternatives have always been observed following the inevitable pair-bonding formation between two individuals after homo sapiens have become bipedal species millions of years ago (Eastwick & Finkel, 2015). Given the fact that jealousy is as old as humanity itself, it has been widely investigated and characterized by its destructive negative aspects (Buunk & Bringle, 1987). Hence, the outcomes of jealousy research have diverse implications and there exist several associations in the context of romantic relationships such as relationship satisfaction (White & Mullen, 1989), attachment anxiety (Guerrero, 1998), rumination (Carson & Cupach, 2000), relational dissatisfaction (Guerrero & Eloy, 1992), and verbal and physical abuse (Barnett, Martinez, & Bluestein, 1995). With the evidence from the literature, it is important to understand the complex

nature of romantic jealousy and capture its components. Thus, it is essential to have measurement tools that are developed upon most recent findings since jealousy plays an important part in romantic relationships.

Considering the importance of jealousy, although being mainly characterized by its negative aspects, jealousy cannot be reduced to a single emotion or behavior as it takes different forms and consists of several negative components (Bringle & Williams, 1979; Buunk, 1984; Clanton & Smith, 1998). From a broader perspective, jealousy can be defined as a combination of thoughts, emotions and behaviors associated with the anticipation of a threat to one's self-esteem or close relationships as a result of the perceived or actual presence of a rival (White, 1981). Based on this definition, what conceptualizes jealousy is its three combining elements from three different domains: cognitive, behavioral and emotional. Emotional jealousy is characterized by the feelings of threat in presence of partner's emotional involvement with a third party (Guerrero, Spitzberg

& Yoshimura, 2004). Cognitive jealousy refers to one's negative thoughts that focus on other party's behaviors in a relationship, whereas there are many ways that behavioral jealousy is expressed, such as surveillance behaviors or aggressiveness towards a partner (Yoshimura, 2004). Moreover, several studies conducted to understand the nature of jealousy found common characteristics of jealousy such as emotional involvement with a third party (Guerrero, Spitzberg & Yoshimura, 2004), defensive reaction to a real or perceived threat to a close relationship (Bevan, 2004) and association with the separation from or perceived loss of a loved one (Sharpsteen & Kirkpatrick, 1997). Other than these, social psychological and evolutionary theories suggest that people react to the possibility of infidelity in ways designed to guard against threats posed by potential romantic rivals (Finkel & Eastwick, 2015). In that sense, jealousy is a necessary coping mechanism that aims to protect the relationship from outside threats. Thus, in all conceptualizations and definitions of jealousy, there exists an individual, a partner, a perceived or actual rival, reciprocal relationship and attachment between a dyad.

Following the conceptualizations of jealousy, several studies have been conducted to gain insight on the complex nature of the construct. In the context of attachment relationships, there are findings in the literature that are consistent with the attachment theory. Sharpsteen and Kirkpatrick (1997) asserted that anxious participants tend to resist expressing their jealousy related anger, avoidant participants tend to turn their jealousy related anger and blame against the interloper, and securely attached participants tend to express jealousy related anger toward the partner and to maintain their relationship. Regarding gender differences in romantic jealousy, White (1981) suggested that a positive relationship exists between jealousy, sex role traditionalism and the degree of dependence of self-esteem upon partner's evaluations, whereas the opposite relationship exists between jealousy and chronic esteem. White (1981a) added that a positive relationship exists between jealousy and dependence on the relationship for females. Unlike these findings, there are researchers suggests the benefits of jealousy. Sheets, Fredendall and Claypool (1997)

argued that a positive relationship exist between jealousy and long-term relationship stability. In another study Rydell, McConnell and Bringle (2004) asserted that higher levels of jealousy is associated with stronger relationship commitment. However, these findings refer to jealousy as a composite construct. Contemporary definition of jealousy requires a stronger insight into the components of jealousy.

How romantic jealousy is defined has crucial implications on the way that how it is measured. There is a general consensus on the definition and determinants of romantic jealousy that are cognitive, emotional, behavioral aspects and a potential threat from others. White (1981b) conceptualized romantic jealousy in a pattern that interrelates feelings, thoughts and actions of a jealous person in the presence of an actual or a potential threat from others. What this definition implies is we can think of jealousy as a result of complex combination of its three main aspects. Therefore, understanding the role of individual aspects is the key to understand romantic jealousy. Many studies have been carried out to investigate emotional, cognitive and behavioral aspects of jealousy. Andersen, Eloy, Guerrero and Spitzberg (1995) suggested that cognitive jealousy is a more potent predictor of relational satisfaction than emotional jealousy. In another study, Guerrero and Eloy (1992) argued that marital satisfaction was inversely correlated with cognitive, behavioral and emotional jealousy. Although the multidimensional nature of romantic jealousy is often emphasized, there is no contemporary scale available to provide a valid and comprehensive measurement.

Following the multidimensional definition and standard components of jealousy, two prevalent and distinct types were identified in the adult relationship context as well. The first one, sexual jealousy, emphasizes the cognitive, behavioral and emotional reactions when a significant other shows interest in another person in sexual terms (Buunk, 1987). On the other hand, a second and more comprehensive one, romantic jealousy is characterized by cognitive, behavioral and emotional reactions to perceived or real threats to self and attachment relationship together with the general characteristics of the sexual jealousy (White, 1981b).

In other words, romantic jealousy involves the nature of sexual jealousy and its unique aspects. The important point in discriminating between sexual and romantic jealousy is the perception of threat to self or a romantic relationship.

After distinguishing between sexual and romantic jealousy, it is important to address one critical aspect of romantic jealousy that goes hand in hand with its association with negative qualities (Attridge, 2013). People attribute negative experiences and outcomes to external factors and oppositely attribute positive experiences and outcomes to themselves in several contexts, including romantic relationships (Bauerle, Amirkhan & Hupka, 2002; Försterling, Preikschas & Agthe, 2007). Measuring romantic jealousy, which is mainly associated with negative experiences and outcomes, may lead to attribution biases in self-report. Thus, a one-sided measure of romantic jealousy between dyads may not yield reliable results.

#### *Previous Measures*

Romantic Jealousy Scale (ROJE), developed by Pines and Aronson (1983), is a rather old measure assessing one's romantic jealousy experience in overall terms from a unilateral perspective. It lacks psychometric evidence to support its validity and reliability; however, Demirtaş (2004) adapted the scale into Turkish and conducted the necessary psychometric evaluations. On five subscales with 129 items, the Romantic Jealousy Scale is a 7-point Likert-type scale that measures overall romantic jealousy level. Besides being the only option available in the literature, what original scale lacks are the theoretical and empirical background of romantic jealousy as well as the multidimensional nature of the construct, which were identified and emphasized by White (1981a). In Turkish literature, there are several studies conducted with that scale. Demirtaş and Dönmez (2006) proposed that there is no significant relationship between gender and self-reported romantic jealousy and suggested that married women report more jealousy than married men. In another study Sümer (2017) used ROJE and asserted that attachment anxiety positively and attachment avoidance negatively predicts romantic jealousy. Although the reliability and validity of the Turkish version of the scale turned out to be

sufficient, theoretical comprehensiveness of the original study remains inconclusive. Most of the other available measures in English follow a similar pattern with the Romantic Jealousy Scale that is the unidimensional approach to the construct irrespective of its complex and multidimensional nature (Mathes & Severa, 1981; Rusch & Hupka, 1977). Besides the incomprehensive theoretical background, Mathes and Severa (1981) asserted that the construct validity of the scale that they have developed is partially met while suggesting that men are more jealous than women. Moreover, no reliability information is available for these mentioned instruments. In conclusion, these measures fail to comprehend the recent advances in research on romantic jealousy that are its emotional, cognitive and behavioral aspects and implications. Hence, we aimed to develop a contemporary measurement tool that places emotional, cognitive and behavioral aspects of jealousy to the center. Example items from the scale were presented in the method section.

#### *The Aim, Scale Development and Hypotheses*

In light of the discussed content and findings, the current study attempted to fill the gap in the literature by offering a different measurement perspective on romantic jealousy that is expected to be more comprehensive, which assesses several components of the romantic jealousy. As far as we have found, the only existing scale of romantic jealousy in Turkish literature does not reflect the true nature and all dimensions of romantic jealousy and disregards its reciprocal nature, given the unidimensional structure of the scale. No scales have been developed or adapted into Turkish with an aim to understand and evaluate different aspects of jealousy. Furthermore, considering the recent advances in the psychology literature, the Romantic Jealousy Scale may not be able to capture and assess romantic jealousy and its components since it is developed before the dimensional understanding of romantic jealousy. Hence, a contemporary scale that comprehends romantic jealousy and its emotional, cognitive and behavioral aspects are necessary to understand and assess romantic jealousy better. Other than that, measuring one partner's jealousy from the perception of the other partner, which we call

'Perceived Romantic Jealousy' can lead to a more accurate assessment of romantic jealousy. What is unique about the newly-developed scale is its comprehensive approach to the construct of romantic jealousy and multidimensional structure. Furthermore, by taking a partner who is subjected to romantic jealousy in a romantic relationship into account, the reciprocal nature of romantic jealousy can be better understood. Thus, the primary aim of the study is enriching the domestic literature by developing a contemporary measure and by considering both partners' active status establishing a more accurate assessment method. The couple and family therapists can potentially benefit from the study as the target population is adult romantic couples in the light of the common characteristics of romantic jealousy regardless of culture (Bekman & Aksu-Koç, 2012).

In order to construct an item pool and develop a scale, we reviewed the related literature comprehensively. From the findings in the literature, we deductively produced items by embracing the contents related to the main domains of romantic jealousy as an individual concept with a multidimensional and reciprocal nature. The domains of romantic jealousy were addressed in the literature (White, 1981a) as discussed before and three domains; cognitive, behavioral and emotional romantic jealousy were identified. We have developed our items by referring to these three domains. Then, we gathered the items together, with a total of 24 items for three previously identified domains of romantic jealousy. We named this new scale with 24 authentic items "Perceived Romantic Jealousy Scale" (PEROJE).

To assess the convergent validity of PEROJE, we have used the adapted version of 'Romantic Jealousy Scale (Pines & Aronson, 1983) called 'Romantik Kıskançlık Ölçeği' by Demirtaş (2004). Although the Romantic Jealousy Scale possesses a unidimensional approach and does not reflect the multidimensional nature of romantic jealousy identified by White (1981a), they measure the same construct. Thus, we hypothesize that (Hypothesis 1), there will be a high positive correlation between the Romantic Jealousy Scale and PEROJE scores.

To assess the discriminant validity of PEROJE, we used 'Short Form of The Oxford Happiness Questionnaire' (Hills & Argyle 2002) which was adapted into Turkish and called 'Oxford Mutluluk Ölçeği Kısa Formu' by Doğan and Çötök (2011). Research on the relationship of romantic jealousy with different variables (Newberry, 2010) asserted that there is no identified relationship between happiness and romantic jealousy. Thus, we hypothesize that (Hypothesis 2), there will be no correlation or a low correlation between the Short Form of Oxford Happiness Questionnaire and PEROJE scores.

Finally, to assess the concurrent validity of PEROJE, we used the Turkish translated version of 'Short Form of The Perceived Relationship Quality Components Inventory' (Fletcher, Simpson & Thomas, 2000) called 'Algılanan Romantik İlişki Kalitesi Ölçeği Kısa Formu' by Sağkal and Özdemir (2018). Negative aspects of romantic jealousy include its relationship with the relationship quality. Romantic jealousy has a harmful effect on relationship quality in several contexts (Newberry, 2010). Thus, we hypothesize that (Hypothesis 3), PEROJE scores will significantly and negatively correlate with the scores from the Short Form of Perceived Relationship Quality Components Inventory. On the other hand, the contexts in which colors are perceived are also significant in terms of their effects. Since people process information according to concepts, their feelings, or past experiences, they attach meanings to colors in relation to their emotions, cognition, or the context in which they perceive those colors. Based on this, Elliot and Maier (2012) suggested that the effects of colors are context-dependent. They proposed that both meanings and effects of the colors, according to the color-in-context theory, are biologically based and related to their learned sources. Hence, this theory relies on two explanations; the evolutionary tendency to react to certain colors such as competitive acts in reaction to red stimuli (Hill & Barton, 2005), and the associative link system evoked by certain colors which is formed by repetitive presentation of a color in some context (e.g. mistakes marked with a red pen in educational settings) (Elliot, Maier, Moller, Freidman & Meinhardt, 2007) explaining the

biological and learning accounts of the theory respectively.

## Method

### *Participants*

41 native Turkish speaking heterosexual couples (N=82) currently enrolled at the Middle East Technical University volunteered to participate in the study. We applied an exclusion criterion of relationship duration and couples of more than 6 months of relationship history have participated in the study as attachment theory suggests that the clear-cut attachment phase begins at about 6 months of age in infants which signals the mere existence of the attachment bond between the infant and the caregiver (Bowlby, 1969). After Hazan and Shaver (1987) asserted that attachment styles, cognitive schemas and bonding mechanisms that are developed during infancy remain into adulthood, relationship duration cutoff of 6 months was used in several romantic relationship studies (Murray & Hazelwood, 2011; Vollmann, Sprang & van den Brink, 2019). While recruiting participants who fit the relationship duration criterion, we used a convenience sampling method. Furthermore, since our sample consisted of all heterosexual participants, we have an equal number of male (N<sub>male</sub>=41) and female (N<sub>female</sub>=41) participants. There were no drop-outs as we distributed our survey by hand and administered it to the participants directly by ourselves and no participant decided to quit. All couples filled out the survey simultaneously and separate from each other under the supervision of one of the authors with a paper-and-pencil method. These 41 couples (N=82) were from several different departments and different age groups with a mean relationship duration of 28.98 and a standard deviation of 20.59 months (M<sub>age</sub>=23.19, SD<sub>age</sub>=2.84, age range 19-34; 41 males, 41 females).

### *Measures, Materials & Procedure*

After receiving the ethical approval from the Middle East Technical University, all researchers distributed the survey by hand to the convenient heterosexual couples with more than 6 months of relationship history. After participants signed informed consent forms, they completed the scales in

the following order: Perceived Romantic Jealousy Scale (PEROJE), Romantic Jealousy Scale (ROJE), Short Form of the Oxford Happiness Questionnaire (OHQ), the short form of the Perceived Relationship Quality Components Inventory (PRQCI), demographics form with age, gender, department and relationship duration. Full participation in the study took approximately 15 minutes to complete. After the completion of the survey, all couples were debriefed about the aim of the study. Participation was voluntary and no incentives were made.

The first scale used to measure participants' perceived romantic jealousy from their romantic partners was our own Perceived Romantic Jealousy Scale (PEROJE). Participants rated the items 1-8 and 17-24 on a 7-point Likert-type scale ranging from 1 (never) to 7 (every time). The items 9-16 are rated on a 7-point Likert-type scale ranging from 1 (absolutely negative) to 7 (absolutely positive). The 8 items between 9th and 16th items are reverse coded. By using a 7-point Likert-type scale, we aimed to develop more accurate Likert-type items because the accuracy level decreases as the number of responses decrease below 5 or increase above 7 (Johns, 2010). Moreover, capabilities of the human mind are diverse such as absolute judgment span that enables humans to discriminate between seven different options, memory span of approximately seven items and attention span that covers six objects at once, which asserted that more than 6 options or responses might be frantic (Colman, Norris & Preston, 1997). Although these findings suggest that 5-point scales also offer accurate measurement, we chose 7-point items since these scales have been reported to give more accurate and stronger correlation results with t-test analysis. (Lewis, 1993). 2 example items in English are 'My romantic partner suspects that I like someone else.' and 'My partner asks questions about my telephone calls' and one reverse item in English is 'My partner thinks that someone of the opposite sex is trying to seduce me.'. The complete final form of PEROJE and related scale information are available upon request from the corresponding author.

The second scale used to measure participants' own romantic jealousy was the Turkish adapted version of the Levels of Jealousy subscale of the Romantic Jealousy Scale (Demirtaş, 2004); 22



items with a 7-point Likert-type scale (1 = not jealous at all, 7 = very jealous). The original scale in Turkish consists of 129 items in total with a .91 Cronbach's alpha and .72 split-half reliability. 2 example items in English with a response to the question 'How jealous would you feel under the circumstances below regarding your romantic partner?' are 'When my partner states that he/she likes a movie or TV star.' and 'When my partner forms a close friendship with someone of my sex.'

The third scale used to measure participants' happiness was Turkish-translated form of Short Form of the Oxford Happiness Questionnaire (Doğan & Çötök, 2011); 7 items with 5-point Likert-type scale (1 = completely disagree, 5 = completely agree) and a .74 Cronbach's alpha and .85 test-retest reliability. 2 example items in English are 'I do not have particularly happy memories of the past.' and 'I feel that life is very rewarding.'

The final scale used to measure participants' relationship quality was the short form of the Perceived Relationship Quality Components Inventory (Sağkal & Özdemir, 2018); with a .86 Cronbach's alpha and test-retest reliability of .81, consisting of 6 items with 7-point Likert-type scale (1 = none, 7 = very). 2 example items in English are 'How satisfied are you with your relationship?' and 'How committed are you to your relationship?'

In addition to the above-mentioned scales, all participants filled a demographic form that asks to report their age, gender, department, relationship duration, cohabitation status and cohabitation duration.

## Results

### Exploratory Factor Analysis

Before conducting reliability and validity analyses, we decreased the number of items with a primary aim to represent a sensitive measure and to obtain more accurate results from reliability and validity analyses. In order to reduce the item pool successfully, we analyzed and checked the data on whether it is suitable for an exploratory factor analysis application. Kaiser-Meyer-Olkin (KMO) value was .60, representing a weak and mediocre but acceptable fit for factor analysis (Tabachnick & Fidell, 2007; Kaiser, 1974). Despite the KMO value of .60 stands on the edge of factorability, Field (2000)

suggested that the floor cut-off criterion for factorability should be .50 and anything below that cannot be reduced into factors. Another criterion for factorability, which is Bartlett's test of sphericity, was also significant,  $X^2(276) = 753.715$ ,  $p < .001$ . Hence, these results indicated that the data matrix of our study is suitable for factor analysis. Since we did not make any predictions on the general structure of the construct, we conducted an exploratory factor analysis (EFA) with varimax rotation in order to see what factor lies under the participants' responses upon PEROJE items. We decided to retain or delete items in the matrix as with the following principles; Eigenvalues of greater or equal to 1.0 (Kaiser, 1961) and factor loading of minimum .40 (Brown, 2006). Besides, items with cross factor loadings greater than .40 on multiple factors were deleted. Related EFA results are given in Figure 1 and Table 1.

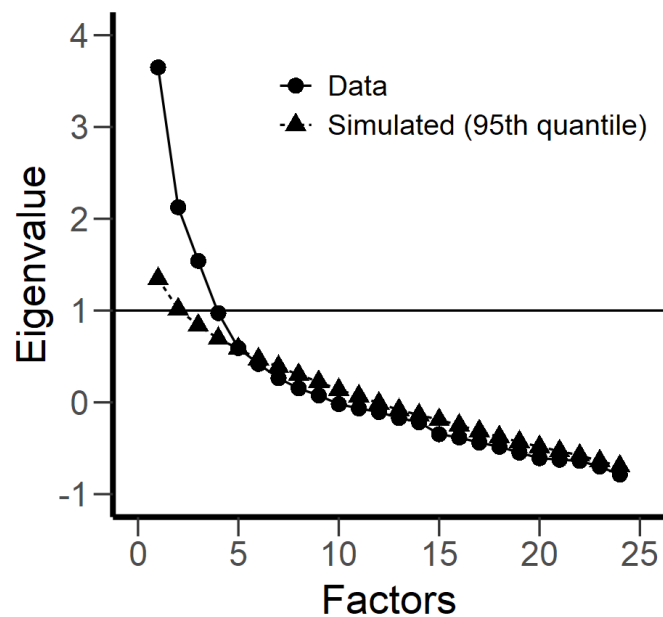


Figure 1 - Scree Plot of Exploratory Factor Analysis (EFA)

After the initial reduction of items based on EFA results, we deleted 8 items that could not satisfy the analysis criteria at first. 16 items were left in the scale, and depending on both the scree plot figure and the factor loading table (see Figure 1 and Table 1), we ended up with 3 factors explaining 54.64% of the total variance in the data. All bivariate correlations between the PEROJE factors were lower

than the cutoff criterion asserted by Tabachnick and Fidell (2007), which is .32

	<u>Behavioral</u>	Cognitive	Emotional	Uniqueness
Q9	0.762			0.418
Q10	0.648			0.576
Q11	0.524			0.668
Q12				0.811
Q13				0.850
Q14	0.554			0.691
Q15	0.582			0.649
Q16	0.747			0.429
Q1		0.472		0.762
Q2		0.751		0.387
Q3		0.618		0.554
Q4				0.879
Q5		0.696		0.468
Q6		0.664		0.494
Q7				0.899
Q8		0.563		0.597
Q17				0.843
Q18			0.443	0.755
Q19				0.932
Q20			0.776	0.372
Q21			0.770	0.401
Q22			0.694	0.457
Q23				0.958
Q24				0.972

Note. Applied rotation method is varimax.

Table 1 - Factor loadings of PEROJE items, including the deleted ones

### Reliability Analysis

Firstly, PEROJE turned out to be an internally consistent measure with a Cronbach’s alpha of .74. Factor analysis results indicated that PEROJE in itself does not possess a unitary construct with a three-factor solution explaining the 54,64% variance in the data. Factors’ internal consistencies as Cronbach’s alpha coefficients were ranging between .74 to .80. According to the naming of the factors based on their content; ‘Cognitive Jealousy’ factor has internal consistency reliability of .76, ‘Behavioral Jealousy’ factor has internal consistency reliability of .80 and ‘Emotional Jealousy’ factor has internal consistency reliability of .74 indicating that both on overall and factorial levels PEROJE is an internally consistent and reliable measure. As well as PEROJE and its

factors, ROJE and OHQ measures in the study were also internally consistent with Cronbach’s alpha values of .93 and .72, respectively. On the other hand, the PRQCI measure in the study was not internally consistent with a Cronbach’s alpha of .54.

	1	2	3
<b>Behavioural</b>	1.000	-	-
<b>Cognitive</b>	0.014	1.000	-
<b>Emotional</b>	0.026	0.027	1.000

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 2 - Factor Correlations of PEROJE

### Validity Analysis

For all the three hypotheses mentioned above, we used correlation analysis for each factor of the scale and the overall scale scores between the validity scales. All correlation analyses results are given in Table 3. Descriptive values and reliability score for each factor, overall scale and validity scales are given in Table 4, together with their internal consistency reliabilities.

Romantic Jealousy and overall PEROJE scores were not significantly correlated,  $r(82) = .098$ ,  $p = .38$ . This result provides no support for convergent validation for PEROJE (Hypothesis 1). Similarly, for factors ‘Emotional Jealousy’, ‘Cognitive Jealousy’ and ‘Behavioral Jealousy’ correlations were low and non-significant (in the same order;  $r(82) = .096$ ,  $p = .390$ ;  $r(82) = .019$ ,  $p = .863$ ;  $r(82) = .073$ ,  $p = .513$ ). These results indicate that our scale’s multidimensional nature did not

follow our first hypothesis for the convergent validation.

	1	2	3	4	5	6	7
PEROJE							
Cognitive Jealousy	0.475 ***						
Behavioural Jealousy	0.818 ***	0.032					
Emotional Jealousy	0.532 ***	0.139	0.144				
ROJE	0.098	0.019	0.073	0.096			
OHQ	-0.188	-0.036	-0.173	-0.120	-0.104		
PRQCI	-0.235 *	-0.171	-0.141	-0.164	-0.154	0.097	

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 3 - Correlation coefficients and significance levels for validity scales and PEROJE factors

Short Form of Oxford Happiness Questionnaire and PEROJE scores were not correlated significantly,  $r(82) = -.188$ ,  $p < .05$ . Thus, this result provides evidence for the discriminant validation of PEROJE (Hypothesis 2). Similarly, on the factorial level, results provide evidence for the discriminant validation as scores from all three factors ‘Cognitive Jealousy’, ‘Behavioral Jealousy’, ‘Emotional Jealousy’ and OHQ were not correlated significantly (in the same order of the factors;  $r(82) = -.036$ ,  $p = .75$ ;  $r(82) = -.173$ ,  $p = .121$ ;  $r(82) = -.120$ ,  $p = .283$ ) These results indicate that although discriminant validation of our scale was established.

	N	M	SD	Cronbach's $\alpha$
Cognitive Jealousy	82	8.18	3.19	.766
Behavioral Jealousy	82	26.29	6.01	.802
Emotional Jealousy	82	6.08	2.94	.742
Overall PEROJE	82	40.56	8.00	.748
ROJE	82	103.03	26.76	.931
OHQ	82	23.68	4.24	.723
PRQCI	82	39.36	2.29	.540

Table 4 - Descriptive Statistics for PEROJE, PEROJE subfactors and validation scales

Short Form of Perceived Relationship Quality Components Inventory scores and PEROJE negatively correlated significantly,  $r(82) = -.235$ ,  $p < .05$ . Hypothesis 3 for concurrent validation of PEROJE was supported by this result. Despite there is statistical significance for the concurrent validity

from the relationship between overall PEROJE and PRQCI, no significant correlations between factors ‘Cognitive Jealousy’, ‘Behavioral Jealousy’, ‘Emotional Jealousy’ and PRQCI have been observed (in the same order of the factors;  $r(82) = -.171$ ,  $p = .124$ ;  $r(82) = -.141$ ,  $p = .205$ ;  $r(82) = -.164$ ,  $p = .141$ ). Full correlations between each validity scale and factors have been presented in Table 3.

## Discussion

Romantic jealousy was defined in the literature as an adaptive and complex emotional state that follows threats to self-esteem or the existence or quality of the relationship (White, 1981a). According to the evolutionary perspective, human beings have been trying to find mates with traits that increase their chance of survival (Ward & Voracek, 2004). When they find partners, they tend to form a pair-bond (Eastwick & Finkel, 2015). Moreover, the presence of attractive alternative partners can pose a threat to love and pair bonds (Fletcher, Simpson, Campbell & Overall, 2015). Therefore, romantic jealousy can also be defined as a sophisticated reaction to the perceived threat by third parties, which would influence the relationship that is considered substantial (Pines, 1998). According to our literature review, the existing romantic jealousy scales assess whether individuals have any threats that may harm their relationship with their romantic partner (Aronson & Pines, 1983).

The purpose of the conducted study was to develop a scale to measure the perceived romantic jealousy of partners in terms of three different dimensions, which are behavioral, cognitive and emotional. As the existing romantic jealousy scales mainly measure the negative qualities of jealousy, the evolutionary perspective of jealousy, which supports the maintenance of relationship, was mostly ignored. Furthermore, these scales focus mainly on the behaviors of a romantic partner, which do not consider the cognitive processes of another partner who is subjected to these behaviors. What is unique about PEROJE and what it contributes to the literature is, taking the reciprocal nature of romantic jealousy into account as a newly developed measure.

We have found that as a result of factor and reliability analyses, PEROJE is an internally consistent scale, which is also supported by the item

reduction. Factor analysis results demonstrated that PEROJE consists of three factors, which are named according to their common characteristics by the authors: 'Cognitive Jealousy', 'Behavioral Jealousy' and 'Emotional Jealousy'. The range for Cronbach's alpha coefficients for factors was between .74-.80.

We have named our factors 'Behavioral Jealousy', 'Cognitive Jealousy', 'Emotional Jealousy', accordingly based on typical item content within each factor. Each factor represents different types of jealousy. Low scores in the 'Behavioral Jealousy' factor for a person represent the level of partner's jealousy in terms of his/her actions. An example item for the behavioral aspect is 'When I date someone with the opposite sex, my partner reacts.' Higher scores in the 'Cognitive Jealousy' factor for an individual represent how much partner's thoughts and ideas are high about his/her jealousy. An example item for it is 'My romantic partner suspects that I like someone else.' Higher scores in the 'Emotional Jealousy' factor for a person represents the partner's high level of emotional responses to the situations between two romantic parties. An example item for that factor is 'My partner asks questions about where I am.'

Obtaining expected EFA results was important since our primary aim was to make a contribution to the psychology literature through a multidimensional romantic jealousy measure. There are several relationships between subfactors of romantic jealousy and other psychological constructs. Moreover, the experience of jealousy and expressions of it takes place at different levels. Without a valid and reliable measure, proper assessment of romantic jealousy can lead to unsatisfactory results. Thus, our findings regarding the multidimensional nature of romantic jealousy suggest that romantic jealousy consists of three subfactors in line with the literature. Our study is a step to understand romantic jealousy and its subfactors better. Other than that, due to the stronger yet insignificant relationship between behavioral jealousy and ROJE scores, unlike the scores of emotional and cognitive jealousy, we decided to gather emotional and cognitive jealousy under the name of 'Implicit Jealousy' and keep behavioral jealousy under the name of 'Explicit

Jealousy'. We believe that this distinguishment can provide insight to the subject for further studies.

Our hypothesis for the convergent validity of PEROJE was not supported. We expected a significantly high correlation between participants' perceived romantic jealousy from their partners and their partners' own romantic jealousy based on research evidence from the literature. Yet, we ended up with inconclusive results for the relationship between PEROJE and ROJE and sub-factors' correlations with ROJE followed the same inconclusive pattern, which has led us to accept our inefficacy to establish the convergent validity of PEROJE. At the factorial level, behavioral jealousy shows a stronger relationship with the scores of ROJE compared to those of cognitive and emotional jealousy. This suggests that behavioral jealousy is more prominent and vividly experienced than emotional and cognitive jealousy. Since emotional and cognitive jealousy is implicit components of romantic jealousy, the difference between implicit and explicit jealousy experience is critical. A reason behind this result can be the differences in theoretical approaches. Although two scales aim to measure the same construct, their theoretical bases, item pool and comprehensiveness differ. We developed our scale to represent the three major components of romantic jealousy. On the other hand, ROJE is a unidimensional measure that is not developed upon up-to-date findings. Hence, we can acknowledge that these two scales are not expectedly similar in nature. Another reason can be cultural differences due to the rather collectivist culture in Turkey. Zandbergen and Brown (2015) suggested that collectivism and individualism predicts sexual infidelity ratings of jealousy and cultural values affects the way people express their romantic jealousy in a relationship.

Secondly, our hypothesis for concurrent validity was not supported. We expected a significant negative relationship between perceived romantic jealousy and perceived relationship quality. Although we found a significant negative correlation between PEROJE and PRQCI in line with the literature, correlations between factors and PRQCI did not yield significant results. Hence, concurrent validity of PEROJE was not established. This inconclusive result could be due to a need for revision



of the relationship between romantic jealousy and relationship quality. Either the related finding in the literature is faulty or the theory behind it should be revised and correlates should be re-investigated. We hypothesized the relationship based on empirical results. However, the results yielded the opposite besides PRQCI turned out to be below .70 internal reliability cutoff. Similar to the convergent validity results, social desirability bias could have interfered and participants may have provided biased reports due to the nature of relationship quality, social norms and expectations. Other than that, since the results are significant at the composite yet inconclusive at the factorial level, the relationship between emotional, cognitive and behavioral aspects of jealousy and relationship quality may need more attention. Romantic jealousy can be linked to relationship quality, but it is essential to be able to address the links between subfactors as well.

Finally, our hypothesis for discriminant validity was supported. In line with the literature, the results suggest that there is no significant relationship between the scores of PEROJE and OHQ. Similar to the composite scale, all subscales follow the same pattern. These results propose that in line with the studies on romantic jealousy and happiness, these two constructs are not correlated significantly. Furthermore, another proposition is that romantic jealousy does not necessarily produce outcomes that affect one's happiness and is not every time a harmful phenomenon.

The first limitation of our study was caused by the validity of the criterion-related scale (PRQCI) we used. Due to the moderate level of internal consistency of the scale, although our analysis has resulted in a significant relationship, our results were in the opposite direction compared to what we have expected. Moreover, as Newberry (2010) suggested, different forms of jealousy may change the direction of the relationship between relationship quality and romantic jealousy. Another limitation is in the sample size constraint. Using G\*Power (Faul, Lang & Buchner, 2007), which is a statistical analysis software capable of computing the required sample size for given statistical values for the selected analysis, we calculated a sample size of 115 individuals. Thus, together with the unrepresentative

nature, our sample was also not large enough to support our hypotheses. The third limitation of our study is the narrow perspective of our convergent validity scale. Since the subscale of ROJE, we considered jealousy as a unidimensional and negative construct. This non-inclusive nature of the scale might not have been shown a significant correlation trend with PEROJE items. Moreover, given the fact that the original scale was developed in 1983, ROJE may be subject to revisions or updates in terms of theoretical background and application purposes. The fourth limitation of the study is the lack of cross-cultural evidence. Most research on romantic jealousy has been conducted in the global west with WEIRD samples. Results of the current study may not be consistent with the existing literature in the light of individual cultural differences between the western culture and characteristics of our sample although Turkey is considered to stand in between west and east in cultural terms (Bekman & Aksu-Koç, 2012; Mayer, Trommsdorff, Kağıtçıbaşı & Mishra, 2012). Finally, the order of the scales was the same for every participant. Hence, without a counterbalancing application, a priming effect may have intervened with the results.

Our newly developed scale, PEROJE, is not ready to be used in research or application at this point yet. Still, PEROJE needs to be investigated by confirmatory factor analysis (CFA). For further studies, the current study might be replicated with a larger sample, more valid and reliable validation scales in order to get more representative and homogenous results. Moreover, a preliminary study should be carried out in order to detect jealousy-provoking situations better. Building on the results, the preliminary study item pool can be revised. Another suggestion is measuring social desirability. Although we accounted for this phenomenon, future studies should control for social desirability and investigate its relationship with romantic jealousy. Last but not least, detailed research on the correlates of romantic jealousy with respect to its dimensions is required to validate a potential future development of a romantic jealousy scale

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