# Effects of Gender Stereotype and Ambivalent Sexism on Spontaneous Trait Inferences

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**Abstract**
Spontaneous trait inferences (STIs) refers to the process of forming impressions of others based on their behavior without awareness, intention and control, encompassing both the immediate activation of traits upon observing behavior (activation) and their storage in long-term memory (binding). Although considered automatic, evidence suggests that people tend to make STIs influenced by their cultural environement and in alignment with adopted stereotypes. This experimental study aims to investigate the effects of the gender of participant, gender stereotypes, and various dimensions of sexism on binding phase of STIs. The study employs Ambivalent Sexism and False Recognition Paradigm, presenting participants with face photos and trait-related sentences during the study phase, and subsequently testing their ability to recognize whether presenting trait words were part of the earlier sentences associated with those faces. Results showed that men with high hostile sexism exhibit more gender-stereotypic STIs and independent of the participants' gender, low protective paternalism is associated with stronger non-gender-stereotypic STIs. Overall, different dimensions of sexism moderate the effects of gender stereotypes on STIs. Results are discussed within the context of Ambivalent Sexism Theory and the relations between stereotypes and STIs.

**Cinsiyet Kalıpyagıları ve Çelişik Duygulu Cinsiyetçiliğin Spontane Kişilik Özelliği Çıkarımlarına Etkileri**
**Öz**
Spontane çıkarımlar, insanların niyet, farkındalık ve kontrol olmaksızın diğerlerine ilişkin izlenim oluşturma süreçlerini ifade eder. Spontane kişilik özelliği çıkarımları (SKÖÇ) ise yalnızca bir davranışın gözlenmesi suretiyle gözleyenin zihninde bir kişilik özelliğinin aktive olmasını (aktivasyon aşaması) ve davranışı gerçekleştiren aktörün temsilleri arasında uzun süreli bellekte kaydedilmesini (ilişkilendirme aşaması) içerir. Bu süreç otomatik olarak gerçekleşse de, insanların içinde bulundukları kültürün sunduğu çerçevede ve benimsedikleri kalıp yargılarla uyumlu yönde SKÖÇ yapma eğiliminde olduğunu gösteren bulgular mevcuttur. Bu çalışmanın amacı katılımcının cinsiyetinin, cinsiyet kalıp yargılarının ve cinsiyetçiliğin farklı boyutlarının SKÖÇ'ün ilişkilendirme aşaması üzerindeki etkilerini incelemektir. Bu amaçla Çelişik Duygulu Cinsiyetçilik Kuramı ve Yanlış Tanıma Paradigması'ndan faydalanılmıştır. Katılımcılara çalışma aşamasında yüz fotoğrafları ve belirli bir kişilik özelliğini ima eden cümleler sunulmuştur. Test aşamasında ise ima edilen kişilik özellikleri ve yüz fotoğrafları sunularak, sunulan kişilik özelliğinin, o yüzle birlikte çalışma aşamasında sunulan cümlede yer alıp almadığına karar verme görevi verilmiştir. Sonuçlara göre düşmanca cinsiyetçilik düzeyi yüksek erkeklerde cinsiyet kalıp yargılarıyla uyumlu SKÖÇ gözlenirken, katılımcıların cinsiyetinden bağımsız olarak koruyucu ataerkilliği düşük bireylerde cinsiyet kalıp yargılarıyla uyumsuz SKÖÇ daha fazla görülmüştür. Özetle, cinsiyetçiliğin farklı alt boyutları cinsiyet kalıp yargılarının SKÖÇ üzerindeki etkilerini farklı şekilde düzenlemektedir. Sonuçlar Çelişik Duygulu Cinsiyetçilik Kuramı ve SKÖÇ ile kalıp yargıların ilişkileri kapsamında tartışılmıştır.

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Despite legal and societal arrangements against sexist behaviours, women are still exposed to discrimination (Pozo-Garcia et al., 2020). As one origin of sexism, gender stereotypes are changing through time, these still describe not only normative women and men but also social roles and proper behaviours (Rudman & Glick, 2008; Zafra & Retamero, 2021). Gender information takes a higher priority in the process of impression formation than other main categories such as race (Kurzban et al., 2001). Therefore, they are not easy to change. Although people believe that they have egalitarian attitudes, they might still behave in a sexist manner (see Brown & Stone, 2016). In the area of gender stereotypes and sexism, implicit measurements might predict discriminatory behaviours towards women in many contexts such as education (Van den Bergh et al., 2010), health care (Sen & Östlin, 2008) and workplace (Rooth, 2010). Therefore, spontaneous trait inferences (STIs) also might serve as a useful tool to observe the strength of gender stereotypes (e.g. Wang et al., 2015; Yan et al. 2012).

STIs satisfy the criteria known as Bargh's (1994) 'four horsemen' which is widely accepted regarding to automatization of a psychological process. Past research has shown that people are not aware of their inference process, hence, when the experiment ends researchers asked about the social inferences participants made during the experiment and reported the (1) lack of awareness (see Todorov & Uleman, 2003; Uleman & Moskowitz, 1994; Winter & Uleman, 1984). Todorov and Uleman (2003), who investigated the issue of the automaticity of STIs including tasks involving various types of cognitive load, such as remembering a six-digit number or counting the words in a presented sentence, demonstrated that, STIs occurred (2) without intention and were (3) efficient. The issue of control is slightly contentious; however, it is explained as follows by researchers in the field of STIs. Evaluating control as a simple dichotomy may not be appropriate, as spontaneous inferences can occur alongside controlled and automatic processes simultaneously and in conjunction within the same cognitive process, as suggested by Uleman, Sarıbay, and Gonzales (2008) and McCarthy and Skowronski (2011). Nevertheless, the concept of control has also been described as "producing the desired result" (Uleman, 1987). When examined from this perspective, research indicates that the spontaneous inference process cannot be easily controlled. This is because spontaneous personality feature inferences, lacking awareness, render individuals incapable of controlling the process, (Ham and Vonk, 2003; Uleman et al., 2005; Uleman et al., 1996). The automaticity of STI process makes it convenient for observing the effects of stereotypes as an automatic activation of categories (Devine, 1989; Dijksterhuis & van Knippenberg, 1996). Because, repeatedly making personality trait inferences in a certain style (consistent with stereotypes) over extended periods eventually transforms the spontaneous inference of personality traits into an automatic process (Uleman et al., 1996; Smith, 1994). Indeed, STIs are described as "habits of mind" (Zarate et al., 2001). Although, STIs were examined in many contexts such as culture (Na & Kitayama, 2011) and various stereotypes (Wigboldus et al., 2003), gender stereotypes -as one the most essential factors in impression formation - have rarely been examined (e.g. Wang et al., 2015; Yan et al. 2012) .

## Spontaneous trait inferences and gender stereotypes

Sexism is considered among the topics associated with social desirability, impacted by the socio-political pressures prevalent in contemprorary world (Swim et al., 2005). The automatic nature of STIs gives researchers the opportunity to avoid socially desirable reactions. Especially in context of gender stereotypes, people might conceal their real attitudes due to contemporary socio-political environment (see Fazio & Olson, 2003), or people might not really be aware of their sexist attitudes (Devine, 1989; Fazio & Olson, 2003; Jackson, 2016). However, as an automatic version of impression formation process, STIs eliminate social

desirability effects (Todorov & Uleman, 2003; Uleman & Moskowitz, 1994) and so researchers can possibly observe the individuals' stereotypic inferences that are uncorrected according to social-political environment and expectations.

Although stereotypes are broadly accepted as one of the primal determinants in impression formation (Devine, 1989; Jost & Kay, 2005), effects of stereotypes on STIs are rarely examined. Past research demonstrated that STIs are stronger when stimulus is consistent with stereotypes (Ramos et al., 2012; Wigboldus et al., 2003). Barrett and Bliss-Moreau (2009) used a modified version of STI paradigm, in order to examine the effects of stereotypic belief that "women are the emotional sex" on correspondence biases (tendency to make more dispositional attributions) (Gilbert & Malone, 1995). Results showed that women whose faces expressed negative feelings were perceived as emotional (dispositional attribution), whereas men's negative facial expressions were perceived as they are "having a bad day" (situational attribution). In a similar vein, Yan and colleagues (2012) examined the effects of gender stereotypes on STIs' activation phase in two experiments. Results of their first study have shown that gender stereotype-consistent behaviours caused stronger STIs. To clarify, when the trait implied by the behavioral sentence was stereotypically consistent with the gender of the actor, participants' reaction times increased (for detailed information see probe recognition paradigm; Ham & Vonk, 2003). In their second study, they demonstrated that the effect of gender stereotypes on STIs was only seen in gender-schematic participants. This implies that the effect of gender stereotypes on the activation phase of STIs was moderated by gender schematicity. Based on this, we inferred that gender stereotypes might affect binding phase of STIs and the level of sexism might moderate this effect. In order to reveal the possible different effects of different dimensions of sexism, current research was grounded on Ambivalent Sexism Theory.

**Ambivalent Sexism**

According to Glick and Fiske (1996; 2001), Ambivalent Sexism Theory describes two main dimensions: hostile and benevolent sexism. Hostile sexism is unidimensional and contains negative attitudes such as women want to dominate men via feminism/sexuality. Whereas benevolent sexism contains seemingly positive attitudes towards women but actually delineates women as weak and fragile (e.g. Sakallı-Uğurlu & Glick, 2003). Benevolent sexism includes three sub-dimensions: (1) Protective paternalism refers to attitudes including protecting and elevating women as mothers and wives. (2) Complementary gender differentiation contains exaggerating differences between men and women supposedly on women's behalf. (3) Heterosexual intimacy includes emotions and sexual needs related to women (Glick & Fiske, 1996; 2001). Ambivalent Sexism Theory remains its validity and widely utilized in sexism literature, in Turkey and worldwide (see Aktan & Yalçındağ, 2022; Gutierrez & Leaper, 2023).

Though sexism encompasses discrimination against both genders, it predominantly inflicts more adverse effects upon women due to gender-based biases (Jost & Kay, 2005; Swim & Campbell, 2003). Consequently, scholarly discourse commonly directs its attention towards addressing sexism as experienced by women, a trend evident in literature both globally and within Turkey (Rudman & Glick, 2008; Sakallı-Uğurlu, 2002; 2003). In this study, ambivalent sexism has been explored in the context of its association with women.

**Present Study**

STIs consist of two phases: activation and binding. In activation phase, observed behaviour triggers a trait in observer's mind. In binding phase, activated trait is encoded within the representations of actor in long

term memory (Zárate et al., 2001). Previous research have exhibited that various stereotypes might effect the robustness of activation phase of STIs (Wigboldus et al., 2003). Gender stereotypes are also one of the influencing factors of trait activation and gender schematicity moderates this effect (Yan et al., 2012). On the other hand, to the best of our knowledge, there is no research about the effects of gender sterotypes on binding phase of STIs which includes the long term memory. Besides, although, the Ambivalent Sexism has sub-dimensions that have been proved to be valid, reliable and are conceptually well defined, the effects of these sub-dimensions have rarely been addressed in studies conducted to date (e.g. Chapleau et al., 2007; Kuchynka et al., 2018). In this study, it was aimed to examine the effects of sub-dimensions in an exploratory manner.

In the current study we examined the effects of gender stereotypes on binding phase of STIs and the moderating role of sexism. Binding phase allows us to observe the process with involvement of both long term memory and human faces, that are crucial for ecological validity. Long term memory holds gender-stereotypic associations and clusters which have potential to produce sexist attitudes and behaviours (Davies et al., 2005; Deaux & Lewis, 1984), and human face has specific role in triggering gender-related cognition (Mason et al., 2006). Therefore, inferences made with human faces in the long term memory most closely resemble real-life inferential situations.

As mentioned above, effects of gender stereotypes on binding of STIs might be moderated by sexism. Modern sexism theories underline that sexism is not a monolithic structure, but rather has a multidimensional structure. In order to reveal the possible different effects of different dimensions of sexism, current research was grounded on Ambivalent Sexism Theory. Due to complexity of benevolent sexism, we included sub-dimensions in order to reveal any possible differences (e.g. Chapleau et al., 2007; Kuchynka et al., 2018; Oswald et al., 2019; see also Aktan & Yalçındağ, 2022). Besides, in many research male and female participants differ on dimensions of ambivalent sexism (e.g. Cowie et al., 2019; Kunst et al., 2019). Therefore, we included the participants' gender in our analyzes in an exploratory approach.

H1: Participants with high level of hostile sexism make stronger STIs on gender stereotype consistency condition than inconsistency condition.

H2: Participants with high level of protective paternalism make stronger STIs on gender stereotype consistency condition than inconsistency condition.

H3: Participants with high level of complementary gender differentiation make stronger STIs on gender stereotype consistency condition than inconsistency condition.

H4: Participants with high level heterosexual intimacy make stronger STIs on gender stereotype consistency condition than inconsistency condition.

In order to examine binding, false recognition paradigm (FRP) is employed (Todorov & Uleman, 2002). FRP includes two phases. In first phase, namely study phase, we presented face photos and trait-implying behaviour sentences (e.g. 'Zeynep smiled at refugee child and caressed his head'). In second phase, test phase, we presented pairs of a face photo and an implied trait (e.g. 'affectionate') and asked participants whether the trait word presented in the behaviour sentence was reflected in the face shown in study phase. The basic assumption of FRP is that when participants are exposed to trait-implying behaviour sentences and face photos, they will associate the implied trait with the face and save these associations in their long term memory within the representations of the face/actor. This association leads to a decrease on accuracy ("YES" responses in test phase when a trait is not actually presented but only implied in study phase) or longer response times for accurate answers ("NO" responses in test phase when a trait is not actually presented but only implied in study phase).

## Method

### Participants

The sample of this study consisted of 82 undergraduates (45 women). Their mean age was 19.79 (*SD* = 2.83) years. Seven participants were excluded from analyses who did not fully complete the ASI. All participants received course credit for their participation.

### Stimuli

As mentioned above, FRP requires face photos, names, traits and behaviour sentences. To avoid any biases caused by stimuli set, we conducted four pretests to control for any effects of attractiveness of faces and for possible gender differences in perceptions of traits and behaviour sentences. We used 30 (20 experimental, 10 filler) trials in study phase and 40 (20 experimental, 20 filler) trials in test phase. All pretests and stimulus set can be seen in Appendix A.

### Experimental Trials

The experiment consisted of two phases, study and test phases. In the study phase, based on pre-tests, we presented 20 behaviour sentence-face photo pairs: stereotype consistent condition consisted of 5 female faces paired with feminine trait-implying sentences and 5 male faces paired with masculine trait implying sentences; stereotype inconsistent condition consisted of 5 female faces with masculine trait-implying sentences and 5 male photos with feminine trait-implying sentences. These sentences did not include trait words but only implied them. Each of the sentences was randomly assigned to face photos. To prevent a case whereby all correct answers would be "no", we presented 10 filler trials consisted of sentences that included a trait word, for instance, 'Sıla is so *earnest* that she kept calm against all agitations'. Each filler sentence was randomly paired with an unused photo. These filler items were only in the study phase and were not included in the statistical analyses.

In the test phase, in order to determine whether participants used a heuristic such as 'if photo and trait are consistent with gender stereotypes, press YES and if not press NO', we added 20 filler trials consisted of new photos (10 each male and female) to the test phase. In this way, the trait words implied in study phase were paired with new photos which were not presented in study phase, and we expected that respondents would not bind any of the traits to these new photos. Therefore, pairs shown in study phase would induce lower accuracy rates than pairs with new faces. These filler items in the test phase were included in the statistical analyses in order to observe if the abovementioned heuristic is used.

### Design and Measures

*Level of Sexism:* Ambivalent Sexism Inventory was used to measure respondents' levels of sexism (Glick & Fiske, 1996). The scale was adapted to Turkish by Sakallı-Uğurlu (2002) and has been satisfactorily used (e.g. Taşdemir & Sakallı-Uğurlu, 2010). Respondents were asked to rate the extent to which they agree with each item on a 6-point Likert scale (from 1 = strongly in disagreement to 6 = strongly in agreement). The scale has two dimensions: hostile sexism and benevolent sexism. Benevolent sexism has three sub-dimensions: heterosexual intimacy, protective paternalism and complementary gender differentiation. We averaged item scores to create composite dimension and sub-dimension scores, and a higher score indicated more sexist attitudes. Cronbach's alphas were .88 for hostile sexism, .84 for benevolent sexism, .65 for heterosexual intimacy, .77 for protective paternalism and .71 for complementary gender differentiation. We created high and low groups by performing median-split on all subscales (see Table 1).

Table 1
*Descriptive Statistics and Means of Groups*

| | Women | Men | Total | Participants' Gender | Mean Accuracy: Consistent | Mean Accuracy: Inconsistent |
|---|---|---|---|---|---|---|
| Low Hostile Sexism | 22 | 13 | 35 | Women | .38(.16) | .37(.17) |
| | | | | Men | .53 (.16) | .40(.22) |
| High Hostile Sexism | 23 | 17 | 40 | Women | .48(.21) | .44(.16) |
| | | | | Men | .38(.14) | .46(.22) |
| Low Protective Paternalism | 22 | 13 | 35 | Women | .45(.20) | .39(.21) |
| | | | | Men | .48(.12) | .51(.23) |
| High Protective Paternalism | 23 | 17 | 40 | Women | .41(.18) | .43(.14) |
| | | | | Men | .42(.19) | .51(.23) |
| Low Gender Differentiation | 20 | 15 | 35 | Women | .43(.21) | .38(.2) |
| | | | | Men | .48(.17) | .49(.2) |
| High Gender Differentiation | 25 | 15 | 40 | Women | .43(.18) | .43(.15) |
| | | | | Men | .43(.22) | .38(.22) |
| Low Heterosexual Intimacy | 22 | 13 | 35 | Women | .41(.22) | .38(.2) |
| | | | | Men | .45(.14) | .45(.2) |
| High Heterosexual Intimacy | 23 | 17 | 40 | Women | .44(.17) | .44(.14) |
| | | | | Men | .45(.19) | .42(.23) |

*Note.* Standart deviations in parentheses.

***Gender Stereotype Consistency:*** We manipulated consistency with gender stereotypes by using 20 face photo-behaviour sentence pairs that 10 were gender consistent and 10 gender-inconsistent face-trait pairs, as explained above. Gender stereotype consistency was a within subject variable. We calculated accuracy rates for gender stereotype-consistent group from arithmetic mean of feminine trait-female photo accuracy values and masculine trait-male photo accuracy values. Similarly, we calculated accuracy rates for gender stereotype-inconsistent group from arithmetic means of feminine trait-male photo and masculine trait-female photo accuracy values.

## Procedure

Participants received an informed consent form, instructing that the experiment was about memory. Each participant completed practice trials under experimenter's watch; after participant seemed to understand the task, experimenter left the room before experiment started. When experiment ended, participants completed paper-and-pencil ASI, and finally, they were debriefed. We used ASI at the end of the process to avoid any possible priming effect. This study was approved by the Ethical Committee of the relevant university (Protocol No: 17-2016).

In study phase of experiment, face photos and behaviour sentences were presented for 7500 ms, with 1000 ms of blank screen between each of pairs. Afterwards, in test phase, participants viewed face photos and trait words, and their task was to decide whether the words had been presented in the behaviour sentence with the same face during study phase. If the trait word had been presented in the behaviour sentence with the same face in study phase, the correct key was 'A' on left part of the keyboard, labelled 'YES', and if the trait word

had not been presented in the behaviour sentence with the same face in the study phase, the correct key was '6' on right part of keyboard, labelled 'NO'. This task was self-paced.

## Results

Firstly, we checked whether gender of the photos in the stimuli set and gender of the participants had any effect on accuracy rates. There was not any significant effect (all *F*'s < 1). We used ANOVA to examine the effects of participants' gender and sexism level and gender stereotype consistency of stimuli on accuracy rates. Specifically, we conducted a 2 (participants' sex) × 2 (hostile sexism: low VS high) × 2 (stereotype consistency: consistent VS inconsistent) mixed-design ANOVA on accuracy rates with repeated measures on last factor. None of the main effects or two-way interactions had a statistically significant effect (all *F*'s < 3.34); the only significant effect was three-way interaction, $F(1,71) = 6.02$, p = .017, $\eta^2$ = .08. In follow-up contrasts, as can be seen in Figure 1, male participants with high level of hostile sexism (*M* = .38, *SD* = .14) exhibited lower accuracy in stereotype-consistent condition than male participants with low level of hostile sexism (*M* = .53, *SD* = .17), $t(28) = 2.68$, $p = .01$, *CI* [ 0.03; 0.26], $d = .96$. For female participants in stereotype-consistent condition, neither higher (*M* = .48, *SD* = .21) nor lower (*M* = .38, *SD* = .16) hostile sexism was significant in relation to accuracy rates, $t(43) = -1.79$, $p = .08$. Meanwhile, in stereotype-inconsistent condition, there was no statistically significant difference in accuracy for either male or female groups (all *t*'s <.74). H1 was partially confirmed.
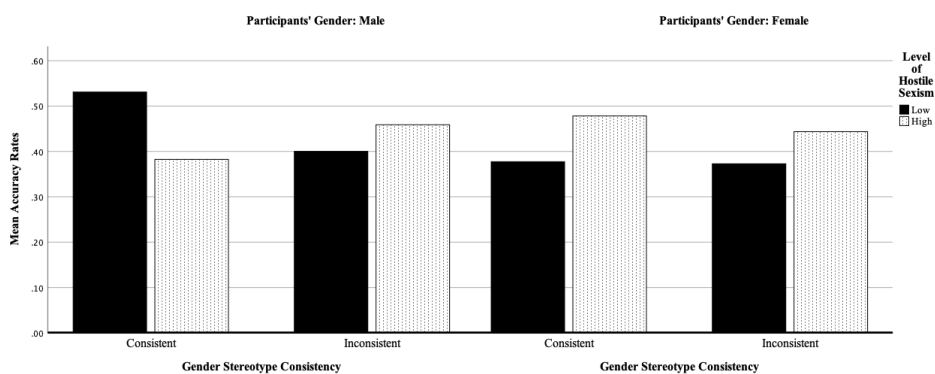


*Figure 1.* Mean Accuracy Rates Based on Participants' Gender, Gender Stereotype Consistency and Level of Hostile Sexism

Results were not significant (all *F*'s < 2.3) for 2 (participants' sex) × 2 (protective paternalism: lower VS higher) × 2 (stereotype consistency: consistent VS inconsistent) mixed-design ANOVA with repeated measures on the last factor for either main effects or the three-way interaction effect, although the two-way interaction effect was significant. Protective paternalism and stereotype consistency had an interaction effect on accuracy rates independent of participants' sex, $F(1, 71) = 9.76$, $p = .003$, $\eta^2 = .12$. Further analysis indicated that in stereotype-inconsistent condition, group with lower protective paternalism (*M* =.37, *SD* =.19) had lower accuracy scores than did high protective paternalism group (*M* =.46, *SD* =.18), $t(73) = -2.06$, $p = .04$, *CI* [ -0.17; -0.003], $d = .49$ (see Figure 2). There were no significant differences in stereotype-consistent condition, $t(73) = 1.06$, $p = .29$. H2 was partially confirmed.
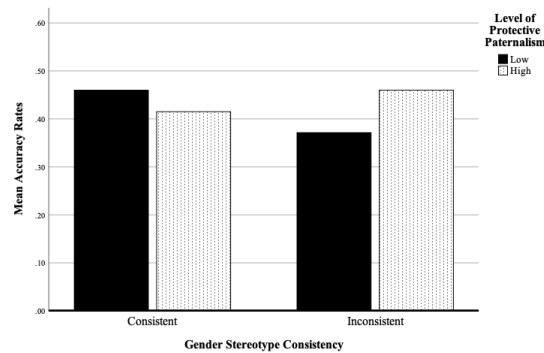
*Figure 2.* Mean Accuracy Rates Based on Gender Stereotype Consistency and Level of Protective Paternalism

ANOVAs examining the effects of participants' sex, stereotype consistency and other sub-dimensions of ASI (heterosexual intimacy and complementary gender differentiation) on accuracy rates were not significant (all *F*'s < .71). H3 and H4 was not confirmed.

Lastly, we performed paired-sample t tests to examine if respondents in test phase displayed the abovementioned heuristic response pattern (such as pressing 'yes' if a photo and trait were consistent with gender stereotypes and 'no' if not). T tests showed that for feminine traits, accuracy rates for previously studied (old) photos condition (*M* = .43, *SD* = .23) were significantly lower than rates for new photos condition (*M* =.78, *SD* =.18). *t* (74) = 10.36,  *p* <.001, *CI* [ -0.41; -0.28], *d* = 1.69, and this pattern held for masculine traits also: accuracy rates for previously studied photos condition (*M* = .44, *SD* = .24) were significantly lower than those with new photos (*M* = .74, *SD* =.18), *t* (73) = 8.99, p < .001, *CI* [ 0.37; 0.26]. *d* = 1.41.

## Discussion

Current research examined the effects of gender stereotypes on binding phase of STIs. Our results demonstrated that gender stereotype-consistency had an effect on STIs and this effect was moderated by participants' gender and sexism level. If a trait was stereotypically related to a particular gender, men with high hostile sexism more strongly associated the trait and the actor, implying that, hostilely sexist male mindset might cause gender stereotypical inferences in interpersonal relationships. When a trait and actor gender were inconsistent with stereotypes, participants with low protective paternalism made more associations between the trait and the actor. This finding suggests that a mindset of low protective paternalism is more open to non-stereotypical inferences.

These moderating effects might stem from accessibility (Correll et al., 2007). Our findings can be interpreted as evidence that hostile sexism might increase accessibility of gender stereotypes while encoding the information within the representations of the actor for male participants and low protective paternalism increase accessibility of non-gender stereotypic information for all participants. Because, protective paternalism is characterized by viewing women as being in a subordinate and condescending position (Glick & Fiske, 1996). If an individual perceives genders as in equal positions, information that contradicts gender stereotypes may be more readily accessible in the individual's mind.

Yan and colleagues (2012) demonstrated that gender schematic participants made stronger gender stereotypic activation of STIs and weaker non-stereotypic activation and these effects were independent from participants' gender. Contrastingly, our results demonstrated that hostile sexism as a specific dimension, shows

different patterns based on participants' gender. This finding is conceivably a benefit of approaching sexism with ambivalent sexism (Glick & Fiske, 1996) as a multi-dimensional theory, since we were able to observe the reflection of gender differences in different dimensions of sexism in STIs.

Abovementioned gender differences are consistent with literature; past research revealed that men primarily display hostile sexism to trivialise women and maintain patriarchal organisation of society (Cowie et al., 2019; Glick & Fiske, 1996; Kunst et al., 2019; Sakallı-Uğurlu, 2002). Meanwhile, the nature of protective paternalism might be the main reason for its effects on STIs independent of gender might be the nature of this dimension. In previous studies, it has been observed that gender-based differentiations in protective paternalism are lower than those in hostile sexism (e.g. Angelone et al., 2020; Dueñas et al., 2020). Yet, Sarlet and colleagues (2012) have demonstrated that protective paternalism might evaluated positive by women based on context of relationship. Along similar lines, in our study the gender-stereotypic STIs reinforcing effect of hostile sexism was observed only in males, while the non-gender stereotypic STIs reinforcing effect of protective paternalism was observed in both genders.

We found that, heterosexual intimacy and complementary gender differentiation had no effects on STIs. Heterosexual intimacy refers to view that women are necessary for men as romantic partners, and complementary gender differentiation refers to view that women have features that men do not. Therefore, these two dimensions of ambivalent sexism are characteristically different from hostile sexism and protective paternalism. For example, Shilinsky (2016) indicated that complementary gender differentiation differed from hostile sexism and protective paternalism in the aspect of 'promoting dominance over women or hostility toward women'. Heterosexual intimacy also has a different construction as motivation to achieve intimacy with women, which differentiates this dimension from hostile sexism (Glick & Fiske, 1996), whereas protective paternalism emphasises subordinate status of women and also has the strongest relation to hostile sexism (Kuchynka et al., 2018; Sakallı, 2002).

One of the original contributions made by this study is our exhibiting effects of gender stereotypes on STIs in long term memory by considering the possible roles of the participants' gender and different dimensions of sexism. Because real-life reflections of sexism mostly involve long term memory; such as hiring decisions. It is widely known that gender stereotypes are essential in impression formation (Kurzban et al., 2001) and as an automatic way of impression formation STIs are crucial in understanding the mechanisms of gender stereotypes. Additionally, highlighting the specific effects of the subdimensions of Ambivalent Sexism Theory might also be considered one of the unique contributions of this study.

There were also some notable limitations of this study. Firstly, gender stereotypes are clearly a much broader conception than we focused on here (Renfrow & Howard, 2013), we only addressed this issue within the scope of traits, considered the essence of gender stereotypes (Deaux & Lewis, 1984). Future researchers should study the effects of different aspects of gender stereotypes such as gender roles for better understanding the relationships between gender stereotypes and STIs. Another limitation of this study is our neglect to account for the valence of the traits used. Future research that incorporates the valence of traits may help identify potential biases.

Finally, we aimed with this study to understand the working mechanism of the sexist mind. Namely, our findings contribute to understanding of how social information is processed in cognition with sexist biases. Although sexism finds new forms to survive in changing content of political correctness, ambivalent sexism is a useful living lens for observing and addressing it. We present with this study how different dimensions of ambivalent sexism might function as different filters in processing social information.

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## APPENDIX A

**Pretests for Stimuli**

*Face Photos*

We used two photo databases in the pretest: FACES (Ebner, Riediger & Lindenberger, 2010) and KDEF (Lundqvist, Flykt & Öhman, 1998). We chose photos of 64 female and 64 male faces and edited them in grayscale to balance the light differences between the two photo sets; all faces were chosen from emotionally neutral photos. Thirty-six participants (23 women) rated these photos for attractiveness on a 5-point Likert scale. We controlled the faces' attractiveness to avoid the effects of attractiveness on STIs in impression formation (Miller, 1970; Talamas, Mavor & Perret, 2016). Based on the distribution of the attractiveness scores, we selected as stimuli 40 faces we determined to be of average attractiveness based on scores one standard deviation each above and below the mean.

*Traits*

To specify the feminine and masculine traits, we pre-tested 58 traits on a 5-point Likert scale with 54 participants (30 women). Each participant evaluated each trait with respect to femininity and masculinity on two different forms, and we excluded any traits that showed significant gender differences in their evaluations. We then included traits which both male and female respondents perceived to be significantly feminine or masculine. In this way, we chose 24 traits for the next pre-tests (12 masculine and 12 feminine) that we were certain differed clearly in femininity versus masculinity but showed no gender differences.

*Behaviour sentences*

To acquire statements that had the strongest trait implications, we created three sentences to imply each of the 24 traits. Firstly, we asked 84 participants (47 women) to rate on a 5-point scale (1 = not at all, 5 = extremely) to what extent each of the 72 sentences implied the corresponding trait. T tests showed that all the behaviour sentence-trait pairs scored greater than 2.5 (midpoint of the scale). indicating that the behaviour sentences adequately implied the corresponding traits.

Secondly, we asked 124 participants (55 women) to rate the same 72 behaviour sentences on a 5-point Likert scale based on femininity and masculinity on two different forms. Each participant completed both forms, and we excluded the behaviour sentences which significantly differed by gender of the participants.

We had two selection criteria at this point, (1) we sorted the sentences by the level of implying the traits and (2) femininity/masculinity consistency with the implied trait (see Table 1). For example, respondents on the previous pre-test perceived 'chatterer' to be a feminine trait, and the behaviour sentence 'X couldn't drink her coffee because of talking too much' implied this trait at a level greater than chance, and thus, this sentence was perceived as feminine as well.

**Filler sentences**

In order to ensure that all correct answers do not result in 'no,' the remaining 10 sentences were presented as filler trials containing cue words (fillers). Consequently, the correct responses to these trials are 'yes.' In the filler trials, for instance, a sentence like "X made a substantial donation to the foundation for children with leukemia" was presented, with the word "amount" used as a cue. The aim was to prompt

participants to pay attention to all components of the sentence, including subject, predicate, and object (see Yan, Wang, and Zhang, 2012).

### Names

In FRP experiments, personal names are used (see Todorov & Uleman, 2002; 2003). and we also used Turkish names in this experiment. To control the prevalence and the level of implying a specific gender, a three-person jury of psychology specialists rated the 50 women's and 50 men's names. We selected for the experiment the names which respondents evaluated as high in prevalence and implying a specific gender (male or female), and we used each name in a behaviour sentence in the study phase. All stimulus set can be seen in Table 1.

Table 1
*Trait-Implying Sentences and the Following Traits as the Experimental Trials*

| Behavioural Sentence | Implied Trait | Mean of trait implying | Stereotype Consistency | Mean of Femininity | Mean of Masculinity | t value |
|---|---|---|---|---|---|---|
| Zeynep smiled at the refugee child and caressed his/her head. | Affectionate | 4.05 | Consistent | 4.47 | 2.11 | 9.12* |
| Elif couldn't drink her coffee because of talking too much. | Chatterer | 3.38 | Consistent | 4.29 | 1.6 | 1.79* |
| Zehra went out to learn the reason of the noise that happened yesterday. | Curious | 3.90 | Consistent | 4.13 | 1.93 | 7.23* |
| Merve told the news to her friends effusively. | Excited | 3.92 | Consistent | 4.11 | 2.68 | 5.58* |
| Gizem sent flowers to congratulate her friend's new promotion. | Courteous | 4.12 | Consistent | 3.9 | 3.18 | 2.95* |
| Arda threw the scorpion out of the room with a stick. | Fearless | 3.60 | Consistent | 1.55 | 4.28 | -13.9* |
| Fatih couldn't find his socks which he took off in his room yesterday. | Irregular | 3.56 | Consistent | 1.82 | 4.37 | -9.6* |
| Cem shoved the man who didn't let him in. | Aggressive | 3.12 | Consistent | 1.91 | 4.24 | -8.06* |
| Halil worked out with 100 kg at the gym yesterday. | Strong | 3.32 | Consistent | 1.76 | 4.34 | -1.73* |
| Gökhan cursed at the man who hit him accidentally. | Rude | 3.22 | Consistent | 1.68 | 3.78 | -7.78* |
| Duygu decided on her own how to spend the money she earned. | Independent | 4.14 | Inconsistent | 2.48 | 4.02 | -5.19* |
| Hülya felt herself in a competition even though she was playing against a computer. | Competitive | 3.60 | Inconsistent | 2.51 | 4.04 | -4.74* |
| Ece borrowed money from a pawn shop for expanding her business. | Ambitious | 3.52 | Inconsistent | 1.69 | 4.16 | -9.37* |
| Pınar gave up on her job and lifestyle to go into business. | Bold | 3.17 | Inconsistent | 2.31 | 4 | -6.09* |
| Aslı banged on the table and told what was supposed to happen. | Dominant | 3.79 | Inconsistent | 2 | 4.53 | -9.21* |
| Mehmet whined to his friend because he refused to go to the cinema. | Childish | 3.07 | Inconsistent | 4 | 1.84 | 9.88* |
| Mustafa couldn't buy anything on his shopping tour because he couldn't choose anything. | Indecisive | 3.74 | Inconsistent | 3.53 | 2.03 | 5.55* |
| Hasan's eyes were filled with tears, he was so impressed by the love novel he read. | Fragile | 3.86 | Inconsistent | 4.55 | 1.82 | 11.24* |
| Kemal knitted scarfs and gave them as presents to the children who work in streets. | Compassionate | 4.15 | Inconsistent | 4.47 | 2.11 | 9.12* |
| Burak was flushed when he was meeting new people at the party. | Shy | 3.60 | Inconsistent | 3.13 | 2.41 | 2.57* |

* *p < .001. Notes.* In Turkish the behaviour sentences did not include 'because'.