

Social Support Influences Preference for Feminine Facial Cues in Potential Social Partners: A Replication

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Attractive facial cues are preferred by most but, interestingly, people tend to find certain facial features more attractive depending on the context. This replication of Watkins and colleagues (2012) investigates how priming different social support conditions influences preferences for feminized or masculinized faces. In this study, 124 participants were recruited to complete an online survey where they were asked to imagine a time they felt socially isolated (low support condition) or a time they felt emotionally supported (high support condition). Participants were then shown 20 pairs of masculinized and feminized versions of the same face and were asked to rate attractiveness. Overall, feminine female faces and masculine male faces were significantly preferred. We did not replicate the finding that femininity is preferred under conditions of low social support. Future research is needed to make conclusions about how perceived social support influences our perception of faces.

Keywords: facial feature, feminine facial feature, masculine facial feature, social support, partner

La plupart des individus préfèrent les caractéristiques faciales attirantes, mais, de manière intéressante, ces derniers ont tendance à trouver certaines caractéristiques faciales plus attrayantes dépendamment du contexte dans lequel ils vivent. Cette réplique de l'étude de Watkins et collègues (2012) étudie comment l'amorçage de différentes conditions de soutien social influe sur la préférence pour les visages féminisés ou masculinisés. Dans cette étude, 124 participants ont été recrutés pour répondre à un sondage en ligne, où il leur était demandé de s'imaginer à un moment où ils se sentaient socialement isolés (condition de faible soutien) ou à un moment où ils se sentaient soutenus émotionnellement (condition de soutien élevé). On a ensuite montré aux participants 20 paires de versions masculinisées et féminisées d'un même visage et on leur a demandé d'évaluer l'attractivité du visage. Dans l'ensemble, les visages féminins efféminés et les visages masculins virils ont été préférés de manière significative. Nous n'avons pas reproduit le résultat selon lequel la féminité est préférée dans des conditions de faible soutien social. Plus de recherches sont nécessaires pour tirer des conclusions sur la façon dont le soutien social perçu influe sur notre perception des visages.

Mots-clés : caractéristique faciale, caractéristique faciale féminine, caractéristique faciale masculine, soutien social, partenaire.

Past research has found that the way a person perceives their own level of social support can influence their preference for different facial features. This study is a direct replication of the work done by Watkins and colleagues (2012), who examined how perceived social support influenced preferences for feminine facial features in potential social partners. Their study aimed to broaden the literature surrounding facial preferences in social partners rather than just mating partners. The goal of this replication is to further contribute to the gap in the literature

surrounding replication studies and to determine whether feminine facial features are preferred by those perceiving low levels of social support.

Attractive faces are clearly preferred by most people; however, we tend to find certain facial features more attractive depending on the context (Watkins et al., 2012). Social support is crucial to both human survival and success as we rely on one another to fulfill many needs and overcome challenges. Past research on social support has demonstrated that the definition can include a variety of factors such as structural support (e.g., number of friends and close family), the level of support being provided by those close relationships, and the level of satisfaction associated with those relationships (Colarossi, 2001; Rueger et al., 2008). For this study, low social support is defined as feeling isolated or alone from family and/or friends while high social support is defined as being surrounded by family and/or friends who are reassuring. Based on these definitions and the positive association between prosocial personality traits and

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feminine faces (Little et al., 2011), we predict that social support will significantly influence preferences for feminine faces in the current study.

Evolutionary Reasons for Preferring Attractive Facial Features

The general observation that attractive people are rated as possessing more socially desirable traits and are expected to lead more successful lives was demonstrated in a classic study of human perceptions of beauty (Dion et al., 1972). Preferences for certain facial features likely evolved due to the evolutionary advantages that attractive people may provide. Kościński (2008) affirms that faces conveying autonomy and maturity are perceived as more attractive in certain environmental conditions. Because of the survival benefits of affiliating with altruistic individuals, people may have evolved to innately prefer individuals with facial features that convey traits that enhance one's well-being. Sexual dimorphism is a concept that describes the distinct differences between male and female. Regarding sexually dimorphic faces, male faces typically display larger and stronger looking jawbones with more prominent cheekbones compared to female faces (Little et al., 2011). The original article highlights the role that facial sexual dimorphism may play in signalling health and reproductive potential (Watkins et al., 2012). The health of a potential partner may play a role in the preference for prosocial individuals because of the association of social support with increased long-term health. Additionally, people who affiliate with prosocial individuals may gain a positive reputation, which increases the likelihood that they will be helped by others in the future (Fehr, 2004).

Relationship Between Sexual Dimorphism and Personality

Facial cues act as important signals of personality traits, including prosociality, regardless of whether individual judgments are accurate. Prosociality is a behaviour that one can demonstrate to promote feelings of warmth, acceptance, and friendship from others and is expressed through altruistic behaviours such as opening the door for someone (VandenBos, 2007). Numerous studies have revealed that femininity is associated with prosocial personality traits like warmth, emotionality, trustworthiness, and strong parenting skills (Buckingham et al., 2006; Little et al., 2011; Ma et al., 2015; Watkins et al., 2012). This relationship between femininity, masculinity, and personality means that people make decisions about partner selection based on physical traits that they associate with personality characteristics (Buss, 1989; Buss & Barnes, 1986). If someone desires a specific personality trait that is associated with a particular

facial feature, attraction to that characteristic increases (Little et al., 2006; Mogilski & Welling, 2017). For example, women tend to avoid masculine-faced men if they value cooperation and good parenting. Masculine faces increase perceptions of characteristics like dominance and age but decrease perceptions of parenting ability, warmth, emotionality, honesty, and cooperativeness (Perrett et al., 1998). Partner selection is highly dependent on individual preferences and context because of this trade-off of positive and negative traits.

Preferences for Feminine Features in Low Social Support Context

A very recent study conducted with a sample of Caucasian young adults found that feminine faces were rated as attractive more frequently than masculine faces by both female and male participants (Carrito et al., 2018). A longer reaction time to feminine stimuli may reflect the perceived social reward of such attraction. Attraction to certain facial features, particularly feminine ones, are supported as an important stimulus for social decisions such as selecting mating partners, friendships, and other social partners. Given that feminine faces are associated with positive attributes such as hospitality and kindness (Perrett et al., 1998), one may expect that feminine faces will be inherently preferred in scenarios where affection would be beneficial, such as situations in which social support is low. This is because, in situations where caregivers or partners are unable to provide support, affiliating with individuals who have feminine features—and are thus presumed to be prosocial—may provide the individual with support, warmth, a positive reputation, and the potential for receiving support in the future.

Research Question and Hypothesis

Contextual factors such as what type of relationship a person is seeking (e.g., short-term versus long-term or friend versus partner) or why they are seeking a relationship (e.g., having children) may mean that physical attraction becomes less important than personality characteristics. In 2019, Korenman and colleagues found that participants preferred masculinized faces in conflict-primed situations and feminized faces in situations that required leader cooperativeness. This finding fits within the hypothesis that feminized faces will be preferred in low social support situations because cooperation is a characteristic associated with prosociality. Within this study, a desire for prosocial characteristics may lead to increased attraction to feminine features even if an individual does not find the stimuli particularly attractive. Investigation on how priming low or high social support conditions influence preferences for

feminized or masculinized faces will be conducted. Based on literature and previous research by Watkins and colleagues (2012), it is expected that participants will prefer feminized male and female faces in low social support conditions. With the aim to replicate the findings of the original research, it is also expected that feminized female faces will be preferred to masculinized faces in both low and high social support conditions.

Method

Participants

Participants included 124 (19% male and 81% female) students from the University of Alberta who were recruited through a university-wide email newsletter. When asked to identify their ethnicity, 72% identified as Caucasian, 19% as Asian, 2% as African, 1% as Indigenous, 1% as Latin, Central, or South American, and 6% stated “other”. Participants were unable to select more than one ethnicity, although they were able to select “other” and indicate multiple ethnicities. Participant age was not recorded, but all participants indicated that they were over 18 years of age. All participants reported that they have been living in Canada for at least five years. This study had a similar sample size to that of Watkins and colleagues (2012), which consisted of 106 participants (28% male and 72% female).

Materials

The face stimuli used matched that of the original study. To create face stimuli, the original researchers used prototype-based image transformation to manipulate sexual 2D shape dimorphism. Twenty pairs of masculinized and feminized faces were used: 10 male pairs and 10 female pairs of the same individual (see Figure 1 in the appendix for an example). These images were then tested by the original researchers to determine whether participants noticed a difference in feminized or masculinized facial features, based on the facial manipulation. They found participants differentiated between both feminized and masculinized faces significantly different than chance (Watkins et al., 2021).

Procedure

Priming Phase. First, participants completed the priming phase, where they were randomly assigned to one of four conditions. The independent variable in this study is one’s level of social support, and this is operationally defined as a one-moment period in which a participant imagines a scenario of high or low social support. The experimental conditions were: (1) high support from family; (2) high support from friends, (3) low support from family, and (4) low

support from friends. Because participants were randomly assigned to one of the four conditions, researchers were blind to the conditions. Depending on the experimental condition that participants were in, they were asked to imagine a scenario where they either received a lot of support from family or friends or a condition where they received little support from friends or family. Specifically, the following instruction was given to the participants: “Please take a moment to imagine a time when you felt very [close to/isolated from] your [family/friends] and felt that you received [a lot of/little] emotional support from them.” Then, participants were asked to rate how vividly they imaged their given scenario using a scale ranging from 0 (not vivid) to 7 (very vivid).

Feminine Preference Test. After the priming phase, participants completed the femininity preference test. Participants were shown 20 pairs of faces in randomized order, with each pair containing one feminized and one masculinized version of the same face. The face depicted within each pair differed across pairs, resulting in 20 pairings that were each based on a different face. Participants were then instructed to choose which face they perceived as more attractive and then indicate if they found that face much more attractive, moderately more attractive, or slightly more attractive than the unchosen face.

Similar to the original study, the face preference test was coded using the following scales. For the masculinized faces, a scale from 0 to 2 was used, where 0 was much more attractive, 1 was moderately more attractive, and 2 was slightly more attractive than the feminized face. For the feminized faces, a scale from 3 to 5 was used, where 3 was slightly more attractive, 4 was moderately more attractive, and 5 was much more attractive than the masculinized face. The Cronbach’s alpha for the femininity preference scale was equal to .64.

Measures

Following Watkins and colleagues (2012) analyses, the average rated score of the 10 feminized faces and the average score of the 10 masculinized faces for each participant were calculated. The dependent variable in this study is one’s preference for femininity, which is operationally defined as the participant’s average attractiveness rating for male and female faces. Here, a lower average score indicates a preference for masculinized faces and a higher average score indicates a stronger preference for feminized faces.

Results

Priming Phase

Participants' vividness ratings were averaged across the four experimental conditions. A one-sample *t*-test was used to determine whether the average vividness ratings were significantly different from the expected average (i.e., 4.0) for each experimental condition. For all but Condition 4 (low support from friends), the average vividness rating was not significantly different from the expected average. Condition 1 (high support from family): $t(31) = 1.18, p = .25, M = 4.38, SE = .32$; Condition 2 (high support from friends): $t(29) = .00, p = 1.00, M = 4.0, SE = .33$; Condition 3 (low support from family): $t(32) = -.51, p = .62, M = 3.84, SE = .30$; Condition 4 (low support from friends): $t(28) = 3.00, p < .01, M = 4.9, SE = .30$.

A two-way ANOVA revealed a significant interaction effect of support level by support condition on vividness rating, $F(1, 120) = 5.24, p = .02, \eta^2 = 15.65$. However, there was not a significant main effect of support level on vividness rating, $F(1, 120) = 1.51, p = .22, \eta^2 = 4.50$, and there was not a significant main effect of support condition on vividness rating, $F(1, 120) = .73, p = .39, \eta^2 = 2.18$.

Femininity Preference Test

A one-sample *t*-test was used to determine whether the facial preferences for male and female faces were significantly different from chance (i.e., 2.5) (see Table 1 for a summary of the mean femininity preference for male and female faces across experimental conditions and participant genders). Overall, feminized versions of the female faces were rated as significantly more attractive than the masculinized versions, $t(123) = 14.52, p < .001, M = 3.15, SEM = .04$, and the masculinized versions of the male faces were rated as significantly more attractive than feminized versions, $t(123) = -2.54, p = .012, M = 2.37, SEM = .05$.

A 2 x 2 x 2 x 2 mixed-design ANOVA was then used using the gender of the face (male, female) as the within-subject factor and support level (supported, unsupported), source of support (friends, family), and participant gender (male, female) were the between-subject factors. There was a significant effect of face gender on femininity preference ratings, $F(1, 116) = 68.2, p < .001, \eta^2 = .020$, where preference for femininity in female faces, $M = 3.15, SEM = .04$, was significantly more robust than preference for femininity in males faces, $M = 2.37, SEM = .05$. However, there was not a significant effect of support level on femininity preference ratings, $F(1, 116) = 1.41, p = .24, \eta^2 = .004$.

Curiously, there was a significant main effect of source of support on femininity preference, $F(1, 116) = 6.84, p = .01, \eta^2 = .020$, where participants who imagined their family preferred more feminine faces, $M = 2.78, SEM = .060$, than those who imagined their friends, $M = 2.73, SEM = .058$. (Using a one-sample *t*-test, the authors found that participants' preference for feminized versions of female faces were significantly different from chance in both the friends $t(58) = 10.107, p < .001$, and the family, $t(64) = 10.435, p < 0.001$, conditions). Participants tended to prefer masculinized versions of male faces in both the friends, $t(58) = -1.95, p = .056, M = 2.36$ and the family, $t(64) = -1.65, p = .10, M = 2.38$ conditions, though neither preference was significantly different from chance.

Furthermore, there was a significant interaction effect among participant gender and source of support, $F(1, 116) = 9.76, p = .002, \eta^2 = .029$. When examining data from male and female participants separately, there was not a significant effect of source of support on female participants' femininity ratings, $F(1, 200) = .214, p = .644$. By contrast, there was a significant effect of source of support on male participants' femininity ratings, $F(1, 44) = 7.819, p = .008$, whereby male participants in the family condition significantly preferred more feminine faces, $M = 3.08, SE = .12$, than those in the friends condition, $M = 2.61, SE = .11$ (see Figure 2).

Finally, there was a significant interaction effect among support level and face gender, $F(1, 116) = 6.50, p = .012, \eta^2 = .019$. Masculinity was preferred more in male faces for those in the supported condition compared to those than in the unsupported condition while femininity was preferred more in female faces for those in the supported condition compared to those in the unsupported condition. That is, for both male and female faces, femininity ratings were closer to chance (i.e., 2.5) in the unsupported condition, male faces: $M = 2.43, SE = .06$, female faces: $M = 3.07, SE = .061$, than in the supported condition, male faces: $M = 2.32, SE = .079$, female faces: $M = 3.23, SE = .064$ (see Figure 3 in the Appendix). When looking at male and female faces separately, there was not a significant effect of support level on femininity ratings for male faces, $F(1, 122) = 1.20, p = .28$, or for female faces, $F(1, 122) = 3.13, p = .08$.

Discussion

Preference for Sexual Dimorphism

Consistent with the original study by Watkins et al. (2012), femininity was preferred in female face stimuli. However, this study found that masculinity was preferred in male face stimuli, which was not

reported in their original research. These results are not likely due to the gender imbalance in this study, as this study had a similar number of male participants as Watkins et al. (2012). The present study's findings support an evolutionary perspective of facial preference in social partners. Sexual dimorphism is associated with features such as good genes, immunity, and respiratory health (Little et al., 2011, 2014). The choices of social partners are at least partially based on these factors as well as personality (Buss, 1989; Buss & Barnes, 1986). Considering the advantages, the finding that masculinized male and feminized female faces are preferred emphasizes the enduring human traits that underlie our partner choices. Regarding non-binary individuals, more research needs to be conducted to investigate the impact of a less distinctly gendered face on social partners. For females, there is a vast source of literature which indicates that femininity is associated with traits such as prosocial personality characteristics, health, reproduction, and attractiveness (Carrito et al., 2018; Hu et al., 2018; Little et al., 2011; Perret et al., 1998; Scott et al., 2014; Watkins et al., 2012). Therefore, finding a social partner with these features is considered to be evolutionarily advantageous.

For male faces, the research on partner preferences is less conclusive. Masculinity is associated with good genes, certain positive health outcomes, high testosterone, and strength as well as traits like aggressiveness and dominance (Hu et al., 2018; Little et al., 2011; Perrett et al., 1998; Scott et al., 2014; Yang et al., 2015). Some studies have found that females prefer male faces with masculine characteristics, such as a large jaw, but others find that more feminine male faces are more attractive. This may be attributed to a lack of consensus among females regarding what makes men attractive as well as the sexual dimorphism which may be more important when choosing a female partner than when choosing a male partner (Carrito et al., 2018). Hu et al. (2018) found that the preference for masculinity only occurred for attractive male faces (not less attractive ones). Preference for male faces may therefore be a result of many interacting factors, including sexual dimorphism, attractiveness, age, environmental and developmental experiences, and personal preference. These results add to the body of research that is less conclusive in terms of preference for male faces, revealing that not only female attractiveness is advantageous.

Some cross-cultural research does support the findings of the current study. One study found that a preference for sexually dimorphic characteristics only occurs for populations in highly developed, urban environments (Scott et al., 2014). However, this

challenges the hypothesis that sexual dimorphism is an evolutionarily adaptive trait that indicates a mate's potential value. Two other studies found that women's preference for masculine men and men's preference for feminine women are both stronger in favourable environments but not in unfavourable ones (Marcinkowska et al., 2014, 2019). If one considers the University of Alberta students to be in a favourable environment, these studies support our results.

No Effect of Level of Social Support

The finding that level of social support did not influence participant femininity preference is not consistent with the previous study. Watkins et al. (2012) reported that participants in the low social support condition had a slight preference for feminine facial stimuli. Based on previous literature and these results, preferences for prosocial individuals should increase under conditions of low social support. The present study's results may suggest that more research could be conducted to discover the differences in findings compared to Watkins et al. (2012). Since participants completed the study online, it is difficult to verify if participants thoroughly fulfilled the priming phase as instructed, despite participants rating how vividly they experienced their assigned scenario. Although the average vividness rating was near the expected average for all experimental conditions except Condition 4 (low support from friends), this did not appear to influence the results. Because individuals in Condition 4 imagined their scenario more vividly than those in the other three experimental conditions, one might expect that those in Condition 4 would prefer femininity in female faces more than those in the other three experimental conditions. This did not occur, as individuals in the family condition preferred feminine female faces more so than those in the friend condition. Similarly, there was no significant difference in femininity preference ratings for female faces between those in the supported or unsupported condition. Under conflict-primed situations, people have been found to prefer masculinity to femininity as well (Korenman et al., 2019). Further research investigating low and high social support conditions with more vivid and well-supervised priming phases will shed light onto whether this discrepancy resulted in the present differing results.

Interaction and Higher Preference for Femininity in Family Condition

The results indicated a higher preference for femininity in both low and high support family conditions, but not the friend conditions. This differs from Watkins and colleagues (2012) study where they did not find a preference for high femininity in either

low and high support family conditions. Further, an interaction found that male participants prefer femininity in the family conditions and females slightly prefer femininity in the friend condition. These results together are supported by previous research that states women have larger and more intimate social circles than males and report higher levels of overall social support (Belle, 1987; Kendler et al., 2005). This may be because females place a larger emphasis on emotional support within their relationships whereas males are more likely to seek instrumental support and activities like sports (McKenzie et al., 2018; Rueger et al., 2008; Tamres et al., 2002). Some researchers have shown that males seeking to perform the expectations of masculinity in our society may lead to disconnections between themselves and others (Chu, 2018). Furthermore, these results add to the need for clinical intervention and stronger emotional support for men in Western society. Other studies have found that female socialization consists of communion (e.g., kind, understanding, and helpful) and often results in women being over-involved in supporting others while neglecting themselves (Fritz & Helgeson, 1998; Katz et al., 2002). With the results of femininity preference for both genders, the expectation for females to care for others in theoretical social settings and in personal relationships is emphasized. Where females are encouraged to share their emotions, men are largely discouraged from talking about their problems and expressing vulnerability. The present research's findings further emphasize the social and cultural expectations of encouraging males to suppress their emotions, especially around other males. Female femininity preference in the friend conditions is likely because women believe they are more supported by their friends than men, especially at younger ages (Prezza & Pacilli, 2002). Male preference for femininity in the family conditions can be explained by the role of females at home. Women are often the main source of support in the family, regardless of their role as wife, mother, sister, or daughter (Prezza & Pacilli, 2002). Other findings suggest that males in early adulthood often have the same number of friends as females do. However, they often lean on adult figures as a main source of support (Colarossi, 2001). Males may be more greatly dependent on female family members for social support, which supports the gender x support condition interaction and emphasizes the social concept of females taking the lead in terms of the provision of social support in western societies.

Limitations and Future Directions

Limitations to this study include a relatively small university sample size ($N = 124$) with a largely unequal gender distribution. Generalizability is also slightly weakened due to convenience sampling in a

university population. Additionally, by having significantly fewer male participants, statistical power may be considered lower for the male participant data than the female participant data. Due to the COVID-19 pandemic, people may be experiencing varying levels of social support and a wide variety of emotions they would not typically experience, which could impact overall levels of perceived support during this time. Additionally, the online format may have led to errors in the priming phase of this experiment, as there is no way of verifying if participants followed instructions correctly.

Facial averageness is a factor not measured in this replication but would be an important factor to consider. Several studies indicate that facial averageness produces a larger increase in attractiveness than femininity and masculinity (Jones & Jaeger, 2019; Komori et al., 2009; Muñoz-Reyes et al., 2015). It is suggested that because most studies in this body of literature use a forced-choice paradigm where participants must choose between masculine or feminine faces, this may not indicate a preference for feminine faces, but a dislike for masculine faces.

Another factor to consider is the sexual orientation of the assessor. A study by Glassenberg et al. (2010) assessing straight and gay men's preferences for feminized and masculinized faces was recently replicated by Shiramizu and colleagues (2020). The results of that study revealed that homosexual individuals show a different preference for masculinity and femininity than heterosexual individuals, so they may be using alternative cues for attraction and mate selection.

Conclusion

In conclusion, the present study's findings were not entirely consistent with the results of Watkins et al. (2012). However, this research supports the idea that there may be a preference for sexual dimorphism under certain conditions, such as highly developed, urban environments (Scott et al., 2014). Additionally, family support may influence male's and female's preferences for femininity, as this was not found in the Watkins et al. (2012) study. Research using a different priming phase and focusing specifically on family may be needed to solve discrepancies. Future studies can build upon these results to further interpret preferences for social partners rather than mating partners.

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Appendix

Figure 1

Facial Stimuli



Note. Examples of masculinized (left) and feminized (right) face images used in the study.

Table 1*Means and Standard Deviations for Femininity Preference Across Conditions*

Female Participants	High Support Family	High Support Friends	Low Support Family	Low Support Friends
Male Faces	2.30 (0.65)	2.30 (0.63)	2.31 (0.48)	2.45 (0.50)
Female Faces	3.15 (0.53)	3.28 (0.47)	3.14 (0.52)	3.05 (0.49)
Male Participants				
Male Faces	2.75 (0.45)	2.20 (0.43)	2.82 (0.25)	2.44(0.57)
Female Faces	3.88 (0.49)	3.01 (0.51)	3.02 (0.17)	2.80 (0.53)

Note. Mean femininity preference (standard deviation given in parentheses) for each condition in our main experiment (2.5 = chance level, indicating no overall femininity preference).

SOCIAL SUPPORT AND FEMININE FACIAL PREFERENCES

Figure 2

Mean Femininity Rating by Gender for Family and Friends Conditions

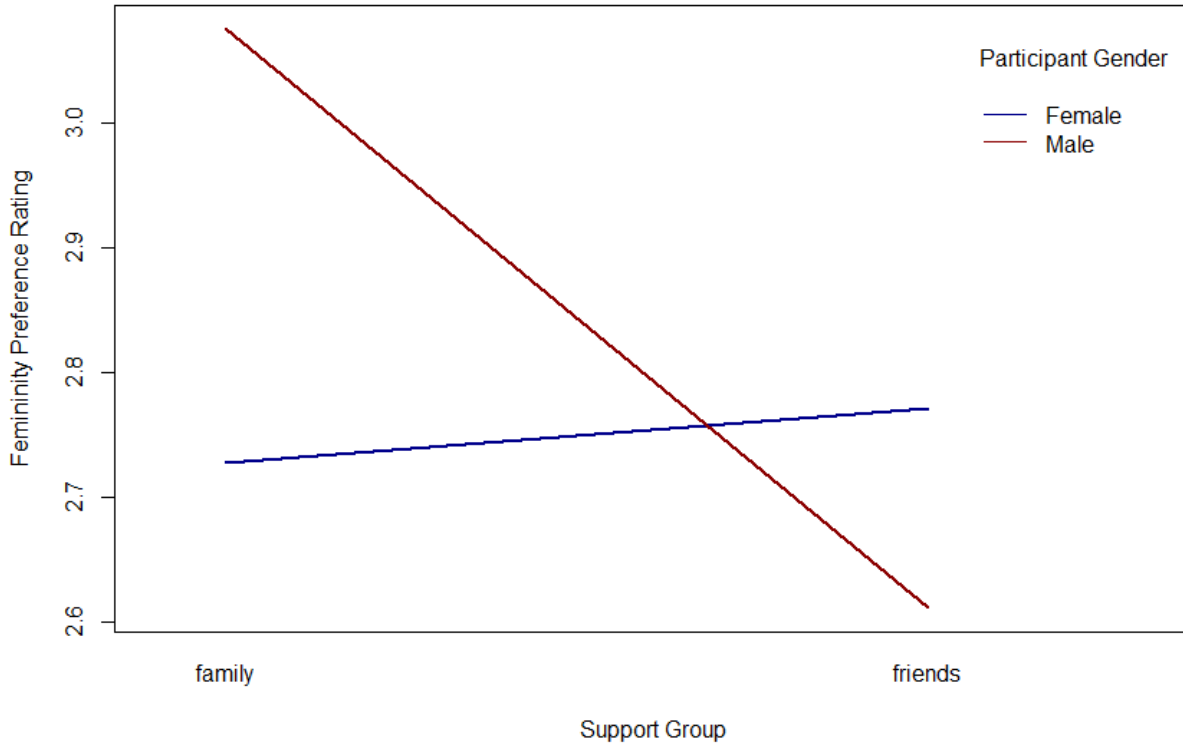


Figure 3

Mean Femininity Rating by Gender for Supported and Unsupported Conditions

