

HOT STUFF!
**THE EVOLUTIONARY PSYCHOLOGY BEHIND THE ATTRACTIVNESS OF
VOLUNTEER FIREFIGHTERS**

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By

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Abstract

Research has demonstrated a clear relationship between riskiness and reported levels of general attractiveness. Research has also explored the perceived attractiveness of altruistic behaviors of males and females. No previous study has examined if these same findings apply to members of the volunteer fire service. The current study sought to examine this question, by presenting heterosexual females with pictures and biographies of volunteer firefighters, manipulating the firefighter's riskiness and altruism to measure differences in their levels of perceived attraction. The pictures either showed the model in the traditional gear of the firefighter, the dress uniform, or plain clothes. The biography paired with these pictures either depicted a risky firefighter, an altruistic firefighter, or it simply included that they are a firefighter. Dispositional measures included personality assessment to account for potential individual differences in the relationship between these factors. In general, communal biography cues were found to be most attractive for a long-term relationship, and were rated highest on the Parenting Effort scale. Further, Risky biography cues were found to be most attractive for a brief sexual affair, and were rated highest on the Mating Effort scale.

Introduction

Firefighting as an occupation dates back to as early to the times of the ancient Romans (Dillon et. al., 2005). As people began to reside in cities in greater numbers, the need to deal with threats to the population, such as fire, grew. In modern times, the fire service is divided up into two different groups of firefighters: paid and volunteer. Paid firefighters are members of a department in which they receive a salary for their actions, whereas volunteer firefighters are oftentimes members of a community that perform the same actions as paid firefighters, while receiving no salary. This study specifically examined volunteer firefighters because they effectively display *both* risk-taking and altruistic behaviors.

Evolutionary psychology provides a compelling lens to potentially elucidate how these aforementioned factors relate to the perception of the attractiveness of firefighters. For example, topics such as risk-taking, altruism, and uniforms are all researched within the realm of evolutionary psychology (i.e; Farrelly, D., Clemson, P., & Guthrie, M. (2016), Vincke, E. (2016). These same topics are also theoretically relevant within the realm of firefighting. The activities that volunteer firefighters engage in are innately altruistic, as they are helping others at a cost to themselves. Further, it is equally risky to engage in the activities that volunteer firefighters perform. Firefighters also wear uniforms, which have shown to be an effective means of conveying status and influence behavior (Guéguen, 2009). The following sections will discuss relevant past literature regarding each of these topics.

Risk-Taking

Research regarding the attractiveness of risk-taking is well-documented within the realm of Evolutionary Psychology. The act of taking risks demonstrates one's fitness (Machluf & Bjorklund, 2015). In ancestral conditions, being able to effectively carry out high-risk behaviors could prove to be beneficial to the individual in terms of obtaining additional resources. These resources would then in turn be used to help ensure the survival of the individual, thus preserving their genes for the future generation.

Furthermore, potential mates would be more inclined to mate with someone that possess more resources than someone who does not. Ronay and Hippel's (2010) findings suggest that men use physical risk-taking as a sexual display strategy when in the presence of women. This perspective highlights that engaging in risk can be used to impress or attract potential mates. This example is more salient in modern society than obtaining additional resources, however both securing additional resources and the implication of physical risk-taking are still valid methods of risk-taking being beneficial to the individual.

Further, Bassett and Moss's (2004) findings suggested that both men and women find risk-takers as attractive as friends and short-term romantic partners. However, their study noted that only women seemed to find risky men as attractive for a longer-term relationship. While that finding may seem counter-intuitive to modern society, it would be seen as beneficial during ancestral conditions. For example, a partner who was willing to brave the unknown during ancestral conditions might have been able to secure additional resources which might have been critical to survival. A modern study conducted by Sylwester and Pawłowski (2011), had participants' rate physical, social and even financial risk-taking and risk-avoiding profiles in terms of attractiveness for long-

and short-term relationships. Again, regarding short-term relationships, men and women preferred risk takers over risk avoiders.

Lastly, Kelly & Dunbar's (2001) findings provide further support regarding the attractiveness of risk-taking. Their study found that, "females do prefer risk-prone brave males to risk-averse non-brave males..." (Kelly & Dunbar, 2001, p. 94). It is clear throughout a variety of literature that risk-taking is considered to be attractive for various forms of relationships regarding an evolutionary psychological context.

Altruism

The topic of why people engage in altruistic behavior has recently been popularized in recent research. Evolutionarily speaking, the theory of kin-selection can help explore as to why organisms engage in altruism. Recent literature suggests that altruistic behaviors in humans may prove to be more attractive when compared to humor, or even physical attractiveness. Farrelly et. al. (2016, p. 4) found that "Women preferred altruistic men, particularly in long-term relationships and that this interacted with physical attractiveness such that being both attractive and altruistic made a man more desirable than just the sum of the two desirable parts."

Further, Kelly and Dunbar (2001) again illuminate how the attractiveness of all these factors differs across relationship type. Altruism was deemed to be important regarding long-term relationships and friendships, but for short-term interactions, non-altruists were preferred to altruists (Kelly & Dunbar, 2001). This finding is unsurprising, and has been replicated within the literature. People who display altruistic tendencies are more likely to be preferred for a committed relationship compared to a brief relationship, as there is more opportunity for future reciprocation in a long-term relationship. Within

the context of evolutionary theory, an altruistic partner would certainly be an asset regarding survival, being more likely to share resources or be more willing to offer assistance.

Further empirical evidence was found in a study in which participants rated vignettes with photographs of individuals on whether or not the person would be desirable as a romantic partner. The study found that altruists were more desirable for longer-term relationships and interactions when compared to neutral individuals. (Barclay 2010). As previously stated, it is unsurprising that altruistic behaviors are more desirable for a long-term relationship, especially so when compared to a short-term relationship.

Lastly, Jensen-Campbell, Graziano, and West explored females' attraction to males' prosocial orientation. Again, the study found, that prosocial men were rated as more physically and sexually attractive, socially desirable, and desirable as dates than were non-prosocial men". (Jensen-Campbell, Graziano, & West, 1995). It is clear that altruism is inherently tied to multiple types of attractiveness and female mate choice, and is an important factor to consider when examining mating preferences.

Uniforms: A Status Symbol

Social psychological research has consistently found that uniforms are an effective means of conveying status and indeed influence the behavior of others (Guéguen, 2009). Examples in modern society include police and military uniforms. In ancestral times, ornamental clothing or adornments on one's body would certainly demonstrate status, akin to how some modern African tribal witch-doctors or shamans, are often clad in special outfits designed to signify their status (Drennan, 1934).

Numerous studies have replicated findings that uniforms are an effective means of conveying status. For example, Gherardi, Cameron, West, and Crossley (2009), examined patient preferences of doctor's outfits, each varying in degrees of formality. The researchers found that patients had the most confidence in doctors wearing the symbolic white coat, followed by doctors in a long-sleeved shirt, tie, and tailored trousers for men or a long-sleeved shirt and knee-length skirt for women. This result is likely due to patient exposure to this dress style. Casual attire was the least confidence inspiring because of its generally unkempt appearance. (Gherardi, Cameron, West, & Crossley, 2009). This example clearly demonstrates that uniforms not only convey status, but also draw out perceptions of capability and behavior regarding the person wearing it. Formal attire has been found across a large number of contexts to generate an impression of status and power (Kwon & Johnson, 1998). Yet, it remains unclear if uniforms as a status symbol influences perceived attractiveness.

The Big Five Personality Traits

The Big Five Personality Traits are heavily researched within the realm of psychology. Past research into these traits have shown that they are powerful predictors of a broad range of outcomes. These traits include Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (Roccas, Sagiv, Schwartz, & Knafo, 2002). These traits are important in understanding people's inherent disposition, and the study recorded the participant's Big Five scores. This present study utilized the Big Five personality traits to better understand the types of females regarding the different preferences for the risky and altruistic firefighters, with specific a priori predictions being made for Neuroticism and Extraversion.

The Big Five Personality Traits have been found to be strongly connected to several mating-relevant outcomes. For example, with regard to North American women, Schmitt and Shackelford (2008, pg. 262) found that “higher neuroticism was significantly associated with interest in short-term mating, unrestricted sociosexuality, short-term mate poaching attempts, succumbing to short-term mate poaching attempts, and lower relationship exclusivity.” This finding would imply that women scoring high on Neuroticism measures would prefer short-term mating conditions over longer-term mating conditions. Higher extraversion was associated significantly with behaviors such as, interest in short-term mating, unrestricted sociosexuality, short-term mate poaching attempts, and acquiescence to short-term poaching attempts. This would also imply that women scoring high on Extraversion measures would prefer short-term mating conditions over long-term mating conditions. Both women’s scores on Neuroticism and Extraversion were examined to see if women scoring high on either of these scores prefer short-term mating conditions over longer-term mating conditions.

The Dark Triad

A cluster of personality traits referred to as The Dark Triad has also been researched extensively in psychological research. The Dark Triad consists of Narcissism, characterized by a lack of empathy and egotism, Machiavellianism, characterized by behaviors such as manipulating and exploiting of others for personal gain, and Psychopathy, characterized by remorselessness, and selfishness (Paulhus & Williams, 2002). Scores on dark triad assessments help researchers better understand certain patterns of behavior. The participants scores on the Dirty Dozen dark triad scale was recorded as an additional dispositional variable. Dark triad scores were examined to see if

there was any impact regarding female attractiveness ratings when riskiness and altruism are experimentally manipulated.

The Current Study

This study aimed to explore the attractiveness of volunteerism, more specifically with regards to volunteer firefighting. Based on evolutionary psychological research, we know that volunteering is attractive (Moore et. al, 2013), and riskiness in males is attractive, especially so for short-term relationships (Vincke, 2016). With that information in mind, this study sought to extend those findings to see if they applied to members of the volunteer fire service. Volunteering to be a member of a fire service is both altruistic and extremely risky, and firefighting is a predominantly male activity. (96.4% male as of 2015 according to the National Fire Protection Association.).

This study also sought to explore the impact that different uniforms have on the perception of attractiveness. Both the Dress Uniform (Class A) and the Turnout Gear of the firefighter was used to examine if there are any differences between the traditional uniform and the more rugged and “risky” turnout gear regarding attraction. This study also explored if women high in Dark Triad or other personality measures will prefer longer or shorter mating conditions, and also examined the role of uniforms regarding the perception of attraction.

In this study, heterosexual female participants were given an online survey that included basic demographic information, measures of the Big Five and the Dark Triad. Further, participants also viewed a picture of a firefighter in either Turnout Gear, the Dress Uniform, or Plain Clothes. The picture also included a short biography that stated

that this person is a volunteer firefighter and either enjoys taking risks, enjoys protecting the community, or simply that he is a volunteer firefighter for various reasons.

The general research questions examined participant's attractiveness regarding different model photo conditions, and different biography cues. This study also included a variety of highly specified hypotheses in collaboration with the Open Science Framework, a resource used in order to increase integrity, and reproducibility of all types of research. The a priori hypotheses that were pre-registered on the Open Science Framework were as follows:

1. The model wearing the turnout gear will be rated highest in attractiveness for a brief sexual affair across biography conditions.
2. The model wearing the dress uniform will be rated highest in attractiveness for a long-term committed romantic relationship across biography conditions.
3. The biography character with high motivation for risk-taking will be rated highest in attractiveness for a brief sexual affair across model photo conditions.
4. The biography character with high motivation for protecting the community will be rated highest in attractiveness for a long-term committed romantic relationship across model photo conditions.
5. Women scoring high on the Dark Triad scale will rate the biography character with high motivation for risk-taking more attractive for a brief sexual affair across model photo conditions.
6. Women scoring higher on the Neuroticism measure from the TIPI scale will rate the biography character with high motivation for risk-taking more attractive, especially for a for short-term mating condition.

7. Women scoring higher on the Extraversion measure from the TIPI scale will rate the biography character with high motivation for risk-taking more attractive for a brief sexual affair.
8. Women scoring higher on the Extraversion measure from the TIPI scale will rate the model wearing the turnout gear more attractive for a brief sexual affair.
9. Women scoring higher on the Mating effort scale will rate the model in the turnout gear higher in attractiveness for a brief sexual affair across biography conditions.
10. Women scoring higher on the Mating effort scale will rate the biography character with high motivation for risk-taking more attractive for a brief sexual affair across model photo conditions.
11. The model wearing turnout gear will be rated as relatively higher on the mating effort scale across model photo conditions.
12. The biography character with high motivation for risk-taking will be rated relatively higher on the mating effort scale across biography conditions.
13. Women scoring high on the Parenting effort scale will rate the model in the dress uniform as more attractive for a long-term, committed romantic relationship across biography conditions.
14. Women scoring higher on the Parenting effort scale will rate the biography character with high motivation for protecting the community as more attractive for a long term, committed relationship across model photo conditions.
15. The model wearing the dress uniform will be rated relatively higher on the parenting effort scale, across model photo conditions.

16. The biography character with high motivation for protecting the community will be rated relatively higher on the parenting effort scale, across model photo conditions.

Method

Participants

Participants were recruited through an e-mailed survey sent through the State University of New York at New Paltz SONA system. It is important to note that this survey is limited to members of the female sex only for several reasons. This study will be using a male model, since 96.4% of firefighters are male. As an exploratory study of volunteer firefighters, the attractiveness of male firefighters was examined.

Procedures and Materials

The survey was distributed to potential participants via the State University of New York at New Paltz SONA system, and advertised via various social media platforms. Participants received a link to survey on Qualtrics where they answered basic demographic information, and were first presented with a picture of a male model in either the Dress Uniform of a firefighter, the Turnout Gear of a firefighter, or Plain Clothes. The three pictures used in this study were photographed by a professional photographer in a studio. Specific instructions were given to ensure that the model knew to maintain a neutral expression and maintain the exact same body position across all three pictures. Afterwards, the photographer digitally fine-tuned the photos.

Participants were given the Ten Item Personality Measure (TIPI); (Gosling et. al., 2013) in order to measure their scores regarding the Big Five. This scale was useful in measuring participants scores relative to the Big Five. Based on the theoretical rationale

of this study, it is was predicted that women scoring high on measures of Neuroticism and Extraversion will prefer short-term mating conditions over long-term mating conditions. Furthermore, the Dirty Dozen (Jonason & Webster, 2010) was used to measure the Dark Triad. Based on the theoretical rationale of this study, it was predicted that women scoring higher on the Dark Triad scale will rate the biography character with high motivation for risk-taking as more attractive across all relationships compared to women scoring lower on the Dark Triad scale, across both model and biography conditions.

The Mating Effort Scale is an eight-item scale with an internal consistency of .906, and was used to measure the participants belief on how the model acts with regards to mating behaviors. Participants were asked the general question, “Please think of Anthony and rate him on the following characteristics. 0 = as low as possible, 100 = as high as possible,” and all answers were based on a sliding scale. The mating effort scale was included as a proxy for a tendency to be a short-term mating strategist. Based on the theoretical rationale of this study, the target rated as risky was expected to be rated relatively high on this measure.

The Parenting Effort Scale is an eight-item scale with an internal consistency of .910, and was used to measure the participants beliefs on how they think the model would be as a long-term partner. Participants were asked the general question, “Please think of Anthony and rate him on the following characteristics. 0 = as low as possible, 100 = as high as possible”, and all answers were based on a sliding scale. The parenting effort scale was included as a proxy for a tendency to be a long-term mating strategist. Based

on the theoretical rationale of this study, the target rated as altruistic or communal was expected to be rated relatively high on this measure.

Further, these general questions were also asked to measure female's attractiveness to the male models: "How interested would Anthony be in..."

-A long-term committed, romantic relationship

-A two-month romantic relationship

-A brief sexual affair

As well as, "How attractive do you think Anthony would be to women for..."

-A long-term committed, romantic relationship

-A two-month romantic relationship

-A brief sexual affair

Results

The data from the study were analyzed via SPSS. Final scores for each participant were coded and computed to test each of the expected hypotheses. Multiple between groups ANOVA's and correlations were conducted to examine the effects among photo and biography conditions, perceived mating and parenting effort, and types of attractiveness. Further, correlations between measures of the Big Five, Dark Triad, Mating Effort, Parenting Effort scales and the participants' ratings of attractiveness were also examined.

Analyses of the Primary Hypotheses:

H₁ & H₃: A Two-way ANOVA revealed that different model photos differed significantly as a function of participant perception of the model in terms of

attractiveness for a brief sexual affair, ($F(2,434) 28.24, p < .001$). However, this analysis found no significant differences between the biography character conditions regarding attractiveness for a brief sexual affair across model photo conditions. The interaction between these two variables was also not statistically significant. For means, standard deviations, and specific contrasts between means that were significant, see Table 2. Regarding the model photo condition, the Tukey post-hoc test revealed that the Dress Uniform condition differed significantly from both the Plain Clothes and Turnout Gear condition regarding attractiveness for a brief sexual affair ($p = .000$). The Plain Clothes photo was rated as most attractive for a brief sexual affair across biography conditions, followed by the Turnout Gear, with the Dress Uniform being rated the lowest in attractiveness for a brief sexual affair. See Figure 1. Women therefore perceived the model in both the Plain Clothes and Turnout Gear as more attractive for a brief sexual affair, regardless of biography condition.

H₂ & H₄: A Two-way ANOVA revealed that different model photos differed significantly as a function of participant perception of the model in terms of attractiveness for a long-term relationship, ($F(2,444) 5.68, p = .004$). Significant differences between the biography character conditions regarding attractiveness for a long-term relationship were also found, ($F(2,444) 7.98, p < .001$). The interaction between these two variables was not statistically significant. For means, standard deviations, and specific contrasts between means that were significant, see Table 3. Regarding the model photo condition, the Tukey post-hoc test revealed that the Turnout Gear condition differed significantly from both the Plain Clothes ($p = .005$) and Dress Uniform ($p = .013$) condition regarding attractiveness for a long-term relationship. Unexpectedly, the

Turnout Gear was rated as most attractive for a long-term committed, romantic relationship. This effect was strongest in the communal biography condition. Regarding the biography conditions, the Tukey post-hoc test revealed that the Risky Biography condition differed significantly from both the Communal ($p = .000$) and Neutral ($p = .031$) condition regarding attractiveness for a long-term relationship. Both the Communal and Neutral biography characters were rated significantly higher than the Risky biography in attractiveness for a Long-term committed romantic relationship across model photo conditions, supporting the original hypotheses. See Figure 2.

H₁₁ & H₁₂: A Two-way ANOVA revealed that different model photos differed significantly as a function of participant perception of the model in terms of the Mating effort scale. The main effects of both the biographies and picture conditions were statistically significant, $F(2,531) 21.30, p < .001$, $(F(2,531) 9.74, p < .001)$, respectively. The interaction between these two variables was not statistically significant. For means, standard deviations, and specific contrasts between means that were significant, see Table 4. Regarding the model photo condition, the Tukey post-hoc test revealed that the Plain Clothes condition differed significantly from both the Dress Uniform ($p = .000$) and Turnout Gear ($p = .001$) condition as a function on the Mating effort scale. The plain clothes photo was rated as highest in perceived mating effort, followed by the Turnout Gear model. Both of these conditions significantly differed from the Dress Uniform model, which was rated lowest in terms of mating effort, as expected. Additionally, as anticipated, mating effort was highest in the risky biography condition. See Figure 3.

H₁₅ & H₁₆: A Two-way ANOVA revealed that different model photos differed significantly as a function of participant perception of the model in terms of the Parenting

effort scale. The main effects of both the biography and picture conditions were statistically significant: $F(2,531) 15.46, p < .001$, ($F(2,531) 5.49, p < .001$), respectively. The interaction between these two variables was marginally statistically significant, ($F(2,531) 2.36, p = .05$). For means, standard deviations, and specific contrasts between means that were significant, see Table 5. Regarding the model photo condition, unexpectedly, the Tukey post-hoc test revealed that the model wearing the Turnout Gear was rated highest on the Parenting Effort Scale, closely followed by the Dress Uniform. Both the Turnout Gear ($p = .003$) and Dress Uniform ($p = .025$) were significantly different from the Plain Clothes condition. Regarding the biography condition, parenting effort was the highest in the communal biography condition as hypothesized ($p = .00$). See Figure 4.

H₉: A bivariate correlation was conducted to examine the relationship between all women's perceptions of the models on mating effort and ratings of attractiveness for a brief sexual affair for scenarios with the turnout gear. Scores of Mating Effort and attractiveness for a brief sexual affair were positively correlated and statistically significant $r(165) = .29, p < .001$ for the model in the Turnout Gear, across biography conditions.

H₁₀: A bivariate correlation was conducted to see examine the relationship between all women's perceptions of the models on mating effort and ratings of attractiveness for a brief sexual affair for scenarios with the biography character with high motivation for risk-taking. Scores of Mating Effort and attractiveness for a brief sexual affair were positively correlated and statistically significant $r(167) = .43, p < .001$ for the Risky biography, across photo conditions.

H₁₃: A bivariate correlation was conducted to examine the relationship between all women's perceptions of the models on Parenting Effort and ratings of attractiveness for a long-term, committed relationship for scenarios with the Dress Uniform. Scores of Parenting Effort and attractiveness for a long-term, committed relationship were positively correlated and statistically significant $r(164) = .44, p < .001$ for the model in the Dress Uniform, across biography conditions.

H₁₄: A bivariate correlation was conducted to examine the relationship between all women's perceptions of the models on Parenting Effort and ratings of attractiveness for a long-term, committed relationship for scenarios with the Communal biography character. Scores of Parenting Effort and attractiveness for a long-term, committed relationship were positively correlated and statistically significant $r(170) = .42, p < .001$ for the Communal biography, across photo conditions.

Analyses of the Dispositional Correlates of Target Ratings

H₅: Multiple bivariate correlations were conducted to determine if women scoring higher on the Dark Triad preferred different biography character for a brief sexual affair. No significant relationship was detected for attractiveness for a brief sexual affair. For means and standard deviation information, see Table 5. However, a significant positive correlation was detected for women in the Risky biography condition, and preference for a 2-month relationship, but not in the case of other biography conditions, see Table 7.

H₆: Multiple bivariate correlations were conducted to determine if women scoring higher on Neuroticism (the inverse of Emotional Stability) preferred different biography characters for a brief sexual affair. A significant negative correlation was detected for women in the Communal biography condition regarding preference for a brief sexual

affair. For means and standard deviation information, see Table 8. This finding was not detected in the risky or neutral biography conditions. These results suggest that more emotionally stable (i.e; less neurotic) women are less attracted for short-term relationships.

H₇ & H₈: Multiple correlations were conducted to determine if women scoring higher on Extraversion preferred different biography characters or models for a brief sexual affair. No significant correlations were detected for perceived attractiveness for a brief sexual affair. For means and standard deviation information, see Tables 9 + 10. Extraversion therefore does not appear to be an influential factor in participants attraction to a target when altruism and risk-taking is manipulated.

Discussion

The purpose of this study was to explore the many facets of attraction regarding risk-taking, altruism, and the perceptions of uniforms, in the specific context of volunteer firefighters. We have several robust findings that support long-standing ideas which are heavily rooted in the literature. Some of the findings were surprising, however.

Risk-Taking and Mating Psychology

Historically, risk-taking behaviors in men have been found to be attractive for a short-term relationship (Bassett & Moss, 2004), (Kelly & Dunbar, 2001), (Ronay & Hippel, 2010), (Sylwester & Pawłowski, 2011). This study utilized both biography with cues suggesting that risk-taking, and the Turnout Gear of the firefighter, which by its rugged and masculine nature implies effective risk-taking behaviors.

When only looking at the photos, participants rated the Plain Clothes condition highest for attractiveness for a brief sexual affair. This finding is interesting, because theoretically the Turnout Gear condition should have been rated highest. However, several possible explanations for this finding exist, such as issues regarding the ecological validity of the Turnout Gear, greater amount of skin shown in the Plain Clothes photo, or perhaps the Turnout Gear was not interpreted as expected. When participants only rated the biography conditions, we found no significant differences in preference for a brief sexual affair. According to the literature, there should have been a preference for the biography with the risky cues for a brief sexual affair, however no such effect was detected. This leads us to believe that there are additional unconsidered factors when it comes to women making a decision to engage in a brief sexual affair with someone, and perhaps the brief biography was insufficient information to influence behavior.

When examining the different model photos in terms of the Mating Effort scale ratings, again we found that the Plain Clothes condition was rated highest, followed by the Turnout Gear condition. The Mating Effort scale embodies all aspects of risk-taking, and measures believed thoughts and behaviors of the target. Someone that engages in risky behavior would be rated relatively high on this scale, while a non-risktaker would be rated relatively low. Again, we found the Plain Clothes condition to be rated highest on this measure. This leads us to believe that the Turnout Gear was interpreted differently than we anticipated, which we will discuss further in limitations. When examining the different biographies in terms of the Mating Effort scale ratings, we found that the risky biography was rated highest on the Mating Effort scale when compared to the communal

and neutral. This finding is unsurprising, the risky biography certainly included cues that the target was a risk-taker, and aligned well in general with items on the Mating Effort scale.

Further, across biography conditions, we found a significant positive relationship regarding scores of Mating Effort and perceived attractiveness for a brief sexual affair for the model in the Turnout Gear. Women scoring higher on the Mating Effort scale found the Turnout Gear condition as most attractive for a brief sexual affair. Similarly, another positive relationship was found regarding women scoring higher on the Mating Effort scale and the risky biography being rated highest in attractiveness for a brief sexual affair. These two findings imply that if the participant scored the model as relatively high on the Mating Effort scale, they also found the model as more attractive for a brief sexual affair. This is intuitive given what we know from past research regarding mating preferences and behaviors. (Bassett & Moss, 2004) (Sylwester & Pawłowski, 2011).

Altruism and Mating Psychology

Within the realm of mating psychology, altruism and altruistic behaviors have been seen to be preferred for friendships, partnerships, and long-term relationships. (Barclay, 2010), (Farrelly, Clemson, & Guthrie, 2016), (Jensen-Campbell, Graziano, West, 1995), (Kelly & Dunbar, 2001). These findings are not surprising, if you are going to spend a considerable amount of time with another, you would certainly prefer them to act in a kind, open, and selfless manner, which are all examples of altruistic behavior. The study utilized both the model photo of the Dress Uniform of the firefighter and a biography that contained communal cues in order to represent altruistic behaviors.

When examining only the different photo conditions, the Turnout Gear condition was rated highest in attractiveness for a long-term relationship. This finding was surprising, the clean, pressed, and other-wise professional looking Dress Uniform clashes completely with the rugged, dirty, and masculine Turnout Gear. Once again, we believe that the Turnout Gear was interpreted differently than we initially predicted it to be. When only examining the different biography conditions, the communal biography was rated highest in attractiveness for a long-term relationship. This finding is not surprising, as previously mentioned, the literature has found that there is a clear preference for altruistic and prosocial men for longer-term relationships. The communal biography certainly was able to convey that the model was displaying altruistic behaviors.

When examining the different model photos in terms of the Parenting Effort scale, we found that the Turnout Gear was rated highest. The Parenting Effort scale measures participants' beliefs on how they believe the target is as a provider/partner. Someone that displays altruistic tendencies would be rated relatively high on this scale when compared to someone that does not. The Turnout Gear being rated highest on this scale is surprising, but like previously mentioned, we believe that the Turnout Gear was interpreted differently than we initially predicted it to be. Further, there is another possible explanation for this finding. The Turnout Gear is often the symbol of all firefighters. When people envision what firefighters wear, it is typically the Turnout Gear. Perhaps participants rated the Turnout Gear highest on this scale because someone that can financially afford to volunteer their free time is a good provider for others, with a secure occupation. When examining the different biographies in terms of the Parenting Effort scale ratings, we found that the communal biography was rated highest. This is

finding is unsurprising, as the altruistic cues present in the communal biography align well with the items within the Parenting Effort scale. After all, the communal biography was intended to be seen as a provider/altruist, is not surprising that this biography was rated highest on the Parenting Effort scale, which encapsulates elements of selflessness and altruism.

Further, across model photo conditions, we found a significant positive relationship regarding scores of Parenting Effort and perceived attractiveness for a long-term relationship for the model in the Dress Uniform. Women perceiving a higher degree of Parenting Effort rated the model in the Dress Uniform as more attractive for a long term, committed relationship across biography conditions. This finding is intuitive given what the literature has historically shown regarding attractiveness for a long-term relationship. (Farrelly, Clemson, & Guthrie, 2016), (Jensen-Campbell, Graziano, West, 1995). Regarding scores of Parenting Effort and perceived attractiveness for a long-term relationship for the biography conditions, we also discovered a positive relationship. Women perceiving a higher degree of Parenting Effort rated the Communal biography as more attractive for a long term, committed relationship across photo conditions. Again, this finding also aligns with previous literature, and is demonstrating the preference for altruistic characteristics in a partner for a longer-term mating condition. (Barclay, 2010), (Farrelly, Clemson, & Guthrie, 2016), (Jensen-Campbell, Graziano, West, 1995).

Personality Correlates and Attractiveness Ratings

Within a mating context, varying disposition has been correlated to several mating outcomes. Historically, high levels of Extraversion have been shown to be an indicator for an increased likelihood to engage in short-term mating encounters, and by extension,

a preference for risky partners (Gute, & Eshbaugh, 2008). However, we found no significant findings for women scoring higher on Extraversion and attractiveness for a brief sexual affair regarding the biography characters nor model photo conditions. Participants that scored higher on Extraversion showed no preference for either the risky biography or Turnout Gear photo. This was surprising, given the literature has shown a previous correlation between Extraversion and likelihood to engage in brief sexual affairs, however there are several possible explanations. Perhaps the general population may not prescribe to the pre-determined behaviors that some of these scales might always suggest. Though the general personality traits have been found to be highly ubiquitous as predictors, they do not necessarily guide behaviors and perceptions. Mating psychology in particular is especially complex due to evolutionary and other environmental influences (Schmitt et. al, 2008). Further, perhaps just a photo or biography was an insufficient manipulation to detect this relationship. This finding would suggest that Extraversion alone does not equate to always being willing to engage in a brief sexual affair.

Neuroticism, the inverse of emotional stability, has typically been correlated for a preference for brief sexual affairs (Gute, & Eshbaugh, 2008). Participants that self-reported higher levels of emotional stability had a negative correlation with the attractiveness of a brief sexual affair. This finding parallels findings from what past literature has found, highly emotionally stable women typically do not find brief sexual affairs attractive (Schmitt et. al, 2008).

The Dark Triad has previously been shown to be correlated to several mating relevant outcomes. In general, higher scores on the Dark Triad measure typically

correlate for an increased preference for short-term mating conditions (Antari, & Chegeni, 2017). We found no significant relationship between Dark Triad scores and biography characters regarding attractiveness for a brief sexual affair across model photo conditions. While the literature has not found that females scoring higher on the Dark Triad of personality typically prefer risky partners, these females do engage in different mating behaviors, such as having a “back-up boyfriend” (Wedburg, 2016). It is also plausible that this relationship may have been detected under different experimental contexts.

Limitations

Females perception of Mating and Parenting Effort is substantially influenced by both the appearance and description of male volunteer firefighters. However, some limitations should be noted. Regarding external validity, the sample was not abundantly diverse, as the majority of participants were female college students attending a small state school. Unfortunately, we were limited with the ability to quickly and efficiently gain access to a more diverse sample, given this study’s associated time constraints.

Biography Manipulation

While the biography excerpt included in this study were brief, we believe that they were effective at displaying the various behaviors that we intended. In general, the biographies seemed to be more effective than the photo model conditions. Further work with biographies of this nature would benefit from the possibility of expanding upon length of the excerpt.

Photo Manipulation

The model photos used in this study were mostly successful. The upmost care went into ensuring that the different conditions were as closely matched as possible. An issue we have noticed after the completion of the study is that participants seem to have misinterpreted the Turnout Gear. Originally, we intended the Turnout Gear to be interpreted as risky, given it's masculine, dirty, and rugged nature. However, we believe that the Turnout Gear was instead interpreted as an altruist/provider. Given that when one typically envisions a firefighter, symbols of the Turnout Gear (ex: hat, jacket, etc...) are often the first to come to mind. Further, the photo that we intended to serve as the control (the Plain Clothes) showed more skin than the other models. This was in part to the short-sleeve shirt the model was wearing, which could have potentially allowed participants to better see the model's well-defined muscles. This may have influenced participants thoughts on mating behaviors.

Future Directions

While there does exist an abundant amount of research into attraction, e.g., (Bassett & Moss, 2004), (Farrelly, Clemson, & Guthrie, 2016), (Kelly, & Dunbar, 2001), etc..., this study is the first to specifically look into the attractiveness using volunteer firefighters as an exemplar of both altruism and risk-taking. Future research in this topic should utilize the duality that the firefighter represents, being both a symbol of selflessness and a risk-taker. Future work with this topic would benefit from a more geographically diverse sample size, and the inclusion of a female firefighter model, or alternative forms of volunteerism. Though this study was limited in terms listed above,

the findings begin to better elucidate the factors involved in heterosexual female mating psychology.

The Bottom Line

This study was designed to investigate the some of the many factors that impact female mate selection. These factors included preference for risk-taking behaviors, altruistic behaviors, and the impact uniforms have on the perception of attraction. At the end, this study found several interesting and important mating related outcomes that will better help to understand the complex field of female mating psychology.

References

- Anderson, C., John, O. P., Keltner, D., & Krings, A. M. (2001). Who attains social status? Effects of personality and physical attractiveness in social groups. *Journal of personality and social psychology, 81*(1), 116-132.
- Antari, M., & Chegeni, R. (2017). The Dark Triad and long-term mate preferences in Iranian women. *Personality and Individual Differences, 104*(1), 333-335.
- Barclay, P. (2010). Altruism as a courtship display: Some effects of third-party generosity on audience perceptions. *British Journal of Psychology, 101*(1).
- Bassett, J. F., & Moss, B. (2004). Men and women prefer risk takers as romantic and nonromantic partners. *Current Research in Social Psychology, 9*(10), 1-10.
- Dillon, M. & Garland, L. (2005). *Ancient Rome: From the Early Republic to the Assassination of Julius Caesar*. New York, NY: Routledge Taylor and Francis Group.
- Drennan, M.R. (1934) Two witch-doctor's outfits from Angola, *Bantu Studies, 8*(1), 383-387, DOI: 10.1080/02561751.1934.9676348
- Farrelly, D., Clemson, P., & Guthrie, M. (2016). Are women's mate preferences for altruism also influenced by physical attractiveness? *Evolutionary Psychology, 14*(1) 1-6 <https://doi.org/10.1177/1474704915623698>
- Gherardi G, Cameron J, West A, Crossley M. (2009). Are we dressed to impress? A descriptive survey assessing patients' preference of doctors' attire in the hospital setting. *Clinical Medicine. 9*,519–524.
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A Very Brief Measure of the Big Five Personality Domains. *Journal of Research in Personality, 37*, 504-528.

- Guéguen, N. (2009). Man's uniform and receptivity of women to courtship request: Three field experiments with a firefighter's uniform. *European Journal of Social Sciences, 12*(2), 236-241.
- Gute, J. & Eshbaugh, EM. (2008). Personality as a predictor of hooking up among college students. *Journal of Community Health Nursing, 25*(1), 26-43.
- Jensen-Campbell, L., Graziano, W., West, S. (1995). Dominance, prosocial orientation, and female preferences: Do nice guys really finish last? *Journal of Personality and Social Psychology, 68*(3), 427-440
- Jonason, P. & Webster, G. (2010). The Dirty Dozen: A concise measure of the Dark Triad. *Psychological Assessment, 22*(2), 420-432
- Kelly, S. & Dunbar, RI. (2001). Who dares, wins: Heroism versus altruism in women's mate choice. *Human Nature, 12*(2), 89-105
- Kruger, D.J., Fisher, M., & Jobling, I. (2003) Proper and Dark Heros in as DADS and CADS. *Human Nature, 14*:305-317 <https://doi.org/10.1007/s12110-003-1008-y>
- Kwon YH, Johnson HJ. (1998). College students' perceptions of occupational attributes based on formality of business attire. *Perceptual and Motor Skills 87*:987-994.
- Machluf, K. & Bjorklund, D. (2015). Understanding Risk-Taking Behavior: Insights from Evolutionary Psychology. *Emerging Trends in the Social and Behavioral Sciences, 3*(2), 33-45.
- Miller, G. (2000). *The Mating Mind*. New York, NY: Random House.

- Moore, D., Wigby, S., English, S., Wong, S., Szekely, T., & Harrison, F. (2013).
Selflessness is sexy: reported helping behaviour increases desirability of men and
women as long-term sexual partners. *BMC Evolutionary Biology*, 3(13):182
- Paulhus, D. & Williams, K. (2002). The Dark Triad of personality: Narcissism,
Machiavellianism, and psychopathy. *Journal of Research in Personality*, 36:556-
563
- Roccas, S., Sagiv, L., Schwartz, S., & Knafo, A. (2002). The Big Five Personality Factors
and Personal Values. *Personality and Social Psychology Bulletin* 28(6), 789-801
- Ronay, R. & Hippel, W. (2010). The Presence of an Attractive Woman Elevates
Testosterone and Physical Risk Taking in Young Men. *Social Psychological and
Personality Science* 1(1), 57-64. <https://doi.org/10.1177%2F1948550609352807>
- Schmitt, D. P., & Shackelford, T. K. (2008). Big Five Traits Related to Short-Term
Mating: From Personality to Promiscuity across 46 Nations. *Evolutionary
Psychology*. 6(2), 246-282 <https://doi.org/10.1177/147470490800600204>
- Sylwester, K., & Pawłowski, B., (2011). Daring to Be Darling:
Attractiveness of Risk Takers as Partners in Long- and Short-Term Sexual
Relationships. *Sex Roles*. 64, 695-706. 10.1007/s11199-010-9790-6.
- Vincke, E. (2016). The Young Male Cigarette and Alcohol Syndrome: Smoking and
Drinking as a Short-Term Mating Strategy. *Evolutionary Psychology*, 14(1),1-13
<https://doi.org/10.1177/1474704916631615>
- Wedberg, N. A. (2016). Partner Insurance: Women May Have a Backup Partner as a
Mating Strategy. Thesis submitted in partial completion of the MA degree in
psychology, State University of New York at New Paltz.

Tables

Table 2.

Descriptive Statistics for “How attractive do you think Anthony would be to women for... a brief sexual affair?”

Biography	Picture	Mean	Standard Deviation
Risky Biography	Dress Uniform	44.39	32.00
Risky Biography	Turnout Gear	64.51	28.41
Risky Biography	Plain Clothes	71.32	21.03
Risky Biography	Total	60.59	29.38
Communal Bio	Dress Uniform	41.24	27.38
Communal Bio	Turnout Gear	55.31	28.35
Communal Bio	Plain Clothes	65.10	25.09
Communal Bio	Total	54.31	28.48
Neutral Bio	Dress Uniform	47.37	28.96
Neutral Bio	Turnout Gear	63.98	28.53
Neutral Bio	Plain Clothes	66.36	24.77
Neutral Bio	Total	58.65	28.70
Total	Dress Uniform	44.46	29.39
Total	Turnout Gear	61.01	28.55
Total	Plain Clothes	67.69	23.62
Total	Total	57.81	28.91

Table 3.

Descriptive Statistics for “How attractive do you think Anthony would be to women for... a long-term committed, romantic relationship?”

Biography	Picture	Mean	Standard Deviation
Risky Biography	Dress Uniform	57.61	27.47
Risky Biography	Turnout Gear	67.21	21.27
Risky Biography	Plain Clothes	56.11	25.80
Risky Biography	Total	60.18	25.30
Communal Bio	Dress Uniform	69.45	24.20
Communal Bio	Turnout Gear	77.51	18.63
Communal Bio	Plain Clothes	66.87	23.96
Communal Bio	Total	71.30	22.70
Neutral Bio	Dress Uniform	64.24	26.58
Neutral Bio	Turnout Gear	70.50	23.91
Neutral Bio	Plain Clothes	67.28	22.80
Neutral Bio	Total	67.28	24.52
Total	Dress Uniform	63.90	26.35
Total	Turnout Gear	71.86	21.62
Total	Plain Clothes	63.15	24.70
Total	Total	66.28	24.57

Table 4.

Descriptive Statistics for total Mating Effort Scores across conditions.

Biography	Picture	Mean	Standard Deviation
Risky Biography	Dress Uniform	429.40	110.97
Risky Biography	Turnout Gear	425.48	144.18
Risky Biography	Plain Clothes	452.34	100.10
Risky Biography	Total	436.10	108.48
Communal Bio	Dress Uniform	346.87	115.34
Communal Bio	Turnout Gear	345.89	88.80
Communal Bio	Plain Clothes	412.40	98.04
Communal Bio	Total	368.76	105.41
Neutral Bio	Dress Uniform	361.18	101.17
Neutral Bio	Turnout Gear	385.52	96.35
Neutral Bio	Plain Clothes	406.39	91.47
Neutral Bio	Total	383.45	97.80
Total	Dress Uniform	378.66	114.36
Total	Turnout Gear	386.30	105.29
Total	Plain Clothes	425.04	98.53
Total	Total	396.69	107.95

Table 5.

Descriptive Statistics for total Parenting Effort scores across conditions.

Biography	Picture	Mean	Standard Deviation
Risky Biography	Dress Uniform	501.61	132.24
Risky Biography	Turnout Gear	545.42	94.88
Risky Biography	Plain Clothes	503.56	106.40
Risky Biography	Total	517.14	112.83
Communal Bio	Dress Uniform	595.63	88.44
Communal Bio	Turnout Gear	592.58	75.92
Communal Bio	Plain Clothes	534.49	125.47
Communal Bio	Total	573.89	102.53
Neutral Bio	Dress Uniform	577.54	91.23
Neutral Bio	Turnout Gear	561.52	121.18
Neutral Bio	Plain Clothes	555.41	95.26
Neutral Bio	Total	565.25	103.34
Total	Dress Uniform	558.80	112.52
Total	Turnout Gear	566.18	100.27
Total	Plain Clothes	529.57	111.65
Total	Total	551.55	109.20

Table 6.

Correlation table between Dark Triad scores and the attractiveness rating for a brief sexual affair across biography conditions.

Biography	<i>r</i>	<i>p</i>-value	N
Risky Biography	.080	.339	144
Communal Biography	.050	.549	146
Neutral Biography	.014	.868	142

Table 7.

Correlation table between Dark Triad scores and the attractiveness for a 2-month relationship across biography conditions.

Biography	<i>r</i>	<i>p</i>-value	N
Risky Biography	.21*	.011	143
Communal Biography	-.13	.118	147
Neutral Biography	-.002	.981	141

Significant correlations are flagged with asterisks*

Table 8.

Correlation table between Emotional Stability and the attractiveness for a brief sexual affair across biography conditions.

Biography	<i>r</i>	<i>p</i>-value	N
Risky Biography	.002	.979	144
Communal Biography	-.18*	.034	145
Neutral Biography	.06	.484	139

Significant correlations are flagged with asterisks*

Table 9.

Correlation table between Extraversion scores and the attractiveness for a brief sexual affair across biography conditions.

Biography	<i>r</i>	<i>p</i>-value	N
Risky Biography	-.005	.956	144
Communal Biography	-.058	.488	145
Neutral Biography	.008	.923	140

Significant correlations are flagged with asterisks*

Table 10.

Correlation table between Extraversion scores and the attractiveness for a brief sexual affair across model photo conditions.

Biography	<i>r</i>	<i>p</i>-value	N
Dress Uniform	-.043	.610	142
Turnout Gear	.055	.522	140
Plain Clothes	-.071	.393	147

Significant correlations are flagged with asterisks*

Figures

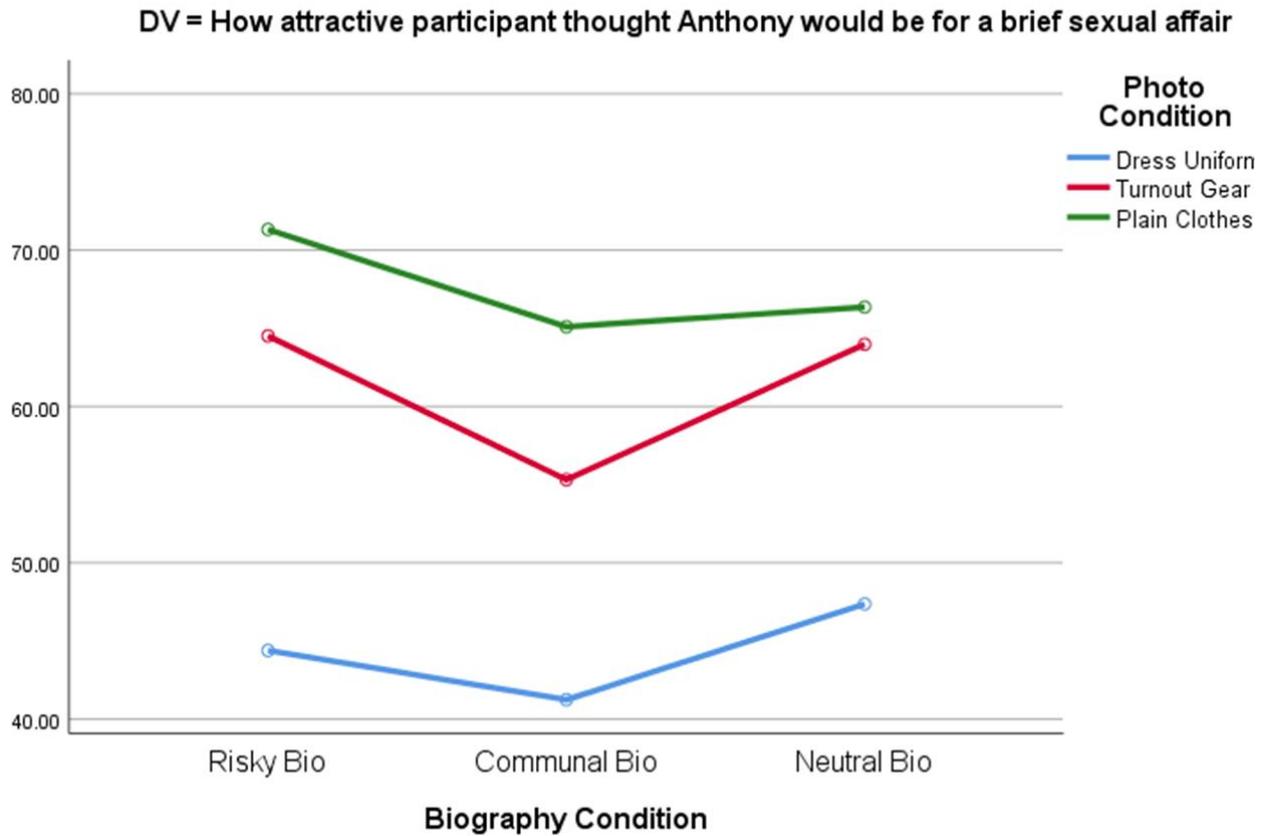


Figure 1. Main Effect for model photo condition on attractiveness for a brief sexual affair. (H_1 & H_3).

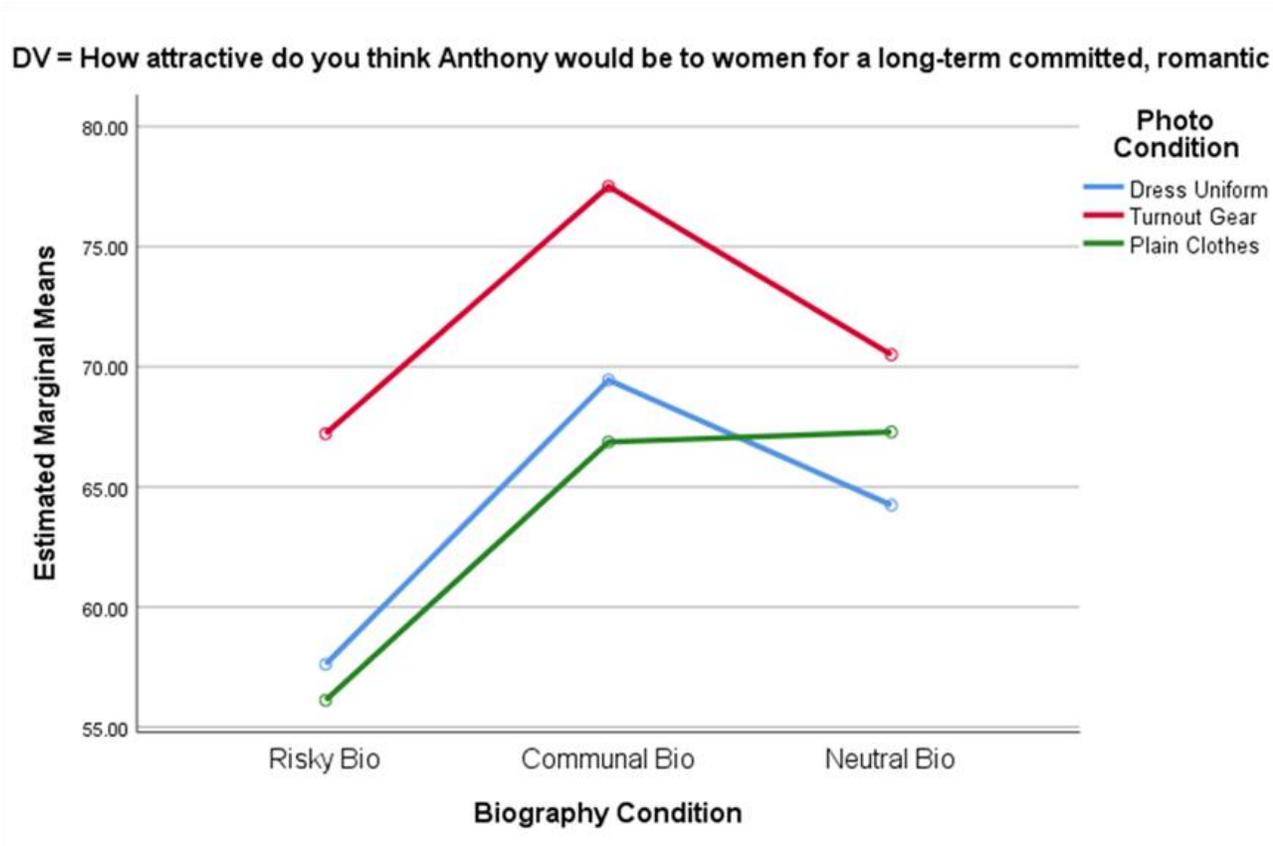


Figure 2. Main effects for both biography and model photo conditions on attractiveness for a long-term committed, romantic relationship. (H₂ & H₄).

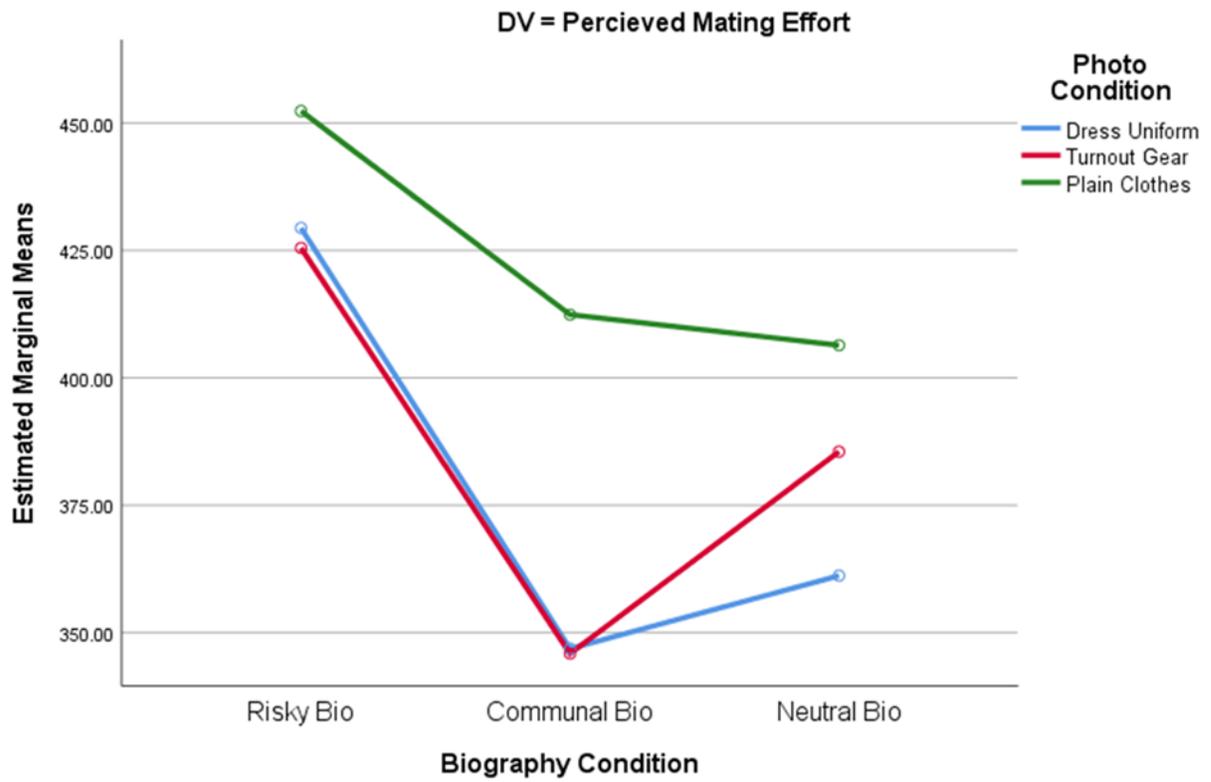


Figure 3. Main effects for both biography and model photo conditions on perceived Mating Effort. (H₁₃ & H₁₄).

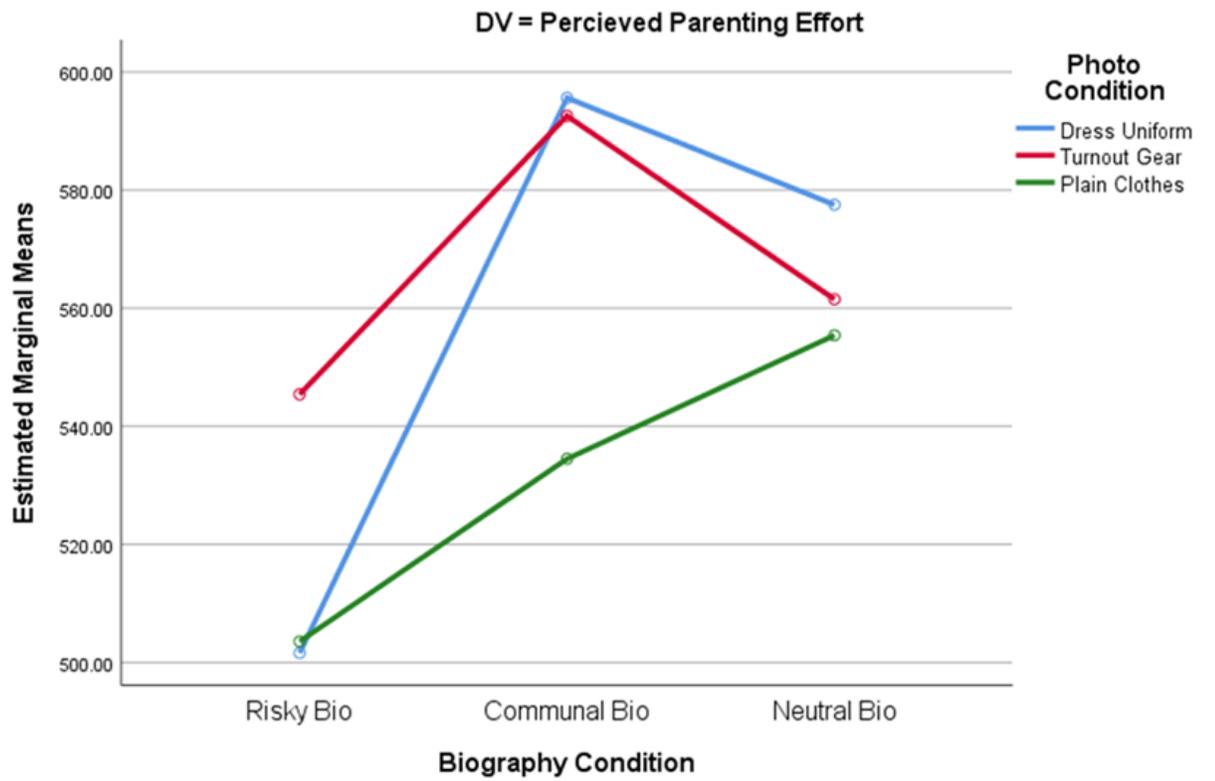


Figure 4. Main effect for both biography and model photo conditions on perceived Parenting Effort. (H₁₅ & H₁₆).

Appendices

Appendix A

Conditions of Study

	Turnout Gear	Dress Uniform	Plain Clothes
Risky Biography	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to be a firefighter for the thrill of responding to calls and he enjoys the rush of being in a dangerous situation.	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to be a firefighter for the thrill of responding to calls and he enjoys the rush of being in a dangerous situation.	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to be a firefighter for the thrill of responding to calls and he enjoys the rush of being in a dangerous situation.
Communal Biography	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to

	be a firefighter because he enjoys helping to protect and serve his community.	be a firefighter because he enjoys helping to protect and serve his community.	be a firefighter because he enjoys helping to protect and serve his community.
Neutral Biography	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to be a firefighter for various reasons.	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to be a firefighter for various reasons.	Anthony is a volunteer firefighter. He is currently a member of the town of Milton's fire department and has volunteered for five years. He has chosen to be a firefighter for various reasons.

Appendix B

Photo's Used in the Current Study

Neutral Clothing



Turnout Gear



Dress Uniform

