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Original Article

Women's fear of crime and preference for formidable mates: how specific are the underlying psychological mechanisms?☆

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ABSTRACT

Previous research shows that feelings of vulnerability, as measured by fear of crime, are associated with preferences for physically formidable and dominant mates (PPFDM), ostensibly because of the physical protection such mates can afford. In the lab and in the field, we tested whether the relationship between PPFDM and fear of crime is pronounced when the risk of crime is relatively high, and for crimes that are evolutionarily more costly. In Study 1, women were presented with daytime and night time images that featured a lone shadowy male figure, crime hotspots and safespots, and they reported their risk of victimisation in the situation depicted in the image. In Study 2, we had female participants walk through crime hotspots and safespots in a city centre during the daytime, and had them report their perceived victimisation risk for different types of crime, perpetrated by a male- versus female. Participants in Study 1 and 2 also completed a scale that measures PPFDM. In both studies, we found that PPFDM was positively associated with fear of crime in hotspots and in safespots. Additionally, fear of crime was significantly affected by risk situation (i.e., safespot versus hotspot, night time versus daytime). The relationship between PPFDM and fear, however, did not vary in relation to risk situation, perpetrator gender, or crime type, suggesting that the psychological mechanisms underlying the relationship between perceived risk of victimisation and PPFDM are general in nature. Women who prefer physically formidable and dominant mates tend to feel more at risk of crime, regardless of the situational risk factors present.

Natural selection increases the prevalence of adaptive traits that benefit successful reproduction and survival (Dobzhansky, 1956). Crime and violence, particularly sexual assault, can reduce significantly a female's fitness as well as her relatives' and close allies' fitness (e.g., see Duntley & Shackelford, 2012). Criminal victimisation has multiple costs (Perilloux, Duntley, & Buss, 2012), including physical and psychological pain (Thornhill & Palmer, 2000), such as depression (Atkeson, Calhoun, Resick, & Ellis, 1982), untimely pregnancy with an undesired mate (Gottschall & Gottschall, 2003), or death (Duntley & Shackelford, 2012), resulting in additional costs such as loss of future reproduction and harm to existing offspring. As such, evolutionary theorists (e.g., Duntley & Shackelford, 2012; Smuts, 1992) have argued that violence during our ancestral history has contributed to shaping the psychology of women through the production of adaptations that are designed to reduce victimisation costs.

Duntley and Shackelford (2012) argue that, while avoidance of violence is the most effective strategy, an attack may not always be unavoidable, and thus individuals often must resort to alternative strategies for protection. They hypothesise that people have evolved adaptations to reduce their risk of victimisation. For example, women's mate selection criteria should, and indeed, evidence suggests that it does, include a preference for mates who can offer protection for themselves and their offspring (e.g., Buss, 1994; Snyder et al., 2011) through being physically formidable and dominant, known as "the bodyguard hypothesis" (Wilson & Mesnick, 1997). For example, women prefer protective qualities in male friends (Bleske-Rechek & Buss, 2001) and short-term or extra-pair mating partners (Buss & Schmitt, 1993; Greiling & Buss, 2000), supposedly due to the protection they can afford.

However, men who have these protective qualities also have less desirable traits that are costly to their mates. Traits that enable protection, such as aggression, dominance and physical formidability, can also be costly to partners (Snyder et al., 2011). For example, aggressive traits (e.g., anti-sociability and anger) predict partner abuse (Lorber & O'leary, 2004) and have been associated with coercion (e.g., Hawley, 2003). Coercion, as well as increased anger, physical aggression, and involvement in fights are also more prevalent in men who are physically stronger than average (Archer & Thanzami,

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2009; Sell, Tooby, & Cosmides, 2009). Moreover, high testosterone in men is associated with lower sympathy and decreased response to infant cries (Fleming, Corter, Stallings, & Steiner, 2002). Despite these costs, some women still desire men with traits associated with aggressive-formidability.

Snyder et al. (2011) posit that women's long-term mate preferences are the product of evolved psychological mechanisms, wherein women who feel vulnerable to violence select mates with traits indicative of aggressive dominance and physical formidability. They maintain that preferences for physically formidable and dominant males (PPFDM) adapt to women's circumstances, and may fluctuate as the need for protection varies. Furthermore, women base their perceptions of how at risk they are on the prevalence of violence in their environment, and on their ability to defend against it, whether on their own, or via protection afforded by others. Optimally, women's mate preferences would be periodically updated in keeping with environmental circumstances. Based on this theoretical framework, Snyder and colleagues hypothesised that women's vulnerability to violent crime would predict PPFDM, particularly in relation to long-term partner preferences. Put differently, the relationship between vulnerability and PPFDM is strongest when the benefits of formidable mates, such as increased access to resources and protection, outweigh the costs.

To investigate the relationship between fear of crime and mate preferences, Snyder et al. (2011) measured women's PPFDM as well as their subjective perceived vulnerability to crime, asking them how worried they were about becoming a victim of various types of crime (mugging, violent attack, sexual assault, burglary, vehicle damage/vandalism, theft of personal property, motor vehicle theft, and general vandalism), using the British Fear of Local Crime Survey. They also estimated, based on zip code, women's actual risk of crime (i.e., based on property and violent crime levels combined) in their present environment and childhood environment, as well as median household income and income inequality. They found that PPFDM was related to subjective perceptions of crime (Studies 1 and 2), as well as actual childhood levels of violence (but only in Study 1). Preferences were not related to current actual levels of crime, to current income, or to current or childhood income inequality. In Study 3, they sought to prime women's fear of crime, randomly assigning women to view photographs that portrayed either danger or safety cues. They tested whether women who had been exposed to dangerous cues would show heightened levels of fear of crime, and stronger preferences for formidable mates. However, the priming manipulation did not affect fear of crime or mate preferences. Rather, fear of crime predicted muscularity preferences, and subjective fear of crime predicted preferences for formidable mates.

Based on these findings, Snyder et al. (2011) suggested that PPFDM is dependent on a woman's self-assessed vulnerability, rather than on actual prevailing rates of violence. They also proposed that perceived vulnerability may be a relatively stable trait that is not sensitive to state perturbation, but rather that is acquired in childhood via exposure to violence. Life history models of attachment posit that early infancy provides crucial information about environmental risks (e.g., Del Giudice, 2009). Evidence supports this proposition. Sherman, Minich, Langen, Skufca, and Wilke (2015) found that the prevalence of registered sex offenders in people's childhood neighborhood was associated with their perceptions of their own criminal victimisation risks as adults. What is more, future reproductive strategies might be based on childhood exposure to crime. However, it is only adaptive to base future reproductive strategies on childhood indicators of risk in relatively stable environments (Del Giudice, 2009). Marzoli et al. (2013) found current environmental factors, such as prevalence of violence, to directly influence mate preferences, such as preferences for dominance in a male partner. Therefore, the association between PPFDM and fear of crime may vary according to the likelihood and evolutionary costs of violence.

Another explanation for the lack of correlation between current residential area and PPFDM found by Snyder et al. (2011) may be due to the possibility that women with high PPFDM generally feel more vulnerable regardless of where they currently live. Therefore, we will extend Snyder et al. (2011) research by measuring women's current PPFDM levels and assessing whether women with relatively higher PPFDM feel higher risk of criminal victimisation compared to women with lower PPFDM in response to cues of crime. We assess whether the impact of crime cues on women's fear of crime are predicted by PPFDM. In particular, we studied whether PPFDM is associated with risk perceptions only when victimisation risk is relatively high, and only for crimes that are evolutionarily more costly (i.e., male-perpetrated crime, especially rape). If PPFDM and risk perceptions correspond only when risk is high, this would suggest that women with relatively strong PPFDM are more sensitive to crime cues. On the other hand, if PPFDM and risk perceptions are associated even when women are not at risk of crime, and for all types of crime, even female-perpetrated crime, this would suggest the psychological mechanisms underlying PPFDM and risk perceptions are more general in nature, with women who prefer more physically dominant and formidable mates tending to feel more vulnerable no matter what their circumstances.

To investigate, in Study 1, we presented women with images taken from a city centre that varied in relation to natural cues (e.g., alleyways, deserted backstreets, broken windows, a shadowy figure of a man) indicative of crime (see Jones, Drury, & McBeath, 2011). Additionally, the images were taken during the day and at night. Women evaluated their risk of a violent victimisation in the situation depicted in the image. We relied on these natural cues to elicit subjective feelings of being at risk of crime (see Abdullah, Marzbali, Bahauddin, & Tilaki, 2015; De Leon & Cohen, 2005; Jones et al., 2011). Rape is stereotypically associated with strange males and alleyways (e.g., McKibbin et al., 2009), and the risk of violent crime is higher at night compared to during the day (Office for National Statistics, 2013). Thus, women should feel particularly at risk of victimisation in response to the images depicting these natural crime cues. Additionally, recent evidence suggests that there is a strong link between fear of crime and the prevailing crime rate within a 1.0 mile radius of people's home address (Zhoa, Lawton, & Longmire, 2015). This suggests that crime cues in one's immediate environment impact on one's perceived risk of victimisation. Therefore, in Study 2, we had women walk through a city centre, following a route that varied with respect to natural crime cues, and they indicated at several points along the route their risk of victimisation for different types of crimes (rape, robbery, and assault), committed by a male versus female assailant.

If women with stronger PPFDM are more sensitive to threats in their environment, then PPFDM and risk perceptions should correspond when women are at the most risk of crime. Therefore, PPFDM should predict risk only when there is a shadowy male figure present and when there are cues indicative of crime present in the environment, and not when these cues are absent (Hypothesis 1), and at night time compared to the daytime (Hypothesis 2). Additionally, we also explored whether different types of crime distinctly impact women in relation to their PPDFM. Therefore, PPFDM and crime type should interact, showing that the relationship between PPFDM and risk is larger for sexual assault than for physical assault and robbery, because sexual assault poses a larger potential evolutionary cost (Hypothesis 3). What is more, the shadow of sexual assault hypothesis (Ferraro, 1995, 1996; Warr, 1985) posits that women show a heightened fear of crime in comparison to men because all crimes, in particular male-perpetrated crimes, can escalate into sexual crimes. Therefore, PPFDM and perpetrator gender should have an interactive effect on risk perceptions, such that PPFDM corresponds with risk perceptions only for male- as opposed to female-perpetrated crime (Hypothesis 4).