Women’s Avoidance of Rape: An Evolutionary Psychological Perspective

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**Evolutionary psychological theory**

This chapter reviews the topic of women’s rape avoidance from a modern evolutionary psychological perspective (for an overview, see e.g., Barkow, Cosmides, & Tooby, 1992; Buss 2004; Confer et al., 2010). An evolutionary psychological perspective is a powerful heuristic tool that can be used to generate novel and testable hypotheses across all domains of psychology.

Evolutionary psychology rests on a number of key premises (Buss, 2004). The first premise states that natural selection is the only known process capable of producing complex functional systems such as the human brain. The complexity of human behavior can only be understood completely by taking into account human evolutionary history and natural selection.

The second premise of evolutionary psychology is that behavior depends on evolved psychological mechanisms. These are information-processing mechanisms housed in the brain that register and process specific information and generate as output specific behaviors, physiological activity, or input relayed to other psychological mechanisms. The third premise is that these evolved psychological mechanisms are functionally specialized to perform a specific task or to solve a specific adaptive problem. Adaptive problems are specific problems that recurrently affected reproductive success over evolutionary history. This third premise is often referred to as domain specificity. Finally, the premise of numerosness states that human brains consist of many specific evolved psychological mechanisms that work together to produce behavior. Together with other theoretical tools and heuristics provided by modern evolutionary theory, these premises are used to generate evolutionary theories of psychology and behavior.

One such heuristic tool that informs evolutionary psychology is parental investment theory (Trivers, 1972). Parental investment theory consists of two premises. First, in sexually
reproducing species, the sex that invests more in offspring (typically the female) will be more discriminating about mating. Second, the sex that invests less in offspring (typically the male) will be more intrasexually competitive for sexual access to the higher-investing sex. These premises have been supported in research with numerous species, including humans. Human females, like the females of most biparental species, invest more in offspring, whereas males invest more in mating effort. These sex differences are greatest in short-term mating contexts (Buss, 1994a,b, 2004).

**Misconceptions about evolutionary psychology**

Some scholars believe that evolutionary psychological research is conducted to justify racism, sexism, or other undesirable “-isms.” For example, Tang-Martinez (1997, p. 116) describes a common feminist view that evolutionary psychology is, “inherently misogynistic and provides a justification for the oppression of women.” More recently, however, the feminists to whom Tang-Martinez refers are committing what is known as the **naturalistic fallacy**: the error of deriving what ought to be from what is. This error can be demonstrated clearly with an example: No sensible person would argue that a scientist researching the causes of cancer is thereby justifying or promoting cancer. Yet, some people continue to argue that investigating rape from an evolutionary perspective justifies or legitimizes rape (e.g., Baron, 1985; Marshall & Barrett, 1990, cited in Thornhill & Palmer, 2000).

Related to the naturalistic fallacy is the false belief of **genetic determinism**: the idea that behavior is unalterable, programmed, or otherwise unchangeable. This argument has been debunked numerous times. Biologist John Maynard Smith noted that genetic determinism is, “an incorrect idea that is largely irrelevant, because it is not held by anyone, or at least not by any competent evolutionary biologist” (1997, p. 524). No evolutionary psychologist would argue that
because rape is produced by evolved mechanisms, it cannot be prevented or that we should simply accept its occurrence. The goal of evolutionary psychology, like the goal of any science, is to further our understanding of the phenomenon of interest, which in this case is rape. Researching rape from an evolutionary psychological perspective does not justify or promote this heinous act. Whether evolutionary psychological hypotheses about rape are correct, new perspectives often allow researchers to gain new insights into the target phenomenon. Gaining a greater understanding about why rape occurs is fundamental to decreasing its occurrence.

Finally, researchers using an evolutionary psychological perspective often frame hypotheses in terms of the costs and benefits to an organism of performing a particular behavior. These costs and benefits refer to the effects on reproductive success over evolutionary time, i.e. costs decreased the probability of successful reproduction, whereas benefits increased the probability of successful reproduction. These terms are sometimes misconstrued as referring to a more general idea of perceived costs and benefits to the individual or to society. However, these terms carry no moral or ethical meaning, and are used only in terms of naturally-selected biological functioning.

**Evolutionary perspectives on rape**

Definitions of rape vary. It is typically defined, and will be defined in this chapter, as the use of force or threat of force to achieve sexual penile-vaginal penetration of a woman without her consent (Kilpatrick, Edmunds, & Seymour, 1992; Thornhill & Palmer, 2000). Rape appears to have been a recurrent adaptive problem across many species. Evolutionary theory predicts sexual coercion and rape are likely to occur in any species in which males are more aggressive, more eager to mate, more sexually assertive, and less discriminating in choosing a mate (Thornhill & Palmer, 2000). Examples of sexual coercion and rape can be found to occur in
insects (Dunn, Crean, & Gilburn, 2002; Linder & Rice, 2005; Thornhill, 1980, 1981, 1987; Vahed, 2002), amphibians and reptiles (Olsson, 1995; Reyer, Frei, & Som, 1999, Shine, Langkilde, & Mason, 2003; Sztatecsny, Jehle, Burke, & Hödl, 2006), fish (Magurran, 2001; Plath, Parzefall, & Schlupp, 2003), birds (Gowaty & Buschhaus, 1998; McKinney, Derrickson, & Mineau, 1983; Pizzari & Birkhead, 2000), and primates (Robbins, 1999; Smuts & Smuts, 1993; Wrangham & Peterson, 1996), among others. Rape has been a recurrent adaptive problem for many species, including humans.

Rape is an unfortunate fact of life across human cultures (Broude & Greene, 1978; Rozée, 1993; Sanday, 1981). In American samples, estimates of the prevalence of rape are as high as 13% for women (Kilpatrick et al., 1992; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Rape is likely more common, however, because rapes often go unreported (Kilpatrick et al., 1992). Although other forms of rape occur (e.g., male-male rape), this chapter focuses on how women may behave to avoid being raped by a man.

Rape became a public and academic focus following the publication of Brownmiller’s (1975) book, *Against our will: Men, women, and rape*. Brownmiller argued that rape is “a conscious process of intimidation by which all men keep all women in a state of fear” (p. 15, emphasis in original). Since then, feminist theories of rape have dominated the rape research literature. A prominent version of feminist theory contends that rape is the result of social traditions in which men have dominated political, economic, and other sources of power (Ellis, 1989). Feminist theorists inspired by Brownmiller often interpret rape as a method by which men maintain this power and dominance over women. Moreover, feminist theorists have argued explicitly that rape is not about sexual gratification and often seem more focused on making ideological, rather than scientific, statements about human psychology and behavior (Thornhill
& Palmer, 2000). Recently, researchers have begun to examine rape and rape avoidance from an evolutionary psychological perspective.

**Women’s defenses against rape**

Rape is a traumatic event that is likely to have been a recurrent problem for women over evolutionary history (Thornhill & Palmer, 2000). Rape often leads to many negative consequences for women and, therefore, women may have evolved psychological mechanisms designed to motivate rape avoidance behaviors. There are several reasons why rape is traumatic for women. These include disrupting a woman’s parental care, causing a woman’s partner to abandon her, and causing a woman serious physical injury or death (Thornhill & Palmer, 2000). Women are sometimes killed after being raped (Shackelford, 2002a, 2002b). Aside from death, perhaps the greatest cost to women who are raped is the circumvention of their mate choice (Wilson, Daly, & Scheib, 1997). This is because anything that circumvents women’s choice in mating can severely jeopardize their reproductive success (Symons, 1979).

Researchers have speculated that a variety of female traits evolved to reduce the risks of being raped. Smuts (1992) argued that women form alliances with groups of men and other women for protection against would-be rapists. Similarly, Wilson and Mesnick (1997) proposed and found support for the *bodyguard hypothesis*: women’s mate preferences for physically and socially dominant men may reflect anti-rape adaptation. Of course, women may form alliances or prefer dominant mates for reasons other than to avoid rape. Alliances offer protection from such dangers as assault or predation, and dominant mates may possess higher quality genes, for example. Finally, Davis and Gallup (2006) proposed the intriguing possibility that preeclampsia and spontaneous abortion may be adaptations that function to terminate pregnancies not in the woman’s best reproductive interests, such as those resulting from rape. Relatively little empirical
work has been conducted to identify specific psychological mechanisms that evolved to solve the recurrent problem of rape avoidance.

Thornhill and Thornhill (1990a, 1990b, 1990c, 1991) have demonstrated that the psychological pain that women experience after being raped may be produced by evolved mechanisms designed to focus women’s attention on the circumstances of the rape, particularly the social circumstances that resulted in the rape. Thornhill and Thornhill (1990a, 1990b, 1990c, 1991) argue that, like physical pain, psychological pain motivates individuals to attend to the circumstances that led to the pain and to avoid those circumstances in the future. Victims of rape who have more to lose in terms of future reproductive success will also experience more psychological pain relative to women with less to lose in terms of future reproductive success (Thornhill & Thornhill, 1983, 1990a; Thornhill & Palmer, 2000). For example, reproductive-aged women are hypothesized to experience more psychological pain due to the greater risk of conception. Thornhill and Thornhill (1990a) provided support for this hypothesis, documenting that reproductive-aged women are more traumatized by rape than are post-reproductive aged women or pre-reproductive aged girls.

The research conducted by Thornhill and Thornhill focuses on the aftereffects of being raped and on the psychological pain that may motivate women to avoid the circumstances leading to the rape. Very little research, however, has been conducted to identify the specific behaviors women may deploy to avoid being raped. Scheppele and Bart (1983) conducted interviews of women who had been raped, or who had been attacked and successfully avoided being raped. Some of these women described “rules of rape avoidance” (p. 64) and how they followed them, e.g. “I would never be alone on the street” and “I would watch what I wear” (p.
These qualitative data provide preliminary evidence for rape-avoidance adaptations in women. 

Petralia and Gallup (2002) examined whether a woman’s capacity to resist rape varies across the ovulatory cycle. Women in the fertile phase of their ovulatory cycle showed an increase in handgrip strength, but only when presented with a sexual coercion scenario. Women not in their fertile phase did not show an increase in handgrip strength. Furthermore, women in all other conditions, including women in the fertile phase who were presented with the neutral control scenario, showed a decrease in hand strength post-test. This provides evidence for specialized mechanisms designed to motivate women to behave in ways that cause them to be less likely to be raped. Women who experience increased strength during their fertile phase would be better equipped to defend themselves from would-be rapists. The research by Petralia and Gallup provides evidence consistent with the hypothesis that women have evolved mechanisms that motivate rape avoidance behaviors.

Chavanne and Gallup (1998) investigated the performance of risky behaviors by women in the fertile phase of their ovulatory cycles. A sample of women were asked where they were in their ovulatory cycles, and to indicate whether they had performed a range of behaviors in the previous 24 hours. Behaviors were ranked by an independent sample of women in a previous study according to how likely performing the behaviors might result in a woman being sexually assaulted, with riskier behaviors given higher risk scores. Individuals’ risky behavior was estimated by taking the summed composite score of all performed activities. Women in the fertile phase of their ovulatory cycle reported performing fewer behaviors representing a greater risk of being raped. There was no difference in the likelihood of performing low-risk behaviors between women in their fertile phase and women outside their fertile phase. This research has
some methodological problems that prevent firm conclusions, however. First, the researchers
used only one method (i.e., the forward-cycle method) to assess women’s ovulatory status. Also,
Chavanne and Gallup do not specify how the inventory of risky behaviors was developed, noting
only that a preliminary sample of women rated the riskiness of the behaviors. In addition, the
dependent variable may be confounded by diversity of activity. For example, a woman who
performed 10 non-risky behaviors (each scored as a “1” on the riskiness scale) could receive the
same score as a woman who performed two high-risk behaviors (each scored as a “5” on the
riskiness scale; see Bröder and Hohmann, 2003, for discussion). Despite these methodological
issues, this research documented a significant decrease in performance of risky behaviors by
women in the fertile phase of their ovulatory cycle. This evidence is consistent with the
hypothesized function of rape-avoidance mechanisms, particularly when women are fertile.

Chavanne and Gallup’s (1998) study was replicated by Bröder and Hohmann (2003)
using a within-subjects design. Twenty-six women who did not use oral contraceptives were
tested weekly for four successive weeks. The results indicated that women in the fertile phase of
their ovulatory cycle selectively inhibit behaviors that would expose them to a higher risk of
being raped, despite performing more non-risky behaviors. These results provide a conceptual
replication of the results reported by Chavanne and Gallup. Women perform fewer risky
behaviors when they are fertile, while still demonstrating a higher overall activity level (Morris
& Udry, 1970) and even while engaging in more consensual sex (Morris & Udry, 1982). This
selective behavior indicates that women may have evolved specialized psychological
mechanisms designed to motivate behaviors that decrease the risk of being raped. Although this
study addressed many of the issues in the Chavanne and Gallup research, there is still no
indication of how risky behaviors were identified. This study also used the somewhat
problematic forward and reverse-cycle counting methods for identifying the fertile phase of the ovulatory cycle, both of which depend on the potentially unreliable self-reports of participants (Bröder & Hohmann, 2003).

A recent study by Garver-Apgar, Gangestad, and Simpson (2007) tested the hypothesis that women are more attuned to signs of a man’s potential sexual coerciveness during the fertile phase and are more accurate at detecting sexually coercive men during the fertile phase. A sample of 169 normally-ovulating women watched short segments of videotaped interviews of men. The women were then asked to rate the men on several items that were summed to create an overall coerciveness rating. Average coerciveness ratings for each man were computed. Finally, women’s ovulatory status was estimated using the reverse-cycle counting method. The results indicated that women in the fertile phase of their ovulatory cycle rated the men as more sexually coercive. This suggests that women at greater risk of conception may be more attuned to signs of male sexual coerciveness than women at lesser risk of conception. This may represent an evolved cognitive error management bias (see Haselton, Nettle, & Andrews, 2005, for an overview) towards identifying men as sexually coercive, which might serve to protect women from being raped. This research provides more evidence that women may have evolved psychological mechanisms that motivate behaviors that guard against men’s sexual coercion and rape. Note, however, that the participants viewed videos of strangers. Studies demonstrate that women have a greater fear of stranger rape than of being raped by someone they know (Thornhill & Thornhill, 1990b), which suggests that stranger rape was the greater adaptive problem. This is despite modern patterns of rape, which indicate that women are more likely to be raped by someone they know (Kilpatrick et al., 1992; Resnick et al., 1993). These results may reflect the greater potential costs associated with stranger rape, such as a decreased likelihood of investment
by the genetic father of resulting offspring. Would similar results be found by testing women’s coerciveness ratings of acquaintances or other familiar men? Future research is needed to explore these effects in greater detail. For example, researchers might ask women to rate the coerciveness of familiar faces of classmates or celebrities.

In summary, several studies provide evidence that women may have mechanisms that motivate rape avoidance. Women may have mechanisms that motivate them to assess the risk of being raped (e.g., the riskiness of walking in a dark parking lot alone) or the likelihood that a particular man may be sexually coercive. However, these previous studies of rape avoidance assessed different behaviors that were selected for assessment without an explicit rationale, making it difficult to compare specific results across the studies. There exists a need for a standard instrument to assess women’s specific rape avoidance behaviors that has been shown to be broad in scope and empirically sound (McKibbin et al., 2009). After presenting an argument for the need for a reliable, valid measure of rape avoidance, McKibbin et al. (2009) developed just such a measure.

**Rape Avoidance Inventory**

Beginning with act nomination procedures similar to those pioneered by Buss and Craik (1983), McKibbin et al. (2009) sought to first identify specific behaviors women may perform to avoid being raped. Using the acts nominated through women’s self-reports, the researchers constructed an inventory to assess these behaviors. The Rape Avoidance Inventory (RAI) assesses performance of 69 behaviors, all specifically nominated by women as behaviors they performed to avoid being raped. Using principal components analysis, behaviors nominated by women were identified as belonging to one of four relatively independent components: Avoid
Strange Men, Avoid Appearing Sexually Receptive, Avoid Being Alone, and Awareness of Surroundings/Defensive Preparedness.

The Avoid Strange Men component consists of behaviors which appear to motivate women to avoid unfamiliar men, and behaviors motivating women to avoid men who may represent a greater risk of being sexually coercive (e.g., “Avoid men who make me feel uncomfortable”, “Avoid drunk men”). The Avoid Appearing Sexually Receptive component consists of behaviors that may diminish a woman’s physical or sexual attractiveness to a potential rapist (e.g. “Avoid wearing sexy clothing”, “Avoid making out with a man I have just met”). The Avoid Being Alone component consists of behaviors that appear to motivate a woman to stay around others (e.g., “When I go out, I stay with at least one other person that I know”). Finally, the Awareness of Surroundings/Defensive Preparedness component includes behaviors that appear to motivate a woman to be especially attentive to her surroundings (e.g., “Pay special attention to my surroundings”), as well as behaviors that enhance a woman’s ability to thwart a would-be rapist (e.g., “Carry a knife”).

These components map closely onto a taxonomy of four “guidelines” for female defense against rape derived independently by Judson (2002, p. 121) following a review of cross-species research addressing primarily non-humans. These four guidelines are: “avoid groups of idle males,” “don’t attract attention,” “don’t leave home alone,” and “do carry weapons.” The conceptual confuence of the current four components with those derived by Judson provides preliminary evidence for the construct validity of the RAI.

It could be argued that the RAI consists of a disproportionate number of items which relate to stranger rape rather than acquaintance rape. This is despite the fact that rapes are most often perpetrated by someone known to the victim (Greenfield et al., 1992). The items on the
RAI were derived from behaviors nominated by women themselves, however. This, the authors suggest, indicates that while indeed less frequently occurring, stranger rape may elicit more fear in women. Items on the RAI may reflect the most relevant adaptive problems experienced by women over human evolutionary history (McKibbin et al., 2009).

Further analyses provided preliminary evidence of both the reliability and validity of the RAI. The full-scale and four component scales demonstrated high levels of internal reliability. Uniformly positive yet moderate correlations among scores on the total and component scales of the RAI provided additional evidence of the utility of the four-component nature of the RAI. These scores demonstrated that the four components were inter-related, yet still relatively distinct from one another. Finally, McKibbin et al. (2009) demonstrated a consistent pattern of negative correlations between RAI scores and interest in and pursuit of short-term sex (which places women at increased risk of rape). As predicted, items on the RAI (which represent decreased risk of sexual assault or rape) were negatively correlated with a measure consisting of behaviors which represent a greater risk of sexual assault or rape. These findings provided initial evidence for the convergent and discriminative validity of the RAI as an assessment of women’s rape avoidance behaviors.

**Individual differences in rape avoidance**

As the work reviewed previously has demonstrated, women appear to possess evolved psychological mechanisms associated with rape avoidance. This is because ancestral women who responded to increased rape-related risk (such as at the time of ovulation) with more rape avoidance behaviors may have been more reproductively successful than women who did not. It may be the case that there are a number of other individual differences in women which lead to differences in the deployment of rape-avoidance behaviors. Guided by an evolutionary
perspective, McKibbin, Shackelford, Miner, Bates, and Liddle (in press) identified several such variables that may influence women’s rape-related risk. Specifically, they predicted that individual differences in women’s attractiveness, relationship status, number of family members living nearby, and age would covary with women’s rape avoidance behaviors.

Cross-culturally, men more than women report a preference for physical attractiveness in a prospective romantic partner, because attractiveness in women more than in men is an indicator of fertility and expected future reproduction (e.g., Buss, 1989). Research suggests that would-be rapists also may prefer and target more attractive women, in order to maximize the probability of conception (Ghiglieri, 2000; Greenfield, 1997; Kilpatrick et al., 1992; McKibbin, Shackelford, Goetz, & Starratt, 2008; Thornhill & Palmer, 2000; Thornhill & Thornhill, 1983).

If women’s psychology includes mechanisms that motivate rape avoidance behaviors, then more attractive women may be more motivated to perform rape avoidance behaviors, relative to less attractive women. Therefore, McKibbin et al. (in press) predicted that women’s attractiveness will correlate positively with women’s reports of the frequency with which they perform rape avoidance behaviors.

Mated women, as compared with unmated women, may incur additional costs associated with being raped (Thornhill, 1999; Thornhill & Palmer, 2000). Specifically, if a woman’s regular partner interprets the rape as an infidelity, a mated woman risks losing her partner’s support and resources for herself and her offspring (Thornhill & Palmer, 2000; Thornhill & Thornhill, 1992). Thornhill and Thornhill (1990) documented that mated women report more psychological pain than did unmated women following rape. They suggested that the psychological pain experienced by mated women functions to focus women’s attention on the costs or losses they have experienced such that women will find ways to avoid similar costly situations. Unmated
women might be expected to experience greater costs associated with being raped, because the rape may produce offspring that would not benefit from the support and investment of a regular partner. Based on the findings of Thornhill and Thornhill, however, McKibbin et al. (in press) generated the following prediction. Because mated women may experience greater losses than unmated women as a result of a rape, women in a relationship will report higher frequencies of rape avoidance behaviors than women not in a relationship.

Over evolutionary history, individuals with psychological mechanisms that motivated reciprocal exchange of resources and support with close family members are likely to have been more successful than individuals without such mechanisms (Hamilton, 1964). Close genetic relatives also may incur costs if a female relative is raped, such as decline in inclusive fitness associated with her injury, inability to contribute to the family, or care for her own offspring. This helping may occur in multiple domains, and may include behaviors that decrease the risk of a female genetic relative being raped (e.g., parents discouraging their daughter from wearing revealing clothing or men accompanying their daughters or sisters at night). Indeed, research has demonstrated that family members do act in such ways. Figueredo et al. (2001) found that the presence of adult male kin living nearby decreased the likelihood of a female relative being raped, perhaps because would-be rapists fear retaliation by the rape victim’s adult male kin. Individuals also may act in ways that more directly decrease the likelihood of a female relative being raped. Perilloux, Fleischmann, and Buss (2008) found that parents exerted more control over their daughters’ behavior than their sons’ behavior, particularly their mating behavior. Compared to how they interacted with their sons, parents were more likely to express upset in response to a daughter’s risky sexual activity, to use curfews to control a daughter’s behavior, and to exert control over a daughter’s clothing choices, all of which may decrease a daughter’s
risk of being vulnerable to rape or being targeted for rape. Other close kin, such as siblings, also may act to prevent women from being raped. For example, brothers may accompany a sister outside at night. Because a woman’s relatives may guard her directly or attempt to influence her rape-relevant behaviors, it was predicted that the number of women’s family members living in close proximity will correlate positively with the frequency with which women perform rape avoidance behaviors (McKibbin et al., in press).

Women’s fertility—risk of conception per copulation—peaks in the early 20s and declines with age (Thornhill & Thornhill, 1983). Men have evolved preferences for fertile mates and, accordingly, men generally express a preference for younger mates (Buss, 1989). Would-be rapists also may target younger women, relative to older women. Indeed, younger women are over-represented in reported rapes and rapes unreported to authorities (Greenfield, 1997; Kilpatrick et al., 1992; Thornhill & Palmer, 2000; Thornhill & Thornhill, 1983). Because younger women are more likely to be raped, it was predicted that women’s age would correlate negatively with the frequency with which women perform rape avoidance behaviors (McKibbin et al., in press). In general, the results generated using women’s self-reports of their rape avoidance behaviors supported the predictions such that the frequency with which women reported performing rape avoidance behaviors varied predictably with several individual differences among women.

The results of the correlational analyses provided support for the prediction that women’s attractiveness would correlate positively with women’s reports of the frequency with which they performed rape avoidance behaviors. A positive correlation was found between women’s self-reported attractiveness and total rape avoidance behavior. Because attractive women may be preferentially targeted by rapists (McKibbin et al., 2008; Thornhill & Palmer, 2000), these
women appeared to perform more rape avoidance behaviors relative to less attractive women. These findings provide preliminary evidence that more attractive women, relative to less attractive women, avoid situations in which they are alone and vulnerable. They also pay special attention to their surroundings and were more likely to carry defensive weapons such as mace.

Also as predicted, McKibbin et al. (in press) documented a positive correlation between relationship status and the frequency of women’s rape avoidance behaviors. Women who reported being in a long-term committed relationship reported greater frequencies of total rape avoidance behaviors than women who did not report being in a committed, long-term relationship. This may be because mated women must manage the additional risk of losing their partner’s investment. Specifically, mated women performed more behaviors in the Avoid Appearing Sexually Receptive and Awareness of Surroundings/Defensive Preparedness components of rape avoidance behaviors. Mated women performed more behaviors that downplayed their attractiveness and perceived sexual receptivity. They also paid extra attention to their surroundings and were more likely to carry defensive weapons. Because mated women bear additional potential costs associated with being raped (Thornhill, 1996; Thornhill & Palmer, 2000; Thornhill & Thornhill, 1990; Wilson & Mesnick, 1997), they appear to perform more rape avoidance behavior relative to non-mated women.

McKibbin et al. (in press) also predicted that the number of women’s family members living in close proximity would correlate positively with the frequency with which women performed rape avoidance behaviors. Women’s reports of rape avoidance behaviors were indeed positively correlated with the number of male and female family members living close by. Individuals are able to manage their inclusive fitness interests by protecting genetic female relatives from being raped. This protection may often be indirect, with relatives encouraging
women to behave in ways that diminish the risk of being raped. Examining the component scores for women’s rape avoidance revealed two components in particular that seemed to drive this effect. Specifically, men and women encouraged behaviors in the Awareness of Surroundings/Defensive Preparedness component. Men also appeared to encourage behaviors from the Avoid Appearing Sexually Receptive component. Examining subsequent multiple regression analyses, McKibbin et al. (in press) demonstrated that the number of female family members living close by did not uniquely predict women’s rape avoidance. Rather, it is the number of male family members living close by that predicted uniquely women’s behaviors in the Awareness of Surroundings/Defensive Preparedness component. Although men and women appeared to actively encourage rape avoidance behaviors in their female close relatives, men in particular seemed to encourage their female family members to behave in ways to avoid rape.

McKibbin et al. (in press) did not find support for the prediction that women’s age correlated negatively with the frequency with which women performed rape avoidance behaviors. Only one component, Avoid Appearing Sexually Receptive, correlated significantly with age, and this was in the opposite direction than was predicted. The researchers noted, however, that the current results were inconsistent with the preponderance of evidence linking rape and the age of the victim (Felson & Krohn, 1990; Greenfield, 1997; Kilpatrick et al., 1992; Perkins & Klaus, 1996; Perkins, Klaus, Bastian, & Cohen, 1996; Thornhill & Thornhill, 1983). The researchers also noted that approximately 80% of the participants in the study were under 30 years old, arguing that this restricted age range may have made it difficult to find the predicted relationship between rape avoidance behavior and age.

**Limitations of RAI research**
The research highlighted above is based exclusively on data self-reported by women. Although the women may not accurately remember how often they performed each rape avoidance behavior, such data cannot be defensibly secured from other data sources. Because the researchers were interested in behaviors that women perform specifically for the purpose of avoiding rape, there is no compelling reason to believe that other parties, such as independent observers or a woman’s close friends, would have the information and perspective to provide more accurate reports than the women themselves.

Women in long-term committed relationships scored higher on the RAI. These findings were interpreted to suggest that mated women perform more rape avoidance behaviors to avoid the additional potential costs for mated women associated with being raped. An alternative explanation for the difference between mated and unmated women may be that mated women are less likely to go to parties or clubs, or to perform mate-seeking behaviors such as flirting (McKibbin et al., in press). Similarly, mated women may be less likely to be alone than are unmated women, simply by virtue of spending much of their time in their partner’s presence. However, regression analyses reported by McKibbin et al. indicated that women in long-term committed relationships also reported a greater frequency of behaviors associated with awareness of the environment and preparedness. In addition, women who did not report being in a committed, long-term relationship may nevertheless be in another type of non-committed or short-term relationship. Their responses may be different than the responses provided by women who were not in any type of relationship. These findings cannot lead to a conclusive argument that mated women perform more rape avoidance behaviors. Subsequent studies should more carefully define relationship status and more carefully examine shifts in women’s rape avoidance.
behavior associated with relationship status, perhaps by examining shifts in the performance frequency of individual behaviors rather than categories of overall rape avoidance behavior.

The participants in research utilizing the RAI (McKibbin et al., 2009, in press) were limited to middle-class college students attending psychology courses at a single state university in Florida. Future studies should attempt to replicate these findings in other samples, particularly from other countries or cultures when possible, although some of the items in the RAI may not apply to non-Western cultures equally well.

**Conclusions and future directions**

Because of the severe costs associated with rape, it is likely that women have evolved psychological mechanisms that motivate rape avoidance behavior. However, because the risk of rape is not the same for every woman, these mechanisms may be sensitive to individual differences between women that influence their risk of being raped. A growing body of research suggests that this may be the case. Women do appear to possess evolved mechanisms that motivate rape avoidance behavior. Research also suggests that these evolved mechanisms are sensitive to individual differences in women and their environments.

Few researchers have studied women’s strategies of rape avoidance, particularly from an evolutionary psychological perspective. Thankfully, this is changing as more researchers begin investigations in this area. With a greater understanding of the underlying psychological processes associated with women’s rape avoidance, researchers and other professionals can better help women to avoid being raped. One such way for example, may be to design rape awareness or prevention programs that are informed by the empirical work presented here and in other studies.
The variables examined in this chapter do not represent an exhaustive list of the variables that may influence rape avoidance behavior. An evolutionary perspective can be used to identify other important variables for future study. For example, there may be a relationship between the number of dependent children a mated woman has and her performance of rape avoidance behaviors. A mated woman who has dependent children may perform more rape avoidance behaviors than a mated woman without dependent children because she risks losing her partner’s support for herself as well as her offspring.

Previous studies have identified ovulatory shifts in women’s behavior associated with increased risk of rape (Bröder & Hohmann, 2003; Chavanne & Gallup, 1998). Women might exhibit similar shifts in behaviors included in the RAI. If the RAI does in fact represent a valid measure of women’s rape avoidance behavior, subsequent research should find that women show clear shifts in the behaviors indexed by the RAI when they are ovulating. Future research is needed to investigate whether these shifts do in fact occur.

Finally, women’s self-reports of their rape avoidance behaviors may differ from the actual frequency with which they perform these behaviors. Or women may perform behaviors without consciously understanding why they do so. Future research might examine whether observer-reported (e.g., as reported by same-sex best friend) frequencies of these behaviors differ from women’s self-reports. Furthermore, no research has assessed the effectiveness of these behaviors. Future research should assess whether women who more frequently perform these behaviors (or particular components of these behaviors) in fact are less likely to report being raped.

Evolutionary psychology is a powerful heuristic tool that allows researchers to consider rape in a new light. Researchers have hypothesized that women have evolved mechanisms that
motivate behaviors to avoid being raped. A growing body of evidence supports this hypothesis (e.g., Bröder and Hohmann, 2003; Chavanne & Gallup, 1998; Petralia & Gallup, 2002). Researchers should continue to investigate the psychological mechanisms associated with women’s rape avoidance behavior. Such information will not only inform scientific theory, but also may improve the lives of women around the world.
References


