

Critical analysis of the evolutionary perspective on sexual coercion in humans

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Abstract

Evolutionary perspectives posit that behavior can be better explained by the integration of both proximate and ultimate causes. In this context, research in Evolutionary Psychology seeks to investigate psychological mechanisms that have evolved by solving adaptative problems in ancestral environments. This review aims to answer the question whether the literature provides empirical support for the hypotheses that sexual coercion can be explained by proximate and ultimate causes. Therefore, we initially contrast adaptive against by-product hypotheses to demonstrate the advances and limitations of understanding sexual coercion occurrence in terms of adaptive function. Then, we explore empirical research aimed to identify mechanisms involved in sexual coercion perpetration by men and victimization avoidance by women. Also, empirical research with females as perpetrators are discussed. Finally, theoretical and methodological gaps in sexual coercion investigation from an evolutionary perspective are highlighted. Predictors of its occurrence are mapped to support interventions against sexual coercion.

Keywords: perpetration; victimization; evolutionary psychology; sexual control.

Resumo

Análise crítica da perspectiva evolucionista sobre a coerção sexual. Perspectivas evolucionistas propõem que uma explicação abrangente do comportamento deva integrar causas proximais e distais. Nesse contexto, a pesquisa em psicologia evolucionista examina os mecanismos psicológicos evoluídos por resolver problemas adaptativos em ambientes ancestrais. Esta revisão buscou responder à pergunta se há suporte empírico para a hipótese de que a coerção sexual pode ser explicada por causas proximais e distais. Inicialmente, contrastamos hipóteses adaptativas e de subproduto para destacar avanços e limitações na compreensão da ocorrência de coerção sexual em termos de sua função adaptativa. Em seguida, exploramos pesquisas identificando mecanismos de coerção sexual na perpetração por homens e prevenção da vitimização por mulheres. Discutimos também pesquisas com mulheres como perpetradoras. Destacamos lacunas teóricas e metodológicas na investigação evolucionista da coerção sexual a partir da perspectiva evolucionista. Preditores da sua ocorrência são mapeados para apoiar intervenções.

Palavras-chave: perpetração; vitimização; psicologia evolucionista; controle sexual.

Resumen

Análisis crítico de la perspectiva evolutiva de la coacción sexual. Las perspectivas evolucionistas postulan que el comportamiento puede explicarse mejor mediante la integración de causas tanto próximas como últimas. En este contexto, la investigación en Psicología Evolutiva busca indagar en los mecanismos psicológicos que han evolucionado al resolver problemas adaptativos en entornos ancestrales. El propósito de esta revisión es responder a la pregunta de si la literatura proporciona apoyo empírico a las hipótesis de que la coerción sexual puede ser explicada por causas evolutivas próximas y últimas. Por lo tanto, contrastamos inicialmente las hipótesis adaptativas con las de subproductos para demostrar los avances y limitaciones en la comprensión de la aparición de la coerción sexual en términos de función adaptativa. A continuación, exploramos la investigación empírica destinada a identificar los mecanismos implicados en la perpetración de la coerción sexual por parte de los hombres y la evitación de la victimización por parte de las mujeres. También se analizan las investigaciones empíricas con mujeres como perpetradoras. Por último, se destacan las lagunas teóricas y metodológicas en la investigación de la coacción sexual desde la perspectiva

evolutiva, mapeando los predictores de su ocurrencia para respaldar las intervenciones contra la coerción sexual.

Palabras clave: perpetración; victimización; psicología evolutiva; control sexual.

Critical analysis of the evolutionary perspective on sexual coercion

Sexual coercion is defined as the use of verbal pressure, manipulation, intimidation, threats (i.e., to end the relationship), lying, or the use of psychoactive substances to receive or perform sexual acts involving another individual without his or her consent, knowledge, or explicit awareness of the act (Camilleri *et al.*, 2009; DeGue *et al.* 2010). As sexual coercion may involve insistent and manipulative actions that potentially result in emotional trauma to the target, it may be differentiated from sexual coaxing, i.e., benign and seductive behaviors aimed at achieving sexual contact (Camilleri *et al.*, 2009).

In the sexual violence literature, the use of tactics to obtain unwanted sex is usually related to male offenders, through the use of physical force (sexual aggression) against female victims. The use of nonphysical tactics, such as sexual coercion, has received much less attention from researchers, as have the forms of sexual coercion perpetrated by women or people in non-heterosexual relationships (Hughes *et al.*, 2020). While the action of sexual coercion against a romantic partner is described as perpetration, being subject of it is called victimization.

Since non-human species demonstrate behavior that exerts control over the reproduction of their partners (Rubenstein & Alcock, 2019), it has been hypothesized that sexual coercion may have evolutionary roots and also play a role in romantic relationships with similar functions in humans (Goetz & Shackelford, 2006). On the other hand, non-evolutionary perspectives explain sexual coercion and other forms of sexual control, especially those perpetrated by men against women, as the product of culturally learned sexual roles. Because demonstrating that a particular behavior is the result of natural selection requires a range of empirical evidence in support of this hypothesis, especially against alternative explanations (Schmitt & Pilcher, 2004; Tooby & Cosmides, 2016), careful examination of this evidence must be carried out. Thus, the aim of this review was to critically evaluate whether the literature provides empirical support for the hypotheses that sexual coercion (perpetration and victimization) can be explained by both proximate and ultimate causes.

The evolutionary function of sexually coercive behaviors

Throughout human history, sexually coercive behaviors are expressed cross-culturally (Malamuth, 1998). Thereby, in investigating the distal causes of patterns of sexual coercion, the main point becomes to search into whether or not it has contributed to reproductive success, at least to some males, in our species' ancestral history (Huppin *et al.*, 2019; Malamuth *et al.*, 2015). In animal species, males and females employ various tactics to influence or exert control over the reproductive decisions of their partners. These tactics include female investments in eggs, egg fertilization, offspring investment, as well as male actions like transferring resources to females, elaborate courtship, infanticide, and sexual coercion. Through the use of sexual coercion tactics, males may overcome female preferences for other mates. Sexual coercion is observed in many animal species, such as black-tipped hangingflies, stitchbirds, orangutans, chimpanzees, and insects. Some of these actions are violent and may be fatal for females (Rubenstein & Alcock, 2019).

As this predatory behavior happens at the expense of female welfare and choice, it may persist in many species because it confers reproductive benefits for the males who exhibit it—and successfully reproduce. Thus, it may be an adaptation. A central task in evolutionary perspectives consists of differentiating adaptations from other products of evolution by natural selection, such as by-products, exaptations, and noise (Al-Shawaf *et al.*, 2021). Adaptations are biological traits that organisms possess, which increased their fitness in the evolutionary past and are direct products of natural selection. As such, they represent species-typical characteristics found in all individuals of a species (Al-Shawaf *et al.*, 2021; Rubenstein & Alcock, 2019). Adaptations can be anatomical (e.g., opposable thumb), physiological (e.g., cortisol response to stress), but also psychological, such as evolved psychological mechanisms, emotions (e.g., jealousy), personality, and behavioral strategies—e.g., sexual strategies (Silva Júnior, 2023; Tooby & Cosmides, 2016).

It is important to bear in mind that, from an evolutionary psychological perspective, the species-typical universality of psychological adaptations will not be found in behavior—a common misconception. For proponents of evolutionary psychology, evidence of special design will be found at the psychological level, i.e., in the cognitive mechanisms that regulate behavior (Silva Júnior, 2023; Tooby & Cosmides, 2016). Therefore, the sexual coercion

behavior may be adaptive or not, if and only if the psychological mechanisms that regulate it respond appropriately to an adaptive problem—reducing the partner's preference for another partner, typically by overcoming females' preferences for other males. Stronger claims of adaptations come from providing additional empirical evidence that the psychological aspect under investigation is not explained by domain-general learning mechanisms, such as social learning (Tooby & Cosmides, 2016).

While adaptations are the direct products of natural selection and had evolved to solve an adaptive problem (Al-Shawaf *et al.*, 2021), by-products are side effects of adaptations. On this topic, Palmer (1991) postulates that some complications in differentiating adaptations from by-products come from the fact that the environmental conditions (i.e., adaptive problems that our ancestors faced) may not be currently available for empirical research, given that they occurred in the ancestral past. This differentiating task also requires the assurance that the alleged adaptation is really a distinct and independent entity (Palmer, 1991). Concerning sexual coercion, the answer of its putative adaptive function comes from whether the mechanisms involved in sexual coercion have been selected for securing the reproductive interest of the offender, or as a side effect of male sexuality that has been selected to reproduce purely through “consensual” copulations.

In other words, it is possible that sexually coercive behavior may be a consequence of the interaction of mechanisms (e.g., greater willingness to engage in impersonal sex and less discriminating criteria for sexual

partner selection) that were selected because they kept males from missing sexual opportunities (Palmer, 1991). However, all these mechanisms could have been selected solely because they incremented reproduction by consensual copulations, which means forced copulations turn out to be by-products.

Perpetration mechanisms in men

In humans, rape is *usually* committed by young men, directed at women of reproductive age, and is more common when there are fewer costs for the offenders (Lalumiére *et al.* 2005). Such findings may stem from evolutionary dynamics where differences in minimal parental investment for males and females are related to their distinguished approaches to reproductive behavior (Trivers, 1972). Sexual arousal, defined as a goal-oriented emotional state that leads to sexual consummation and minimizes the perceived costs associated with sex (Grauvogl *et al.*, 2015), seems to represent a specialized mechanism to induce sexual behavior. Now, a candidate of specialized mechanism that may increase the likelihood of engaging in sexually coercive behavior is labeled as Sexual Arousal to Force (SAF) (Malamuth *et al.* 2015). Such model claims that environmental conditions (e.g., repeated rejection from desired females) and the resultant emotional responses (e.g., anger, hostility) may facilitate the development of sexually aggressive tendencies. Table 1 presents a summary of ultimate hypotheses and proximate mechanisms that may explain both perpetration and victimization tactics in humans.

Table 1

Summary of ultimate hypotheses and proximal mechanisms (cognitions, emotions, and motivations) of sexual coercion in women and men

	Perpetration by men	Victimization by women
	Sexual Arousal to Force (SAF)	Naturally cycling women reduced risky behavior, whereas women using contraceptives did not
	Highly narcissistic single men with low self-esteem more likely to endorse sexual coercion	Women who were in the ovulatory phase showed an increase in handgrip strength
	Sexual jealousy	Women's preference for more masculine faces in environments with higher urban violence, while lessened preference for masculine faces in environments with higher domestic violence
Proximate	Sexual dominance and sociosexuality	Women during the fertile period of the menstrual cycle less likely to agree to date requests from outgroup members, but not in-group members
	Rape myths and traditional gender role scripts	Women who reported a higher degree of fear of rape were more likely to report greater consumption of true crime media, and to report that they consumed it to learn strategies for avoiding or escaping an assault
	Dark triad – Life History Theory	Sexual coercion threat-management system
	Negative attitudes toward women, positive attitudes about casual sex, and alcohol problems	

	Perpetration by men	Victimization by women
Ultimate	Extra-pair copulation Paternity uncertainty	Losing the ability to exercise mate choice Lack of investment of the father Possible abandonment or punishment by her current mate Women's preference for mating with physically and socially dominant men to avoid intimate partner violence
Proximate	Perpetration by women Sexual compulsivity Narcissism Effort engages with pornography	Victimization by men

In the study of Lamarche and Seery (2019), participants were randomly assigned to write about a situation in which someone had hurt or disappointed them (rejection condition) or about a time when a close other had been responsive to their needs (acceptance condition), after completing background questions and self-esteem and narcissism measures. In the same direction as SAF theory, the results indicated that, after reminding social rejection experiences, highly narcissistic single men with low self-esteem were more likely to endorse sexual coercion (Lamarche & Seery, 2019).

Goetz and Shackelford (2006) brought to light another aspect of sexually coercive behaviors, by investigating intimate partner relationships, in which men already have sexual access to their partner. According to sperm competition theories, forced in-pair copulation (FIPC) may represent a solution for the adaptive problem of extra-pair copulation, given that its possible occurrence poses a substantial reproductive cost for males of paternally investing species. Therefore, FIPC is a tactic used by a male who forces his female romantic partner to copulate. It occurs more frequently when he suspects extra-pair copulation with the (unconscious) goal to increase his paternity certainty, punishing his partner, or preventing future extra-pair copulations (Goetz & Shackelford, 2006).

Paternity uncertainty may be linked to men's motivations to ensure (unconscientiously) their children are their own by employing strategies aimed at preventing insemination or counterinsemination. In support of this hypothesis, men in a court-mandated abuse treatment program reported sexual jealousy as the major reason for the origin and escalation of conflict with their partners. Men's sexual jealousy was associated with increased mate-guarding tactics and sexual violence, such as pressuring the partner to have sex in a way she did not want; and forcing the partner to have sex. If those

men believed their initial tactics were not successful, they shifted from sexual coercion to physical violence. Ultimately, fear of extra-pair copulation led to various forms of physical aggression directed to female partners and neglect of children (Burch & Gallup Jr., 2020).

Victimization avoidance mechanisms in women

Considering differences in minimal parental investment, ancestral women faced increased reproductive costs than men did when submitted to unwilling sex, such as losing the ability to exercise mate choice, lack of investment of the father, and possible abandonment or punishment by her current mate (Malamuth *et al.*, 2019; Petralia & Gallup, 2002). If this is true, it is more likely that men have evolved specialized mechanisms for engaging in sexually coercive behavior, while women may have evolved specialized mechanisms to avoid being submitted to such behaviors (Malamuth *et al.*, 2019).

Initial evidence in favor of this hypothesis came from Bröder and Hohmann (2003), who showed that women may engage in behaviors that reduce the likelihood of rape during the ovulatory phase of their menstrual cycles. In this period, naturally cycling women reduced risky behaviors, like coming home alone late, and increased non-risky behaviors, such as watching TV at home, whereas women using contraceptives did not show either effect (Bröder & Hohmann, 2003).

Moreover, when the risk of conception is higher, women in the ovulatory phase may be better able to resist sexual assault. Women who were in the ovulatory phase and read a sexual assault scenario were the only ones that showed an increase in handgrip strength (Petralia & Gallup, 2002). In addition, women's preference for mating with physically and socially dominant men may indicate an adaptation to avoid intimate

partner violence (Huppin *et al.*, 2019). Consistently with that idea, Borrás-Guevara *et al.* (2017) found that women, who perceived higher rates of urban violence (i.e., robbery, stealing, etc.) in their environment, considered more masculine faces more attractive than women from environments with less urban violence. Conversely, the same study demonstrated that when cues predicted higher rates of domestic violence, women tend to prefer partners with faces less masculine.

Neuberg *et al.* (2011) suggest that humans have evolved threat management systems that function to reduce risks to reproductive fitness through emotional, cognitive, and behavioral outputs. In this sense, McDonald *et al.* (2021) suggested that women are likely to be equipped with a threat management system for rape avoidance since rape was a recurrent threat to women's reproductive fitness in the ancestral environment of evolutionary adaptedness (EEA). During the fertile period of the menstrual cycle, women may be less likely to agree to date requests from outgroup members, but not in-group members (McDonald *et al.*, 2015). In the mentioned study, participants were assigned to either a red, yellow, or blue group. During the experiment, images were digitally manipulated to include a colored border as an indicator of group membership. Results indicated that the female participants, self-appraised as vulnerable to sexual coercion, were less willing to accept date requests from outgroup members.

Another piece of evidence in support of the existence of a threat management system for rape avoidance is the association between fear of rape, frequency of true crime media consumption, and the aim of defensive vigilance. Women who reported a higher degree of fear of rape were more likely to report greater consumption of true crime media, and to report that they consumed it to learn strategies for avoiding or escaping an assault (McDonald *et al.*, 2021).

Perpetration mechanisms in women

Although little research has examined sexual coercion perpetrated by women, a growing body of literature supports that both sexes may commit sexually coercive behaviors (Fiebert & Tucci, 1998; Schatzel-Murphy *et al.*, 2009). The results of Fiebert and Tucci (1998) indicate that a substantial number of men have experienced some form of sexual coercion by women. However, risk factors for sexually coercive behavior may differ between men and women, with key predictors of sexual

coercion among women being sexual compulsivity, whereas among men, sexual dominance and sociosexuality emerge as risk factors (Schatzel-Murphy *et al.*, 2009). Most of the coercive activities reported by men boil down to being coerced into dating, kissing, and being sexually touched against their will. Yet, a small percentage (1-3%) of men reported severe coercion, involving female threats and physical force (Fiebert & Tucci, 1998). In the same direction, Russell and Oswald (2001) indicate that women performing sexual misbehaviors were found to use verbal coercive strategies more frequently than physical strategies, which were not manifested at the level of physically forcing sex.

Furthermore, personality traits are also found to be variables that predict sexual coercion differently between men and women (Lyons *et al.*, 2022). According to the narcissistic reactance theory of rape and sexual coercion (Baumeister *et al.*, 2002), when the sexual desires of a narcissistic individual are rejected, they may exhibit reactance, increasing their sexual desire, motivation to attempt to take what has been rejected, and aggression against the individual who denied them.

In this sense, Blinkhorn *et al.* (2015) results provided evidence that narcissism was an important predictor of sexual coercion perpetrated by women. Despite male participants scoring significantly higher on total narcissism, the maladaptive facet of narcissism was a stronger predictor of sexually coercive tactics in females (Blinkhorn *et al.*, 2015). In the same direction, Lyons *et al.* (2022) reported that women who were high in narcissism used more sexually coercive strategies.

In a sample of 142 mostly heterosexual (85.2%) English women, the effort to engage with pornography was a significant individual predictor of nonverbal sexual arousal and emotional manipulation, and deception. In the same study, histrionic personality traits (which include a propensity for excessive emotional impulsivity, attention-seeking behavior) were a significant predictor of proclivity for exploitation of the intoxicated partner (Hughes *et al.*, 2020).

Individual differences as predictors of sexual coercion

Although women also practice sexual coercion, men are found to be the greatest perpetrators (DeGue & DiLillo, 2005a; Lyons, 2022; Prusik *et al.*, 2021). Beyond gender, some predictors may help identify and prevent the conditions in which deviant sexual behavior occurs

most frequently. In this sense, The Dark Triad (DT) is the definition of three socially undesirable and aversive personality traits, Machiavellianism, psychopathy, and narcissism (Mello & Silva Júnior, 2023). Studies have pointed out the association between DT traits and intimate partner violence perpetration, including sexual coercion (Pavlović *et al.*, 2019; Prusik *et al.*, 2021).

Profiles estimated high on DT by both men and women may be perceived as more threatening in terms of sexual coercion (Pavlović *et al.*, 2019). Also, sexually coercive men have shown higher scores of psychopathic personality traits than did nonoffending men (DeGue & DiLillo, 2005a). In Prusik *et al.* (2021) study, narcissism was found to be slightly more related to coaxing tactics than coercive ones, Machiavellianism to both coaxing and sexual coercion, and psychopathy was more related to sexual coercion than coaxing (Prusik *et al.*, 2021).

As mentioned above, sexual coercion and aggression share some underlying risk factors. In this direction, DeGue *et al.* (2010) showed that sexual promiscuity, aggressive tendencies, empathic deficits, and belief in rape myths (e.g., “When a man urges his female partner to have sex, this cannot be called rape”), gather a set of risk characteristics that predispose individuals to both sexual coercion and aggression. Additionally, Bohner *et al.* (2005) found the belief in rape myths (that deny, trivialize, or justify male sexual violence against women) to be also linked to a proclivity toward sexual deviant behaviors (Bohner *et al.*, 2005). To delineate the differences between sexual aggression and coercion, DeGue *et al.* (2010) brought evidence that sexual coercers tend to possess traits that facilitate the use of verbal tactics, such as the ability to manipulate others and to imagine others’ emotional reactions. On the other hand, sexual aggressors may show high indicators of hostility toward women, egocentricity, impulsive disregard for sociolegal proscriptions, and childhood emotional abuse.

Characteristics of the aggressor can also be analyzed from the perspective of the theory of Life History (LH) strategy. Unpredictable environmental conditions may be associated with faster reproductive strategies, in the opposite way of slow LH strategies. Therefore, traits such as risk-taking mating strategies, low parental investment, impulsiveness, and criminality characterize fast LH strategies, which seem to be facilitative of the use of sexually coercive tactics (Silva Júnior *et al.*, 2024). Also, there is an indication that the facets of DT domains also comprise fast LH strategies (Mello & Silva Júnior, 2023). While men may benefit more from fast LH

strategies that increase the number of sexual partners, Lyons *et al.* (2022) discuss that women may possess slow LH traits since their evolutionary benefits do not come from coercive or promiscuous mating, but from manipulating and controlling partners within a long-term relationship context.

In Abbey and Jacques-Tiura (2011), sexual assault perpetration was correlated with negative attitudes toward women, positive attitudes about casual sex, personality traits associated with nonclinical levels of psychopathy, antisocial behavior, and alcohol problems. In the same direction, the results of DeGue and DiLillo (2005b) showed that sexually coercive males displayed stronger indicators of promiscuity, delinquency, psychopathic personality traits, empathic deficit, and experience of child abuse than nonoffending males.

Another condition that may predict sexually coercive acts is when the perpetrator has anonymity, or the costs of the acts are low. Also, conventions on how interpersonal sexual interactions may happen, named “sexual scripts”, comprise proximal factors influencing such behaviors. Traditional gender role scripts usually endorse the persistence of males in obtaining sex, as well as the playful resistance of females, which may naturalize sexual coercion (Marshall *et al.*, 2021). Finally, within romantic heterosexual relationships, acts of sexual coercion can happen more frequently when men suspect infidelity from their partners. This is hypothesized as an anti-cuckoldry tactic from a man against a woman (Camilleri *et al.*, 2009; Goetz & Shackelford, 2006).

Shortcomings in the literature

Despite the growing body of research on sexual coercion and intimate partner violence, highlighting gaps in literature may be useful to tread paths of investigation that will make a difference in the theoretical scope of this topic. To do so, we address the following limitations on current sexual coercion literature: (1) clarifying the adaptive function *versus* alternative hypotheses (e.g., by-product and general-domain mechanisms); (2) trade-offs between experimental and correlational designs, (3) lack of investigation of adaptive functions in coercion practiced by women; (4) samples of heterosexual individuals or couples only, and (5) limited cultural diversity.

Evolutionary psychological studies that employed tests of different theories against each other have provided remarkable advances in the understanding of psychological phenomena (Walter *et al.*, 2020;

Zhang *et al.*, 2019). Empirical tests with competing theories that make conflicting predictions are strong evidence in favor of one theory over the other. While these tests have been successfully employed in other topics, like cooperation and mating selection (Cosmides *et al.*, 2010; Walter *et al.*, 2020; Zhang *et al.*, 2019), to the best of our knowledge, there is not a single study that has attempted to employ the same methodology in the case of sexual coercion. Since rape myths, traditional gender roles, and negative attitudes towards women have been found to be strong predictors of sexual coercion, empirical tests with competing theories would provide evidence in favor of adaptationist or domain general perspectives. It has been suggested that when possible, tests between predictions derived from competing theories should be used in evolutionary psychological programs (Simpson & Campbell, 2016).

Also, the same approach was able to distinguish between adaptationist versus by-product hypotheses, as in the case of the alliance detection system, which was hypothesized to be the primary adaptation to solve the adaptive problem of identifying which individuals belong to each group. Various rigorous empirical tests provided evidence that social categorization—ascertaining that some people belong to certain social groups—was designed to detect cues of alliance membership. However, categorizing people in the same group just because they share the same race is an incidental effect—i.e., racial categorization is rather a consequence of the system being sensitive to racially segregated ecologies than an adaptation to social categorization based on race. Additionally, these studies demonstrated that it was possible to experimentally reverse the categorization by race when reliable cues predicting group membership were available to participants (Pietraszewski, 2021, 2022). So, future research would benefit from this approach.

Despite the methodological diversity characterizing the study of sexual coercion in humans, one limitation is that topics related to sexuality often rely on self-reported measures, such as questionnaires and psychometric scales (King, 2022). Notwithstanding their importance, especially and they are well-powered, they cannot inform us about cause-and-effect relationships (Gravetter & Forzano, 2018). When evolutionary-minded researchers aim to establish that a particular behavior results from psychological mechanisms activated in the presence of adaptive problems people face, experimental designs should be preferred (Simpson & Campbell, 2016). However, experimental designs may lack ecological

validity, compromising the generalization of findings (Gravetter & Forzano, 2018). On the other hand, self-reported measures are able to capture people's beliefs and feelings about real (vs. artificial) situations, so they are usually favored. Correlational designs, though historically used in (evolutionary) psychology for cost-effectiveness and data collection ease (Fitzgerald & Thompson, 2021), present limitations, particularly when samples are predominantly university students, not representative of the population (Henrich *et al.*, 2010). Additionally, correlational designs are prone to social desirability bias, specifically when individuals must disclose their own undesirable behaviors (King, 2022), let alone reporting their antisocial behavior harming significant others, such as romantic partners. Faced with these challenges, researchers investigating sexual coercion are better equipped if they employ various research designs, both experimental and correlational, to address their research questions. If researchers are evolutionary-minded they are more strongly encouraged to employ different methods because they provide better evidence of psychological adaptations (Simpson & Campbell, 2016).

Furthermore, although forced copulation has only been observed in males against females, it is important to remember that sexually coercive behaviors are also present in non-human females. They serve to secure the male partner in the relationship, preventing copulation with female rivals and decreasing the chances of abandonment of the coercive female (Rubenstein & Alcock, 2019). Whether or not the predictors of sexual coercion perpetration differ between sexes, its evolutionary functions for both males and females must be equally addressed even if they occur at different rates. This perspective is in line with the advancing recognition that females are agents in the evolutionary process, capable of exhibiting both pro-social and aggressive behavior to secure their reproductive interests (Krems *et al.*, 2021).

While it makes sense that evolutionary studies take sex differences into account, the lack of attention to intrasexual differences may obscure another important set of evolutionary questions. As previously mentioned, the majority of sexual coercion behaviors are perpetrated by men against their female partners. While the incidence of this behavior is pervasive in heterosexual relationships, and such a pattern may be indicative of possible evolutionary functions, it is also important to examine the extent to which sexually coercive behaviors occur among gay and lesbian couples. For a long time, non-heterosexual behaviors were considered 'deviant', and this is how they

were placed in scientific research. To fill this gap, evolutionary psychology should also contribute to the development of a body of knowledge that resembles what we know about heterosexuals and their relationships.

If there are evolutionary or cultural roots, or perhaps both, in the perpetration and victimization of sexual coercion across sexes and sexual orientations, evolutionary theory may benefit from this investigation to provide a better understanding of human sexual behavior. Also, there are those who defend that explaining the ultimate causes of a behavior is not at odds with the explanation of its culturally learned processes; they are merely different levels of explanation (Al-Shawaf *et al.*, 2019). If this is true, researchers should focus greater attention on demonstrating the precise mechanisms responsible for sexual coercion they invoke to explain it.

Despite evolutionary-minded researchers having used different methodological designs, such as experimental, quasi-experimental, and correlational designs, most of the studies on sexual coercion come from university samples in WEIRD societies. Future research is required to confirm that such explanatory hypotheses are also corroborated in non-WEIRD cultures. Addressing cultural diversity is necessary for the evaluation of evolutionary theories, as well as for demonstrating that evolved mechanisms operate in similar ways in different cultures (Cosmides *et al.*, 2010; Sell *et al.*, 2017).

In this sense, it may be necessary to focus on what the sample represents rather than what it does not represent. To this end, researchers may focus on the “WILD” approach, which involves *Worldwide*, *In situ*, *Local* and *Diverse* samples (Newson *et al.*, 2021). This means seeking cultural complexity and diversity through samples that encompass all regions of the world, outside the laboratory, with protocols created through a local perspective and samples that are not limited to student populations. In other words, the WILD approach proposed by Newson *et al.* (2021) advocates for a methodological framework that incorporates diverse populations from real-world settings, including, but not limited to, WEIRD samples.

Conclusion remarks and practical implications

In this review, we explored the evolutionary literature to answer the question of whether the studies provide empirical support for the hypotheses that sexual coercion can be explained by evolutionary proximate and

ultimate causes. To do so, we provided a state-of-the-art picture and highlighted many theoretical and methodological gaps in the literature. The answer to our question is that the evolutionary literature provides much empirical support for this hypothesis. However, considering the shortcomings addressed here, we believe there is still a long way to go to rule out (or integrate) alternative hypotheses, such as the by-product and social learning hypotheses. While many studies clearly demonstrated the proximate mechanisms and their possible ultimate functions, stronger evidence is still needed, as overcoming major methodological limitations is necessary.

We believe that a better understanding of why and how sexual coercion occurs might subsidize interventions to prevent it, but only by fully knowing the variables that perpetuate this behavior we will be able to reduce it. It is also important to emphasize here that seeking a broader understanding of a phenomenon (which includes its evolutionary function) is not the same as attesting that this phenomenon is inevitable or acceptable, i.e., endorsing the naturalistic fallacy. Evolutionary psychologists strongly reject justifying a behavior based on whether or not this behavior is natural, evolved, or adaptive (Varella *et al.*, 2013). Since sexual coercion has profound implications in relationships and society at large, we acknowledge that its causes should not be considered justifiable or socially acceptable, regardless of its putative adaptive function. Because of this, we are also committed to the idea that investigating its causes should inform academia and society as a whole on how to create conditions to reduce sexual coercion.

In this line of reasoning, Huppin *et al.* (2019) suggest eight promising guidelines grounded on EP findings, such as (a) interventions preferably at relatively early ages, since individual differences in life history play a role in organizing later behavior; (b) more comprehensive programs, rather than time-limited or one-shot interventions, which are unlikely to achieve behavior change; (c) fomenting female empowerment, including self-defense and risk recognition programs specifically designed for women; (d) clear policies to inhibit the expression of sexual aggression, (e) emphasis on changing social environmental inputs that endorse sexually coercive acts, (f) focus on changing the behavior of men who are at higher risk of committing sexual assault, (g) when considering undesirable effects of prevention programs, reflect upon and try to reduce hostile reactions by men, and (h) utilize empathy-based interventions, considering emotional levels, not only cognitive levels.

In summary, we reviewed the evolutionary psychological literature to answer the question whether the literature provides empirical support for the hypotheses that sexual coercion can be explained by evolutionary proximate and ultimate causes. We described its possible evolutionary function and by-product hypothesis. Proximate mechanisms that might regulate it were discussed within an evolutionary psychological perspective and beyond. Gaps in the literature were highlighted and suggestions for future research were made. As a closing remark, just as we recognize the potential for evolutionary psychology to contribute to the understanding of sexual coercion and its consequences, we also acknowledge the necessity for more rigorous and culturally diverse studies to test its hypotheses and predictions.

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