



Inevitable or Preventable? The Biosocial Theory of Wartime Rape

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Abstract

Sexual violence has likely been a feature of warfare throughout human history and may even have been present during prehistoric conflicts. In recent decades, international policymakers have improved efforts to prohibit and prosecute wartime sexual violence, including holding criminal tribunals for suspected perpetrators of wartime rape. Social scientists have offered a range of potential explanations for wartime rape and have attempted to bring the data on wartime rape under a single, unified theory. Many such theories have identified sociocultural factors such as patriarchal values, hostile attitudes toward women, or hatred toward specific ethnic groups as potential causes of wartime rape. We review the competing sociocultural theories of wartime rape citing evidence from evolutionary psychology, biology, and anthropology. We highlight strengths of the biosocial theory, which consider the influence of both social and biological factors on wartime rape, and enjoy strong theory-data fit. Specifically, we emphasize the ability of the biosocial theory to not only explain the existence of wartime rape as a near-universal phenomenon, but also its ability to explain variation in rates of wartime rape across armed conflicts.

Keywords Rape · War · Sexual violence · Gang rape · Combatant socialization theory · Biosocial theory · Evolutionary psychology

Rape and war are distinct and uniquely horrifying tragedies. Although each is devastating on its own, the two often co-occur, with rape of female non-combatants a common feature of wars throughout recorded history. Accounts of wartime rape date to at least 4000 years ago and appear in depictions of ancient Greek, Roman, and Jewish warfare (Vikman, 2005). Contemporary accounts of wartime rape have emerged from various armed conflicts, including in the Democratic Republic of Congo, Ukraine, and Israel (e.g., Gharib, 2022). The horrors of wartime rape have also been depicted in works of fiction such as *The Iliad* (Homer, 1955), and rape has been used to emphasize the devastating impact of war on conquered peoples in more recent media (e.g., *Beasts of No Nation*; *Game of Thrones*; Benioff & Weiss, 2012; Fukunaga, 2015). Despite the prevalence of wartime rape over the course of history, international policymakers and social scientists have only begun to address the issue

in the last few decades. During this relatively brief period of time, notable progress has been made by international organizations to hold accountable those responsible for wartime sexual violence (Henry, 2016). Nevertheless, scientists remain divided regarding the causes of wartime rape. As such, international policy and reform may remain stunted until the causes of wartime rape are better understood.

The frequency of wartime rape varies over time and across cultures, but it appears that wartime rape is ubiquitous across conflicts (e.g., Gottschall, 2004). Wartime rape is a tragedy that may be partially mitigated by being brought under a comprehensive, scientific theory. Thus, the aim of the present article is to provide a theoretical framework to explain wartime rape, and provide evidence for the explanatory power of this framework. We first provide an overview of wartime rape, including its prevalence throughout history and its occurrence in recent armed conflicts. We then review several competing theories of wartime rape. Finally, we review the evidence for the biosocial theory of wartime rape.

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Overview of Wartime Sexual Violence

Estimates of the prevalence of rape vary widely by country, with Botswana, Australia, Lesotho, and South Africa having among the highest rates worldwide, and Switzerland,

Sri Lanka, Brunei, and Italy having among the lowest (Statista, 2021). In an ethnographic review of 186 societies, Broude and Green (1976) found that rape was common in 41.1% of societies and uncommon in 35.3%. This variation is likely at least partly due to real differences in the prevalence of sexual violence across countries. However, it is also important to note that governments differ markedly in their definition of rape and in how they delineate different forms of sexual violence (Heise et al., 1996), which may partially explain the variation in reported rates of rape across temporal and cultural contexts (e.g., Ward & Insetto, 1990). Whereas many legal definitions of rape specify vaginal, anal, or oral penetration, other definitions may be more inclusive when identifying behaviors that qualify as rape. Countries with more inclusive definitions of rape may, as a result, report higher prevalence of rape.

Although differences in definitions of rape might account for some variation in prevalence, differences in cultural norms may also be an important source of variation. One study comparing cross-cultural differences in blame attribution found that, relative to German and British participants, Turkish participants more frequently blamed the victim and exonerated the perpetrator in cases of marital rape (Gul & Schuster, 2020). Estimations of the prevalence of rape become more complicated for nonindustrial societies. An investigation of the prevalence of different kinds of rape across 35 nonindustrial societies observed striking differences in perceptions and categorizations of rape across cultures (Rozée, 1993). Where previous investigations of rape in similar societies had concluded that rape was apparently absent in some nonindustrial societies, Rozée (1993) was specifically interested in whether female consent was necessary for rape to be considered generally absent for a given society. For each type of rape, Rozée (1993) identified whether female choice was reportedly present or absent according to the inhabitants of each society, and whether the rape was considered normative (condoned within a given society) or nonnormative. Marital rape (a form of normative rape in each society in which it was observed) was reported in 40% of societies, and reportedly absent in 9% (with data missing for the remaining 51%). Some cultures even have rituals in which rape is an accepted and customary component, including *exchange rape* (i.e., rape that occurs as the result of bargaining), *punitive rape* (i.e., rape that is used as punishment for an offense), *ceremonial rape* (i.e., rape that involves ritual defloration), and *status rape* (i.e., rape that results from differences in social class). By accounting for these socially condoned cases of rape, Rozée concluded that rape, in some form, was present for all 35 of the societies observed. Thus, Rozée's study highlights the importance of establishing clear definitions for rape, and of accounting for female consent when establishing these

definitions. Further, societal norms and social stigma may influence the frequency with which victims report sexual assault even in industrialized, Western countries. A report from the U.S. Department of Justice (Sinozich & Langton, 2014) comparing rape in student and non-student populations estimated that approximately 80% of student rapes and 67% of non-student rapes are not reported. Wolitzky-Taylor et al. (2011) found that reporting of rape had not increased from the rates of reporting observed during the 1990s (Kilpatrick, 1992). Taken together, these results suggest that the study of rape, even outside the context of war, faces considerable challenges, including underreporting and cross-cultural variation. The study of wartime rape is plagued by these same issues as well as other challenges.

Definitions of wartime rape overlap, but there is some variation, and alternate definitions may be useful in different circumstances. One study referred to wartime rape as sexual violence committed by “armed actors (specifically, state militaries, rebel groups, and progovernment militias) during periods of conflict or immediately postconflict” (Nordås & Cohen, 2021, p. 195). Using this, and most other definitions, wartime rape refers to acts of sexual violence committed within the context of warfare. Even with a clear definition, the prevalence of rape during wartime is difficult to assess accurately. A large proportion of peacetime rapes are not reported (Sinozich & Langton, 2014), so it is reasonable to assume that wartime sexual violence is also underreported. However, there are additional complications imposed by war that may make the reporting of rape less likely than during times of peace. For example, it is likely that, in war-torn countries or territories, the availability of government institutions (e.g., police stations, hospitals) to which women could report rape is greatly reduced. Additionally, victims of sexual violence may feel particularly discouraged from reporting rape if their only means of reporting is through military officials from the conquering or invading army. Cohen and Nordås (2014) observed that 13% of armed groups committed rapes against civilians in the first five years post-conflict. The extension of sexual violence by armed groups into post-conflict years may coincide with a lack of resources and facilities through which victims can report assaults. That some societies apparently experience increases in sexual violence post-conflict (e.g., Manjoo & McRaith, 2011) provides further evidence for barriers to reporting wartime sexual violence. Even in situations in which the invading army does not occupy enemy territory post-conflict, resources for reporting sexual violence may have been reduced or obliterated by the ravages of war. For example, Kruk et al. (2010) investigated the impact of the Liberian civil war on civilian access to health services five years after the war had ended, and found that, although 55% had access to HIV testing, only 12% had access to mental health services. Thus, when attempting to compare the

strengths and weaknesses of competing theories of wartime rape, it is important to consider the numerous cases that are likely excluded from analysis.

War is complex, multifaceted, and arises from a myriad of precipitating factors that are beyond the scope of the current review to address. However, recognition of the various potential causes of war may help to situate wartime sexual violence. In a comprehensive review of competing theoretical perspectives regarding the causes of war, Levy (1998) distinguishes between systemic, societal/national, and individual levels of analysis to disentangle the potential reasons for the occurrence of war. One explanatory framework highlighted by Levy is the so-called realist perspective, which argues that political entities (i.e., governments) operate as rational agents that endeavor to leverage power, wealth, and security on the world stage, and that these efforts may, under specific circumstances, lead to war. It may further be argued that the motivations for war at the individual level parallel those of the state/nation-level. Excluding the enslaved and conscripted, individual soldiers may stand to increase their personal wealth by participating in war. The Roman Empire provides an apt example. Although the precise amount is subject to debate, Roman soldiers earned a relatively large annual salary under Julius Caesar (roughly 225 denarii; Watson, 1958). During the same period, Rome greatly expanded its economic, political, and military power, largely as a result of conquest (Tan, 2017). For individual soldiers, the acquisition of wives (through abduction) or short-term sexual opportunities (through rape) may have been counted among the potential spoils of war. This is an issue to which we will return later, but it should be noted here as a potential motivating factor—at least at the individual level. It is worth considering the possibility that wars initiated for reasons other than acquiring land or wealth (e.g., holy wars) might be less likely to be characterized by widespread sexual violence. Unfortunately, a definitive answer to this question is likely unknowable. First, for any given conflict, it is difficult to determine whether the “stated” reasons for initiating conflict align with the “true” intentions of the parties involved. Second, it is similarly difficult to know whether the motivations of the individual combatants align with the leader(s) who initiated the conflict. Thus, even in cases in which historical records unanimously agree that the cause of a specific war was, for example, ideological (e.g., to fight the spread of communism), this does little to elucidate the motivations of individual soldiers.

Although no war seems to have been initiated with the explicit goal of engaging in sexual violence, rape features prominently in historical accounts of war. Anecdotal accounts of wartime rape date back to antiquity (Lerner, 1987), and multiple references to wartime rape appear in ancient texts such as the Bible (e.g., Deuteronomy, 21; Lamentation, 5:11; King James Bible, 2017). Although

accounts of wartime rape are recorded throughout human history, estimations of the scale of rape in a given conflict are rare prior to the twentieth century. Despite the difficulties of securing reliable data, and likely underreporting of wartime sexual violence, the rate of rape during war is many times greater than the rate during peacetime, with several notable examples from World War II, alone. For example, one estimate suggested that the rates of rape in France and Germany near the end of World War II were 300–400% higher than the American civilian rate at that time (Morris, 2000). Russian soldiers committed between 20,000 and 100,000 rapes as they invaded Berlin (Brownmiller, 1975) and 20,000–80,000 women were raped following the Japanese invasion of Nanking, China (Chang, 1997). Although many examples of wartime rape resulted from World War II, there are also numerous examples of wartime rapes occurring in great numbers in more recent history. Between 200,000 and 400,000 women were raped in Bangladesh by Pakistani soldiers after a failed rebellion in 1971 (Kamal, 1998). Over 31,000 incidents of rape were reported during the 1991–2002 conflict in Sierra Leone (Amowitz et al., 2002). It is estimated that tens of thousands of rapes were committed during the conflict in Timor Leste between 1975 and 1999 (Dunn, 2003), and an estimated 250,000–500,000 women were raped during the 100-day Rwandan genocide (Sai, 2012). Between 20,000 and 50,000 Bosnian Muslim women were raped by Serbians during the dissolution of the former Yugoslavia (Gutman, 1993). However, it is important to note that there have also been conflicts in recent years during which sexual violence appears to have been relatively infrequent. For example, there were only 29 reports of rape or gang rape that emerged during the 12-year civil war in El Salvador (Leiby, 2012).

As global efforts to document and record wartime sexual violence have improved, there have also been considerable advancements in legislation prohibiting wartime sexual violence. With few exceptions, wartime sexual violence was not considered a crime for most of human history. In ancient Greece, women were legally considered property, and the rape or abduction of women during war was part of the “spoils of war” (Askin, 1997). Some of the first efforts to prosecute wartime sexual violence were made following World War II, during the Nuremberg and Tokyo Tribunals; however, no Nazi war criminals were charged with rape during the Nuremberg Tribunal (De Brouwer, 2005). Even during the Tokyo Tribunal, wartime rape was considered a form of inhumane treatment or failure to respect family honor and rights, rather than a violation in its own right (De Brouwer, 2005). Wartime rape was not widely considered a violation of wartime laws until the 1990s, following the conflicts in the former Yugoslavia and Rwanda (Askin, 1997). Although sexual violence was still widespread during these conflicts,

they mark an important historical turning point for global perception of wartime rape.

The staggering rates of wartime sexual violence, and their negative impact on targeted communities, have received significant attention from scholars across various disciplines in recent years. In a review of competing feminist perspectives on wartime rape and international policy on wartime sexual violence, Henry (2016) argues that, at least since the 1990s, international perspectives on and policies regarding wartime rape have changed dramatically. Henry further argues that, in many areas, international policy addressing wartime rape has made tremendous progress. For example, rape, sexual slavery, and enforced prostitution are prohibited by the Rome Statute of the International Criminal Court (UN General Assembly, 2010). Additionally, victims of sexual violence are entitled to legal representation through the International Criminal Court and may receive reparations and compensation via the Trust Fund for Victims (UN General Assembly, 2010). Since 1993, several individuals have been charged with crimes of sexual violence by the International Criminal Tribunal following armed conflicts in the former Yugoslavia (Mischkowski & Mlinarević, 2009) and Rwanda (Koomen, 2013).

Although the progress by international policymakers in prosecuting crimes of sexual violence is a positive step toward mitigating these issues, prevention could also be aided by a better understanding of the causes and motivations of rape. A number of sociocultural theories have been proposed to not only explain the existence of wartime rape, but also to explain variation in rates of wartime sexual violence across armed conflicts. Identifying a strong theory for wartime rape and establishing good data-theory fit are integral steps toward better understanding the conditions under which wartime rape is most likely to occur and, consequently, implementing preventive measures.

Competing Theories

The discourse addressing the causes of rape during wartime is as multifarious as that addressing the causes of rape outside of these conflicts. Here, we outline competing theories of wartime rape, and discuss the strengths and weaknesses of each. Much of the information in the following section is owed to Gottschall's (2004) review of wartime rape. Many of Gottschall's points, including his application of evolutionary theory to wartime rape, and his critique of the feminist, cultural pathology, and strategic rape theories are echoed in the following section.

Feminist Theory

The feminist perspective applies the same logic to wartime rape as it does to peacetime rape: men rape women to dominate and control them (Barstow, 2000). According to

this perspective, wartime rape may be the result of oppression at the individual level, or it may be a consequence of patriarchal systems that facilitate wartime rape on a broader scale. However, as with feminist perspectives of rape at the individual level, the mechanisms by which oppressive, patriarchal systems lead to mass rape are not specified. It is also unclear why patriarchal systems should lead to mass sexual violence against civilians of enemy states during wartime, but do not necessarily lead to mass sexual violence against civilians of one's own state during times of peace. One possibility is that patriarchal attitudes may interact with the increased opportunities to rape with impunity that are generated by the context of war resulting in an increase in the prevalence of wartime rape. Alternatively, it may be that patriarchal societies work to keep women subordinate and dependent on their male partners, which may simultaneously serve to protect women from rape during times of peace. The potential role of *opportunism* in wartime rape is an issue that we explore in detail in a later section.

The feminist perspective argues that certain cultures foster misogyny and, therefore, that wartime rape should be present only in such cultures or should at least be far more common in those cultures (Brownmiller, 1975; Siefert, 1994, 1996). Specifically, feminist theory predicts that Westernized societies produce and support misogyny and hostility toward women (e.g., via the widespread availability of pornography), which result in high rates of wartime (and peacetime) rape relative to more egalitarian, tribal communities (Siefert, 1996). For example, MacKinnon (1994) argued that mass rapes committed by Serbians during the conflict in the former Yugoslavia were the result of the widespread availability of pornography, which facilitated the dehumanization of women by men. Thus, the feminist perspective of wartime rape advances a “blank slate” view of human nature, wherein undesirable and violent behaviors such as rape and murder are presumed to be the downstream consequences of Western cultural conditioning and are absent—or nearly absent—in traditional societies of hunter-gatherers or pastoralists (Siefert, 1996). Rape and raiding in traditional societies is discussed at length in a later section but suffice it to say that the abduction and rape of outgroup women by tribal warriors is not uncommon in traditional societies (Chagnon, 1997). In this regard, the feminist perspective has relatively poor theory-data fit and is ill-equipped to explain wartime rape outside of a Western context.

Despite the shortcomings of the feminist perspective, there are some ways in which it may be useful for understanding wartime rape. Brownmiller (1975) is largely responsible for championing the feminist perspective of wartime rape, bringing to light the horrific details of rape in various contexts. Brownmiller identifies negative attitudes toward women as one of the primary motivations behind soldiers' decision to rape, stating: “War provides men with

the perfect psychological backdrop to give vent to their contempt for women” (p. 32). There is some evidence that patriarchal societies facilitate greater victim-blaming in cases of sexual assault (Gul & Schuster, 2020), and such perceptions may also influence men’s use of sexually coercive behaviors toward women. However, Johnson (2014) found that counties in Kansas in which women held more sociopolitical power experienced higher rates of rape. A proponent of the feminist perspective, Johnson argued that women who increase their sociopolitical power within patriarchal societies may, as a result, inspire resentment toward women, and that this resentment may manifest as rape. A somewhat more optimistic interpretation is that increased sociopolitical power among women influences victims’ decision to report sexual assault. The feminist perspective is useful in that it is able to account for some of the variation in rates of wartime rape and deserves credit for bringing the issue of wartime rape into the public consciousness. In addition, the feminist perspective provides further utility because, more so than competing theories, it critically examines the role of gender in wartime rape. The biosocial theory proposes that rape during wartime is primarily perpetrated by men against women for much the same reason as peacetime rape: rape has the potential to increase reproductive success for men via sexual opportunities that would, otherwise, be unavailable to them. However, the biosocial theory may have less utility for explaining rape that has no or minimal reproductive consequence (e.g., the rape of men or prepubescent females; rapes in which the victims are killed by combatants). By examining gender as a social construct, the feminist perspective may afford insights into such cases of wartime sexual violence. For example, the same societal pressures that lead men to pursue certain conceptualizations of masculinity (e.g., volunteering for military service) may similarly underlie wartime sexual violence. The same gendered, societal norms also may be partially responsible for the recruitment of largely male armies, thus leaving women at home and vulnerable to attack (sexual and otherwise) by opposing forces. Then again, the considerable rates of sexual assault *within* the military and the higher rates experienced by female soldiers suggest that women are not necessarily safer as participants in the military than they are as civilians (see Castro et al., 2015 for a review). Although a feminist perspective may be useful for understanding certain aspects of wartime rape, it appears to be limited in its ability to provide a comprehensive understanding of the prevalence or variation of wartime rape.

Cultural Pathology Theory

The cultural pathology theory of wartime rape shares features with the feminist theory of wartime rape. Both theories identify sociocultural factors as responsible for wartime rape

and are supported by certain factors contributing to wartime rape. For example, Jefferson (2004) argued that cultures promoting gender inequality during times of peace place women at greater risk of sexual violence during wartime. Both theories recognize that certain environmental factors, such as limited opportunities to express sexual desire during wartime, may also contribute to high rates of wartime rape (Brownmiller, 1975; Kurtz & Diggs, 2015). Nevertheless, the cultural pathology and feminist theories of wartime rape diverge on which particular factors are responsible. The cultural pathology theory proposes that specific sociocultural factors in a nation or military encourage acts of sexual violence against non-combatants of the opposing group. Much of the literature endorsing the cultural pathology theory focuses on specific cultural features of a country in the years leading up to an armed conflict, and then attempts to explain why these features led to mass wartime rape. For example, Chang (1997) argued that Japanese soldiers were conditioned to hold negative attitudes toward the Chinese, and toward women, and it was these hostile attitudes fostered by the Japanese military culture that resulted in the infamous Rape of Nanking during World War II. Scholars have written about the profound impact of dehumanization on the tendency to act violently toward ethnic and cultural outgroups (e.g., Smith, 2011), and dehumanization may be an important factor in explaining wartime rape. However, the dehumanization of one group by another is often difficult to measure, and little research has addressed the impact of dehumanization on sexual violence.

A weakness of the cultural pathology theory is its reliance on post hoc explanations for how specific sociocultural factors lead to mass wartime rape. For both Nanking and the former Yugoslavia, Chang (1997) and MacKinnon (1994), respectively, identify sociocultural factors leading up to the armed conflicts as responsible for widespread rape. However, there is no clear way to isolate hostile attitudes toward the Chinese, or widespread availability of pornography, as the causal factor in each scenario. As such, the cultural pathology theory is limited in its ability to provide a comprehensive explanation for wartime rape. The cultural pathology theory has also attempted to identify societal influences that may increase the likelihood of wartime sexual violence by drawing from historical examples of wartime rape. Drawing from historical examples is a reasonable starting point for identifying the specific cultural factors associated with wartime rape, but proponents of the cultural pathology theory have yet to identify such factors.

Both the cultural pathology theory and feminist theory are difficult to reconcile with the apparent ubiquity of wartime rape. Because both theories attempt to identify specific sociocultural causes of mass rape, they face the challenge of explaining the variation in prevalence of wartime rape across cultural and temporal contexts. Presumably, if mass

rape was the result of specific, cultural factors, then mass rape would be present in some historical accounts of war and absent—or nearly absent—in others. However, mass wartime rape has occurred across vastly different historical and cultural contexts.

Ethnic Hatred Theory

The ethnic hatred theory of wartime rape might be considered a subset of the cultural pathology theory, as the ethnic hatred theory predicts that mass rape will be more common during ethnic wars and in cases of genocide (Plümper & Neumayer, 2006). Similar to the cultural pathology theory, the ethnic hatred theory attempts to identify features of a culture that are responsible for the perpetration of mass rape but focuses on the prejudiced attitudes toward an ethnic group held by the citizens and soldiers of a separate group. Although there are notable instances in which ethnic cleansing campaigns and ethnic wars coincided with mass rape (e.g., Rwandan genocide; Koomen, 2013; Yugoslavia; Gutman, 1993), there are also examples of mass rape during civil wars, with no apparent ethnic agenda (e.g., Hayden, 2000). Additionally, soldiers sometimes rape fellow members of their own military units, which suggests that ethnic hatred is not sufficient to explain all instances of wartime rape. However, Baaz and Stern (2009) claimed that, according to anecdotal reports, Congolese women who joined the armed forces experienced sexual harassment from fellow soldiers, but rarely experienced rape, which may indicate that wartime rape occurs because of a specific desire to dominate the target ethnic group.

Strategic Rape Theory

The strategic rape theory argues that rape is a tool of war employed by military groups to evoke fear and to demoralize the opposition. This theory proposes that, even in the absence of specific instructions from commanding officers to rape non-combatants, rape is utilized as a method of winning wars by terrorizing opposing groups into surrender (Brownmiller, 1975). There is substantial overlap between the ethnic hatred and strategic rape theories, with some proponents of the strategic rape theory referring to it as genocidal rape (MacKinnon, 1994). Both theories propose that rape is a tool of war used by a military force, whether intentionally or otherwise, to terrorize the enemy. Mass rape committed during a genocidal war or ethnic cleansing campaign would likely be considered strategic rape; however, not all instances of supposed strategic rape have been committed during genocidal wars or ethnic cleansing campaigns.

One problem with the theory that rape is a tool of war that is deliberately employed by military leaders in pursuit of a strategic goal is that soldiers often commit rape in the

absence of clear orders to do so. In fact, there is evidence that mass wartime rape has been counterproductive to some military campaigns, such as the Japanese invasion of China during World War II, in which military leaders actively tried to reduce the rape of Chinese civilians by providing soldiers with “comfort women” (Henson, 2016). This belies another problem with the strategic rape theory, which is that mass rape may be ineffective at achieving the goals of terrorizing and emasculating the target population. Thus, the strategic rape theory is not empirically well supported, and offers little in terms of explaining global patterns of mass wartime rape.

Combatant Socialization Theory

Each of the aforementioned theories of wartime rape is limited in explanatory power, largely because each lacks the robustness necessary to explain why mass rape characterizes some armed conflicts and not others. For example, the ethnic hatred theory is sufficient to explain why wars of ethnic cleansing involve high rates of rape against women of the targeted ethnic group, but does not explain why mass rape has also been perpetrated by military groups with no apparent ethnic agenda or prejudices toward the victimized group. In this sense, the combatant socialization theory (Cohen, 2016) may be the strongest of the non-biosocial theories of wartime rape, and as such, it is discussed at greater length than the other theories.

The combatant socialization theory (Cohen, 2016) purports to explain variation in rates of sexual violence across different military groups or, more precisely, why some armed conflicts are characterized by mass rape and others involve relatively low rates of rape. The central argument of the combatant socialization theory is that the method of recruitment used by a military group has a significant impact on the sexual violence perpetrated by that group. Specifically, Cohen (2016) argues that the military groups that use “extreme” methods of forced recruitment are more likely to be involved in armed conflicts characterized by widespread rape relative to those that use relatively “weak” methods of forced recruitment or voluntary recruitment. Cohen refers to such methods as *abduction* when committed by state militaries and as *press-gang* when committed by insurgent militaries. Cohen argues that soldiers forcibly recruited via extreme methods do not have the same opportunities to form social bonds with their fellow combatants as do soldiers recruited via weak methods of forced recruitment or voluntary methods. Combatant socialization theory includes the following arguments:

(1) Wartime sexual violence requires a distinct explanation from sexual violence in other contexts because wartime sexual violence is unique in several important ways. Whereas gang rapes (i.e., “rape involving at least two or

more perpetrators”; Krug et al., 2002, p. 153) comprise a minority of all rapes perpetrated during times of peace, gang rapes comprise the majority of rapes perpetrated during war (Horvath & Woodhams, 2013). Further, Cohen (2016) argues that the perpetrators and victims of gang rape during wartime are distinct from the perpetrators and victims of individual rapes committed during times of peace. Specifically, Cohen cites evidence that gang rape is often characterized by younger perpetrators and greater physical violence than single-perpetrator rape (Bijleveld & Hendriks, 2003; Gidycz & Koss, 1990). (2) Forming social bonds with fellow combatants is valued by individual soldiers—especially those who have been abducted or press-ganged—and now find themselves surrounded by strangers and sometimes forced into dangerous situations. Once an individual has been abducted or press-ganged into a combatant group, abandoning the group is not usually a viable option, and so attempting to form bonds with and seek the approval of fellow combatants may be the most favorable course of action. (3) Additionally, individuals may fear that alienation from fellow combatants carries serious, negative consequences and are motivated to form social bonds to avoid this alienation. Cohen also argues that an individual’s desire to avoid exclusion or estrangement from the group may overpower feelings of resentment toward members of the group for their role in forcibly recruiting the individual. (4) Soldiers recruited via weak methods of forced recruitment and voluntary recruitment often enjoy more opportunities to form these social bonds than soldiers recruited via extreme methods of forced recruitment. As a result, militaries composed of abducted and press-ganged combatants enjoy less social cohesion than militaries that recruit volunteers or who utilize weaker methods of forced recruitment. Thus, military leaders who rely on abduction or press-ganging face the dilemma of facilitating among combatants the social cohesion necessary for the soldiers to act as an effective military force. However, despite this need for cohesion at the macro level, the combatant socialization theory identifies the need for social cohesion at the individual level as the primary force responsible for group sexual violence. Specifically, Cohen argues that being abducted or press-ganged can lead to feelings of fear and isolation, which may be partially responsible for the desire to increase group cohesion among individual combatants. (5) Costly, risky group violence partially ameliorates the negative feelings resulting from being abducted or press-ganged and facilitates social cohesion among fellow combatants. In essence, engaging in group behaviors that involve some risk of personal harm may signal loyalty and commitment to the group. (6) Sexual violence (most notably, gang rape of non-combatants) is a particularly effective form of group violence for facilitating social bonds with fellow

combatants. Through participation in gang rape, a group of combatants assumes collective responsibility for an atrocity, which may increase each individual’s sense of loyalty to the group and group cohesion.

The combatant socialization theory has many strengths, the greatest of which is, arguably, its theory-data fit. The combatant socialization theory predicts that military groups that recruit soldiers via abduction and press-ganging will commit higher rates of rape and Cohen (2016) finds support for this prediction. Cohen included in her analysis all major civil wars worldwide between 1980 and 2012 and, to indicate the severity of rape for each of the 91 conflicts, used reports from the U.S. State Department’s Country Reports on Human Rights Practices (United States, 1980–2012) and applied the following coding scheme: 0 (“no mention of rape likely related to civil war”), 1 (“rape likely related to civil war” and described as “isolated reports” and “some reports”), 2 (“rape likely related to civil war” and described as “widespread, common, extensive, innumerable” and “persistent”), and 3 (“rape likely related to civil war and was described as “massive” or on a “massive scale”). Cohen then compared the reported severity of rape across conflicts using several grouping variables to test various predictions. Cohen compared the reported severity of rape across type of military (state vs. insurgent), country/region, specific conflict, type of conflict (ethnic, non-ethnic, or ambiguous), aim of conflict (rebels seeking state control, rebels seeking exit or autonomy, or ambiguous) majority religion, variation over time, and, central to Cohen’s argument, recruitment method. In addition to testing the central prediction of the combatant socialization theory, Cohen tested competing explanations, including that war facilitates unprecedented opportunities for men to rape (opportunism/greed explanation), ethnic hatred as a motivator of wartime rape, and that wartime rape is more likely in countries in which women have fewer rights (gender inequality explanation). Using ordered probit-regression, Cohen dummy-coded various recruitment methods as either present or absent, and reported a significant positive association between military groups that utilized extreme methods of forced recruitment (i.e., abduction, press-ganging) and reported severity of rape. Cohen also reported no significant association between weak methods of forced recruitment (e.g., forced conscription) and reported severity of rape. Thus, Cohen’s analyses appear to provide compelling support for the combatant socialization theory. However, there are empirical and theoretical issues with the combatant socialization theory that must be addressed before its efficacy can be determined.

Cohen (2016) argues that there is an internal desire, experienced by individual soldiers, to form social bonds with fellow combatants, even when the individual was recruited via abduction or press-ganging. Taken at face value, the combatant socialization theory begs the question of why gang

rape, in particular, is the means by which newly recruited individuals form these much-desired social bonds. Cohen explains that gang rape may function not only as an initiation ritual whereby new recruits can signal their loyalty, but also as a means by which more experienced soldiers can indicate their continued dedication to the group. With this explanation, Cohen is presumably suggesting that gang rape is the method used to facilitate the formation of social bonds, in part because gang rape is perceived by existing members to be a reliable indication of whether new and existing recruits are loyal and committed to the group. In this sense, the combatant socialization theory implies that gang rape during war is the result of a self-perpetuating cultural pathology but does not attempt to identify the inception of this cultural practice, or why the same practice is shared across vastly different cultures. Nevertheless, the combatant socialization theory may provide some utility in explaining wartime rape. For example, the socialization process described by Cohen may be at least partially responsible for soldiers' perpetration of gang rape. Specifically, the process of bonding with fellow combatants may normalize acts typically regarded as taboo, such as sexual violence. However, it does not appear that the combatant socialization theory is sufficient to explain the prevalence of wartime rape.

Another theoretical dilemma for the combatant socialization theory concerns the role of gang rape in facilitating social cohesion. According to Cohen (2016), social cohesion between fellow combatants, though not an essential component of combat effectiveness, is an essential component of a group's longevity, and decreases the chances of desertion or mutiny. Thus, according to this view, social cohesion is a crucial element of an effective long-term military campaign, and yet state and insurgent militaries that rely on press-ganging and abduction are severely lacking in their ability to facilitate social cohesion. As Cohen explains when dissecting and critiquing the competing strategic theory of wartime rape, "...the explanation of rape as a military strategy suffers from a lack of supporting evidence" (p. 20). Cohen argues that military commanders rarely issue direct orders for combatants to engage in sexual violence against non-combatants. Thus, according to the combatant socialization theory, the desire for increased social cohesion experienced by soldiers at the individual level, rather than direct orders by military, is responsible for perpetration of wartime rape. That sexual violence is an effective means of increasing combatants' social cohesion, and that combatants engage in sexual violence despite the absence of direct orders to do so, is fortuitous from the perspective of the military commanders, whose success depends, at least in part, on the social cohesion of their soldiers. What is confusing is that, when attempting to explain the importance of social cohesion, Cohen emphasizes the need for cohesion from the perspective of the military leaders, even

though the desire for social cohesion by the military leaders does not appear necessary to explain the perpetration of gang rape during war. In other words, for the combatant socialization theory to explain mass wartime rape without the aid of the strategic rape theory, Cohen must establish a compelling case for the importance of social cohesion at the level of *individual* combatants, without invoking the need for social cohesion at the level of the state or insurgency. Nevertheless, Cohen repeatedly provides evidence that social cohesion is an important element of an effective military force.

The distinction between weak and extreme methods of forced recruitment, as outlined by Cohen (2016) is tenuous. Making a convincing case for this distinction is crucial, given its importance in Cohen's theory. Cohen attempts to distinguish these forms of recruitment, explaining that weak methods involve recruitment by bloc, wherein friends and family members are recruited together, whereas strong methods of recruitment involve more violence. However, there is not sufficient evidence that weak methods, such as forced conscription, are characteristically different than abduction or press-ganging, at least in the sense that both types of recruitment afford little agency to the individuals targeted for recruitment. Adding to the confusion, Cohen states: "How combatant groups choose recruitment mechanisms—which groups abduct fighters and which recruit them without force or coercion—remains an open question in the field" (p. 24). Here, Cohen concedes that the reasons underlying a combatant group's recruitment method are uncertain.

In addition to the theoretical problems, there are methodological limitations that hinder the combatant socialization theory's explanatory power. Notably, the combatant socialization theory is supported largely by correlational, ethnographic data, and Cohen's (2016) analyses do not control for potentially confounding variables. This is problematic because there are numerous variables that may vary systematically with the type of recruitment used by a state or insurgent military. Relative to military groups that use voluntary recruitment, military groups that rely on abduction or press-ganging may be deficient in material resources and voluntary recruits, more likely to resort to risky and politically unpopular military strategies, face less pressure from allied or international governments to refrain from forced recruitment methods, and characterized by a lack of professional military standards. In essence, the recruitment method used by a military group may be a symptom of the kind of organizational structure that allows greater opportunities for wartime rape (e.g., perceived lack of consequences for soldiers) rather than being a *cause* of wartime rape. Identifying a state's or an insurgency's recruitment method as the causal factor behind widespread rape ignores a number of equally plausible alternatives.

Cohen (2016) argues that no other competing theory, including those that employ an evolutionary perspective, is capable of explaining the variation in rates of wartime rape across different armed conflicts. Specifically, Cohen argues that because an evolutionary perspective identifies men's sexual desire as the primary motivator of wartime rape, and because there is significant variation in the rate of wartime rape across conflicts, an evolutionary perspective is insufficient as a comprehensive explanation of wartime rape. However, as we explain in the following section, the biosocial theory recognizes the importance of both biological and sociocultural factors in explaining the prevalence of and variation in wartime rape.

The Biosocial Theory of Wartime Rape

The biosocial theory proposes that both ultimate and proximate explanations are requisite components of a comprehensive understanding of wartime rape. In other words, the biosocial theory accounts for the influence both of evolved psychology and environmental (including cultural) input. Sociocultural theories often concede that biology plays a role in wartime rape only in the sense that reproductive anatomy facilitates the rape of women by men. In addition to neglecting the role of evolved psychological mechanisms, this assertion betrays sociocultural theorists' misunderstanding of biology as separate from the environment. All environmental causes of behavior occur via biological processes. Sensation, perception, and resulting behavioral output depend on the coordination of multiple, complex biological systems (e.g., neurotransmission, endocrine system, nervous system). The biosocial theory recognizes that biological and environmental influences are inextricable, and proposes that evolved male psychological mechanisms probabilistically motivate rape under specific and predictable environmental contexts. Additionally, whereas many sociocultural theories assert that rape is not motivated by sexual desire, the biosocial theory accounts for both biological and sociocultural factors, and proposes that sexual desire is a necessary, though not necessarily sufficient, psychological motivation to commit rape. The biosocial theory further suggests that the environmental contexts of war may interact with evolved male psychology in such a way as to account for the greater prevalence of rape during wartime. For this reason, and for reasons outlined in later sections, we argue for the superior explanatory power of the biosocial theory, not only because there is considerable empirical evidence to support this argument, but also because purely sociocultural theories are, at best, insufficient for producing a comprehensive understanding of wartime rape and, at worst, perpetuate the myth that male sexual desire does not play an important role in wartime rape. Thus, by applying an adaptive lens and

accounting for environmental factors, the biosocial theory may be capable of explaining the existence of wartime rape as well as the variation in rates of sexual violence across conflicts.

To understand the biosocial theory of wartime rape, it is important to discuss whether rape, in general (i.e., outside the context of warfare), represents or reflects an evolved male mating strategy, or is instead a byproduct of other evolved male psychological mechanisms. Adaptations are inherited phenotypic traits resulting directly from evolution by natural selection and sexual selection, formed gradually over evolutionary time via the accumulation of random genetic mutations and the discriminating force of non-random selective pressures (Darwin, 1964). Byproducts, in contrast, are characteristics or behaviors that coincide with adaptations, but which themselves do not have a specialized, evolved function (Buss et al., 1998; Thornhill & Palmer, 2000).

Thornhill and Palmer (2000) applied an evolutionary, biosocial perspective to the study of human sexual coercion and rape to consider and assess the evidence for and against rape as an evolved male mating strategy; however, the scientific discourse informed by evolutionary theory remains inconclusive regarding whether rape in humans is produced by specialized adaptation or as a byproduct of other adaptations (Buss, 2019; Thornhill & Palmer, 2000). An adaptation explanation suggests that rape, specifically, conferred reproductive benefits to ancestral males by increasing their number of copulations and, consequently, their reproductive success (Thornhill & Palmer, 2000; Thornhill & Thornhill, 1992). A byproduct explanation posits that rape is not produced by a specialized adaptation but is instead the indirect result of other male adaptations that each enhanced the reproductive success of ancestral men independent of their use in rape, such as physical aggression, overestimation of female sexual interest, and the desire for sexual variety (Perilloux, 2014; Symons, 1979; Thornhill & Palmer, 2000). For example, overestimation of female sexual interest and the desire for sexual variety each may confer a reproductive advantage, regardless of whether they result in rape in a specific context. A byproduct account of rape argues that, although ancestral men who engaged in rape may have improved their reproductive success, the act of rape is not the "designed" output of adaptation. Following Williams' (1966) definition of adaptive function, Symons (1979) argued that a trait should exact its presumed function with "sufficient precision, economy, and efficiency" (p. 11) to rule out chance as a reasonable alternate explanation. For a trait to constitute an evolved function, there must be sufficient evidence that natural selection shaped the trait over evolutionary time in direct response to specific selective pressures. Although evolutionary scholarship remains divided regarding the causes of rape in humans, this current lack of

explanatory consensus may have little, if any, bearing on the utility of the biosocial theory of wartime rape. Regardless of whether rape is a specific response to selective pressures experienced by ancestral hominids, or a byproduct of psychological mechanisms that solved some other function, rape is a downstream consequence of evolved male psychology. Rather than answer this question directly, the biosocial theory of wartime rape takes the position that human evolutionary history was characterized by rape, and this evolutionary context shaped male-evolved psychology.

The distinction between ultimate and proximate explanations is as important as the distinction between adaptations and byproducts for understanding wartime rape. Ultimate explanations of human behavior identify the selective pressures that conferred reproductive or survival benefits in the ancestral environment, whereas proximate explanations identify the specific, immediate causes of a behavior in a given individual and circumstance. A considerable psychological literature has attempted to explain rape via sociocultural factors (e.g., Travis, 2003), such as men's relationships with their fathers or men's hostile, enculturated attitudes toward women (e.g., Malamuth & Thornhill, 1994; Ouimette & Riggs, 1998). Although such perspectives attempt to account for rape both at the individual level and as a widespread human behavior (e.g., societies with greater hostility toward women facilitate greater prevalence of sexual coercion), they often do not consider ultimate levels of analyses and, therefore, offer incomplete accounts of the causes of sexually coercive behavior. Focusing on one level of explanation and ignoring others can restrict the scientific investigation of a target behavior and lead to incomplete—or even misleading—conclusions about the causes of that behavior. Understanding the distinction between the ultimate and proximate causes of rape affords important context for an evolutionary understanding of rape during wartime.

Evidence in Favor of the Biosocial Theory

Understanding the biosocial perspective of wartime rape begins with an understanding of parental investment theory (Trivers, 1972), which acknowledges that there is a difference in minimum obligatory parental investment between males and females of sexually reproducing species. As a result, the optimal reproductive strategies of males and females of a given species differ, such that members of the sex that bear the greater minimum obligate investment required to produce offspring will be the limiting factor for reproduction, whereas members of the lesser-investing sex will invest more heavily in mating effort. For most species, including humans, females produce the larger and more metabolically costly gametes, and thus bear the larger minimum obligatory parental investment (Bateman, 1948), whereas males typically face intense intersexual and

intrasexual competition to secure sexual access to females (Trivers, 1972). Put plainly, this means that males will often expend more effort to secure sexual access to a variety of females, whereas females will expend more effort in selecting the highest quality partners, and in rearing offspring. The selective pressures imposed by male competition and female preferences for high-quality partners has produced a wide range of male adaptations to secure sexual access and, subsequently, fertilization (Darwin, 1871; see Hosken & House, 2011). Many such traits function to enhance males' chances of being selected by females (Eberhard, 1996); however, consensual female selection is not the only route through which males can achieve sexual access. Another means of gaining sexual access is by subverting female choice. Sexual coercion refers to any male behaviors that facilitate copulation against female resistance and may form part of an evolved reproductive strategy that promotes male reproductive interests at the expense of female reproductive interests.

Overwhelmingly, women are the victims and men are the perpetrators of rape in humans (Smith et al., 2018). Additionally, young women are overrepresented among the victims of rape (Thornhill & Thornhill, 1990a) and, likewise, the victims of wartime rape are, by all available accounts, primarily young women (Brownmiller, 1975). It is not an accident of human reproductive physiology that men are overrepresented among the perpetrators of rape and women the victims of rape, in the sense that men have the physiological ability to rape, and women have the physiological ability to be raped. Neither is this sex-biased victim-offender pattern solely attributable to cultural conditioning. Rather, specialized psychological mechanisms motivate men, more than women, to pursue sexual access to a relatively large number of partners (Buss & Schmitt, 1993) and to prefer young, sexually attractive, and reproductively capable partners (Buss, 1989), because these behaviors enhanced the reproductive success of ancestral males. Although cultural factors are imperative for understanding the variation in rates of wartime rape, the reproductive consequences for ancestral men and women are imperative for understanding the existence of rape in the first place.

To assert that all men are inclined to rape under specific circumstances would be to ignore a significant part of the puzzle that is wartime rape. Individual differences in characteristics such as aggressiveness and sexual desire likely account for a significant portion of the variation in rates of wartime rape. In fact, state and insurgent militaries may recruit incidentally—or intentionally—male soldiers who possess characteristics that make them more likely to commit rape. Following Thornhill and Palmer's (2000) suggestion that rape confers potential adaptive benefits to men, McKibbin et al. (2008) argued that rape may be best understood from an evolutionary perspective as a conditional strategy employed by any man, rather than a tactic employed

only by a subset of “rape specialists.” However, McKibbin and colleagues also argued that men may rape for different reasons and under different circumstances. Briefly summarized, the five types of rapist outlined by McKibbin and colleagues are *disadvantaged men* who are unable to obtain consensual sexual partners, *specialized rapists* who are sexually aroused in violent contexts, *high-mating-effort men* who pursue many mating opportunities both consensual and otherwise, *partner rapists* who rape their intimate partners when they suspect her of infidelity, and *opportunistic rapists* who pursue consensual sexual opportunities but are willing to use coercion when the costs of doing so are sufficiently low. Rape in the context of warfare is consistent with the definition of opportunistic rapists, high-mating effort men, and men who are sexually aroused in violent contexts. In particular, McKibbin and colleagues cite the greater prevalence of rape during wartime as evidence that certain men are more likely to rape when the associated costs are low.

The concordance between *opportunistic rapists* and wartime rape may be worthy of further consideration. First, it is worth considering whether opportunistic rapists are overrepresented among soldiers. If this were the case, it might go a long way in explaining the prevalence of wartime rape. However, as McKibbin and colleagues (2008) noted, evidence for this type of rapist is minimal. Although *opportunistic rapists* may account for some cases of wartime rape, a more parsimonious explanation may be that all men are attuned to potential opportunities to commit rape, but individuals vary in their propensity to commit rape. However, the chaos and confusion of war seemingly facilitate more opportunities to commit rape than peacetime contexts. Thus, an alternative explanation is that, rather than wars being largely fought by opportunistic rapists, wars may reduce the perceived costs of perpetrating rape, thereby increasing the frequency of rape. Further, certain conflicts are more chaotic than others, which may affect the perceived costs of wartime rape (e.g., soldiers may anticipate fewer potential repercussions for wartime rape during particularly chaotic conflicts). Contextual features (e.g., the relative absence of a professional military structure) may explain at least some of the variability observed in the occurrence of wartime rape. This possibility should be examined in future research.

Individual Differences in Propensity to Rape

Modern rapists may represent a subset of men who are more likely to employ rape as a conditional mating strategy (Lalumière et al., 2005). Lalumière and colleagues (2005) present an extensive overview of the extent to which individual differences predict men’s propensity to inflict sexual violence. In particular, Lalumière and colleagues address the roles of antisocial personality features, mating effort, sexual interest in rape, and psychopathology, as well as the importance of

certain situational factors for predicting rape. The individual differences and environmental factors considered by Lalumière and colleagues closely resemble the different types of rapist outlined by McKibbin and colleagues (2008). The individual differences in propensity to rape outlined by Lalumière and colleagues may provide useful insight into some of the underlying causes of rape during wartime.

Antisociality and Mating Effort

Mating effort refers to the time and energy expended to acquire sexual partners and is often contrasted with parental investment. Although mating effort and parental investment are not necessarily mutually exclusive, many sexually reproducing species demonstrate an investment tradeoff wherein the sex that expends more energy in mating effort typically expends less energy in parental investment, and vice versa (Trivers, 1972). In addition to the sex differences in mating effort, there may also be within-group differences, such that some men are more oriented toward a high mating effort strategy. As discussed previously, high mating effort men may be more likely to employ rape as a reproductive strategy, especially when their efforts at securing consensual sex are frustrated. Evidence for within-group differences in mating effort may be especially clear in the case of antisocial men.

Lalumière and colleagues (2005) considered a broad, multidisciplinary literature to identify the individual differences most closely related to sexual coercion. They described antisociality as a personality characteristic associated with antisocial conduct, which includes “any criminal, delinquent, or violent behavior in which the interest of one person is disregarded for the benefit of the actor” (p. 65). Further, Lalumière and colleagues suggest that a small proportion of men may belong to a categorically distinct subgroup characterized by high antisociality (Harris et al., 1994). Relative to the general population, these men are more impulsive, callous, irresponsible, violent, sexually promiscuous, and less remorseful. Perhaps unsurprisingly, highly antisocial men are younger at first sexual intercourse and more likely to have sired children by age 20 years (Fagot et al., 1998). The same study also found that, among men who had children by age 20, 40% no longer had contact with their child by age two years. Lalumière and colleagues (2005) cite evidence for the relationship between antisociality and sexual coercion, referencing a number of community samples (i.e., men who have not been accused or convicted of rape, also referred to as “hidden groups”). For example, Lalumière and Quinsey (1996) and Lalumière and colleagues (1996) found that antisociality was associated with mating effort and self-reported sexual coercion. Thus, the pattern highlighted by Lalumière and colleagues (2005) indicates that antisociality is associated with high mating effort, low parental investment, and

frequent use of sexually coercive behaviors, consistent with McKibbin and colleagues' (2008) description of high mating effort rapists. These results support the idea that antisocial men are distinct from the general population and adopt a high mating effort sexual strategy, pursuing both consensual and non-consensual sexual partners. Such men may also be more likely to take up arms when large-scale conflict erupts. Lalumière and colleagues (2005) also note that antisocial men are disproportionately young and of low socioeconomic status. Many of the civil wars included in Cohen's (2016) analyses involved economically disadvantaged countries, with armed forces consisting largely of young men. Thus, one potential explanation for the prevalence of wartime rape may be that armed conflict and military organizations attract the types of men who are more likely to perpetrate sexual violence, perhaps especially in situations of mass chaos and disarray, such as during the invasion and occupation of enemy territory. However, there is little direct evidence to support this hypothesis at the present time.

A similar issue concerns individual differences in obedience. Research has provided evidence that, perhaps unsurprisingly, conscientiousness and agreeableness tend to be associated with obedience to authority (Bègue et al., 2015; Hwang, 2023). Additionally, one longitudinal study of German men found that individuals lower in agreeableness, neuroticism, and openness to experience during high school were more likely to enlist in military service, that agreeableness decreased after military training, and that this decrease persisted five years after training had ended (Jackson et al., 2012). This line of research presents the somewhat counter-intuitive possibility that individuals who join the military voluntarily may be *less* obedient than their civilian counterparts. The low obedience of (at least some) combatants, combined with evidence that diffusion of responsibility in groups may facilitate antisocial behavior (Mathes & Kahn, 1975; Rowan et al., 2022), provides additional support for the idea that antisociality may contribute to wartime sexual violence.

Sexual Interest in Rape and Sadistic Sex

Male rapists may also differ from non-rapists in their sexual arousal to different stimuli. In a study comparing convicted rapists and non-rapists using penile plethysmography (i.e., a measure of blood flow to the penis), Harris and colleagues (2012) observed that both groups showed similar levels of sexual arousal to non-sexual stimuli and to stimuli that did not involve physical violence. However, whereas non-rapists showed greater arousal for sexual stimuli in which consent was present, rapists showed no difference in sexual arousal for sexual stimuli, as a function of whether consent was present. That is, rapists and non-rapists showed similar levels of arousal to sexual stimuli in which consent was present, but

only non-rapists showed lower levels of arousal to stimuli in which consent was not present. This pattern of results is consistent with the results of research documenting that rapists display greater genital arousal than non-rapists in response to coercive sexual stimuli (e.g., Lalumière et al., 2003; Seto & Barbaree, 1993). The patterns of arousal in response to sexually coercive stimuli observed in specific groups of men suggest that men who are more likely to employ a coercive sexual strategy may be more sexually aroused by cues to sexual coercion than are other men.

There is also evidence that rapists are more aroused by sexual cues containing physical violence than are non-rapists. Quinsey and Chaplin (1984) found that non-rapists showed a reduced sexual response when they experimentally increased the level of violence in the stimuli, whereas rapists showed no change in sexual response. Sexual sadists, in particular, are men who experience sexual arousal in response to the suffering of others. Lalumière and colleagues (2005) suggested that rape may be especially appealing to sexual sadists because it involves the physical harm and humiliation of the victim. That certain men become more aroused in response to violent sex and the absence of consent is of potentially great significance for understanding wartime rape. Presumably, rapes perpetrated by enemy combatants during wartime are contextualized by physical violence. Thus, men who engage in rape during wartime may be aroused by cues of physical violence and may be phenotypically distinct from those men who do not engage in wartime rape.

Age and Socioeconomic Status

There are a number of demographic factors associated with the frequency of rape. Notably, young men are more likely than older men to commit rape (Thornhill & Thornhill, 1983). Wilson and Daly (1985) suggest that the high incidence of rape and other crimes during late adolescence may be part of an evolved reproductive strategy in which young men incur greater risks to compete for status, resources, and mating opportunities. Lalumière and colleagues (2005) similarly argued that the more frequent performance of risky behaviors reflects a conditional strategy, and predicted that, in addition to youth, increased risk-taking behavior should be associated positively with the intensity of competition for status, resources, and mates, as well as perception of future mating prospects. And, as discussed previously, greater frequencies of risky and delinquent behaviors are associated with antisociality, mating effort, and sexual coercion (Harris et al., 1994).

War is characterized by higher rates of mortality than peacetime, which may signal poor future prospects for soldiers. Additionally, armed conflicts that Cohen (2016) identified as having greater incidences of rape were those in

which soldiers were abducted or gang-pressed and, therefore, received little—if any—compensation for their military service (Mulligan & Shleifer, 2005). Thus, the increased rates of rape during wartime, and the particularly high rates in conflicts with little to no compensation for combatants, are consistent with Lalumière and colleagues' (2005) prediction that a risky conditional male strategy will be more frequently utilized in certain contexts.

Age may also be a contributing factor to wartime rape such that young men may be especially likely to engage in wartime rape. This possibility aligns with young men being overrepresented among individuals charged with and convicted of rape (Thornhill & Thornhill, 1983), and military forces typically comprised primarily of young men (e.g., Military One Source, 2018). It is unlikely that insurgent militaries who used forced recruitment methods record demographic data on their soldiers, so it may be difficult to determine the average age of combatants in conflicts characterized by widespread rape. Still, limited data are available. A study that assessed post-traumatic stress in former child soldiers during the 1991–2002 conflict in Sierra Leone reported a mean age of 16.58 years at the time of data collection, and 11.19 years at the time of abduction (Betancourt et al., 2013; $n = 243$). In sum, military groups, especially those with few resources and those embroiled in civil conflicts, may be especially likely to recruit young, antisocial, and disadvantaged men—or boys—as combatants. The recruitment of such individuals, coupled with the increase in opportunities to commit rape afforded during armed conflicts, may partially explain the greater prevalence of rape during wartime.

Evidence from Anthropology and Comparative Psychology

Further evidence for the biosocial theory comes from the raiding behaviors of men in traditional human societies, and of male chimpanzees (*Pan troglodytes*). The role of cultural factors in influencing the rates of wartime rape is an important component of the biosocial theory. However, whereas some of the sociocultural theories argue that human societies free of Western, patriarchal influences should experience a reduced incidence of wartime rape (Brownmiller, 1975; Siefert, 1994, 1996), the biosocial theory highlights rape and raiding in such societies as evidence of the evolutionary roots of wartime rape.

Raiding in Tribal Populations

There is a rich scholarship investigating tribal warfare within the anthropological literature, with myriad investigations attempting to elucidate potential causes (e.g.,

Ferguson, 2000; Gat, 1999; Keeley, 1996). For example, Chagnon (1988) noted that tribal warfare is frequently motivated by revenge, with the primary goal of killing the member of a rival tribe who previously killed a member of one's own tribe. In a historical review of wartime sexual violence, Vikman (2005) states that, despite how profoundly the conduct and weaponry of warfare have changed over human history, mass rape remains a constant. Vickman's contention is all the more compelling when considering the patterns of sexual violence observed in traditional human societies. There are numerous traditional societies in which rape is purportedly absent, but Palmer (1989) provides evidence that rape, especially during raids is, in fact, present in each of these societies. Ethnographic data on the prevalence of raiding and tribal warfare provides evidence that such behavior may be motivated both by sexual desire and a perceived lack of potential retaliation from rivals. In traditional human societies such as the Nyangatom and the Yanomamo of South America, raiding or tribal warfare typically includes a spontaneous display of force enacted by one group against a rival group, often with the goals of inflicting injury or death on members of the target group, kidnapping females, or stealing resources such as food (Chagnon, 1988; Glowacki & Wrangham, 2015). Although raiding does sometimes involve the abduction of women, raiding behaviors often confer indirect benefits to men's reproductive success. For example, Yanomamo men who have killed other men enjoy greater reproductive success than non-killers (Chagnon, 1988). Having killed another man during a raid may signal desirable characteristics such as physical strength to potential mates. Nyangatom men, who trade livestock for wives, often raid rivals to take livestock, rather than women (Glowacki & Wrangham, 2015). Glowacki and Wrangham (2015) observed that men who had participated in more raids had more wives and children. The rape or abduction of women from rival groups may also provide evidence for the reproductive benefit of mating with outgroup members. Optimal outbreeding theory suggests that there may be reproductive benefits to reproducing with members of an outgroup, as this may promote greater genetic diversity than reproducing with ingroup members (Bateson, 1978). Walker and Bailey (2013) observed that wife abductions were more common in raids from different language groups, which suggests that the men of these tribes may be motivated to abduct and have sex with women who are more distantly genetically related. Conversely, research on women's dating preferences has yielded consistent evidence that women are less open to dating outside their own race than are men (Fisman et al., 2006; Hitsch et al., 2010; Sprecher et al., 1994). This evidence suggests two potentially overlapping implications for optimal outbreeding theory.

One potential interpretation of these data is that, due to the reproductive benefits of having offspring with genetically dissimilar women, male psychology has evolved a greater sexual preference for racial outgroups than is present in women. Alternatively (or perhaps, concurrently), the adaptive costs associated with abduction by an outgroup male have resulted in a decreased sexual preference for racial outgroups by women. In either case, the potential benefits of outgroup breeding may have been partially responsible for the use of raiding to acquire new mates in early human tribal societies. This may also help explain the prevalence of wartime rape during ethnic wars. However, the evidence for increased sexual attraction to outgroup members is limited, and in need of further investigation.

Raiding in Chimpanzees

Chimpanzees provide what is perhaps the most direct nonhuman parallel to patterns of tribal warfare in humans. Chimpanzee males will patrol the outer edges of their territory in groups, and will physically assault any chimpanzee from a neighboring group they find while on patrol, often killing any males and abducting any females they encounter (Watts & Mitani, 2001). As in traditional human societies, raiding behavior in chimpanzees appears to enhance reproductive success for males. Potential fitness benefits of chimpanzee raids include killing rival group members to reduce competition for limited resources (Watts et al., 2006). Additionally, chimpanzees that more frequently patrol the borders of their territory experience greater mating success (Watts & Mitani, 2001). The similarities between raiding behaviors in humans and chimpanzees may be interpreted as evidence that raiding behavior is produced by a conserved, evolved male psychology present in the most recent common ancestor of chimpanzees and humans. There are several notable similarities in the raiding behaviors of chimpanzees and tribal humans. Both human and chimpanzee raids are perpetrated by males, and for both male chimpanzees and tribal men, raids are associated either directly with acquisition of females or indirectly with greater mating success via the acquisition of material resources (Manson et al., 1991). The similarities between chimpanzee and human tribal raiding may be evidence of the deep evolutionary roots of raiding behavior, in general, and of wartime rape, in particular. In other species, such as lions and langurs, males invading new groups will often kill the offspring of the previous dominant males, which causes nursing females to come into estrus sooner (Hrdy, 1979) and may provide evidence of a much deeper evolutionary history of group rape-like behavior.

Evolutionary Stable Strategies and Wartime Rape

In nature, there are countless evolutionarily stable states that may influence the behavior of an individual organism. These calculations are made unconsciously, highly situationally dependent, and influenced by many factors. Different scenarios confer different risks and benefits (e.g., whether to share food discovered while foraging, whether to fight over a desired mating partner). Making the optimal decision affects the reproductive success of the organism in question. The ability to flexibly adjust one's behavior with the potential costs and benefits of a sexually coercive strategy in different contexts must have carried important reproductive consequences for ancestral males.

It has often been argued that wartime rape is the result of a male cost-benefit analysis (e.g., Baker & Bellis, 1995; Shields & Shields, 1983; Thornhill & Palmer, 2000). Baker and Bellis (1995) argued that men can improve their reproductive success via rape so long as (1) the time and energy required to rape do not exceed the time and energy required to wait for the woman to consent to sex; (2) the risk of being wounded by the woman or those guarding her is not too great; and (3) the risk of the woman being wounded and unable to produce or care for the offspring is not too great. This last point deserves special attention because accounts of wartime rape suggest that some of the women who are raped are also brutally tortured or killed (Chang, 1997; Cohen, 2016). If most of the women who have been the victims of wartime rape have been killed, this would be potentially devastating to the biosocial theory. Future research should attempt to secure data on this issue, although doing so may be challenging.

Another critical feature of the cost-benefit tradeoff involved in rape, in general, and wartime rape, in particular, is the likelihood that the rape will result in pregnancy. On average, about 3% of all sexual intercourse that *could* result in pregnancy results in conception (Coleman, 2015; Gottschall & Gottschall, 2003; Holmes et al., 1996). Even considering the fact that rape seems to be about twice as likely to result in pregnancy as consensual sex (approximately 6%; e.g., Gottschall & Gottschall, 2003), the potential benefits of rape seem greatly outweighed by the potential costs. Nevertheless, a high-risk, high-reward male sexual strategy may be more likely to be characterized by rape, such that some men may be more likely to resort to sexual coercion than others. Additionally, the relatively low chance of conception resulting from rape may be offset in contexts in which the associated costs are reduced or altogether absent.

The cost-benefit tradeoff of rape during wartime may be markedly different than in times of peace. Pinker (1997) argued that one of the main reasons men in tribal societies engage in warfare may be to acquire more wives. On the one hand, engaging in deadly combat with other groups

of men would seem to dramatically increase the potential costs associated with rape in this context. However, Pinker argues that the potential benefits to reproductive success could, on average, outweigh the costs, stating “Imagine a game of Russian roulette where if you don’t get killed you have one more offspring. A gene for joining the game could be selected, because five-sixths of the time it would leave an extra copy in the gene pool and one-sixth of the time it would leave none.” (p. 514). Pinker goes on to argue for the importance of groups when considering potential gains and losses, stating that “the coalition acting together can gain a benefit that its members acting alone cannot” (p. 514). Thus, the cost-benefit tradeoffs associated with rape as outlined by Baker and Bellis (1995) may need to be modified when considering wartime contexts.

For humans in a modern context, there are additional risks associated with rape that probably deter men from committing rape, even when other risks are low. For example, men may worry about potential legal repercussions, or may have moral concerns that deter them from perpetrating rape. There may also be individual variation in how men calculate the costs and benefits of rape, and variation in how heavily men weigh certain costs or benefits. That the majority of rapes in the U.S. are perpetrated by young men of low socioeconomic status suggests that this cost-benefit analysis may operate differently under certain circumstances (Thornhill & Palmer, 2000). Young men of low socioeconomic status may have less to lose and more to gain from rape than other men.

The cost–benefit analysis involved in deciding whether to rape is likely influenced by the context surrounding war. Many of the institutions established, in part, to protect women such as the police force and criminal justice system may have dissolved in a war-torn state. In addition, other societal norms, including sexual consent, are probably at risk during war. Indeed, warfare may recontextualize how individuals think about sexual consent, with victorious soldiers having little regard for the consent of their victims in conquered or occupied territory, and victimized women being reduced in their ability to express non-consent. Additionally, many women’s male relatives may not be available to provide protection, either because they have been killed or because they have joined the armed forces. Thus, women in a war-torn state are often extremely vulnerable to sexual violence. The potential repercussions for the men who engage in rape may be greatly diminished—or even absent—during wartime (e.g., Baker & Bellis, 1995). In a review of Congolese soldiers’ narratives about wartime rape, Baaz and Stern (2009) suggested that men’s normal sexual desires may combine with a lack of opportunities to pursue consensual sex during wartime to contribute to wartime rape. Lack of perceived consequences may also have played a pivotal role in these scenarios, as both male and female

superior officers expressed sympathy for the sexual desires of their subordinates who may have received little monetary compensation (and therefore no way to pay for sex) and have not been granted leave from their military duties for several months. Additionally, many of the military groups who use forced recruitment and child soldiers are insurgent factions or rebel organizations (Baaz & Stern, 2009; Peters & Richards, 1998), which likely have no legitimate recognition on the global political stage and thus face no repercussions for violating the protocols of the Geneva Convention or other international laws. In a broad sense, the lack of perceived consequences and the resulting rapes may be due to a lack of oversight by larger, more organized political entities. The actual and perceived absence of consequences of rape during wartime may be a large contributing factor to the increased prevalence of wartime rape.

The perceived risk of consequences for committing rape during war may also vary across different armed conflicts. Whereas some military forces may strongly prohibit sexual violence against civilians in enemy territories, other groups may tolerate or even encourage their soldiers to rape. Cohen (2016) argues that variation in rates of wartime rape is the result of differences in recruitment method; those armed forces who recruit via forced conscription commit more rapes because their soldiers have a stronger desire to bond over shared sexual experiences. However, an alternative explanation is that military groups who use forced conscription are small, rebellious groups operating outside the sanction of a formal government and, therefore, are not under pressure from international political leaders to comply with global laws or policies for warfare. Such variation in perceived consequences may be the most relevant sense in which cultural factors influence rates of wartime rape according to the biosocial theory.

Rape Avoidance During Wartime

Thus far, we have focused on understanding wartime rape using the experiences and perspectives of men. However, considering the evolved psychological mechanisms of women to avoid rape may also provide useful insights. Women experience psychological pain following rape, which may be the product of evolved mechanisms that motivate avoidance of contexts associated with rape in the future (Thornhill & Thornhill, 1990a, b, c, 1991). Further, the severity of psychological pain experienced varies with the circumstances of the rape, with more reproductively costly rapes producing greater psychological pain (Thornhill & Thornhill, 1990a, b, c, 1991), presumably to motivate stronger aversion to and avoidance of similar contexts in the future. As mentioned previously, women’s preferences for dating men within their own ethnic groups may also provide evidence of an evolved psychology that motivates

rape avoidance (Fisman et al., 2006; Hitsch et al., 2010; Sprecher et al., 1994). These results align, to some extent, with results reported by Thornhill and Thornhill (1990b) who found that women experienced more psychological pain following stranger-perpetrated rape than following rape perpetrated by an acquaintance or family member. Taken together, these studies suggest that women may have evolved an aversion to strangers, in general, as a defense against bearing children by a man of unknown genetic quality. These data may also help to explain women's greater fear of stranger rape, relative to other forms of rape (e.g., rape by an acquaintance or intimate partner) despite the alarming frequency of acquaintance and partner rapes (Kilpatrick, 1992; Russell, 1990). Indeed, these results may reflect an evolutionary mismatch wherein women are more concerned with stranger rapes because these posed a greater adaptive threat in the human ancestral environment.

Previous research has identified behaviors that women perform to reduce their risk of rape (e.g., “avoid men with a reputation for forcing themselves on women” and “walk with someone to my car;” McKibbin et al., 2009). Additionally, women who are more physically attractive, in a committed intimate relationship, and virginal (i.e., no previous sexual experience) report performing more rape avoidance behaviors (McKibbin et al., 2011; Prokop, 2013), likely because these women face greater potential costs from being raped, or perceive themselves as being at greater risk for being raped. Such women, despite facing greater costs from being raped, may still be rendered unable to perform rape avoidance behaviors in the context of war. In fact, no empirical research, to our knowledge, has directly investigated women's rape avoidance behavior during wartime. Presumably, women's ability to perform rape avoidance behaviors is dramatically reduced during times of armed conflict. Many of the rape avoidance behaviors identified by McKibbin and colleagues (2009) may not be relevant outside of Western, educated, industrialized, wealthy, and democratic contexts. For example, it may not be possible for women to avoid strange men or being alone in a war-torn region. A woman might be able to deter a single perpetrator or small groups by carrying a weapon, but may have considerable difficulty fending off a large group of armed combatants.

Conclusion

Mass rape is an unfortunate correlate of war that occurs far too frequently. That rape is common during wartime suggests that men may be more likely to rape when the perceived consequences are reduced or absent. The current review sets out to distinguish the biosocial theory of wartime rape from sociocultural theories that often neglect or discount the role of evolved human psychology. We

also attempted to highlight the limited predictive power of competing sociocultural theories and concurrently, the limited ability of these theories to suggest effective and comprehensive methods for mitigating wartime rape. However, we would be remiss if we did not also discuss the utility of the biosocial theory to inform potential solutions to this problem.

The first step in developing effective global policies to address wartime rape is to shift public perception of the root causes of rape away from an exclusively sociocultural understanding, and toward the more integrated biosocial perspective, emphasizing the importance of evolved male sexual psychology to afford a more comprehensive understanding of rape. This is not to say that sociocultural explanations of rape should be discarded. Rather, we stress the importance of incorporating a better understanding of evolved psychological mechanisms, and particularly the ways these mechanisms may be expressed in human behavior. Similarly, policymakers concerned with wartime rape must be made aware that addressing issues of misogyny, ethnic hatred, and insufficient opportunities for combatants to form social bonds with one another may not only be unrealistic for smaller, less democratic, and less industrialized nations, but also that successfully addressing these issues is not likely to eradicate wartime rape. So long as men are placed into situations in which the opportunities to engage in rape are present, and in which the punishment for rape is perceived as unlikely or infrequent, the biosocial theory predicts that wartime rape will persist. Thus, one potential solution for addressing this problem may be for smaller nations to impose more severe penalties on perpetrators of wartime rape, and for larger global powers to hold smaller nations more accountable for permissive attitudes toward wartime rape. However, this too may prove insufficient, as global politics may deter even powerful nations from pressuring smaller nations, and this approach may be effective only in punishing perpetrators after the fact, rather than preventing wartime rape in the first place. At first glance, this puts policymakers in a difficult position in which they appear to have extremely limited influence over the occurrence of wartime rape. However, if world leaders are unable to deter wartime rape during certain armed conflicts, another option is to reduce opportunities for armed combatants to commit rape by evacuating or otherwise protecting the most likely targets of this aggression. Again, the biosocial theory predicts that, although not necessarily inevitable, wartime rape is much more likely to occur when opportunities to rape are more frequent and the threat of punishment is insufficient to deter combatants. This is, perhaps, biosocial theory's greatest contribution to global policy. Following biosocial theory, world leaders and global policymakers can identify, on a case-by-case basis, which armed conflicts are most likely to be characterized

by wartime rape. Larger nations can and should then use this information to make informed decisions about when to provide aid, and how to evacuate or otherwise protect those individuals who are at the greatest risk of wartime sexual violence.

At the individual level, whether a direct consequence of natural selection or one of its byproducts, rape is the result of a suite of species-typical male psychological mechanisms. These mechanisms interact with environmental stimuli and sometimes result in rape. During war, the dynamic between individual psychological mechanisms and environmental stimuli shifts drastically, resulting in higher rates of rape. However, some conflicts experience lower rates of rape than others, which suggests that there may be hope for systematically reducing the rates of wartime rape across all conflicts. The only way for international policymakers to understand and prevent wartime rape is to consider both the evolutionary and cultural factors that lead soldiers to rape.

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