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Spontaneous Violent and Homicide Thoughts in Four Homicide Contexts

Joshua J. Reynolds and Sean M. McCrea

Department of Psychology, University of Wyoming, Laramie, WY, USA

Although homicide remains an important topic of research, the majority of the research has focused on homicidal behavior and not homicide thoughts. Yet research into homicidal thoughts provides valuable insights into issues such as premeditation. In three experiments, we instructed participants to imagine different scenarios describing a situation where homicide and violence actually take place, but that do not contain violence or homicidal actions. We used both explicit and implicit methods to measure homicide and violent ideation. The evidence from these experiments indicates that when people imagine homicide scenarios, they think about violence at a substantial rate, but rarely consider homicide. Limitations and future directions are discussed.

Key words: homicide fantasy; violent ideation; homicide adaptation theory.

‘I am thinking,’ he remarked quietly, ‘whether I shall add to the disorder in this room, by scattering your brains about the fireplace’ (Collins & Sutherland, 1996, p. 602). Homicide can be an unintentional act, or a spontaneous act occurring in the heat of the moment and without any prior intent, or, like the previous quotation, homicide can be premeditated, occurring with planning and prior intent. Determining whether a homicide (i.e., an interpersonal attack directed against another human that results in a fatality, Daly & Wilson, 1988) was committed with intent to kill and whether it was premeditated or not is important, as it directly relates to length of incarceration, and in some cases whether the death penalty can be sought (see title 18 U.S.C. § section #1111–1112). Most research on homicide has primarily concerned homicide behavior (e.g., Reza, Mercy, & Krug, 2001; Shackelford, Buss, & Weekes-Shackelford, 2003; Wilson & Daly, 1985), with

comparatively little research having been directed towards understanding homicide thoughts. Yet research on homicide thoughts has the potential to inform us about issues of intent and premeditation, key issues in a legal setting. Thus, not only is the mental process that results in homicide behavior understudied, but it is a potentially valuable source of empirical evidence that can speak to legal issues as well as explanations of homicide.

In this research, we are interested in the spontaneous thoughts that are generated in response to contexts in which homicide actually takes place. We discuss homicide ideation and premeditation from the perspective of homicide adaptation theory (HAT) and the by-product hypothesis. Because there is scant empirical work directed at testing for homicidal thoughts within specific contexts, we then present three experiments designed to measure the extent to which individuals

Correspondence: Joshua J. Reynolds, Department of Psychology, University of Wyoming, Laramie, 1000 East University, WY 82071, USA. Phone: +520-204-2515. Email: Jreyno14@uwyo.edu

spontaneously generate homicidal and violent thoughts in response to relevant cues.

Homicidal Ideation and Premeditation

In studying homicide, much effort has been devoted to researching actual homicide rates. Although this is important, it does not directly address the psychological process of homicide. Further, as Kenrick and Sheets (1993) note, actual homicides are simply the tip of the iceberg. Unseen in homicide statistics are the violent or homicide fantasies and premeditation that may precede the commission of the behavior. Homicide ideation or fantasy involves thinking about committing murder. These thoughts may be fleeting or may be more elaborate. Elaborate homicide thoughts may include considerations of how to actually commit the murder, or the costs and benefits of this strategy. The deliberation or planning of a homicide is premeditation. Thus, homicide ideation may or may not evidence planning or persistence of homicide directed actions, whereas premeditation does.

Unfortunately, there is a paucity of research on homicide fantasies, with most of the research historically focused on criminals or the pathological (e.g., Prentky et al., 1989). This tells us little about the psychology process of homicide in typical individuals. Kenrick and Sheets (1993) conducted two studies with college students as subjects to address just this limitation. In the first study, participants were asked about their most recent homicide fantasy, and in the second study participants were asked about their homicide fantasies in several contexts. Results indicated that the majority of participants did have at least one fantasy, with males recalling more homicide fantasies (e.g., 73% vs. 66% in Study 1), and males reporting longer and more detailed fantasies. Results were interpreted as supporting evolutionary explanations for homicide like the by-product hypothesis.

Crabb (2000) also found that homicide thoughts were common in normal

undergraduates. Crabb investigated homicidal thoughts and the weapons used in these fantasies. Similar to Crabb, Kenrick and Sheets (1993) explicitly asked undergraduates questions concerning their thoughts about killing someone. Replicating previous research, most participants admitted to a homicide fantasy. Results also indicated that homicide fantasies were preceded by a threatening interpersonal event and involved weapons like firearms, knives, and clubs, rather than weapons like hands and feet. The evidence was interpreted as supporting the existence of evolved psychological mechanisms able to associate material-cultural implements, like firearms, with aggressive actions and to rehearse this through fantasy. These studies are important as they demonstrate that homicide fantasies are common and unlikely the result of pathological processes. Furthermore, they support evolutionary explanations for homicide like the by-product hypothesis and homicide adaptation theory.

Evidence of premeditation in homicide is important to the investigation of psychological processes relating to homicide because it necessarily indicates that the perpetrator thought of committing the murder prior to the behavior. However, the majority of homicides tend to be unplanned, spontaneous acts. For example, Wolfgang and Ferracuti (1969) classified only five percent of homicides as intentional, premeditated, or planned. Solway, Richardson, Hays, and Elion (1981) argued that, among juvenile murderers, the largest proportion of homicides were impulsive or spontaneous. In a large sample of federal and state inmates, Felson and Massoglia (2012) found that robbery showed a much higher rate of premeditation than did homicide or physical assault. Yet, only 23% of robbers reported planning their crime. While most research shows that homicide tends to be unplanned, there is some heterogeneity.

For example, Mann (1993) reported that 68.8% of homicides by a female perpetrator were premeditated when the victim was female and 58.4% when the victim was male (see Table 3, p. 208). Although over half of

female perpetrators in this analysis were initially charged with first-degree murder, only 26.5% were eventually accorded a first-degree murder charge. However, females may have higher rates of premeditation than males. For example, females tend to use less risky strategies than males (A. Campbell, 1999), and evidence also suggests that females tend to have better self-control (Chapple, Vaske, & Hope, 2010). Again, this suggests some heterogeneity in rates of premeditation. Indeed, Felson and Massoglia (2012) found that rates of premeditation depended on several variables, including race. Furthermore, they argued that there are problems with the measurement of premeditation, partly due to the ambiguous nature of the concept. In Felson and Massoglia (2012), premeditation was measured by simply asking inmates, 'Did you plan the (offense) ahead of time?' (p. 760). Measurement of premeditation through self-report is limited, as participants are being asked retrospectively, days, months, or even years after the event in question. However, as Mann (1996) also notes, categorization of crimes as premeditated is difficult, subjective, and variable. Objective and highly reliable measures and clear definitions for premeditation are lacking in this literature. To create an operational definition of premeditation we discuss some relevant legal history.

Common law previously did not recognize degrees of murder, and all homicides were treated as capital felonies. In the United States, Pennsylvania was the first state to depart from this scheme in 1794, dividing murder into first and second degree, with first-degree murder reserved for premeditated or planned killings. When law has distinguished premeditated homicide, these legal definitions tend to be very liberal with respect to what is classified as premeditation. For example, in *Macias v State* (1929), the Arizona Supreme Court declared, 'there need be no appreciable space of time between the intention of killing and the act of killing. They may be as instantaneous or successive thoughts of the mind' (p. 715).

According to the federal instructions handbook, a murder charge must include malice aforethought (Mathes & Devitt, 1965). Malice aforethought requires premeditation, which is defined as a period of time to think and deliberate before acting. According to these instructions, this time period is not fixed. Thus, time is important in the definition, but any interval of time is allowed. All that is required is that in the time that the intent to kill is formed and the act of killing, the person must have a sufficient duration of time to be fully conscious of what they are about to do. However, there are other types of instructions that focus more on whether the homicide was done purposefully or knowingly, for example Model Penal Code 210.0 (1)(b) (Institute, 1985). Thus, there is variation in the legal definitions of premeditation.

Although there are limitations in the measurement of premeditation from both a research and a legal perspective, we define clear and good evidence of premeditation in the following way. *Clear* evidence of premeditation is defined here as substantial time (extending beyond mere minutes) between the onset of conflict and commission of the homicide. Additionally, concrete plans formed above and beyond simply attaining the first available weapon, and deliberate weighing of alternative homicide strategies, constitute *good* evidence of premeditation. Like the definition from the federal instructions handbook, time is considered important. However, unlike the federal instructions handbook, we have tried to be more precise as to what meets criteria for premeditation. Homicides not meeting our criteria could still be premeditated. More liberal definitions increase the possibility of false positives (e.g., classifying spontaneous homicides as premeditated). Our definition is more conservative and is aimed at reducing such false positives.

Homicide Theories

Theories that speak to the issue of what types of thoughts people might have in homicide

contexts include homicide adaptation theory (HAT) and the by-product hypothesis.

Homicide Adaptation Theory

In the earliest form of HAT, Buss and Duntley (1998) posited a specific module designed for producing conspecific death. That is, they argued that humans have adaptations for producing homicide. An adaptation is a characteristic that is reliable, is inherited, and exists through selection, because it solved a recurrent evolutionary problem (i.e., survival or reproduction) better than any existing alternative design (Tooby & Cosmides, 1992). This theory has been elaborated over the years to posit that homicide is one among many adaptive strategies to solve recurrent evolutionary problems (Duntley & Buss, 2011). According to HAT, the killing of a conspecific is the functional output of adaptations designed for intentionally producing conspecific death in many circumstances. The evolution of homicide adaptations is reciprocally related to victim counteradaptations. For example, victims should become sensitive to cues of homicide and impose costs on the attacker (Duntley & Buss, 2005, 2011). This, in turn, drives adaptations in attackers, resulting in a decline in victim fitness, and so forth.

Of most relevance to the present discussion, HAT predicts that individuals engage in cost and benefit analyses of homicide as well as homicidal ideation. Potential costs of homicide include lowered mate value, loss of status, kin retaliation, punishment, and ostracism. Potential benefits include access to fertile mates, eliminating rivals or costly individuals, and protecting resources. Thus, homicide can be both a costly and a beneficial strategy. Homicide ideation/fantasy is viewed as purposeful, and functions to simulate killing cognitively (Duntley & Buss, 2011). These mechanisms are also built to predict possible costs and benefits of homicide. Homicide fantasies may involve elaborate scenario-building and planning, or could be more fast action, occurring in a very short time span. These

mechanisms need not be conscious or elaborate. Some homicide fantasies may include planning, and be very specific with respect to weapon, attack location, time, victim, manner of death, and so on. Thus, some homicide fantasy may show significant premeditation. Duntley and Buss (2011) argue that premeditation in homicide is evidence in support of the existence of these mechanisms. For a review of the general evidence in favor of HAT, see Duntley and Buss (2011). For several critiques of HAT, see Durrant (2009) and Van der Denne (2006).

By-Product Hypothesis

By-products, unlike adaptations, are not functional and do not solve recurrent problems. Rather, by-products are the result of other adaptations. By-products are coupled with adaptations and may be carried through the generations, but they are not specifically selected for their functional output (Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998). In the by-product hypothesis, homicide is viewed as a result of conflict between actors in terms of fitness (Daly & Wilson, 1999). If the actions of Person A enhance his or her expected fitness while also enhancing the expected fitness of Person B, it can be said that their interests are *not* in conflict. Such is the case for monogamous mates caring for their offspring. However, if A's actions enhance his or her expected fitness at the expense of B's expected fitness, the two are said to be in conflict. Such is the case when two males compete for the affection of a single female. Violence between people is thus a response to conflict. Many homicides are the extreme manifestation of these interpersonal conflicts (Daly & Wilson, 1999). The by-product approach uses evolutionary theory to understand when and to whom violence should occur.

For example, sexual proprietariness is the hypothesized mechanism whose by-product results in uxoricide, the killing of a wife (Wilson & Daly, 1992, 1996; Wilson, Johnson, &

Daly, 1995). Status-seeking-competition-risk-taking mechanisms are the hypothesized adaptations that result in the majority of homicides, males killing other males (Daly & Wilson, 1988, 1990; Wilson & Daly, 1985). Finally, parental solicitude mechanisms are the hypothesized adaptations that, as a by-product, produce infanticide and stepchild homicide when they fail to engage (Daly & Wilson, 1988, 1996).

Contrasting these two theories, HAT argues that we have mechanisms designed for the explicit purpose of killing, while the argument of the by-product hypothesis is not predicated upon the assumption that selection has favored the specific intent to kill (Daly & Wilson, 1988). Both theories have some support, and one could be the better explanation for any particular type of homicide. This is because homicide is context-specific. As homicide is context-specific, the measurement of premeditation and homicide ideation must happen within each context thought to provoke homicide. Although there are dozens of specific contexts in which homicide takes place, here we briefly discuss four: trivial altercation homicide, sexual rivalry homicide, intimate partner homicide, and infanticide.

Homicide Contexts

Trivial Altercations Homicide

According to Wolfgang (1958), the most common of the 12 motive categories (37%), are 'altercations of relatively trivial origin: insult, curse, jostling, etc.' (p. 191). For this reason, criminologists have dubbed these trivial altercation homicides. According to Wilson and Daly (1985) these tend to involve escalated showing-off disputes – for example, Case 185:

Victim (male, age 22) and offender (male, age 41) were in a bar when a mutual acquaintance walked in. Offender bragged to victim of 'this guy's' fighting ability and that they had fought together. Victim replied 'you are pretty tough' and an argument

ensued over whether victim or offender was the better man. Victim then told offender 'I got mine' (gun) and the offender replied 'I got mine too,' both indicating their pockets. The victim then said 'I don't want to die and I know you don't want to die. Let's forget about it.' But the offender produced a small automatic, shot the victim dead, and left the bar. (p. 64)

Many researchers agree that these types of homicides are usually spontaneous (Mulvihill, Tumin, & Curtis, 1969), and the offenders do not especially want the victim dead (Daly & Wilson, 1988; Solway et al., 1981; Wilson & Daly, 1985).

Sexual Rivalry Homicides

Although there are several subtypes of sexual rivalry homicides, the type of interest here concerns instances in which a male kills a rival male. This is the most common form of sexual jealousy conflict homicide. In a sample of 48 sexual jealousy conflict homicides in Miami, 23 were cases of a male killing a rival male (Wilbanks, 1984).

One circumstance that appears frequently in these cases is when a male kills a mate poacher. Mate poaching is the luring away of a male or female who is already engaged in a mateship (Schmitt, 2004). Tactics of deterring mate poachers can be extreme and include violence and homicide. Interestingly, there is near universal acceptance of killing mate poachers. From the Dsimakani of Papua New Guinea, the Toba Batak of Sumatra, and the Nuer of East Africa to modern western nations, not only is killing a man who has been caught sleeping with your wife sanctioned, in some cases it is expected (Buss, 2005; Howell, 1970; Vergouwen, 1964). For example, it was legal in Texas to kill a man found in bed with your wife with absolutely no penalty until 1974. Among the Toba Batak, it was a man's given right to dispose of a man whom he found to have slept with his wife.

Intimate Partner Homicide

Stöckl et al. (2013) estimate that globally, 1 in 7 homicides and specifically 1 in 3 female homicides are caused by an intimate partner. According to the Bureau of Justice Statistics (2004), females in the United States are killed by intimate partners or former partners roughly 9 times more than by strangers. However, this pales in comparison to the nonlethal violence perpetrated by intimate partners. In a large multicountry study of over 24,000 participants, Garcia-Moreno et al. (2006) found that lifetime prevalence of physical or sexual partner violence varied from 15% to 71%. Nonlethal violence perpetrated against an intimate partner is linked with intimate partner homicide, as the majority of intimate partner homicides are preceded by domestic violence (J. C. Campbell, Glass, Sharps, Laughon, & Bloom, 2007). Violence may act as a coercive control tactic. Situations in which violence and homicide is more likely in relationships include large discrepancies between partners' mate value and when there is a suspected infidelity. For example, if a male suspects his female partner of cheating, he may employ mate guarding techniques, which include violence. Not surprisingly, Garcia-Moreno et al. (2006) also found that more controlling men were more likely to be violent against their partners. Violence can escalate and sometimes end in a homicide.

Infanticide

The killing of infants is surprisingly common. For example, in England and Wales between 1995 and 2002, infants (younger than 12 months) experienced the highest homicide rate of all age groups (Brookman & Nolan, 2006). Despite the high prevalence of infanticide, rates of infanticide are likely underestimated due to inaccuracies in autopsies and lack of discovery of a body (Ewigman, Kivlahan, & Land, 1993). When the killing takes place within 24 hours of life, the perpetrator is extremely likely to be the mother (Friedman & Resnick, 2009). This makes

infanticide different than the other types discussed here, because the perpetrator has a greater chance of being female.

Some cultures like the Ayoreo have preplanned practices of infanticide (Bugos & McCarthy, 1984). When an Ayoreo woman gives birth, she and the attending women move into the forest. The women dig a hole, and, if there are signs of deformity, the infant is put in the hole and buried. Unlike in the killing of older children, infanticide is not as commonly preceded by abuse and neglect (Harris, Hilton, Rice, & Eke, 2007).

Current Research

Evidence of prior intent to commit homicide is difficult to measure in actual cases. Thus, measuring homicide fantasies and planning in response to relevant cues to common types of homicide is a useful alternative. As our review should suggest, there is little empirical work on homicide fantasies and premeditation. Furthermore, while studies of actual homicides have shown that homicide and violence are context-specific, few, if any, studies have investigated homicide thoughts within specific contexts. Thus, it is unclear what thoughts individuals spontaneously generate in contexts in which homicide actually takes place. Our question in this research is, what do people spontaneously think about in homicide contexts, homicide, violence, or both, and is there evidence of premeditation being associated with homicide? Regarding the latter part of the question, this would indicate whether spontaneous homicide thoughts tend to be fleeting or are actually associated with an increase in planning. This is theoretically meaningful from a HAT perspective and in a legal context.

One method to investigate this question would be to ask participants what thoughts they have had when in situations like a sexual rivalry. The disadvantage of this method is that it relies on people's ability to introspect on these thoughts and the accuracy of their memories concerning these thoughts. Both of

these assumptions are questionable (Barclay & Wellman, 1986; Merckelbach, Wessel, & Horselenberg, 1997; Nisbett & Wilson, 1977). Additionally, each participant would be recalling idiosyncratic experiences, reducing experimental control. To circumvent these issues, in the present research we measure concurrent thoughts stimulated from a hypothetical event. In Experiments 1 and 2, participants were asked to consider specific situations associated with a higher likelihood of homicide. They are then asked to report what they were thinking and what they would do in this situation. This procedure allows for greater experimental control and does not rely on memory. Experiment 1 used independent judges to code for examples of homicide ideation and premeditation. Experiment 2 used a more objective word frequency analysis. Experiment 2 also recruited an anonymous online sample to reduce potential social presentation bias, when reporting such extreme thoughts.

A disadvantage of Experiments 1 and 2 is that they assume that homicide and violent thoughts will be conscious. HAT argues that homicide mechanisms are fast action, which means they could work below conscious awareness. As a result, individuals may be unable to report on their homicide ideations. In Experiment 3 we utilized an implicit measure of the accessibility of violent and homicide concepts in order to examine the possibility that these thoughts function outside of conscious awareness.

Experiment 1

In Experiment 1, we examine what people think about in situations involving homicide information. We investigate intimate partner homicides, trivial altercation homicides, sexual rivalry homicides, and infanticide. These situations are particularly interesting because they are common and are theoretically relevant according to HAT and the by-product hypothesis. Furthermore, both theories agree on what some of the relevant contextual elements should be. For example, in the

infanticide scenario, the infant is in poor health. To make inferences about the rates of homicide and violent thoughts, we consider 'substantial' to mean at least 10%, 'similar rate' to mean within 5%, and 'rare' to mean less than 5%. We also examined whether thoughts revealed premeditation and, in particular, whether homicide ideation was associated with premeditation.

Method

Participants and Design

Participants consisted of 214 (29% male and 71% female; $M_{\text{age}} = 19.34$ years, $SD = 1.80$) University of Wyoming students. Sample size was determined in advance to be a minimum of 150, and data were collected until the academic semester ended. Participants were recruited through Sona and were given course/extra credit as compensation. The experiment had a within-participant design, in which all participants read each of the four scenarios (counterbalanced). Three participants' data were excluded due to either both raters indicating them to be too difficult to read or the participant not completing all of the scenarios (remaining $N = 211$; we report all data exclusions, conditions, and variables of interest for all experiments).

Materials

Materials consisted of a brief demographic form and four scenarios devised to reflect common circumstances of each of the following types of homicide: trivial altercation, sexual rivalry, intimate partner, and infanticide (see Appendix). For example, in the trivial altercation scenario, there is a verbal insult and an altercation. Scenarios also included evolutionary-relevant costs and benefits. For example, in the infanticide scenario, the infant is in poor health and is interfering with giving care to an older child. Scenarios were written to be relevant to all participants (e.g., use of the terms partner and spouse rather than girlfriend or boyfriend).

Procedure

Participants provided informed consent, completed a brief health and demographics form, and then read each of the four scenarios. Order of the scenarios was counterbalanced. Following each scenario, participants were asked to report what was going through their mind, what they were thinking, feeling, what solution or solutions came to mind, and what they would do. Participants were asked to spend 4–5 min, at least, on each scenario. Participants were given 30 min to complete the experiment, but most participants took between 15 and 20 min.

Results

Coding

All responses were coded by one male and one female research assistant who were blind to the hypotheses. Raters coded the presence of three types of strategies: other/nonviolent, violent but nonlethal, and homicide. Other/nonviolent included thoughts like calling the police, verbally discussing the problem, and so on. Violent but nonlethal was defined as any action involving violence or the threat of violence that does not end in death. Finally, homicide was defined as any action that would result in the person dying either immediately (e.g., shooting) or in the very near future (e.g., a lethal poison or abandoning an infant). Also included were negative assertions of a strategy. For example, if a participant wrote that they would *not* kill the person, this was counted as a homicide thought, because this still indicates that they were thinking about homicide as a potential course of action. After data were coded, we determined the most extreme category (MEC) present in a given response. For example, if both other/nonviolent strategy and violent but nonlethal thoughts were present, the MEC would be violent but nonlethal. Finally, raters coded premeditation on a 5-point scale (1 = *completely spontaneous* to 5 = *substantial planning*). Raters were provided with both violent and

Table 1. Most extreme category.

	Krippendorff's alpha (LL, UL)	Pairwise percentage agreement	Correlation
Overall	.74 (.62, .84)	90.86	.73

Note: LL = lower limit; UL = upper limit. Correlation is significant, $p < .001$.

nonviolent examples for the 1, 3, and 5 scale increments. An example of a completely spontaneous violent behavior was ‘Someone insults you and you immediately strangle them.’ An example of nonviolent behavior involving substantial planning was ‘Your romantic partner threatens you. You decide to call the police but before doing so, you pack some clothes, your passport, and money in a suitcase. You leave your cell phone at home because it can be traced through GPS and wait for them to leave. Finally, you drive to a friend’s house and call the police.’

Rater reliability was examined for MEC, see Table 1, and for premeditation, see Table 2. Indices of reliability include Krippendorff’s alpha (KA), pairwise percentage agreement, and overall correlation. KA for MEC was adequate ($>.667$), with pairwise percentage agreement over 90% and the correlation between the raters moderate to high. One reason for the lower KA value may have been the low variability in the frequency of violent and homicide thoughts. The KA value for premeditation was low, reflecting the difficulty in defining and quantifying this variable. However, despite the lower KA for premeditation, there was a moderate to high correlation between the raters. For the main analyses, we therefore averaged the

Table 2. Premeditation.

	Krippendorff's alpha (LL, UL)	Correlation
Overall	.53 (.47, .58)	.75

Note: LL = lower limit; UL = upper limit. Correlation is significant, $p < .001$.

Table 3. Frequency of thoughts/strategies.

		Rater 1	Rater 2
Trivial altercation	Other strategy	203	207
	Violent but nonlethal	132	120
	Homicidal	0	0
Sexual rivalry	Other strategy	207	211
	Violent but nonlethal	47	58
	Homicidal	0	1
Infanticide	Other strategy	210	211
	Violent but nonlethal	2	4
	Homicidal	1	4
Intimate partner	Other strategy	211	211
	Violent but nonlethal	6	13
	Homicidal	0	0

premeditation scores of the two raters. Because MEC reflected discrete categories, a third rater was used to resolve disagreements between the first two raters. We present the raw frequencies by category for the two raters in Table 3. MEC for all three raters is presented in Table 4. Frequency analyses were conducted within homicide scenarios.

Trivial Altercation

For trivial altercation, the data indicate substantial thoughts of violence (68.2%) and substantial discussion of other nonviolent strategies (31.8%). However, there was not a single case of homicide present. To test whether premeditation predicted MEC, a logistic regression was used (since there was

Table 4. Most extreme category.

		Rater 1	Rater 2	Final coding	Males	Females
Trivial altercation	Other strategy	79 (37.4)	93 (44.1)	67 (31.8)	15	38.4
	Violent but nonlethal	132 (62.6)	118 (55.9)	144 (68.2)	85	61.6
	Homicidal	0 (0)	0 (0)	0 (0)	0	0
Sexual rivalry	Other strategy	164 (77.7)	153 (72.5)	152 (72)	43.3	83.4
	Violent but nonlethal	47 (22.3)	57 (27)	58 (27.5)	55	16.6
	Homicidal	0 (0)	1 (0.5)	1 (0.5)	1.7	0
Infanticide	Other strategy	209 (99.1)	205 (97.2)	206 (97.6)	95	98.7
	Violent but nonlethal	2 (0.9)	4 (1.9)	2 (0.9)	3.3	0
	Homicidal	0 (0)	2 (0.9)	3 (1.4)	1.7	1.3
Intimate partner	Other strategy	205 (97.2)	198 (93.8)	199 (94.3)	93.3	94.7
	Violent but nonlethal	6 (2.8)	13 (6.2)	12 (5.7)	6.7	5.3
	Homicidal	0 (0)	0 (0)	0 (0)	0	0

Note: Percentages in parentheses.

no homicide present, this left two categories). The model was not significant ($p = .093$). Thus, there is not enough evidence to conclude that premeditation was associated with the strategy discussed.

Sex differences. MEC for males was 85% violent thoughts, 15% nonviolent. MEC for females was 61.6% violent thoughts, 38.4% nonviolent.

Sexual Rivalry

Similar to the trivial altercation scenario, there was substantial frequency of nonviolent strategies (72%) and violence (27.5%) in the sexual rivalry scenario. However, there was also one instance of a homicide thought. Given the extremely small number of homicide thoughts observed, we present a graphical representation of the relationship between premeditation and MEC. As can be seen in Figure 1, there was no pattern in the data. Premeditation was no greater in the homicide category than in the other categories.

Sex differences. MEC for males was 1.7% homicide thoughts, 55% violent thoughts,

and 43.3% nonviolent. MEC for females was 16.6% violent thoughts, 83.4% nonviolent.

Infanticide

In the infanticide scenario, the strategy discussed was overwhelmingly nonviolent (97.6%). Common thoughts included getting more family support or extra government support. Both violent strategies (0.9%) and homicidal (1.4%) strategies were exceedingly rare. As in the sexual rivalry scenario, we present a graphical representation of the association with premeditation, see Figure 2. Once again, there did not seem to be greater premeditation in homicide or violent strategies.

Sex differences. MEC for males was 1.7% homicide thoughts, 3.3% violent thoughts, and 95% nonviolent. MEC for females was 1.3% homicide thoughts, 98.7% nonviolent.

Intimate Partner

In the intimate partner condition, the majority of thoughts were nonviolent (94.3%), with a small percentage of violent thoughts (5.7%), and zero cases of homicide thoughts. Premeditation ratings did not differ between the

Sexual Rivalry

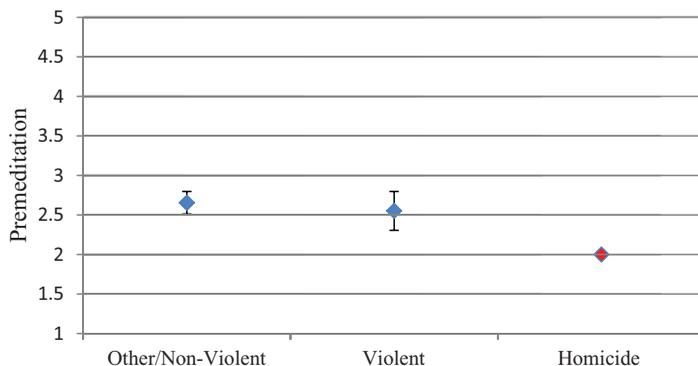


Figure 1. Most extreme category (MEC) and premeditation for the sexual rivalry scenario. Note: Blue markers indicate means (confidence intervals are shown around the mean). Red markers indicate an observation (no confidence intervals). To view this figure in color, please visit the online version of this Journal.

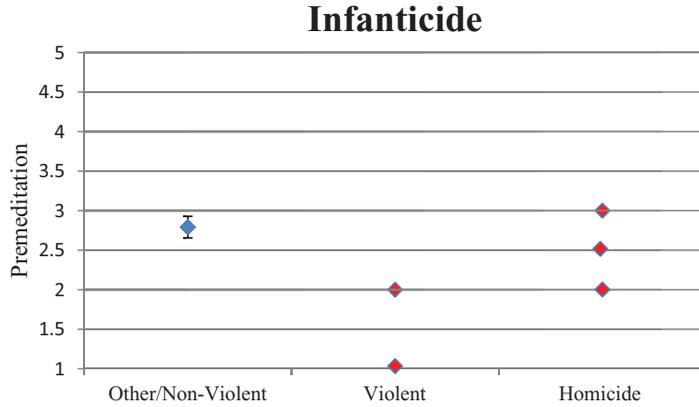


Figure 2. Most extreme category (MEC) and premeditation for the infanticide scenario. Note: Blue markers indicate means (confidence intervals are shown around the mean). Red markers indicate an observation (no confidence intervals). To view this figure in color, please visit the online version of this Journal.

other/nonviolent and violent thought categories (see Figure 3).

Sex differences. MEC for males was 6.7% violent thoughts, 93.3% nonviolent. MEC for females was 5.3% violent thoughts, 94.7% nonviolent.

Discussion

Experiment 1 examined the frequency of violent and homicidal thoughts and relationship with premeditation. Participants were asked

to write their thoughts concerning scenarios commonly associated with homicide. Importantly, homicide was never explicitly mentioned in the scenarios. Despite a relatively large sample and the measurement of thoughts in response to four scenarios, there were only four cases of homicidal thoughts observed. There were no instances of homicide thoughts in the trivial altercation and intimate partner scenario conditions, and only very few in the sexual rivalry and infanticide scenario conditions. Violent thoughts were much more frequent in response to all of the

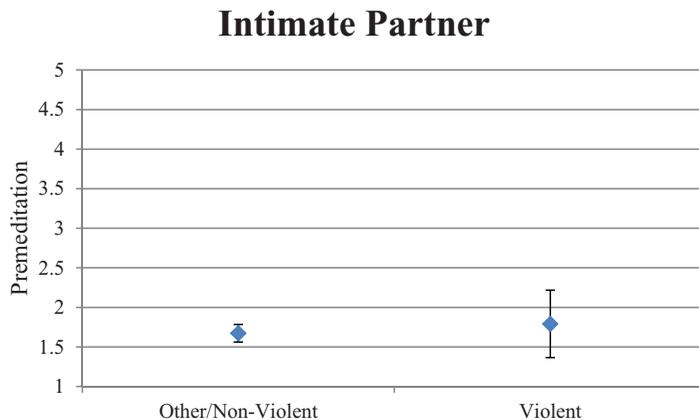


Figure 3. Most extreme category (MEC) and premeditation for the intimate partner scenario. Note: Blue markers indicate means. Confidence intervals are shown around the mean. To view this figure in color, please visit the online version of this Journal.

scenarios except in the infanticide condition. We also observed no relationship between premeditation ratings and homicide.

The experiment did have several limitations, however. We measured self-reports of thoughts, which assumes that individuals have access to, and honestly report on, their thoughts in response to homicide-eliciting cues. Additionally, low rater agreement for the premeditation judgments limits the reliability of these findings. We addressed several of these issues in Experiment 2.

Experiment 2

In Experiment 2, we employed a more objective method to code thoughts by using the Linguistic Inquiry and Word Count (LIWC) software (Pennebaker, Booth, Boyd, & Francis, 2015). To address the possibility that participants were not comfortable writing homicidal thoughts in front of other people, we conducted Experiment 2 with an anonymous online survey.

Method

Participants and Design

Participants consisted of 150 (62.7% male and 37.3% female; $M_{\text{age}} = 31.49$ years, $SD = 10.23$) MTurk participants. As in Experiment 1, minimum sample size was 150. Participants were paid \$0.35. As in Experiment 1, all participants read each of the four scenarios, with order counterbalanced.

Materials and Procedure

The materials and procedure were identical to those in Experiment 1.

Results

Coding

The LIWC software was used to count the frequency of words related to homicide or violence. Words in the homicide/death

category included death, murder, kill, lethal, died, and so on. Words in the violence category included punch, kick, hurt, pain, and so on. Words related to planning/premeditation or spontaneity were also counted, but were exceedingly rare. Thus, we do not present these results.

Main Analyses

Table 5 shows the raw frequencies of cases in each category. As in Experiment 1, MEC was created by assigning the participant to most extreme word category present; see Table 6. Participants who did not mention a single homicide or violent word were assumed to have discussed some other nonviolent strategies. Thus, these participants were coded as having used an 'other strategy.' In the trivial altercation scenario, the most common category was violence (50%). There were seven cases (4.7%) of homicide.

In the sexual rivalry condition, the most common category was other/nonviolent (75.3%). Violence was present to a substantial

Table 5. Raw frequency of participants coded for each category.

		Frequency
Trivial altercation	Other strategy	68
	Violent but nonlethal	80
	Homicidal	7
Sexual rivalry	Other strategy	113
	Violent but nonlethal	35
	Homicidal	4
Infanticide	Other strategy	138
	Violent but nonlethal	6
	Homicidal	6
Intimate partner	Other strategy	120
	Violent but nonlethal	30
	Homicidal	0

Note: There is overlap in some categories as some participants mentioned both violent and homicide words.

Table 6. Most extreme category.

		Frequency	Males %	Females %
Trivial altercation	Other strategy	68 (45.3)	40.4	53.6
	Violent but nonlethal	75 (50.0)	54.3	42.9
	Homicidal	7 (4.7)	5.3	3.6
Sexual rivalry	Other strategy	113 (75.3)	72.3	80.4
	Violent but nonlethal	33 (22.0)	25.5	16.1
	Homicidal	4 (2.7)	2.1	3.6
Infanticide	Other strategy	138 (92.0)	92.6	91.1
	Violent but nonlethal	6 (4.0)	3.2	5.4
	Homicidal	6 (4.0)	4.3	3.6
Intimate partner	Other strategy	120 (80.0)	85.1	71.4
	Violent but nonlethal	30 (20.0)	14.9	28.6
	Homicidal	0 (0)	0	0

Note: Percentages in parentheses.

degree (22%), and homicide was also present (2.7%). In the infanticide scenario, the vast majority of cases (92%) were other/nonviolent. Violence (4%) and homicide (4%) were present but infrequent. Finally, in the intimate partner scenario, the majority of cases (80%) were other/nonviolent. Violence was significantly present (20%). However, there was not a single case of homicide thoughts. Sex differences are relatively similar to Experiment 1 and are presented for MEC in Table 6. Notable sex differences in comparison to Experiment 1 include the higher proportion of violence discussed by females in Experiment 2 in the intimate partner scenario. However, an examination of these responses showed that these females more often mentioned the potential for violence to be acted upon them, rather than by them. Thus, there is likely some inflation here.

Combined Sample Results

To determine the most homicide and violence to be expected within a 95% confidence interval (CI), we combined the samples from Experiments 1 and 2 and calculated

confidence intervals for the proportion of homicide and violent thoughts. For trivial altercation, the frequency of homicide thoughts was 1.9% (95% CI [0.63, 3.45]), and the frequency of violent thoughts was 60.7% (95% CI [55.80, 65.88]). For sexual rivalry, the frequency of homicide thoughts was 1.4% (95% CI [0.32, 2.75]), and the frequency of violent thoughts was 25.2% (95% CI [20.86, 29.82]). For infanticide, the frequency of homicide thoughts was 2.5% (95% CI [1.03, 4.25]), and the frequency of violent thoughts was 2.2% (95% CI [0.83, 3.85]). For intimate partner, the frequency of homicide thoughts was 0%, and the frequency of violent thoughts was 11.6% (95% CI [8.44, 15.04]). Overall, the frequency of homicide thoughts was 1.5% (95% CI [0.91, 2.16]), and the frequency of violent thoughts was 24.9% (95% CI [22.70, 27.17]).

Discussion

Experiment 2 was designed to address concerns that our coding scheme was too subjective and that social presentation bias dissuaded individuals from mentioning

homicide in Experiment 1. Despite using objective word count software and collecting anonymous responses, the results of Experiment 2 were remarkably similar to those of Experiment 1. The proportion of other/nonviolent, violent, and homicidal thoughts within each condition were very similar across both experiments. Notable differences from Experiment 1 include the slightly higher number of homicide thoughts, particularly in the trivial altercation condition. This suggests that there may indeed have been some social desirability concerns among participants in the lab setting. However, the greater proportion of males to females in Experiment 2 than in Experiment 1 might also account for this. As in Experiment 1, the infanticide condition resulted in as many homicide as violent thoughts.

As the results from Experiments 1 and 2 were so similar, we combined the samples and calculated confidence intervals on the proportions of homicide and violent thoughts. The highest value expected for homicide thoughts was 4.25%, in the infanticide scenario, which is still rare.

Violent thoughts, on the other hand, were far more prevalent in every other scenario. The highest expected value was 65.88% in the trivial altercation scenario. Sex differences were largely similar to those in Experiment 1.

Although this experiment was aimed at reducing a presentation bias, participants may still have been inhibited from writing down homicide thoughts. Future research using explicit measures could use think aloud paradigms, in which individuals are asked to voice their thoughts as they read the scenarios. This would better tap into participants' initial or 'gut' reactions. In contrast, our methodology allowed for people to reflect and consider more possibilities. There is another, potentially more important, limitation to the use of explicit (i.e., conscious) measures of thoughts in Experiments 1 and 2. If homicide mechanisms operate on a non-conscious level, individuals may not be able

to explicitly report on their homicide thoughts. Thus, the results of Experiments 1 and 2 speak specifically to conscious homicide thoughts. Therefore, in Experiment 3, we used an implicit measure of violent and homicidal thoughts.

Experiment 3

We used a lexical decision (LD) task (e.g., Webb & Sheeran, 2007) to measure whether participants spontaneously considered violent or homicidal strategies in response to the scenarios. Specifically, if individuals show facilitated responding to words related to these concepts, relative to control words, it can be inferred that these concepts were activated in response to the scenario. This type of measure has been used in prior studies to assess the accessibility of hostile cognitions. For example, Bushman (1998) found that exposure to a violent film segment facilitated the identification of aggressive words, compared to a control film segment. Similarly, Ayduk, Mischel, and Downey (2002) observed facilitated responding to hostile words in response to an imagined rejection experience. Thus, past work has validated the use of this type of implicit measure of hostile thought for both witnessed and imagined scenarios.

To control the activation of concepts more tightly, we chose to examine responses to the sexual rivalry scenario. This condition was selected because it showed substantial violent thoughts and at least some homicide thoughts in Experiments 1 and 2. Additionally, we wanted to examine whether homicide thoughts would occur at a minimum when homicide was explicitly mentioned. We therefore included three scenario conditions: an explicit sexual rivalry homicide, sexual rivalry with no mention of homicide, and a control condition. Observing facilitated responding to homicide-related words in the sexual rivalry condition (and the explicit homicide condition) compared to the control condition would suggest that at an implicit

level, participants were thinking about homicide. In contrast, facilitated responding to violence-related words in the sexual rivalry scenario compared to the control condition would suggest that participants were thinking about violence. A third category of words concerning relationship/emotional words was also included, containing words like 'jealous.' Finally, we included a category of words used in the control condition as a manipulation check. Facilitated responding to these words should only occur in the control condition.

Method

Participants and Design

Participants were 151 (32.5% male and 67.5% female; $M_{\text{age}} = 19.68$ years, $SD = 3.55$) University of Wyoming students. Participants were recruited through the participant pool and received course credit as compensation. The experiment was a between-subjects design, in which participants were randomly assigned to read a control, sexual rivalry, or sexual rivalry with explicit homicide scenario.

Materials

Scenarios. The sexual rivalry scenario was similar to that in the previous studies with some minor changes. For example, the rival was given the gender-neutral name Alex, instead of person C (see appendix). The explicit homicide scenario contained much of the same information and wording as the sexual rivalry scenario, except that participants were asked to imagine that murder is the chosen strategy to deal with the mate poacher, Alex. The premeditated murder is briefly described, including the act of stabbing Alex in the chest. The control condition concerned losing and finding a set of keys, adapted from Griskevicius, Delton, Robertson, and Tybur (2011). All scenarios were similar in length.

Lexical decision task. A lexical decision task (see Bushman, 1998; Morton, 1970) was

designed to measure the activation of several constructs across conditions. Participants were instructed to identify whether letter-strings formed a word. They were to press the 'F'-key whenever the letter string formed a word, and to press the 'J'-key when the letter string did not form a word. Each stimulus was preceded by a fixation cross for 500 ms and was presented on the screen until either the 'F'-key or the 'J'-key was pressed. Participants completed 10 practice trials on five unrelated words (e.g., blanket) and nonword letter strings (e.g., drim). After the practice block, participants completed the main block of 70 trials. There were three target word categories of five words each. The words were selected through pilot testing to be commonly associated with homicide, violence, or relationships/emotion. The selected homicide words were kill, blood, murder, death, and stab. Violent words were pain, punch, kick, fight, and hit. Relationship/emotional words were upset, betrayed, sad, jealous, and angry. An additional 15 control words matched for length, letters, and frequency were then selected. Finally, five words present in the control condition scenario were included as a manipulation check: keys, counter, homework, desk, and couch. Nonsense words orthographically similar to each of these words were then generated. There were thus a total of 35 words and 35 nonwords. Each word and nonword letter string was presented once in a randomized order, for a total of 70 trials.

Procedure

Participants first completed a health and demographic form. They then read one of three scenarios and were asked to visualize the scenario and think deeply about it. Finally, they completed the lexical decision task.

Results

Three participants had a large error rate (>20% of trials) on the lexical decision task and were excluded from the analyses, leaving $N = 148$

(control condition $n = 51$, sexual rivalry condition $n = 42$, explicit homicide condition $n = 55$). Incorrect responses and extreme latencies, less than 100 ms or greater than 1,427.2 ms (>3 SD s from the mean), were excluded from the analyses. We calculated the average response latency for each category.

Manipulation Check

We conducted a planned contrast to test whether the measure was sensitive to the presence of words in the control condition. As expected, the average reaction time on the control-condition words was faster in the control condition ($M = 580.84$ ms, $SD = 94.20$) than in the explicit homicide ($M = 618.23$ ms, $SD = 100.84$) and sexual rivalry scenario ($M = 615.15$ ms, $SD = 95.42$) conditions, $t(145) = -2.128$, $p = .035$, $d = -0.74$. In other words, there was facilitation on the control-condition words in the control scenario.

Primary Analyses

To test the main hypotheses, we created a difference score for each of the three categories of words with its corresponding category of control words (see Webb & Sheeran, 2007). Thus, lower scores indicated that participants, on average, were faster on the target words than on the control words. Filler and non-words were not analyzed. The mean reaction times for homicide and violent words and their control words for each condition are presented in Table 7.

Homicide concept accessibility. We first tested the hypothesis that individuals would

show increased accessibility of the homicide concept in the explicit and sexual rivalry conditions, relative to the control condition. Increased accessibility would be evidenced by facilitated responding to the homicide words relative to the homicide-control words. We therefore calculated the difference score in mean response time to these word categories and conducted planned contrasts on these difference scores. The first contrast compared the sexual rivalry condition ($M = 2.30$, $SD = 75.59$) to the control condition ($M = -6.27$, $SD = 93.52$), $t(145) = 0.428$, $p = .669$, $d = 0.09$, and the second contrast compared the explicit homicide condition ($M = 5.74$, $SD = 111.10$) to the control condition, $t(145) = 0.643$, $p = .521$, $d = 0.13$. These results indicate that participants in the sexual rivalry and explicit homicide conditions did not demonstrate increased accessibility of the concept of homicide.

Violence concept accessibility. We next tested whether there was evidence for the increased accessibility of violence, evidenced by facilitated responding to the violent words relative to the violent-control words. We therefore conducted planned contrasts on the difference between reaction times to violent and violent-control words. The first contrast compared the sexual rivalry condition ($M = -34.30$, $SD = 81.62$) to the control condition ($M = 8.72$, $SD = 88.04$). This comparison was significant, $t(145) = -2.345$, $p = .020$, $d = -0.49$, indicating increased accessibility of the concept of violence in the sexual rivalry condition. To further probe this effect, we compared response latency to the violent and violent-control words within the sexual

Table 7. Means for homicide and violent word categories by condition.

Condition	Homicide	Homicide control	Violence	Violent control
Explicit homicide	595.33 (91.44)	589.59 (82.66)	589.03 (104.65)	597.39 (108.16)
Sexual rivalry	605.20 (92.65)	602.90 (82.63)	593.38 (89.07)	627.68 (98.50)
Control	575.99 (80.07)	582.26 (89.63)	590.80 (97.90)	582.08 (77.81)

Note: Standard deviations in parentheses.

rivalry condition. Participants were faster to respond to violent words than to violent control words, $t(41) = 2.72, p = .009$ (see Table 7). The same comparison within the control condition was not significant, $t(50) = 0.707, p = .48$.

The second contrast compared the explicit homicide condition ($M = -8.36, SD = 92.61$) to control. This comparison was not significant, $t(145) = -0.998, p = .320, d = -0.19$. Thus, participants in the explicit homicide condition did not show increased accessibility of violence compared to participants in the control condition.

Relationship/emotional concept accessibility. Finally, we examined the accessibility of the relationship/emotional concept, reflected in the difference between response latency to these words and the relationship/emotional control words. The first contrast comparing the sexual rivalry condition ($M = -19.32, SD = 96.30$) to the control condition ($M = -13.14, SD = 59.60$) was not significant, $t(145) = -0.349, p = .728, d = -0.07$. The second contrast comparing the explicit homicide condition ($M = -17.38, SD = 95.53$) to the control condition was not significant, $t(145) = -0.256, p = .798, d = -0.05$. Thus, there was no evidence for the increased accessibility of the relationship/emotional concept.

Sex differences. We also tested for several sex differences. *T*-tests between sex and the difference scores for homicide ($p = .415$), violent ($p = .639$), and relationship/emotional ($p = .648$) words were not significant. In other words, there were no significant differences between males and females on any of the three word category difference scores. However, males ($M = -34.67, SD = 107$) differed significantly from females ($M = 28.84, SD = 108.14$) for the homicide difference scores in the explicit homicide condition, $F(1, 53) = 4.42, p = .040, d = 0.59$. In other words, males were faster than females to identify target versus control homicide words

in the explicit homicide condition. There were no other sex differences in either the explicit homicide scenario or sexual rivalry scenario for any of the word category difference scores ($p \geq .52$).

Discussion

Experiment 3 used an implicit measure to examine the accessibility of different concepts in response to sexual rivalry. The sexual rivalry condition resulted in increased accessibility of the violence concept. This occurred even though the scenario did not contain any information of a violent nature. That participants were faster to identify violent but nonlethal words like 'fight' and 'punch' supports the notion that they spontaneously thought of this strategy in response to the scenario (see also Ayduk et al., 2002; Bushman, 1998). This conclusion is also consistent with our findings from the explicit measures in Experiments 1 and 2.

Interestingly, there was no overall effect on the homicide words, even in the explicit homicide scenario. Thus, it is also possible that our measure was not a valid measure of homicide thought. However, we did observe that males were faster than females on homicide words (relative to homicide control words) in this condition. The explicit homicide scenario was added to test whether the measure would be at all sensitive to the accessibility of the homicide construct. This evidence suggests that the lexical decision task was sensitive. Furthermore, there was significant facilitation to the control and violence words in the control scenario across sex. Moreover, we selected words that were strongly associated with homicide in a pilot study, including words that were actually present in the scenario. Rather than concluding that our measure more generally lacked validity, it seems that there may be something unique about the measurement of the homicide construct. One possible explanation for the lack of an overall effect in the explicit homicide scenario is that participants were

thinking about concepts not represented by the three categories we included. For example, participants may have focused on the immoral aspects of murder or the likely punishment one would face. Future research could therefore examine whether individuals consider the costs of homicide rather than the act itself.

There was no evidence of increased accessibility of the relationship/emotional concept in the sexual rivalry scenario. Words for this category included angry, jealous, and upset, which were very common in our pilot testing and in the sexual rivalry scenario in Experiment 2. We can only speculate on the reasons for this finding, but one possibility is that individuals' thoughts focused on strategies to deal with the situation rather than their emotional reaction. Participants were instructed to imagine and think deeply about the scenario, but they may have thought more about what they would do rather than how they feel. A future direction may be to ask participants specifically about what emotions they feel.

General Discussion

The goal of this research was to examine whether individuals spontaneously entertain homicide or violent thoughts and show evidence of premeditation in response to cues that, according to theory, are likely to provoke homicidal behavior. In Experiments 1 and 2, none of the four scenarios elicited more than a handful of thoughts that could be categorized as homicide (<5% across conditions). This was the case even when using a more objective coding protocol (word frequency). In contrast, violent but nonlethal thoughts were quite common. Across Experiments 1 and 2, infanticide was the only scenario in which the violent but nonlethal thoughts occurred at a rate similar to that of homicide thoughts. However, both types of thoughts were still rare (less than 5%) in the infanticide scenario. Additionally, homicide thoughts were not related to premeditation or

planning more than any other strategy. However, this conclusion is highly tentative as the rate of homicide thoughts was very low, and raters showed relatively low agreement on this judgment. The results of Experiment 3 were also consistent with thoughts of violence but not homicide. The sexual rivalry scenario increased the accessibility of violent words (e.g., punch, kick), but not of homicide words (e.g., murder, kill), as measured in a lexical decision task.

It is unlikely that social presentation bias can explain the lack of homicide thoughts across the three experiments. Responses in Experiment 2 were online and anonymous, and an implicit measure was employed in Experiment 3. Kenrick and Sheets (1993) found high levels of homicide fantasies when participants were asked directly about previous homicide thoughts, suggesting that not only are individuals willing to report such thoughts retrospectively, but they are willing to share these highly personal thoughts. Another possible explanation for the low number of homicide thoughts is that participants did not care enough about the scenarios or were unable to imagine the situation. If this were true, it is unclear why participants would then show evidence of violent thoughts.

The evidence for these three experiments corresponds with findings that most homicides do not seem to be committed with prior intent and planning (see, Felson & Massoglia, 2012; Solway et al., 1981; Wolfgang & Ferracuti, 1969). Similarly, we found that a homicide-relevant scenario evoked primarily nonviolent and violent content, and very rarely homicide content. If our evidence is any indication of what individuals typically think about right before committing a homicide, it would suggest that many or even most homicides are spontaneous, unplanned acts. This conclusion could be bolstered with additional evidence from more realistic and varied scenarios, a point we discuss below. Additionally, this may only hold true for typical, single-time homicide offences. Evidence

indicates that there are differences between repeat homicide offenders and single-time homicide offenders, like lack of employment prior to the first homicide (Cale, Plecas, Cohen, & Fortier, 2010). It is an interesting empirical question whether repeat offenders are more prone to homicide fantasy and planning. Indeed, research does indicate that serial sexual homicide offenders, compared to single victim offenders, have greater premeditation (Campos & Cusson, 2007; Chan, Beauregard, & Myers, 2015). However, given the small samples and retrospective reporting of premeditation, these results are quite tentative. Nonetheless, an empirical question could be whether the spontaneous generation of homicide responses to homicide scenarios is associated with other factors known to increase the risk for homicide behavior. This would be a clear distinction from people who can generate retrospective thoughts of homicide when asked (as in Kenrick & Sheets, 1993). Whereas it appears typical that individuals can generate such thoughts when requested, spontaneously generated homicide thoughts appear less typical.

Our results also have implications for the way in which premeditation is defined legally. As discussed earlier, determination, in a legal setting, as to whether a homicide has been committed with prior intent and shows evidence of premeditation is crucial. Yet, legal definitions of premeditation are vague. Our definition of premeditation was more objective than the legal definition, yet rater reliability of premeditation in Experiment 1 was still relatively low, and premeditation could not be examined in Experiment 2, because of the low frequency of words associated with planning or lack thereof. Thus, our results echo statements by Mann (1996), that categorization of crimes as premeditated is difficult, subjective, and variable. This suggests that substantial effort needs to be dedicated to creating a classification scheme for premeditation, in a legal and research setting, which is more reliable and easily implemented.

Limitations and Future Directions

There are several limitations to the present experiments. Unfortunately, premeditation could only be examined in Experiment 1, and the low frequency of homicide thoughts made it problematic to test the relationship between premeditation and homicide. Future research should therefore more specifically investigate premeditation in homicide thoughts. One possibility would be to ask participants to write a solution to a scenario using one of several strategies, including homicide. In this manner, the frequency of homicide can be controlled. Our research was limited in that the content of the homicide thoughts could not be reasonably analyzed, due to rarity. Approaches like that of Kenrick and Sheets (1993) in which participants are asked about their own homicide fantasies are better suited to analyzing content.

Another limitation and future direction may be to use different scenarios. Our scenarios did contain relevant contextual elements concerning situations in which homicide occurs. For example in the infanticide scenario, the infant is sick and preventing care to the older and healthy child. However, it is not possible to capture every potentially important contextual element. Thus, the conclusions drawn from this research are applicable to the specific contexts that we included. There may be other contexts within each homicide domain that might yield different results. Our scenarios may simply have failed to activate the relevant mechanisms. On the other hand, it would be difficult to explain why we observed violent thoughts if the context had not been relevant.

We also did not use scenarios that were specific to each sex even though homicide is sex differentiated. Rather, we chose to include contextual elements that could apply to either males or females. Future research could use sex-specific scenarios to determine whether this is an important factor in eliciting homicide thoughts. However, we did observe effects on violent thoughts despite not using sex differentiated scenarios.

Future research may also use scenarios that are more impactful. For example, videos showing the discovery of a mate poacher may evoke stronger and more realistic emotions and thoughts. Written scenarios with the particular contextual elements were chosen in this case due to ethical concerns. However, images or videos may have greater ecological validity. Additional implicit measures that do not rely on lexical content could also be developed. For example, scenarios could be presented and participants asked to interpret the ambiguous actions of stick figures.

A final limitation of the current work was that we restricted Experiment 3 to the sexual rivalry scenario. We chose sexual rivalry because this condition elicited some homicide and substantial violent thoughts in Experiments 1 and 2. The infanticide scenario elicited the most homicide thoughts across Experiments 1 and 2, but they were still quite low. Thus, a future direction would be to examine the accessibility of homicide thoughts in the infanticide scenario using an implicit measure. The stimuli in the lexical decision task would need to be specifically tailored to the infanticide scenario. For example, the word ABANDON would be a more relevant word for the homicide category in the infanticide situation than in a sexual rivalry or intimate partner situation. Nonetheless, repeating the basic procedure of Experiment 3 with other scenarios would be useful.

Conclusions

Understanding the thoughts that precede homicidal behavior is an understudied but highly important topic of research. Although individuals may think about homicide when directly prompted (as in the explicit homicide condition, and see Kenrick & Sheets, 1993), we did not find evidence that individuals spontaneously think (explicitly or implicitly) about homicide in response to relevant cues. Rather, the three experiments we conducted showed that when presented with situations where homicide actually occurs and containing relevant theory-specified information,

people think about violence and other non-lethal actions. Of course these conclusions must be weighed against the limitations of our scenarios and other methodology and thus must be considered preliminary. It remains for future research to examine whether these findings generalize to other manipulations of context and other measures of homicide ideation. We did not sample from every context, and so there may be other scenarios that more strongly elicit homicide thoughts. It is our hope that this research will stimulate further interest in homicide ideation and in testing homicide ideation within specific domains.

Disclosure statement

No potential conflict of interest was reported by the authors.

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*Homicide Scenarios (Experiments 1 and 2)**Trivial Altercation Scenario*

Imagine you and a friend are playing pool at a local bar. Another patron, person X, challenges you to a game and you easily beat them. You and your friend laugh at this person and they angrily storm off. Later, you are returning to your car (alone) and you turn the corner and bump into person X. Person X yells at you, calling you, 'a bitch.' You also yell and tell person X, 'you're just a fat ass.' Person X is acting aggressively and you wonder if this person means to harm you.

Sexual Rivalry Scenario

Imagine you are in a long-term relationship. Your partner has a very close friend of the opposite sex. However, you suspect that this friend, person C, is actively trying to steal your partner away. One day you find several explicit emails from person C to your partner, confirming your suspicions. You have an amazing partner and do not want things to end. You decide something must be done about person C.

Intimate Partner Scenario

Imagine you and your romantic partner have recently been having trouble. Your partner is emotionally distant, rude to you, and has even threatened to sleep with other people. Recently, while at a social event, your partner openly flirted with someone. Your partner is attractive and wealthy and you have seen many other people take notice of them. One day your partner threatens to leave you. You decide something needs to be done.

Infanticide Scenario

Imagine you are married, you have one child who is 2 years old and several days ago you and your spouse had a new baby. Unfortunately, you find out that the new baby has a serious illness. You and your spouse are having a hard time with the infant because it requires constant care and it is interfering with caring for your other child. The infant is also causing problems between you and your spouse; made worse by the fact that you were both recently fired from your jobs. All this makes you feel like the infant is not even yours. You decide the situation needs to be addressed.

*Homicide Scenarios (Experiment 3)**Explicit homicide scenario*

You are in a long-term relationship. Your partner has a very close friend of the opposite sex, Alex, whom they spend a lot of time with. However, Alex seems to be actively trying to take your partner from you. Every time Alex comes to mind, you can't help but feel mistrustful. One day you find several explicit emails from Alex to your partner, confirming your suspicions. You are overcome with emotion. Something must be done! You decide to murder Alex and you formulate a plan. You wait till your partner is sleeping and sneak out. You drive to Alex's house and break in through a window. Grabbing a knife from the kitchen you approach the bedroom. In one forceful strike, you stab Alex through the chest, plunging the knife deeper and deeper, killing Alex! Alex is dead.

Sexual rivalry scenario

You are in a long-term relationship. Your partner has a very close friend of the opposite sex, whom they spend a lot of time with. However, you suspect that this friend, Alex, is actively trying to steal your partner away. Every time Alex comes to mind, you can't help but feel mistrustful. One day you find several explicit emails from Alex to your partner, confirming your suspicions. You are overcome with emotion. Your partner is an amazing person, and you do not want things to end. Alex is the problem. Alex is trying to take the most important thing from you and you will not let them get away with it. Therefore, you decide something **must** be done about Alex.

Control scenario

It's a Tuesday afternoon. You're hanging out at home doing homework, but it's getting boring and you're feeling tired. You know that you still have several errands to run including going to the supermarket, returning some clothes, and dropping off a package at the post office. It's getting late, so you decide to call it a night and go run your errands. You grab your wallet and put on some shoes. As you go to get your keys from the counter, you don't see them there. You decide to search around the house. You look all around your desk. But they're not anywhere. You plop onto your living room couch. Sighing, you look back to the counter where you normally put your keys. To your astonishment, there they are.