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Reports

Effects of low survivability cues and participant sex on physiological and behavioral responses to sexual stimuli

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ABSTRACT

According to life history theory, environmental cues indicating that one's future survivability is low increase reproductive effort. This suggests that exposure to low survivability cues will increase people's preparedness to engage in sex. However, according to sexual selection theory and parental investment theory, evolutionary pressures favored a more conservative sexual strategy among women compared to men. We therefore hypothesized that men, but not women, would respond to low survivability cues with increased sexual preparedness. Accordingly, both subliminal and supraliminal death primes (as compared with control primes) led men, but not women, to exhibit increased physiological arousal in response to sexual images (Study 1), and stronger approach-oriented behavioral responses to sexual images (Study 2). Theoretical implications for life history theory are discussed.

When dandelions face catastrophic death as a result of frequent lawn mowing, they respond with prolific breeding (Gadgil & Solbrig, 1972). Although it seems counterintuitive for an organism to increase reproductive effort when conditions are so inhospitable to life, doing so may reflect an evolutionary adaptation. According to life history theory (LHT; Chisholm, 1996, 1999; Cole, 1954; Stearns, 1977), when conditions are adverse to future survival (e.g., when vital resources are lacking), natural selection favored heightened reproductive effort, and a corresponding decrease in parental investment, to increase the probability that at least some offspring will survive and reproduce themselves. Conversely, when environmental conditions are more conducive to life, natural selection favored low expenditure of reproductive effort and high parental investment (see also Belsky, Steinberg, & Draper, 1991; Ellis, 1998; Stearns, 1992).

Based on LHT, we hypothesized that cues indicating low survivability will increase people's preparedness to engage in sex. Indirect support for this hypothesis is provided by correlational evidence that environmental cues signaling low survivability, such as high murder rates, poverty, and chronic stressors, are positively associated with fertility rates and reduced investment in long-term mating relationships (e.g., Davis & Were, 2007; Wasser & Place, 2001; Wilson & Daly, 1997). Also, men and women raised in single parent and economically disadvantaged households, or those reporting more troubled family relations, tend to reach sexual maturity earlier in development and engage in more frequent sexual activity (Chisholm, 1999; Chisholm, Quinlivan, Petersen, & Coall, 2005; Kim, Smith, & Palermiti, 1997; for more complete reviews of LHT research, see Kaplan, Hill, Lancaster, & Hurtado, 2000; Stearns, 1977).

As these examples illustrate, most of the empirical support for LHT comes from studies of population-level phenomena, such as longitudinal patterns of sexual maturation and reproductive behavior. However, emerging lines of research have begun to focus on how population-level processes described by LHT are instantiated at the level of the individual organism and its ability to respond to environmental cues relevant to survivability (Griskevicius, Tybur, Delton, & Robertson, 2011; Simpson & Belsky, 2008). For example, Griskevicius et al., (2011) recently proposed that individuals nonconsciously monitor environmental cues and calibrate their investment in reproductive effort accordingly (e.g., adjusting their investment in intrasexual competition, courtship, and childcare). Extending this emerging interest in individual-level processes associated with LHT, we would expect that people are able to respond to low survivability cues in their immediate context with an increase in sexual preparedness. To our knowledge there are no experimental tests of this hypothesis.

To fill this gap, in two studies we manipulated the salience of the ultimate low survivability cue – that is, death – utilizing both subliminal and supraliminal primes, and we assessed sexual preparedness using converging implicit measures. Study 1 tested whether explicit death primes increase physiological arousal in response to sexual stimuli. Study 2 tested whether subliminal death primes increase approach-oriented behavioral responses to sexual stimuli.

We used implicit rather than explicit measures of sexual preparedness to circumvent the ambivalence toward sex that

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research derived from terror management theory (TMT; Solomon, Greenberg, & Pyszczynski, 1991) has documented in response to reminders of mortality. According to TMT, the salience of death motivates people to deny their self-reported interest in sex because it reminds them that they are mortal creatures who will die one day. Consistent with this notion, multiple studies show that reminders of mortality can lead men and women to express decreased interest in the physical aspects of sex (e.g., Goldenberg, Cox, Pyszczynski, Greenberg, & Solomon, 2002; Goldenberg, Pyszczynski, McCoy, Greenberg, & Solomon, 1999) and a general revulsion toward cues that remind them of their association with other animals (e.g., Goldenberg et al., 2001). Critically, however, TMT research on sexual interest has focused on explicit indices of such interest. By assessing sexual preparedness at an implicit level, the current studies were able to minimize the potential for death salience to increase aversive reactions to sexual stimuli associated with terror management motivation, and therefore to provide more straightforward tests of the LHT-derived hypothesis that death salience will increase sexual preparedness.

We also examined the potential moderating role of participant sex. According to Trivers's (1972) integration of sexual selection theory and parental investment theory, men's optimal reproductive strategy is to maximize their total number of fertilizations because they invest less than women in their offspring. Women, in contrast, tend to be more discriminating in their mate choice, and less willing or prepared than men to engage in short-term sexual activity, because of their comparatively higher levels of parental investment (e.g., pregnancy, breastfeeding).

Combining insights from LHT, sexual selection theory, and parental investment theory, we reasoned that low survivability cues will increase sexual preparedness among men, but not among women. Specifically, this perspective posits that, even if a man dies right after the relatively simple act of fertilization, his offspring have a chance to survive, unlike the case for women who have to carry the embryo and give birth. Furthermore, men contribute less time and parental resources to the nurturance and protection of their offspring over the long term than do women; therefore, their offspring have a relatively good chance of surviving (and further reproducing) even if they themselves will die in the near future. This suggests that when men are exposed to cues in their immediate context signaling that their short-term prospects for survival are low, they will display increased preparedness to engage in sex. In contrast, women must stay alive for months – if not years – to gestate and succor their offspring, and so it is not adaptive for women to engage in sex when cues in their current environment signal low short-term survival prospects for themselves. This suggests that although women may respond to environmental cues signaling long-term threats to survivability with increased reproductive effort (e.g., Wilson & Daly, 1997), when the salience of death signals that their short-term prospects for survival are low, they will not display an increased preparedness to engage in sex. Based on this reasoning, we assessed the possibility that men, but not women, would respond to death primes with increased physiological and behavioral indices of sexual interest.

Study 1

Study 1 provided an initial test of our hypothesis that death salience will increase men's, but not women's, sexual preparedness. To test this hypothesis, we examined men's and women's sexual arousal following exposure to a supraliminal death prime (vs. an aversive control prime) while viewing sexual and non-sexual images. We measured sexual arousal by recording variations in heart rate (HR), a method shown in prior research to provide a valid physiological index of sexual arousal in response to sexual stimuli (e.g., Bohlen, Held, Sanderson, & Patterson, 1984; Fox & Fox, 1969; Graber, Balogh, Fitzpatrick, & Hendricks, 1991). We predicted that men would show higher physiological arousal in response to sexual images after contemplating their death compared to another aversive topic, whereas the death salience manipulation would not influence men's arousal in response to non-sexual images, or women's arousal in response to either image type.

Method

Participants and procedure

Participants were 168 undergraduates (86 men, 82 women; age 18–27, *Mdn* = 19) who received course credit for participation.[1] The study was presented to participants as a combination of three different studies: one involving the completion of a short personality and attitude questionnaire, another involving the rating of various images, and the third involving physiological measurement of the effects of various tasks on fatigue.

Heart rate. Participants were connected to a polygraph device that monitored HR variability. This psychophysiological measure was collected using an integrated software and hardware package designed by James Long Company (1999), including a 5-channel burst mode bioamplifier at the resolution of 1 ms, averaged over 1 s periods. HR was measured by placing three pre-gelled 30-mm square Unitrace alligator-clip-type electrodes on participants' chests: two in a bipolar configuration on opposite sides of the chest and the third on the sternum as a ground. R-waves were automatically detected by using the interbeat interval (IBI) data analysis program (James Long Company, 1999). Electrocardiogram files were visually screened and R-waves of problematic files were manually marked by using the IBI edit program (James Long Company, 1999). A second-by-second HR (in beats per minute) was computed from the resultant IBI file. HR arousal was measured by average resting HR, and HR reactivity was calculated as an average task HR. An increase in HR generally indicates increased arousal, caused by alpha- and beta-adrenergic activation or by parasympathetic (vagal) inhibition. Once connected to the polygraph, participants went through a 5 min relaxation period, which served as a baseline measure.

Death salience manipulation. After the baseline HR assessment, participants completed a questionnaire packet that included two neutral filler questionnaires followed by the death salience manipulation. Participants in the death prime condition responded to two open-ended questions about their own death (used in previous studies, e.g., Gillath & Hart, 2010): "Please briefly describe the emotions that the thought of your own death arouses in you" and "Jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead." To control for the possibility that the effect of this induction is merely a generalized reaction to reminders of any aversive experience, participants in the control condition responded to parallel questions regarding the experience of dental pain. Because previous research shows that the effects of explicit death reminders are the strongest after a short period of delay between the death induction and the dependent variable assessment (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994), we had participants complete a self-report mood scale (the 60-item Positive and Negative Affect Schedule-Expanded Form; PANAS-X; Watson & Clark, 1994) following the death or pain induction. Use of the PANAS-X also allowed us to assess the possibility of affective consequences of the death salience

[1] In both studies, all participants reported being heterosexual. No participant reported a history of sexual problems (e.g., impotence, vaginismus, abuse). All participants consented to participate after it was explained that they would view material with sexual content.

manipulation and to assess whether mood played any mediating role in the hypothesized effects.[2]

Evaluation of sexual and non-sexual stimuli. Immediately after completing the questionnaire packet, participants viewed either five sexual images (naked women for men and naked men for women) or five non-sexual images (sport cars for men, and luxury houses for women).[3] The images for the study were chosen based on previous studies (see Gillath, Mikulincer, Birnbaum, & Shaver, 2007) and because the results of a pilot study (see Footnote 3) revealed that they were equivalent in overall perceived attractiveness. All images were resized to 10×10 cm and presented to participants in black and white. Participants were asked to look at each image carefully. They were given 5 min to review the images. The order of the images was randomized between participants.

Results

To test our hypothesis, we conducted an analysis of covariance (ANCOVA) with participant sex, priming condition (death vs. dental pain), and image type (sexual vs. control) as the independent variables, averaged HR while watching the images as the dependent variable, and baseline HR level as a covariate. The ANCOVA revealed a main effect for baseline HR, $F(1, 159) = 7.56$, $p < .01$, partial $\eta^2 = .05$, such that people who had higher baseline HR had higher HR in response to the images.

The ANCOVA also revealed the predicted three-way interaction, $F(1, 159) = 4.43$, $p < .05$, partial $\eta^2 = .03$ (see Table 1 for means and *SDs*).[4] Supporting predictions, pairwise comparisons (LSD) revealed that death-primed men exhibited higher HR when viewing sexual images ($M = 84.03$) compared to pain-primed men who viewed sexual images ($M = 74.50$), $t(159) = 4.21$, $p < .05$. In contrast, priming condition did not affect HR among men viewing non-sexual images ($M = 70.78$ vs. $M = 75.38$, $t(159) = .85$, $p = .36$) or women viewing either sexual or non-sexual images ($M = 76.16$ vs. $M = 78.96$; $M = 76.91$ vs. $M = 76.12$), $ps > .49$. We also took a different approach to further investigate the three-way interaction by decomposing it into separate two-way interactions (priming condition X sexual vs. non-sexual image type) for men and women. As expected, we found that the two-way interaction was marginally significant among men, $F(1, 82) = 3.11$, $p = .08$, and not significant among women, $F(1, 78) = .66$, $p = .42$.

Discussion

Supporting hypotheses, Study 1 showed that men primed with death (compared to pain) responded with increased physiological arousal while viewing sexual images, but not attraction-matched, non-sexual images, whereas the death prime did not influence women's physiological arousal in response to either image type. This finding is consistent with our broader claim that exposure to low survivability cues will increase implicit indices of sexual preparedness among men, but not among women. In Study 2, we further tested this broad claim using implicit behavioral measures of sexual preparedness.

Table 1
Means and SDs of HR as a function participant gender, image type, and priming condition.

Gender	Image type	Mean (SD)	
		Non-sexual	Sexual
Men	Death	70.78 (8.07)	84.03 (33.44)
	Dental	75.38 (9.28)	74.50 (9.29)
Women	Death	76.91 (9.31)	76.16 (9.46)
	Dental	76.12 (10.86)	78.96 (10.08)

A second goal of Study 2 was to address a potential alternative explanation for the increase in physiological arousal among death-primed men viewing sexual images. Prior research (e.g., Baumeister, Catanese, & Vohs, 2001) shows that men tend to experience stronger levels of sexual desire than women, especially in response to sexual images. Insofar as thinking about one's mortality increases arousal, it is possible that the effect observed in Study 1 was simply due to men being exposed to two arousing stimuli (compared to women, who may have been aroused by death reminders but less aroused by the sexual images). This alternative interpretation is unlikely given that we found no priming condition main effect or gender X priming condition interaction on self-reported affect, nor did self-reported affect mediate the hypothesized interaction (Footnote 2). However, because self-report measures of affect may not be sufficiently sensitive to assess implicit arousal, this alternative interpretation remains to be directly assessed. Therefore, in Study 2 we manipulated death salience using an implicit priming procedure to avoid conscious contemplation of death. Secondly, in Study 2 we examined participants' responses to sexual and non-sexual images matched in overall arousal, thus controlling for the effect of differences in arousal in the predicted effect. Using implicit death primes also allowed us to further test the possibility, suggested by recent LHT-inspired research (e.g., Griskevicius et al., 2011), that even implicit cues indicating low survivability can influence reproductive effort.

Study 2

Study 1 demonstrated that death salience increases men's, but not women's, physiological indices of sexual preparedness. But would death salience similarly increase implicit behavioral indices of sexual preparedness among men? We tested this in Study 2 using a modified version of the approach-avoidance task developed by Chen and Bargh (1999). These researchers found that participants were faster to push a lever away from the self in response to negative (vs. positive) stimuli, and similarly were faster to pull a lever toward the self in response to positive (vs. negative) stimuli. Based on these findings, they suggested that reaction times in their task represented implicit indices of the tendencies to respond with behavioral avoidance (push) to negatively valued stimuli and behavioral approach (pull) to positively valued stimuli. We adapted this procedure to assess implicit approach and avoidance tendencies in response to sexual stimuli. Specifically, we had participants respond to sexually arousing images and non-sexual, arousal-matched images by either pulling a lever toward themselves (an approach response) or pushing the lever away from themselves (an avoidance response). Latencies for initiating these approach and avoidance responses were recorded, averaged, and used as our dependent variable.

Based on Chen and Bargh's (1999) findings and our guiding analysis, we hypothesized that if death salience increases implicit sexual preparedness, then death-primed individuals would perceive sexual images as a positively valued stimulus, and would therefore be faster to pull the lever in response to sexual images compared to

[2] To ensure that the effects of the death salience manipulation were not mediated by affect, we conducted analyses of covariance (ANCOVAs) with the affect subscales scores (including positive and negative affect) as covariates and our primary predicted effects remained statistically intact. Thus, we are quite confident that, as in past research, the findings reported in Study 1 were not caused by affective differences between the death salience and dental pain condition.

[3] In a pretest with 36 participants (17 men), men rated cars ($M = 3.86$) as attractive as naked women ($M = 4.14$) and houses ($M = 3.83$), $ps > .66$; similarly, women rated luxury houses ($M = 5.52$) as attractive as naked men ($M = 4.91$) and cars ($M = 3.98$), $ps > .36$. Based on these results, in the main study we used cars as the control stimulus for male participants and luxury houses as the control stimulus for female participants.

[4] In both of the current studies, the predicted patterns of statistically significant results remained intact even after controlling for participants' age, ethnicity, and sexual experience.

participants who are not primed with death. Also, in line with our conceptualization and the results of Study 1, we hypothesized that this effect would be specific to men.

Method

Participants and procedure

Participants were 77 undergraduates (39 men, 38 women; age 18–27, *Mdn* = 20) who received course credit for participation.

Approach-avoidance task. The approach-avoidance task was run on a Pentium IBM-PC, with an SVGA color monitor, and was programmed using DirectRT software (Jarvis, 2002). Participants received instructions that they would view images on the screen and pull or push a lever if there was a person in the image. Images were displayed in the middle of the monitor (brightness and contrast were set somewhat low). A lever 30″ in length was set on a joystick (Logitech extreme 3D PRO) as a base. The joystick was connected to the computer through a USB connection enabling the collection of RTs and directional responses.

The task consisted of two blocks of 40 trials. In one block, participants were asked to push the lever forward if they saw a person in the image. In the other block, they were asked to pull the lever toward themselves if they saw a person in the image. To control for possible order effects, half of the participants were given the "push" block first and the remaining participants were given the "pull" block first.[5]

Each image was presented four times in each block. As soon as the participants responded, the next trial started. Participants completed four practice trials before each block. The order in which the images were presented was randomly determined for each participant and each block.

Death salience manipulation. Each trial started with a backward mask (the string XXXX) lasting for 500 ms. This was followed by the subliminal prime lasting for 22 ms. For half of the participants, the prime was the word "dead," whereas for the remaining half the prime was the word "pain." The prime was followed by a backward mask (the string XXXX) that appeared for 500 ms. The target image appeared after the mask.

Evaluation of sexual and non-sexual stimuli. The stimulus set used in the task consisted of ten images with either sexual or non-sexual content (five images in each category). All images were taken from the International Affective Picture System database (Lang, Bradley, & Cuthbert, 2005). The sexual images depicted naked men (for female participants) or women (for male participants). Non-sexual images depicted people engaging in arousing activities (e.g., snowboarding, rafting). Sexual and non-sexual images were matched on arousal and valence.[6]

Throughout the task, the computer automatically recorded the amount of time between the image's appearance and the participant's movement of the lever. The computer also recorded whether the participant had pushed or pulled the lever on each trial.

The calculation of implicit tendency scores involved several steps: first, we excluded from the analysis incorrect responses and outlier RTs (lower than 300 ms or higher than 1400 ms). These latencies occurred mainly on trials in which participants moved the lever an insufficient distance to be detected by the computer or reacted before seeing the image. Next, we computed two scores for each participant and each image: (a) the average speed for pulling the lever (approach score) every time an image was presented, and (b) the average speed for pushing the lever (avoidance score).

Results

To examine our primary prediction that men, but not women, would respond to death primes (vs. control primes) with faster pulling when viewing sexually arousing images, we performed a repeated measures ANOVA with gender and priming condition (death vs. pain) as between-subjects factors and approach-avoidance response (pull vs. push) and image type (sexual vs. non-sexual) as within-subject factors. The ANOVA revealed a main effect for the approach-avoidance response, $F(1, 73) = 20.89$, $p < .001$, partial $\eta^2 = .22$, such that overall avoidance responses were faster ($M = 774.72$) than the approach responses ($M = 841.49$). We also observed a main effect for image type, $F(1, 73) = 110.18$, $p < .001$, partial $\eta^2 = .60$, such that reactions to sexual images were faster ($M = 780.21$) than for non-sexual images ($M = 835.99$). There were also two 2-way interactions, one between image type and gender ($F(1, 73) = 4.31$, $p < .05$, partial $\eta^2 = .06$) and one between priming condition and approach-avoidance response ($F(1, 73) = 4.06$, $p < .05$, partial $\eta^2 = .05$). These two 2-way interactions were qualified by the predicted four-way interaction, $F(1, 73) = 4.11$, $p < .05$, partial $\eta^2 = .05$ (see Table 2 for means and *SD*s).

Supporting predictions, planned pairwise comparisons (LSD) indicated that men were faster to pull the lever in response to sexual images after a death prime ($M = 777.50$) as compared with a pain prime ($M = 875.99$), $t(73) = 6.30$, $p < .05$. In contrast, the priming manipulation did not affect men's approach or avoidance responses to non-sexual images, nor did it affect women's responses to either type of image (*ts*$(73) < 1.72$, *ns*). Like in Study 1, we next decomposed the four-way interaction into separate three-way interactions (priming condition X image type X push vs. pull response) for men and women and found, as expected, that the three-way interaction was significant among men, $F(1, 37) = 6.46$, $p = .02$, but not among women, $F(1, 36) = .11$, $p = .74$.

Discussion

Study 2 showed that men, but not women, responded to sexually arousing images with a stronger implicit tendency toward behavioral approach after being implicitly primed with death compared to pain. These results converge with the findings from Study 1 in showing that death primes increase behavioral and physiological indices of sexual preparedness at an implicit level among men, but not women.

Table 2
Mean reaction times and SDs for pushing and pulling the lever as a function of participant gender, image type, and priming condition.

Gender	Image type	Mean (SD)		
		Approach (lever pull)		Avoidance (lever push)
Men	Non-sexual	Dead	856.35(104.08)	787.07(122.38)
		Pain	888.68(144.51)	811.56(117.16)
	Sexual	Dead	777.50(100.70)	747.03(137.63)
		Pain	875.99(156.65)	764.12(147.33)
Women	Non-sexual	Dead	852.44(115.93)	834.11(130.23)
		Pain	877.09(121.39)	780.70(130.64)
	Sexual	Dead	792.24(95.78)	760.95(130.11)
		Pain	811.66(132.43)	712.21(155.78)

[5] Preliminary analyses including push vs. pull block order as a between-subjects factor did not reveal a main effect of order or interactions between order and our factors of primary interest.

[6] For men, mean valence ratings for sexual and non-sexual images were 7.61 and 7.37, respectively ($t = .20$, *ns*); mean arousal ratings for sexual and non-sexual images were 7.08 and 6.83, respectively ($t = .33$, *ns*). For women, mean valence ratings for sexual and non-sexual images were 6.47 and 6.72, respectively ($t = .17$, *ns*); mean arousal ratings for sexual and non-sexual images were 5.89 and 5.88, respectively ($t = .94$, *ns*).

General discussion

The current two studies are among the first to experimentally test LHT-derived hypotheses about the effects of contextual cues related to survivability on indices of reproductive effort, and are the first to provide experimental test of a hypothesis derived from a synthesis of LHT, sexual selection theory, and parental investment theory: exposure to cues indicating that one's survivability is low will increase sexual preparedness in men, but not women. Supporting this hypothesis, men, but not women, responded to the salience of death (compared with the salience of pain) with increased physiological arousal in response to sexual, but not non-sexual, images (Study 1) and with increased behavioral approach tendencies while viewing sexual images (as compared with non-sexual images; Study 2).

Taken together, these findings complement the largely correlational evidence for LHT (e.g., Ellis, Figueredo, Brumbach, & Schlomer, 2009) by providing the first experimental evidence that low survivability cues, even when they are encoded at an implicit level, can increase preparedness to engage in sex. These findings also extend LHT by showing that the effects of low survivability cues on sexual preparedness are specific to men, as would be expected based on sexual selection theory and relevant non-experimental findings (e.g., Del Giudice, 2009).

These results significantly extend both the theoretical grounds of, and the prior empirical work on, LHT. LHT is focused on analyzing individual differences in life history strategies, which constitute overarching patterns of development and behavior that affect many aspects of life (e.g., relationship stability, health, and economic success). The theory explains variation in life history strategies in terms of adaptive trade-offs in distribution of resources to competing life functions: maintenance, growth, and reproduction (e.g., Roff, 2002; Stearns, 1992). Although these strategies are a species-typical characteristic, humans can also adjust their life history strategies to match changes in the environment (e.g., Belsky et al., 1991; Chisholm, 1999; Ellis, 2004; Vigil & Geary, 2006). Our findings support this claim by showing that even subtle situational variations in survivability cues can lead people to exhibit behavior in line with short-term strategies.

Our results also suggest interesting points of contact between LHT and terror management theory (TMT; Solomon et al., 1991). Like LHT, TMT offers predictions for how death primes affect outcomes related to sex. And, as stated in the Introduction, findings from TMT research reveal that death reminders decrease, not increase, reported interest in sex (e.g., Goldenberg et al., 1999). In fact, death salience has been found to lead men in particular to deny their own sexual attraction to explicitly provocative, but not more wholesome, women (Landau et al., 2006). On the surface, these findings would seem to be incompatible with the current ones. However, as we have noted, TMT explains the ambivalence that often surrounds the explicit contemplation of sexuality. In contrast, the current studies focused on implicit measures of sexual preparedness based on the predictions derived from LHT. Combining the current findings with TMT research, an interesting possibility for future research would be to compare explicit vs. implicit responses to sexually provocative stimuli as a function of death salience. Whereas death primes should decrease explicit ratings of interest in sex, particularly among men, the exact opposite would be expected with implicit measures of sexual preparedness. Because our aim was to provide initial experimental evidence for LHT, and not to compare LHT to TMT, we have yet to conduct this study. Still, it remains an interesting question for future research.

One limitation of our studies is that we did not use sex-specific measures of sexual preparedness, such as penile plethysmography and vaginal photoplethysmography. However, the measures we used enabled us to assess preparedness among both men and women. More importantly, we were able to provide converging support for our hypothesis by showing parallel effects on physiological and behavioral indices of preparedness. The convergence of these measures provides stronger evidence that the effects of death salience on sexual preparedness are robust and influence both arousal and action. However, future research should replicate our findings using sexual preparedness measures that are tailored specifically to men and women.

Another limitation of our studies has to do with the lack of diversity in the operationalization of our primes. Our goal was to provide initial experimental support to LHT by looking at the effects of low survivability cues. We tested subliminal and supraliminal primes of death as such cues and compared them to control primes. Future studies can test other alternative aversive stimuli relevant to LHT such as “competition” or “famine” and compare them to aversive stimuli that do not otherwise indicate low survivability (e.g., regret). These alternative aversive stimuli could potentially also help investigate the question of whether women would react differently to immediate death cues vs. non-immediate ones (i.e., cues that suggest nearing death but with enough time to bare offspring and pass forward one's genes). Although in the current studies we did not provide explicit time frame for the death cue, based on previous research we believe women perceived them as immediate. It would be interesting to see if a less immediate death cue would eliminate the gender difference we found here.

In the current studies we focused on the link between low survivability cues and indices of immediate interest or preparedness to engage in sex. Although the findings from these studies are consistent with LHT, the theory also provides accounts of long-term mating strategies and preferences, such as those pertaining to parenting and committed relationships. Future research should extend the current findings to examine the link between the presence of low survivability cues and these long-term strategies.

Although further research is necessary to address this and other issues, we believe that the current findings contribute to a deeper understanding of the motivational processes underlying human sexuality, and we hope they will generate further research along these lines.

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