

Truth or Punishment: Secrecy and Punishing the Self

Personality and Social
Psychology Bulletin
2017, Vol. 43(11) 1595–1611
© 2017 by the Society for Personality
and Social Psychology, Inc
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/0146167217717245
journals.sagepub.com/home/pspb



Michael L. Slepian¹ and Brock Bastian²

Abstract

We live in a world that values justice; when a crime is committed, just punishment is expected to follow. Keeping one's misdeed secret therefore appears to be a strategic way to avoid (just) consequences. Yet, people may engage in self-punishment to right their own wrongs to balance their personal sense of justice. Thus, those who seek an escape from justice by keeping secrets may in fact end up serving that same justice on themselves (through self-punishment). Six studies demonstrate that thinking about secret (vs. confessed) misdeeds leads to increased self-punishment (increased denial of pleasure and seeking of pain). These effects were mediated by the feeling one deserved to be punished, moderated by the significance of the secret, and were observed for both self-reported and behavioral measures of self-punishment.

Keywords

secrecy, self-punishment, morality, justice

Received November 9, 2016; revision accepted May 21, 2017

Nearly everyone keeps secrets. People intend to conceal behaviors and events, ranging from personal trivial details to significant life experiences. These secrets may be concealed from mere acquaintances but also even hidden from significant others to avoid the negative ramifications of one's own actions. We suggest that one reason people keep misdeeds secret is because they believe that such concealment will avert the course of justice and protect them from punishment. Yet, emerging evidence suggests that people sometimes seek out their own justice when reminded of their misdeeds. Acts of self-punishment seem attractive because they restore a sense of personal justice (Bastian, Jetten, & Fasoli, 2011; Inbar, Pizarro, Gilovich, & Ariely, 2013). Consequently, rather than averting the course of justice, keeping a misdeed secret may place the need to exact justice on the self, thereby increasing acts of self-punishment.

Secrecy

The tendency to keep secrets has been associated with poor health outcomes (e.g., Cole, Kemeny, Taylor, & Visscher, 1996; Frijns, Finkenauer, & Keijsers, 2013; Lehmler, 2009). Nonetheless, there may be benefits associated with hiding information from others, especially when that information could have reputational and relational consequences (Kelly & Yip, 2006). Specifically, controlling for the tendency to conceal information, having a specific secret has been associated with improved health, suggesting that when people keep specific secrets, this can bring benefits (Kelly &

Yip, 2006; Maas, Wismeijer, van Assen, & Aquarius, 2012). For instance, keeping a wrongdoing secret can avoid negative responses from others and protect valuable relationships (Kelly & McKillop, 1996).

Secrecy has often been considered in an interpersonal context (e.g., during an interpersonal interaction, the secret keeper concealing from a conversation partner; Critcher & Ferguson, 2014; Lane & Wegner, 1995). While concealing within a social interaction can be taxing (Critcher & Ferguson, 2014; Lane & Wegner, 1995), secrecy can also take place within an intrapersonal context (i.e., thinking about a secret outside of a concealment context). Using both cross-sectional and longitudinal designs, Slepian, Chun, and Mason (2017) found that across thousands of individuals with over 13,000 secrets in total, people think about secrets when simply on their own (i.e., not during a social interaction) more often than they actually conceal those secrets within social interactions.

In other words, while the goal of a secret is to conceal it, situations that necessitate concealment number fewer than the instances in which people simply think about a secret on their own (e.g., a person who has cheated on their partner

¹Columbia University, New York, NY, USA

²The University of Melbourne, Melbourne, Victoria, Australia

Corresponding Author:

Michael L. Slepian, Management Division, Columbia Business School,
Columbia University, 3022 Broadway, New York, NY 10025, USA.
Email: michael.slepian@columbia.edu

may rarely field a question that would give the secret away but may constantly think about the secret given its significance). Moreover, not only is thinking about secrets outside of social interactions more common than concealing them within social interactions, but entering both as predictors of well-being, only the frequency of thinking about a secret on one's own (not concealing within social interactions), predicts lower well-being (Slepian et al., 2017).

Secrets are generally thoughts that people have practice at suppressing, and thought suppression is most likely to fail when asking participants to suppress a *novel* thought that they have never suppressed before (e.g., a white bear), whereas suppressing a thought they have had practice suppressing (e.g., a secret) is more successful (Kelly & Kahn, 1994; see also Hu, Bergström, Gagnepain, & Anderson, 2017). Instead, it seems that the reason people frequently think about their secrets is through feelings of the secret being unresolved. That is, by keeping one's secret from a close other, this will prevent gaining insight and guidance from a trusted other about the event, and much of the harmful effects of personal trauma, more generally, stem from not processing them in healthy ways (Kelly, Klusas, von Weiss, & Kenny, 2001; Pennebaker, 1997). Thus, by its very nature, secrecy leads one to lose opportunities to discuss the secret event or episode with others, and it thus will feel more unresolved. Unresolved personal concerns frequently enter into conscious thoughts (Klinger, 2013; Mason, Bar, & Macrae, 2009; Mason & Reinholtz, 2015; Song & Wang, 2012), and ruminative thinking is associated with lower well-being (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008).

One aspect of secrecy that has yet to be identified in prior theorizing is how it may interact with a personal sense of justice. Keeping a misdeed secret may lead one to feel they still deserve punishment, and therefore lead one to seek out self-punishment. Confessing a secret misdeed thus may not only bring an end to the negative experience of having to conceal a secret, but it may also bring an end to the feeling that one still deserves punishment. Feeling one deserves punishment can lead one to seek out self-punishment (Bastian et al., 2011; Inbar et al., 2013). Thus, we propose in the current work that one problem with having a secret is that it might heighten a personal feeling of deserving punishment, and thereby seeking self-punishment.

The Justice of Self-Punishment

People like to view their worlds as just (Lerner, 1980), and feeling that one has acted unjustly toward others motivates people to restore a sense of justice (e.g., Bastian et al., 2011). One way to achieve this is to seek reparation and make amends with one's victims, thereby resolving the injustice (e.g., Funk, McGeer, & Gollwitzer, 2014). Yet, it would appear that there is another approach; people may also seek to address these feelings of injustice internally through acts of self-punishment. Indeed, history is replete with examples

of ritualized self-punishment, especially within religion where such acts are understood to absolve one's sins before God (Glucklich, 2001).

Emerging research suggests that people seek out self-punishment for their transgressions within everyday contexts (Nelissen & Zeelenberg, 2009). In such contexts, self-punishment appears to be effective in resolving guilt and thereby leaving one with the sense that justice has been restored (Bastian et al., 2011). When one's sins are known by the victim, public self-punishment might even serve as a signal of remorse (Nelissen, 2012), and experiencing pain is associated with reduced blameworthiness for moral transgressions (Gray & Wegner, 2010, 2011). Critically, this research shows that acts of self-punishment are not always (and do not need to be) severe and may be pursued outside of conscious awareness. Experiencing a mildly painful experience or even denying the self positive experiences appears to be sufficient to restore a sense of justice for one's wrongdoing (Bastian et al., 2011; Inbar et al., 2013). The motivation to self-punish is heightened when opportunities for compensating the victim or reparation are not available (Nelissen & Zeelenberg, 2009), which thus suggests that when a misdeed is secret, relative to confessed, a heightened need for self-punishment might be felt.

The Current Work

Theoretical Overview

Perhaps one negative consequence of keeping a misdeed secret is that by avoiding punishment from others, one might feel punishment is deserved nonetheless, prompting self-punishment. Confessing one's misdeed, on the contrary, could lead to a variety of interpersonal reactions (e.g., being punished, being forgiven). In some cases, confessing could lead to punishment that is temporally limited and lead to forgiveness and reconciliation. Yet, one can imagine that in other cases, confession of a misdeed (e.g., confessing to one's partner that one committed infidelity) could lead to increased experience of guilt (i.e., an emotion reflecting desire for making amends), or even extended punishment, and possibly even dissolution of the relationship. That is, one's partner could react positively but also very negatively to a confession. Given the large range of contexts and situations in which confession could occur in, it may not consistently lead to a specific pattern of guilt, forgiveness, other-punishment, or reconciliation.

To provide an example, imagine that someone has kept a misdeed secret from their romantic partner. By the very nature of the misdeed being secret, one cannot have justice enacted by the partner. That is, the misdeed has not been punished (nor forgiven) as it is unknown by the partner. Thus, a sense of injustice should be felt by the perpetrator who keeps their misdeed a secret. Unpunished misdeeds evoke a need for justice restoration (e.g., Bastian et al., 2011), and thus by keeping a misdeed secret (and avoiding other-punishment), people

should feel they still deserve to be punished, which should thereby lead participants to seek out self-punishment.

Specifically, we predict *indirect effects* in this work. That is, we propose that when people have a secret (vs. confessed) misdeed, they will feel they still deserve punishment, which should thereby predict self-punishment behaviors. That is, recalling secrecy versus confession should influence self-punishing behaviors only to the extent one feels they deserve punishment for one's recalled misdeed.

Empirical Overview

Correlational and experimental designs. Study 1 tests whether keeping a misdeed secret (vs. confessing) predicts self-punishment with a correlational design (using denying enjoyable experience as a marker of self-punishment). Studies 2 to 5 use experimental designs, randomly assigning participants to recall secret (vs. confessed) misdeeds and examining influences on desire for self-punishment and self-punishment behavior, mediated by feeling punishment is deserved.

Prediction of indirect effects. Specifically, these studies test whether reminding participants about their secret (vs. confessed) misdeed increases the feeling that punishment is deserved for the misdeed, which thereby increases the desire for punishment, in the form of denying self-rewards (Studies 2 and 3), seeking out pain (Studies 4 and 5), and choosing to undergo pain (Study 5).

Controls. In these studies, we also measure variables that might covary with keeping of (vs. confessing) secrets, namely, the guilt felt about the misdeed (Studies 1-6), and how much participants feel they have already been punished and forgiven for the misdeed (Study 6).

In addition, while we account for variables that might covary with secret or confessed misdeeds, perhaps the content of the secrets participants keep versus confess differs, and thereby these content differences explain downstream consequences rather secrecy versus confession per se. Study 6 implements a design that controls for the content of participants' secrets. The Study 6 design also allows participants to recall multiple secrets, and treats category of secret as a random factor, thereby allowing us to generalize our results to the larger universe of unsampled secrets.

Prediction of moderation effect. Finally, Studies 1 to 5 all examine significant secrets (kept and confessed), thus leaving open the question of whether the results are contingent on keeping and confessing significant secrets. Indeed, we predict that only to the extent a secret is significant should keeping it predict increased self-punishment.

Study 6 expands the secrets examined to the full range of trivial to significant, and measures how significant participants consider the secret (introducing the Secrets from Partners Questionnaire). We predict that secrecy will interact with

significance in predicting feelings of deserving punishment, and thereby seeking self-punishment. That is, only to the extent the secret is significant do we predict keeping versus confessing to influence felt deserved punishment, and thereby desire for self-punishment; we test this in our final study (Study 6).

Methodological Overview

To examine the effects of keeping versus confessing secrets on self-punishment, we examine secrets kept from versus confessed to partners. This presents an ideal domain to test our current hypotheses given that secret keeping within relationships is common and potentially highly consequential. With the assumption that the average participant who is in a committed relationship will at a given time point have a secret that they are keeping from their partner (and in the past have confessed to their partner), we can examine the effects of thinking about an actual current secret from one's partner relative to an actual secret confessed to one's partner. Indeed, the current work demonstrates secret keeping from partners is highly common, thereby allowing us to tap into this common experience as a source for our manipulation.

Experiments on secrecy are relatively rare; those that have been conducted often bring college students into the laboratory. In the laboratory, however, people might not feel particularly comfortable engaging with the topic of secrecy and be unwilling to describe their intimate details. In addition, college students are a "WEIRD" population (Henrich, Heine, & Norenzayan, 2010) with a specific set of experiences, explaining some common kinds of secrets for this group (e.g., "drinking/partying"; Vangelisti, 1994). Thus, in the current work, we leverage the online marketplace Mechanical Turk; this (a) yields a more diverse sample of participants (Buhrmester, Kwang, & Gosling, 2011; Gosling, Sandy, John, & Potter, 2010; Mason & Suri, 2012) with diverse experiences and thus diverse secrets (i.e., *not* examining only college student's secrets and relationships), (b) yields data quality equivalent to undergraduate populations for short questionnaire-based research (Paolacci & Chandler, 2014; Paolacci, Chandler, & Ipeirotis, 2010), and (c) allows participants to have complete anonymity, which is particularly important when gauging the effects of participants' most intimate personal secrets.

Study 1

We first test the idea that keeping a secret from (vs. confessing a secret to) a significant other, that is one's partner, is related to increased self-punishment with a correlational design.

Method

Secret Infidelities. We advertised a study on Mechanical Turk for participants who were currently in a committed

relationship, recruiting 1,500 participants. Upon entering the study, we asked participants how long they had been with their partner along with additional questions about the relationship (e.g., how they met); on a subsequent page we asked, Have you ever cheated on your partner? (no, yes). Of the 1,493 participants who actually completed the study (858 male, 635 female; $M_{age} = 27.99$ years; $SD = 8.55$), 111 participants said they had indeed cheated on their partner, 105 of which who were still with their partner ($M_{age} = 29.46$ years, $SD = 8.66$; 63% male; an additional participant admitted to not providing honest responses at the end of the study and was thus not included). For these participants who made up our final sample, we then asked how guilty they feel about the infidelity (1 = *not at all* to 7 = *very much*). We also asked additional questions about their experience with infidelity.¹

Self-punishment. Consistent with past work which conceptualizes the denial of enjoyable experiences as a form of self-punishment (see Nelissen & Zeelenberg, 2009), participants indicated their comfort (1 = *not at all* to 7 = *very comfortable*) in experiencing enjoyable activities or receiving favors from other people, completing the Comfort with Self-Rewards Scale (see appendix). This 10-item scale ($\alpha = .84$, 95% confidence interval [CI] = [0.82, 0.86]) captures denying oneself enjoyable experiences: Five items included experiences unrelated to one's partner ($\alpha = .69$, 95% CI = [0.65, 0.73]; for example, going out to dinner with friends instead of doing work, letting a friend take you out to lunch, buying a small luxury), and five items included experiences related to one's partner ($\alpha = .74$, 95% CI = [0.74, 0.81]; for example, receiving an expensive gift from your partner, with your partner doing your share of the housework 1 week); see the appendix for full scale.

These items paralleled a pilot test we conducted, asking a different group of 100 participants 10 ways each in which they would punish themselves for doing something they "felt was dumb, stupid, something you regret, or something you feel guilty about" (highly common responses included denying food, denying spending, denying fun activities, and instead working, exercising, doing chores, being alone). The items involving denying oneself enjoyable experiences were used for the present Comfort with Self-Rewards Scale, and the items involving seeking unpleasant experiences were used in the later studies; see the appendix.²

At the end of the study, we asked whether participants who committed infidelity had kept it secret from their partner ($n = 58$; 69% male, $M_{age} = 30.29$ years, $SD = 10.10$, 95% CI = [27.64, 32.95]) or confessed it to their partner ($n = 47$; 57% male, $M_{age} = 28.43$ years, $SD = 6.42$, 95% CI = [26.54, 30.31]), which did not differ by gender ($\chi^2 = 1.49$, 95% CI = [0.25, 1.46], $p = .22$) or age, $t(103) = 1.10$, $p = .27$, $d = 0.04$, 95% CI = [-0.03, 0.12], and finally participants were asked whether they were honest about the status of their relationship and about their infidelity.

Results and Discussion

Participants who kept their infidelity secret from their partner reported less comfort in having enjoyable experiences ($M = 5.44$, $SD = 0.98$, 95% CI = [5.18, 5.69]) than participants who confessed their infidelity to their partner ($M = 5.79$, $SD = 0.77$, 95% CI = [5.56, 6.01]), $t(103) = -2.00$, $p = .05$, $d = -0.08$, 95% CI = [-0.15, -0.001].

Possibly, participants who kept their infidelity secret were more guilty, and it was this guilt that explained why they denied enjoyable experiences more. There were, however, no differences in guilt: ($M_{secret} = 4.17$, $SD = 2.02$, 95% CI = [3.64, 4.70]; $M_{confessed} = 4.38$, $SD = 2.16$, 95% CI = [3.75, 5.02]), $t(103) = -0.51$, $p = .61$, $d = -0.02$, 95% CI = [-0.09, 0.05]. Moreover, the effect of secrecy remained when including guilt as a predictor, $b = -0.35$, $SE = 0.18$, 95% CI = [-0.70, 0.00], $t(102) = -1.99$, $p = .05$; guilt was not a significant predictor, $b = -0.01$, $SE = 0.04$, 95% CI = [-0.09, 0.08], $t(102) = -0.12$, $p = .90$.

Finally, we reconducted the above tests on an index of general self-punishment minus partner-specific self-punishment, which is equivalent to testing for interactions with self-punishment type, of which we found no significant effects (i.e., secrecy did not significantly influence self-punishment to different extents across the two domains of self-punishment: general vs. partner-specific), $t(103) = 1.34$, $p = .18$, $d = -0.05$, 95% CI = [-0.12, 0.02], including when guilt was added as a predictor, $b = -0.23$, $SE = 0.17$, 95% CI = [-0.56, 0.11], $t(102) = -1.32$, $p = .19$, consistent with the finding that all items hold together more highly than either subscale alone (general: $M_{secret} = 5.32$, $SD = 1.10$, 95% CI = [5.03, 5.61], $M_{confessed} = 5.78$, $SD = 0.98$, 95% CI = [5.50, 6.07]; partner-specific: $M_{secret} = 5.55$, $SD = 1.02$, 95% CI = [5.28, 5.82], $M_{confessed} = 5.79$, $SD = 0.80$, 95% CI = [5.55, 6.02]).

When participants committed infidelity but kept this secret from their partner, they were less comfortable having enjoyable experiences, relative to participants who confessed their infidelity to their partner. We saw this effect even when participants' infidelity had yet to be mentioned within the study (see Supplemental Material). Moreover, we saw this effect independent of how guilty participants felt about the infidelity, suggesting the self-punishment effect is not a mere outcome of the guilty self-punishing more.

Study 2

Study 1 presents an interesting sample of participants (people who are all with a partner they have cheated on), but the correlational design of Study 1 precludes causal claims. To establish casual evidence, Study 2 utilized an experimental design.

Recall that as described in the introduction, secrecy can take place not only in interpersonal contexts (i.e., concealment within a social interaction) but also in intrapersonal contexts (i.e., preoccupying thoughts and ruminative worry when on one's own). Given that the current article focuses on

intrapersonal experience with secrecy (i.e., the personal felt need to self-punish), we thus use methodology that examines the effects of putting people into a state of mind that is similar to an everyday intrapersonal experience with secrecy (i.e., having a secret on one's mind; see Slepian et al., 2017).

Thus, Study 2 randomly assigned participants to recall a secret that they were keeping from their partner or a secret that they confessed to their partner, and then examined self-punishment as in Study 1. This method thus examines the intrapersonal effects of people's real-world secrets. Does simply thinking about a current versus confessed secret change one's seeking of self-punishment? Moreover, does thinking about a current versus confessed secret change self-punishment independent of other experiences that might vary with both secrecy and self-punishment (i.e., guilt)? We thus also measure how guilty participants feel about the current versus confessed secret. The basic paradigm introduced here is used for Studies 2 to 5 (and a new one is introduced for Study 6).

Method

Participants ($N = 200$, $M_{\text{age}} = 30.58$ years, $SD = 9.10$; 50% female) were recruited for a study for people currently in a committed relationship, and first reported how long they have been with their partner to align with the ostensible purpose of the study (to study relationships and daily experience). The sample ($N = 200$) was chosen here and for remaining studies as we considered any simple mean difference that could not be found with this sample too small to be meaningful (power = 80%, $\alpha = .05$ can detect Rosenthal's effect size $r = .1966$; Fritz, Morris, & Richler, 2012).

Secret recall. Next, by random assignment, participants were asked to think about something that they feel guilty about and either keep secret from their partner or have confessed to their partner. Participants were asked to write four to five sentences without revealing specific details, were reminded that their response was completely anonymous, and encouraged to think of something (and only if no relevant example came to mind should they indicate they have no relevant secret). On a subsequent page, participants reported how guilty they felt about the thing they recalled (1 = *not at all* to 7 = *very guilty*).

Manipulation check. Next, participants were asked whether their partner knew about the thing participants had written about. Participants failed the manipulation check by recalling a secret but saying the partner did know about it, or by recalling a confessed secret but saying their partner did not know about it.

Self-punishment. Subsequently, to disguise our main hypotheses, participants completed filler questions aligned with the ostensible nature of the study (about daily experiences). Participants were asked how many hours of sleep they get at

night, how many hours they work a day, and how long their work commute is. Participants next completed the Comfort with Self-Rewards Scale from Study 1 (see appendix; $\alpha = .79$, 95% CI = [0.72, 0.86]; general subscale: $\alpha = .76$, 95% CI = [0.65, 0.86]; partner-specific subscale: $\alpha = .62$, 95% CI = [0.49, 0.76]).

Honesty check. Finally, we asked whether participants recalled a true (kept or confessed) secret or whether they made up something for the study. Participants were encouraged to be honest to help out the researchers' data and were informed that they would be compensated no matter how they answered. Finally, to ensure no repeat participants, we asked participants whether they had ever participated in a study on secrecy before.

Results and Discussion

Participants were excluded for writing they had no secret to recall (10%), for failing the honesty check (2%), for failing the manipulation check (2.5%), and for having recently participated in a study on secrecy (5.5%). After excluding these participants for failing our a priori inclusion criteria, the final sample for analysis was 160 participants (86 secret, 74 confessed).

Self-punishment. Participants who recalled a guilty act that they kept secret from their partner were less comfortable having enjoyable experiences ($M = 5.14$, $SD = 0.98$, 95% CI = [4.93, 5.35]) than participants who recalled a guilty act that they confessed to their partner ($M = 5.49$, $SD = 0.81$, 95% CI = [5.30, 5.68]), $t(158) = -2.41$, $p = .02$, $d = 0.38$, 95% CI = [-0.70, -0.07].

Controls. Perhaps participants who kept their misdeeds secret felt more guilty than those who confessed; guilt, however, did not significantly differ by condition ($M_{\text{secret}} = 4.91$, $SD = 1.52$, 95% CI = [4.58, 5.23]; $M_{\text{confessed}} = 4.58$, $SD = 1.66$, 95% CI = [4.20, 4.96]), $t(158) = 1.30$, $p = .20$, $d = 0.21$, 95% CI = [-0.11, 0.52], and the effect remained when guilt was added as a predictor, $b = -0.36$, $SE = 0.14$, 95% CI = [-0.64, -0.07], $t(157) = -2.46$, $p = .01$; guilt: $b = 0.03$, $SE = 0.05$, 95% CI = [-0.06, 0.12], $t(157) = 0.65$, $p = .52$.

Furthermore, testing effects on an index of general self-punishment minus partner-specific self-punishment, which is equivalent to testing for an interaction, revealed no significant interaction with secrecy: $t(158) = -0.62$, $p = .54$, $d = -0.10$, 95% CI = [-0.41, 0.21], including when guilt was added as a predictor, $b = -0.08$, $SE = 0.16$, 95% CI = [-0.39, -0.23], $t(157) = -0.51$, $p = .61$. Thus, secrecy did not significantly influence self-punishment to different extents across the two domains of self-punishment—general: $M_{\text{secret}} = 4.97$, $SD = 1.12$, 95% CI = [4.73, 5.21], $M_{\text{confessed}} = 5.36$, $SD = 1.03$, 95% CI = [5.12, 5.60]; partner-specific: $M_{\text{secret}} = 5.32$, $SD = 1.08$, 95% CI = [5.09, 5.55], $M_{\text{confessed}} = 5.62$, $SD = 0.85$, 95% CI = [5.42, 5.82].

We replicated our Study 1 finding, but here with an experimental manipulation. Randomly assigning participants to recall a kept or confessed secret influenced felt need to self-punish, whereby recalling a current (vs. confessed) secret increased participants' self-denial of enjoyable experiences.

Study 3

In Studies 1 and 2, when people recall their secret (vs. confessed) misdeed, they seem to self-punish more, as indicated by less comfort in having enjoyable experiences. Self-punishment is a means people take to restore justice for personal misdeeds (Bastian et al., 2011; Inbar et al., 2013). Keeping a secret may be seen as a way to avoid this justice. Correspondingly, participants should feel they deserve to be punished still when keeping a secret. We propose that this feeling of deserving punishment mediates the relationship between keeping secret (vs. confessing) a misdeed and felt need to self-punish, and test this hypothesis in Study 3.

Method

Participants ($N = 200$, $M_{\text{age}} = 34.95$ years, $SD = 11.09$; 60% female) participated in a procedure identical to that of Study 2, but with the addition of a measure after the secrecy manipulation, asking how much participants feel they still deserve to be punished for their misdeed (1 = *not at all* to 7 = *very much*). The procedure was otherwise identical to Study 2, measuring comfort in having enjoyable experiences ($\alpha = .83$, 95% CI = [0.77, 0.89]; general subscale: $\alpha = .81$, 95% CI = [0.71, 0.90]; partner-specific subscale: $\alpha = .70$, 95% CI = [0.58, 0.82]).

Results and Discussion

Participants were excluded for writing they had no secret to recall (3%), for failing the honesty check (6%), for failing the manipulation check (7.5%), and for having recently participated in a study on secrecy (11%). After excluding these participants for failing our a priori inclusion criteria, the final sample for analysis was 145 participants (65 secret, 80 confessed).

Direct effect on self-punishment. While we predicted indirect effects, it is worth exploring the direct effect first. Participants in the secrecy condition ($M = 5.23$, $SD = 1.10$, 95% CI = [4.95, 5.50]) were no less comfortable having enjoyable experiences than participants in the confession condition ($M = 5.44$, $SD = 1.03$, 95% CI = [5.21, 5.67]), $t(143) = -1.21$, $p = .23$, $d = 0.20$, 95% CI = [-0.53, 0.13]. Critically, it is not necessary to find a direct effect to test for an indirect effect (Hayes, 2009).

In addition, testing for an effect of secrecy on the difference between general minus partner-specific self-punishment, equivalent to testing for an interaction, revealed no

interaction between secrecy (vs. confession) with self-punishment type, $t(143) = 1.08$, $p = .28$, $d = 0.18$, 95% CI = [-0.15, 0.51]. Thus, as with prior studies, we do not break the two subscales apart (general: $M_{\text{secret}} = 5.05$, $SD = 1.34$, 95% CI = [4.72, 5.38], $M_{\text{confessed}} = 5.16$, $SD = 1.30$, 95% CI = [4.87, 5.45]; partner-specific: $M_{\text{secret}} = 5.40$, $SD = 1.16$, 95% CI = [5.12, 5.69], $M_{\text{confessed}} = 5.72$, $SD = 1.03$, 95% CI = [5.49, 5.95]); they hold together and are not differentially influenced by secrecy versus confession.

Deserving punishment. We next examined effects on our proposed mediator. Participants who recalled a secret misdeed felt that they still deserved to be punished ($M = 3.48$, $SD = 2.02$, 95% CI = [2.98, 3.98]) more than participants who recalled a confessed misdeed ($M = 2.06$, $SD = 1.50$, 95% CI = [1.73, 2.40]), $t(115.33) = 4.70$, $p < .0001$, $d = 0.79$, 95% CI = [0.44, 1.12]; Levene's test demonstrated variances significantly differed, $F = 8.14$, $p = .005$; a correction factor was used that did not alter statistical significance.

Our proposed mediator, deserving punishment, predicted (when including secrecy as a predictor) less comfort in experiencing enjoyable activities, $b = -0.21$, $SE = 0.05$, 95% CI = [-0.30, -0.11], $t(142) = -4.29$, $p < .0001$, thereby meeting the conditions for testing for an indirect effect.

Indirect effect. A bootstrapped mediation test (5,000 iterations) revealed a significant indirect effect: Recalling one's secret (vs. confessed) misdeed leads participants to feel less comfortable in having enjoyable experiences through feeling that they still deserve to be punished for their misdeed, $M_{\text{indirect effect}} = -0.2911$, $SE = 0.0971$, 95% CI = [-0.5314, -0.1394].³

Controls. Unlike in the prior studies, the conditions did differ by guilt; participants who recalled secret misdeeds felt more guilty ($M = 5.28$, $SD = 1.34$, 95% CI = [4.94, 5.61]) than those who recalled confessed misdeeds ($M = 4.59$, $SD = 1.88$, 95% CI = [4.17, 5.01]), $t(140.76) = 2.57$, $p = .01$ (Levene's test demonstrated variances significantly differed, $F = 7.33$, $p = .008$; a correction factor was used that did not alter statistical significance).

Critically, however, when including guilt as a predictor, secrecy still predicted deservingness of punishment, $b = 1.10$, $SE = 0.27$, 95% CI = [0.56, 1.63], $t(142) = 4.08$, $p < .0001$ (guilt, $b = -0.06$, $SE = 0.05$, 95% CI = [-0.16, 0.05], $t(142) = -1.04$, $p = .30$), and deservingness of punishment still predicted denying oneself enjoyable experiences (independent of condition), $b = -0.23$, $SE = 0.05$, 95% CI = [-0.33, -0.12], $t(141) = -4.23$, $p < .0001$. Correspondingly, the indirect effect remained significant when controlling for guilt, $M_{\text{indirect effect}} = -0.2479$, $SE = 0.0923$, 95% CI = [-0.4715, -0.0998].⁴

When participants recalled a misdeed that they are keeping secret from their partner (vs. confessed to their partner), they felt a greater need to self-punish, through feeling they deserve punishment.

Study 4

In the studies thus far, consistent with past work (Nelissen & Zeelenberg, 2009), we used decreased comfort in having enjoyable experiences as our measure of self-punishment. If one feels uncomfortable having an enjoyable experience, it suggests some level of wanting to deny oneself an enjoyable experience. Study 4 examined a more direct indicator of self-punishment, desire for punishing experiences.

Method

Participants ($N = 200$, $M_{\text{age}} = 32.30$ years, $SD = 10.20$; 61% female) participated in a procedure identical to Study 3, with one exception, the inclusion of a different dependent measure, whereby participants completed the Seeking Punishing Experiences Scale, whereby they responded to 10 statements, "Right now, how much do you feel like . . ." (e.g., exerting myself with intense exercise, spending time isolated from others, pushing myself hard to get things done; 1 = *don't want to do this at all* to 7 = *want to do*; $\alpha = .84$, 95% CI = [0.78, 0.90]; see the appendix for full scale). As described earlier, these items were chosen from a pilot test on the ways in which people self-punish. The procedure was otherwise identical to Study 3.

Results and Discussion

As in the prior studies, participants were excluded for writing they had no secret to recall (4.5%), for failing the honesty check (4.5%), for failing the manipulation check (8.5%), and for having recently participated in a study on secrecy (8.5%). After excluding these participants for failing our a priori inclusion criteria, the final sample for analysis was 148 participants (76 secret, 72 confessed).

Direct effect on self-punishment. Participants who recalled a secret misdeed sought more self-punishing behavior ($M = 3.68$, $SD = 1.16$, 95% CI = [3.41, 3.95]) than participants who confessed their misdeed ($M = 3.31$, $SD = 1.23$, 95% CI = [3.02, 3.60]), although this difference was only marginal, $t(146) = 1.87$, $p = .06$, $d = 0.31$, 95% CI = [0.02, 0.63].

Deserving punishment. We next examined effects on our proposed mediator. Participants who recalled a secret misdeed felt they still deserved to be punished ($M = 3.78$, $SD = 2.08$, 95% CI = [3.30, 4.25]) more than participants who recalled a confessed misdeed ($M = 2.78$, $SD = 1.86$, 95% CI = [2.34, 3.21]), $t(146) = 3.08$, $p = .002$, $d = 0.51$, 95% CI = [0.18, 0.83].

Deserving punishment (when including condition as a predictor) predicted seeking punishment, $b = 0.27$, $SE = 0.05$, 95% CI = [0.18, 0.36], $t(145) = 6.03$, $p < .0001$, meeting the conditions for testing an indirect effect.

Indirect effect. A bootstrapped mediation (5,000 iterations) revealed a significant indirect effect: Thinking about one's

secret (vs. confessed) misdeed led participants to seek more self-punishing behaviors through increased judgments of still deserving to be punished for one's misdeed, $M_{\text{indirect effect}} = 0.2712$, $SE = 0.0997$, 95% CI = [0.1043, 0.5002].

Controls. Participants who recalled secret misdeeds did not feel more guilty ($M = 5.34$, $SD = 1.37$, 95% CI = [5.03, 5.66]) than participants who recalled confessed misdeeds ($M = 5.24$, $SD = 1.31$, 95% CI = [4.93, 5.54]), $t(146) = 0.48$, $p = .63$, $d = 0.08$, 95% CI = [-0.24, 0.40]. When including guilt as a predictor, secrecy still predicted judgments of deserving punishment, $b = 0.92$, $SE = 0.29$, 95% CI = [0.36, 1.49], $t(145) = 3.23$, $p = .002$ (guilt, $b = 0.22$, $SE = 0.07$, 95% CI = [0.08, 0.35], $t(145) = 3.08$, $p = .002$), and judgments of deserving punishment still predicted seeking painful experiences (independent of condition), $b = 0.26$, $SE = 0.05$, 95% CI = [0.16, 0.36], $t(144) = 5.04$, $p < .0001$. Correspondingly, the indirect effect remained when controlling for guilt, $M_{\text{indirect effect}} = 0.2392$, $SE = 0.0897$, 95% CI = [0.0935, 0.4530]. When participants recalled a secret (vs. confessed) misdeed, they sought self-punishment more (desire for painful experiences) through feeling they deserve punishment.

Study 5

In Study 5, we sought to examine whether these results would extend to actual behavior, choosing to experience physical pain.

Method

Participants ($N = 400$; $M_{\text{age}} = 33.13$ years, $SD = 10.02$; 50.25% female), after completing the Study 4 procedure, were told that they would next complete a game of speed and reaction time, with two games to choose from (Game A or Game B). We indicated prior participants felt the games were equally interesting, but Game B caused some mild hand pain that dissipated shortly after finishing the game, and was not long-lasting. After playing the game (all participants were provided with an identical mouse-clicking game), participants rated how painful it was (1 = *no pain* to 10 = *worst pain*).

Results and Discussion

As in the prior studies, participants were excluded for writing that they had no secret to recall (7.25%), for failing the honesty check (4.75%), for failing the manipulation check (6.75%), and for having recently participated in a study on secrecy (2%). After excluding these participants for failing our a priori inclusion criteria, the final sample for analysis was 317 participants (154 secret, 163 confessed).

Direct effect on seeking pain. We did not find a direct effect of secrecy condition on desire for self-punishment ($M_{\text{secret}} = 3.25$, $SD = 1.13$, 95% CI = [3.07, 3.43]); $M_{\text{confessed}} = 3.12$,

$SD = 1.06$, 95% CI = [2.95, 3.28]), $t(315) = 1.07$, $p = .28$, $d = 0.12$, 95% CI = [0.10, 0.34]. Critically, it is not necessary to find a direct effect to test for an indirect effect (Hayes, 2009). We also examine the reliability of the direct effect in a meta-analysis later in the article.

Deserving punishment. We next examined effects on our proposed mediator. Participants who recalled a secret misdeed felt they still deserved to be punished for this misdeed ($M = 3.13$, $SD = 1.80$, 95% CI = [2.84, 3.42]) more than participants who recalled a confessed misdeed ($M = 2.60$, $SD = 1.65$, 95% CI = [2.34, 2.85]), $t(315) = 2.76$, $p = .01$, $d = 0.31$, 95% CI = [0.09, 0.53]. In addition, deserving punishment (when including condition as a predictor) predicted seeking punishment ($\alpha = .79$, 95% CI = [0.74, 0.84], $b = 0.15$, $SE = 0.03$, 95% CI = [0.08, 0.22]), $t(314) = 4.34$, $p < .0001$, meeting the conditions for testing an indirect effect.

Indirect effect on seeking pain. A bootstrapped mediation (5,000 iterations) revealed a significant indirect effect: Thinking about one's secret (vs. confessed) misdeed led participants to desire self-punishing behaviors through increased judgments of still deserving to be punished for one's misdeed, $M_{\text{indirect effect}} = 0.0809$, $SE = 0.0371$, 95% CI = [0.0244, 0.1751].

Controls. Participants who recalled secret misdeeds did not feel more guilty ($M = 5.08$, $SD = 1.42$, 95% CI = [4.85, 5.30]) than participants who recalled confessed misdeeds ($M = 4.82$, $SD = 1.73$, 95% CI = [4.55, 5.08]), $t(309.04) = 1.48$, $p = .14$ (Levene's test demonstrated variances significantly differed, $F = 4.10$, $p = .04$; a correction factor was used that did not alter statistical significance), and guilt predicted self-punishment ($b = 0.14$, $SE = 0.04$, 95% CI = [0.06, 0.21]), $t(314) = 3.52$, $p = .001$). Critically, the indirect effect was found when controlling for guilt, whereby thinking about one's secret (vs. confessed) misdeed led to seeking self-punishing behaviors through judgments of deserving punishment, $M_{\text{indirect effect}} = 0.0456$, $SE = 0.0279$, 95% CI = [0.0061, 0.1196].

Choosing pain. Using a logistic regression, we also examined whether (when including condition as a predictor) judgments of deserving punishment predicted choosing the painful game, of which it did, $B = 0.17$, $SE = 0.07$, 95% CI = [0.03, 0.32], Wald $z = 2.44$, $p = .02$.⁵

Indirect effect on choosing pain. Correspondingly, while there was no direct effect of condition on choosing the painful game, $\chi^2(1, N = 317) = -2.35$, $p = .12$, we met the conditions needed to conduct another bootstrapped mediation (5,000 iterations), which revealed a significant indirect effect, $M_{\text{indirect effect}} = 0.0934$, $SE = 0.0548$, 95% CI = [0.0157, 0.2387], whereby thinking about a secret (vs. confessed) misdeed led participants to choose to undergo pain through feeling that they still deserved punishment for the misdeed. This indirect effect remained when including guilt as a predictor, $M_{\text{indirect effect}} = 0.1009$, $SE = 0.0585$, 95% CI = [0.0169, 0.2525].

Reporting pain. Finally, *choosing* the painful game (independent of condition and judgments of deserving punishment for one's misdeed) did *not* predict reported pain, $b = 0.0004$, $SE = 0.25$, 95% CI = [-0.48, 0.49], $t(313) = 0.002$, $p = .999$, which is sensible given that the game was the same whether they chose the ostensibly painful game or not.

In sum, thinking about one's secret (vs. confessed) misdeed led participants to choose the painful game more often through increased judgments of deserving to be punished for one's misdeed.

Study 6

In Studies 2 to 5, by random assignment, participants thought about a confessed versus current secret from one's partner with the assumption being that participants would have both kinds of secrets to draw upon and recall for the study. Indeed, only a small minority of participants in the studies had no secret to recall, which did not differ by condition. While this random assignment was thus successful, one could imagine that secrets kept versus confessed differ in content, and this was not fully accounted for in the prior studies. While the prior studies did control for variables that could covary with secrecy versus confession (i.e., guilt), still there may be unaccounted for differences in the qualities of the secrets participants are recalling.

Study 6 therefore circumvents any potential issues of the content differing across conditions by utilizing a new approach that can control for the content of participants' secrets. Specifically, implementing a method from Slepian and colleagues (2017), we present participants with a list of secrets commonly kept from partners. The secrets we capture with this method run the gamut from trivial to significant, allowing us to test our predicted *moderator* of the current effects. We predicted that only for *significant* secrets does secrecy increase the felt need to self-punish, through increasing the feeling punishment is deserved. When having highly a *trivial* secret, one may not feel the need for self-punishment for something that is trivial (given that work shows people seek out punishment only to the extent the act in questions is deemed significant; Carlsmith, Darley, & Robinson, 2002; Keller, Oswald, Stucki, & Gollwitzer, 2010).

Moreover, to ensure our results are not attributable to any remaining differential experience with these secrets, not only do we measure and control for guilt, but Study 6 also measures other experiences that could covary with keeping (vs. confessing) a secret, in particular, how much participants feel they have already been punished and forgiven for the misdeed.

Method

Participants ($N = 200$, $M_{\text{age}} = 32.95$ years, $SD = 8.39$; 63% female) completed the Secrets from Partners Questionnaire that we introduce in the current work. This questionnaire presents 35 common categories of secrets kept from a partner.

Many of the 35 categories are also secrets commonly kept in general (and thus drawn from the more general Common Secrets Questionnaire, Slepian et al., 2017), but with some exceptions (e.g., contact with ex-partner, sexual history, relationship history, an “innocent crush,” drawn from studies on secrets from partners; from Slepian et al., 2017). The 35 categories of secrets are provided in the appendix; some other examples include violating a partner’s trust, extra-relational thoughts, emotional infidelity, sexual infidelity, poor work performance, a secret family detail, and hiding financial details (see the appendix for all categories and exact wordings). We asked participants whether they had ever had the experience and, *if so*, whether it was kept secret from one’s partner, whether confided to a third party or not, once was secret from one’s partner but then later confessed, experienced but never kept secret from one’s partner, or never had the experience.

For each secret (kept and confessed), we asked participants whether the partner knew about the experience (as a manipulation check) and (1) how guilty they felt about the experience, (2) how significant it is, (3) to what extent they felt their partner had forgiven them for this thing, (4) to what extent they felt they had somehow been punished for this thing, (5) how much they think they deserve to still be punished for this thing, (6) to what extent thinking about this thing makes them feel like denying themselves nice rewards or experiences as a way to punish themselves, and (7) to what extent thinking about this thing makes them feel like doing something unpleasant or even painful as a way to punish themselves (from 1 = *not all* to 7 = *very much*).

Moderated mediation model. We predicted that for secrets participants considered *significant*, that keeping (vs. confessing) it would predict desire for self-punishment (both denying self-rewards and seeking out painful experiences) through feeling they deserved more punishment. We predicted that this effect would exist independent of a variety of other factors, specifically their felt guilt, how much participants feel they already have been punished, and how much participants feel they had been forgiven for the misdeed. As with the other studies, finally we asked participants whether they were honest in reporting the secrets they kept or confessed.

Results and Discussion

As in the prior studies, we excluded participants for failing the honesty check (3.5%), and having recently participated in a study on secrecy (7%). If the remaining 174 participants indicated that an experience was secret (confessed) but later indicated their partner did (not) know about it, they failed the manipulation check for the secret (excluding 23% of the 1,165 secrets), leaving a total of 897 secrets to analyze that passed all manipulation and honesty checks (757 secret, 140 confessed).

Multilevel-modeling secrets. Rather than average over participants or secrets, we analyzed the 897 secrets with multilevel

modeling, accounting for random variance from participant and secret category; such cross-classified analyses do not require each participant to have confessed and kept secrets to test effects (indeed 19.5% of participants said they never confessed to any of the secrets). Restricting analyses to only participants who both confessed and kept such secrets, however, yields the same pattern of results and significance.

We used the R package lme4 to implement mixed-effects models (Bates, Maechler, Bolker, & Walker, 2015). In calculating *p* values for regression coefficients, we used the R package lmerTest to run lme4 models through Satterthwaite approximation tests to estimate the degrees of freedom, which scale model estimates to best approximate the *F* distribution, and thus can be fractional and differ slightly across tests (Kuznetsova, Brockhoff, & Christensen, 2013). Wald tests calculated 95% CIs (R package confint).

Direct effects on self-punishment. We entered whether the secret was kept or confessed and its rated significance as simultaneous predictors of denying self-rewards, which revealed no independent effect of secret versus confession, $b = 0.17$, 95% CI = $[-0.11, 0.44]$, $SE = 0.14$, $t(747.51) = 1.20$, $p = .23$, but a main effect of significance, $b = 0.32$, 95% CI = $[0.27, 0.36]$, $SE = 0.02$, $t(805.91) = 14.04$, $p < .0001$; irrespective of whether the secret has been kept or confessed, the more significant the misdeed, the more participants wanted to deny self-rewards. These variables did not interact, $b = 0.09$, 95% CI = $[-0.04, 0.22]$, $SE = 0.07$, $t(853.50) = 1.39$, $p = .17$.

We next entered whether the secret was kept or confessed and its rated significance as simultaneous predictors of desiring painful experiences, which revealed no independent effect of secret versus confession, $b = 0.06$, 95% CI = $[-0.17, 0.29]$, $SE = 0.12$, $t(530.86) = 0.48$, $p = .63$, but a main effect of significance, $b = 0.22$, 95% CI = $[0.18, 0.26]$, $SE = 0.02$, $t(677.86) = 11.37$, $p < .0001$; irrespective of whether the secret has been kept or confessed, the more significant the misdeed, the more participants desired painful experiences.

There was a marginal interaction between these factors, $b = 0.11$, 95% CI = $[-0.01, 0.22]$, $SE = 0.06$, $t(841.99) = 1.87$, $p = .06$, which we followed up. To decompose this interaction, we examined simple effects assessed at high (+1 *SD* above the mean) and low (−1 *SD* below the mean) significance of the secret. At low significance of the misdeed, keeping it a secret did not predict desiring painful experiences, $b = -0.15$, 95% CI = $[-0.46, 0.17]$, $SE = 0.16$, $t(756.90) = 0.91$, $p = .36$. Whereas at high significance of the misdeed, keeping it a secret versus confessing marginally predicted desiring painful experiences, $b = 0.30$, 95% CI = $[-0.04, 0.64]$, $SE = 0.17$, $t(670.15) = 1.74$, $p = .08$. Recall as described earlier, the lack of (or marginal) direct effects do not preclude testing indirect effects, which we turn to next.

Deserving punishment. We next examined our proposed mediator, deserving punishment. We entered whether the secret was kept or confessed and its rated significance as

simultaneous predictors of deserving punishment, which revealed two main effects. Irrespective of the significance of the experience, when keeping the misdeed secret (vs. confessing), participants said they deserved punishment more, $b = 0.32$, 95% CI = [0.05, 0.59], $SE = 0.14$, $t(823.64) = 2.36$, $p = .02$. Irrespective of whether the secret has been kept or confessed, the more significant the secret, the more participants said they deserved punishment, $b = 0.32$, 95% CI = [0.28, 0.36], $SE = 0.02$, $t(851.51) = 14.42$, $p < .0001$.

Including the interaction term between these two factors revealed a significant interaction, $b = 0.14$, 95% CI = [0.02, 0.27], $SE = 0.06$, $t(857.55) = 2.20$, $p = .028$. To decompose this interaction, we examined simple effects assessed at high (+1 *SD* above the mean) and low (−1 *SD* below the mean) significance of the secret. At low significance, keeping (vs. confessing) the secret did not predict feeling that punishment was deserved, $b = 0.05$, 95% CI = [−0.31, 0.41], $SE = 0.19$, $t(869.25) = 0.27$, $p = .79$.

Whereas at high significance, keeping (vs. confessing) the secret predicts feeling that punishment was more deserved, $b = 0.65$, 95% CI = [0.26, 1.04], $SE = 0.20$, $t(860.13) = 3.24$, $p = .001$. Recall that these effects account for random variance of the category of secrets, and thus these results cannot be attributed to the content of the secret, but rather confessing versus keeping them. Each of these effects held when controlling for judged guilt, prior punishment, and being forgiven (Table 1).

Indirect effect on denying self-rewards. We next examined whether this went on to predict self-punishment. When controlling for whether the experience was secret and its significance, feeling that one deserved punishment for the experience predicted wanting to deny oneself rewards as a form of punishment, $b = 0.67$, 95% CI = [0.62, 0.72], $SE = 0.03$, $t(828.63) = 25.05$, $p < .0001$ (including when controlling for judged guilt, prior punishment, and being forgiven; Table 1).

An interactive effect (of secrecy and significance) on deserving punishment, which then independently predicts denying self-rewards, meets the conditions for moderated mediation. Indeed, a multilevel moderated mediation (1,000 iterations) revealed that when a misdeed was significant (+1 *SD*), keeping it secret (vs. confessing it) increased wanting to deny self-rewards through the feeling that punishment was deserved, $M_{\text{indirect effect}} = 0.3064$, $SE = 0.0036$, 95% CI = [0.0838, 0.5184]. In contrast, there was no such indirect effect when the secret was low in significance (−1 *SD*), $M_{\text{indirect effect}} = 0.0053$, $SE = 0.0021$, 95% CI = [−0.1235, 0.1342].

Indirect effect on desiring painful experiences. When controlling for whether the experience was secret and its significance, feeling that one deserved punishment for the experience also predicted seeking pain as a form of punishment, $b = 0.48$, 95% CI = [0.43, 0.53], $SE = 0.03$, $t(862.93) = 19.10$, $p < .0001$ (including when controlling for judged guilt, prior punishment, and being forgiven; Table 1).

Thus, again we tested a multilevel moderated mediation (1,000 iterations): When a misdeed was significant (+1 *SD*), keeping it secret (vs. confessing it) increased desire for painful experiences through the feeling that punishment was deserved, $M_{\text{indirect effect}} = 0.4015$, $SE = 0.0047$, 95% CI = [0.0969, 0.6852]. In contrast, there was no such indirect effect when the secret was low in significance (−1 *SD*), $M_{\text{indirect effect}} = 0.0106$, $SE = 0.0029$, 95% CI = [−0.1646, 0.1886].

When controlling for the content domain of secrets (i.e., by accounting for random variance of category of secret), keeping (vs. confessing) secrets is associated with wanting to deny self-rewards and desiring painful experiences as punishment, mediated by feeling that punishment is deserved. This effect is specific to significant secrets and exists independent of the guilt felt and how much participants feel they have been forgiven and previously punished.

General Discussion

People keep secrets from friends, family members, colleagues, and even the people they are closest to, their partners. When engaging in a misdeed, it is immediately obvious why someone might keep that misdeed a secret. One cannot be punished for a misdeed that others do not know has been committed. And thus, keeping misdeeds secret should avert the course of justice and protect the wrongdoer from punishment.

Recent work suggests, however, that people who are reminded of their own misdeeds will sometimes seek out their own justice. That is, even subtle acts of self-punishment can restore a sense of personal justice, whereby a wrong feels to have been righted (Bastian et al., 2011; Inbar et al., 2013). Thus, we predicted that even though keeping a misdeed secret could lead one to avoid being punished by others, it still could prompt a desire for punishment all the same, one inflicted by the self. Indeed, six studies supported this hypothesis. Study 1, which recruited a sample of people who cheated on their partner (and were still with that partner), found that those who kept that infidelity a secret were less comfortable having enjoyable experiences than those who confessed that infidelity to their partner. Studies 2 to 5 manipulated the recall of secrets kept from or confessed to one's partner and found that thinking about a secret from one's partner, relative to confessed to one's partner, was associated with increased interest in self-punishment (denial of self-rewards, desire for painful experiences, and choosing to undergo pain), through feeling that one deserved to be punished. Study 6 replicated this effect with a design that could account for the content of participants' secrets.

The current studies provided evidence for a mechanism of the effect of secrecy on self-punishment, both through mediation and moderation. For mediation, in each study we found a significant effect of secrecy on self-punishment through the feeling one deserved to be punished. We did not find a direct effect of secrecy on self-punishment, however, in every study. To thus examine the reliability of the direct effect, we conducted a meta-analysis. Following procedures outlined in

Table 1. Additional Multilevel Modeling Results for Study 6.

Predicting deserving punishment	
assessed at -1 SD low significance	
Secret (vs. confess)	$b = 0.02$, 95% CI = $[-0.35, 0.38]$, SE = 0.19, $t(811.88) = 0.10$, $p = .92$
Significance	$b = 0.06$, 95% CI = $[-0.06, 0.18]$, SE = 0.06, $t(869.96) = 1.03$, $p = .30$
Previously punished	$b = 0.34$, 95% CI = $[0.27, 0.41]$, SE = 0.03, $t(741.79) = 9.78$, $p < .001$
Previously forgiven	$b = 0.01$, 95% CI = $[-0.04, 0.06]$, SE = 0.02, $t(828.12) = 0.31$, $p = .76$
Guilt	$b = 0.18$, 95% CI = $[0.13, 0.23]$, SE = 0.03, $t(866.92) = 6.77$, $p < .001$
Secret \times Significance	$b = 0.11$, 95% CI = $[-0.01, 0.23]$, SE = 0.06, $t(878.01) = 1.88$, $p = .06$
Predicting deserving punishment	
assessed at $+1$ SD high significance	
Secret (vs. confess)	$b = 0.51$, 95% CI = $[0.12, 0.90]$, SE = 0.20, $t(775.94) = 2.55$, $p = .01$
Significance	$b = 0.06$, 95% CI = $[-0.06, 0.18]$, SE = 0.06, $t(869.96) = 1.03$, $p = .30$
Previously punished	$b = 0.34$, 95% CI = $[0.27, 0.41]$, SE = 0.03, $t(741.79) = 9.78$, $p < .001$
Previously forgiven	$b = 0.01$, 95% CI = $[-0.04, 0.06]$, SE = 0.02, $t(828.12) = 0.31$, $p = .76$
Guilt	$b = 0.18$, 95% CI = $[0.13, 0.23]$, SE = 0.03, $t(866.92) = 6.77$, $p < .001$
Secret \times Significance	$b = 0.11$, 95% CI = $[-0.01, 0.23]$, SE = 0.06, $t(878.01) = 1.88$, $p = .06$
Predicting denying enjoyable experience	
assessed at $+1$ SD high significance	
Deserve punishment	$b = 0.60$, 95% CI = $[0.55, 0.66]$, SE = 0.03, $t(865.10) = 21.05$, $p < .001$
Secret (vs. confess)	$b = -0.15$, 95% CI = $[-0.47, 0.18]$, SE = 0.17, $t(687.38) = 0.88$, $p = .38$
Significance	$b = 0.10$, 95% CI = $[-0.005, 0.20]$, SE = 0.05, $t(864.54) = 1.87$, $p = .06$
Previously punished	$b = 0.18$, 95% CI = $[0.12, 0.24]$, SE = 0.03, $t(790.53) = 5.94$, $p < .001$
Previously forgiven	$b = 0.02$, 95% CI = $[-0.02, 0.06]$, SE = 0.02, $t(782.92) = 0.93$, $p = .35$
Guilt	$b = 0.05$, 95% CI = $[0.004, 0.09]$, SE = 0.02, $t(833.67) = 2.11$, $p = .03$
Secret \times Significance	$b = -0.02$, 95% CI = $[-0.12, 0.08]$, SE = 0.05, $t(867.00) = 0.40$, $p = .69$
Predicting seeking pain	
assessed at $+1$ SD high significance	
Deserve punishment	$b = 0.45$, 95% CI = $[0.40, 0.51]$, SE = 0.03, $t(869.24) = 16.65$, $p < .001$
Secret (vs. confess)	$b = 0.004$, 95% CI = $[-0.31, 0.32]$, SE = 0.16, $t(696.38) = 0.02$, $p = .98$
Significance	$b = 0.04$, 95% CI = $[-0.06, 0.13]$, SE = 0.05, $t(860.05) = 0.73$, $p = .47$
Previously punished	$b = 0.13$, 95% CI = $[0.07, 0.19]$, SE = 0.03, $t(864.02) = 4.38$, $p < .001$
Previously forgiven	$b = 0.04$, 95% CI = $[-0.003, 0.08]$, SE = 0.02, $t(859.91) = 1.80$, $p = .07$
Guilt	$b = 0.01$, 95% CI = $[-0.04, 0.05]$, SE = 0.02, $t(865.58) = 0.32$, $p = .75$
Secret \times Significance	$b = 0.02$, 95% CI = $[-0.08, 0.12]$, SE = 0.05, $t(859.17) = 0.38$, $p = .70$

Note. Dependent measures (headings) and critical predictors in bold (all predictors are entered simultaneously). CI = confidence interval.

Rosenthal (1991) for combining effect sizes, we performed a meta-analysis of the direct effect of secrecy versus confession on self-punishment for all studies (averaging the two measures of self-punishment from Study 6), which yielded an overall effect size $r = .177$, $p < .001$. Thus, the direct effect was reliable across studies albeit much weaker than the indirect effect. We also note that a meta-analysis of the relationship between guilt and self-punishment revealed a reliable effect ($r = .173$, $p < .001$), and that the meta-analysis of the direct effect of secrecy on self-punishment remains significant when controlling for guilt ($r = .168$, $p < .001$). Possibly, an unmeasured covariate is somewhat suppressing the direct effect (see MacKinnon, Fritz, & Fairchild, 2007). Critically, the indirect effect provides evidence for a mechanism suggesting that keeping one's misdeed secret, relative to having confessed it, promotes self-punishment through the feeling that one deserves to be punished for that misdeed, supporting our central theory.

We also found, across a large diversity of secrets, these effects were found only to the extent the secret was judged as significant. That is, Study 6 demonstrated that only to the extent a secret kept (vs. confessed) concerns a significant behavior do participants express an increased desire for self-punishment through the feeling that punishment is deserved. Prior work demonstrates that significant personal information often returns to one's thoughts (Klinger, 2013), and that the frequency of thinking about one's secret predicts lower well-being (Slepian et al., 2017). We found that confessing secrets that deal with these significant personal concerns was related to a reduced desire for self-punishment, relative to keeping those secrets. This is consistent with research demonstrating that secrecy seems to place its burden through preoccupying the secret keeper's mind (Slepian, Masicampo, & Ambady, 2014; Slepian et al., 2015; Slepian et al., 2016; Slepian et al., 2017). Indeed, preoccupation with a secret even predicts depression and anxiety (et al., 2012; & Chaudoir, 2009;

et al., 2014), and has an effect on well-being independent of active concealment (Slepian et al., 2017). Thus in the present work, it seems that confession of only secrets that preoccupy the mind corresponds to a reduction in the desire for self-punishment. Stated differently, only for misdeeds that preoccupy the mind (i.e., those that are significant), does a desire for self-punishment follow. Perhaps punishing oneself for one's misdeed, taken to its extreme, however, may cause more damage than having a recurrent thought about one's secret. We conclude by discussing implications of this work for secrecy, as well as justice and punishment.

Implications for Secrecy

Secrecy has been associated with lower physical and mental health (Larson & Chastain, 1990; Larson, Chastain, Hoyt, & Ayzenberg, 2015). Among adolescents, keeping a secret is associated with depressive symptoms and physical health complaints (Frijns et al., 2013). Among gay men with HIV, keeping sexual orientation a secret is associated with an increased incidence of infectious disease and more rapid progression of HIV (Cole et al., 1996). Hiding a relationship has been associated with increased poor health symptomatology (Lehmiller, 2009). Yet, recent research suggests that actual moments of concealment may not be what is most harmful about secrecy. Recent work, for instance, demonstrates that intrapersonal experiences with secrecy (i.e., thinking about a secret when irrelevant to the task at hand) are related to lower well-being (Slepian et al., 2017).

Specifically, independent of the frequency of concealing, the more people think about their secrets outside of relevant social interactions, the more the secrets hurt their well-being. In contrast, independent of the frequency of thinking about secrets outside of relevant social interactions, the frequency of concealing secrets within social interactions does not predict lower well-being (Slepian et al., 2017). Thus, it seems that secrets might take their toll more in intrapersonal settings than interpersonal settings.

We propose that beyond effortful concealment within social interactions, one negative intrapersonal consequence of secrecy is that by keeping a secret and escaping punishment, one may feel punishment is still deserved, which might promote the goal to seek punishment. Self-punishing, through avoiding pleasurable experiences and seeking painful experiences, would fulfill this goal. While self-punishment could partially resolve guilt, it may be, by no means, a particularly desirable solution. Instead, perhaps confession would be chosen. We suggest there exists a number of interrelated reasons for why confession might sometimes be chosen, despite confession drastically increasing the probability of negative interpersonal consequences.

One unique aspect of secrecy is that it is temporally open-ended. The goal to keep a secret can never be fully completed; there may always be future time points when concealment will be required again. Thus, an act of

self-punishment might satisfy the goal to see that justice has been served in the moment, but then at a later point, a secret keeper may need to conceal the misdeed again. One of the oldest effects in the psychological literature is the Zeigarnik (1927) effect; even when not consciously working toward pursuing a goal, the mind tends to unconsciously keep the goal active (Rothermund, 2003). Thus, as long as the misdeed is secret, given that the goal to keep the secret can never be fully completed, the corresponding goal to self-punish may often return to one's thoughts, promoting a continued felt need to self-punish.

By confessing the secret, in contrast, one escapes the unfulfillable goal of keeping it a secret, which thereby would minimize thoughts of a corresponding need for punishment. Of course, the other party may choose to punish the transgressor, either once or continually, which could lead to relationship breakdown or reduced relationship satisfaction. The other party might also communicate this information to others, potentially tarnishing one's reputation, leading to punishment from others. Nonetheless, the risk of these outcomes may be preferred in some contexts to the duty of self-punishment.

Implications for Justice and Punishment

When people feel that they have been wronged by another party, they often wish to see that person punished. Prior work contrasts deterrence motivation (i.e., punishment to deter future wrongdoing) from retribution motivation (i.e., punishment to harm the perpetrator of the wrongdoing proportionally to harm done to the victim). The severity of punishment often seems insensitive to deterrence benefits but instead is often sensitive to the perceived blameworthiness of the perpetrator and the severity of harm that they have caused (Carlsmith et al., 2002; Keller et al., 2010). That is, people often do not want to serve justice to deter future wrongdoing or feel better themselves but rather to seek justice for its own sake (Carlsmith, Wilson, & Gilbert, 2008; Gollwitzer & Bushman, 2012; Molenmaker, de Kwaadsteniet, & van Dijk, 2016). Specifically, by punishing another it may serve to reinforce the consensus that the particular action was morally wrong (Wenzel, Okimoto, Feather, & Platow, 2008). People seem to punish not simply to scare another into submitting to the rule that was broken but instead wish to have perpetrators hold themselves accountable for their wrongdoing (Dil & Darwall, 2014; see also Skitka & Wisneski, 2012).

We demonstrated that recalling a current (vs. confessed) secret from one's partner increases desire to self-punish, as measured by wanting to deny oneself enjoyable experiences and seek out painful experiences, with downstream outcomes for choosing a painful activity. Expressing the experience of pain leads others to blame another less for prior wrongdoing (Gray & Wegner, 2010, 2011; see also Effron & Miller, 2015), and undergoing pain could be taken as a sign of remorse (Nelissen, 2012). Yet, we find people self-punish even privately. Consistent with prior work (Bastian et al.,

2011), this underscores the powerful norm that transgressions must be punished, such that people will even punish themselves (see also Inbar et al., 2013).

Why might people privately self-punish as a means to rebalance the scales of justice for a secret misdeed? We argue that by keeping one's misdeed secret from their partner, justice cannot be served by that partner. Misdeeds evoke a need for justice restoration (e.g., Bastian et al., 2011), and so by keeping a misdeed secret (and thus avoiding other-punishment), people should feel the need to self-punish to restore justice. We believe that such self-punishment can be undertaken even privately as it reflects that the wrongdoer is holding himself or herself accountable for the wrongdoing. That is, just as confession publicly holds oneself accountable for one's misdeeds, people might feel that private self-punishment at least privately holds oneself accountable for one's misdeeds. While

confessing one's misdeed to another could lead to forgiveness and reconciliation, it could also lead to punishment and relationship breakdown. Thus, confession might not yield consistent interpersonal experiences, but it may yield more consistent intrapersonal experience, that is, it may correspond to a reduced felt need to self-punish.

Conclusion

When people keep secrets, they consequently need to conceal them during relevant social interactions, but problematically, they also now must live with those secrets, whereby the secret can preoccupy the mind and return to one's thoughts. Keeping a misdeed secret can allow one to escape punishment from others. Yet, because one has escaped punishment, a desire to self-punish may still follow as a means to restore a sense of personal justice.

Appendix

Comfort With Self-Rewards Scale

How comfortable would you feel . . .

receiving an expensive gift from your partner
 with your partner doing some of your share of the housework one week
 with your partner helping you with something you're having trouble with at work
 with your partner picking out a gift for your parent's birthday so you don't have to
 with your partner buying some takeout so you don't have to cook
 going out to dinner with your friends when you have some work to do
 taking some time off work to go on a vacation
 buying yourself a nice treat to eat
 treating yourself to something you've had your eye on for a while, but is just a little pricey
 letting a friend take you out for lunch

Note. Scale ranged from 1 = *not at all comfortable* to 7 = *very comfortable*. The first five items refer to partner-specific experiences, whereas the latter five items refer to more general experiences. Items were randomized.

Seeking Punishing Experiences Scale

Right now how much do you feel like . . .

pushing myself hard to get things done
 drinking more than I should
 allowing myself to be criticized by someone
 exerting myself with some intensive exercise
 skipping my next meal
 running as far as my body will allow me to
 spending time isolated from others
 doing an extra thorough clean of the house
 working as much as I can
 allowing myself to be belittled by someone

Note. Scale anchors were as follows: 1 = *don't want to do this at all*, 2 = *want to do ever so slightly*, 3 = *want to do a little*, 4 = *kind of want to do*, 5 = *somewhat want to do*, 6 = *moderately want to do*, 7 = *want to do*. Items were randomized.

Secrets From Partners Questionnaire

Presented in two parts. Part 1 appears below. Part 2 follows.

Category labels to the right (in bold) were not presented to participants.

PART 1: These are the kinds of things people tend to keep secret.

We would like to know whether at any point in time if YOU have ever kept any of the following things SECRET FROM YOUR PARTNER.

Carefully read each item.

Have YOU ever done one of these things, and at some point kept it a secret FROM YOUR PARTNER?

Choose what best fits per each of the below items.

Hurt another person (e.g., emotionally or physically hurt someone)	Other harm
Used illegal drugs OR abused/addicted to a legal drug (e.g., alcohol, painkillers)	Drug use
Had a habit or addiction (but NOT involving drugs)	Habit/addiction
Stolen something from someone or some place	Theft
Engaged in something illegal (other than drugs or stealing)	Illegal
Physically harmed yourself	Self-harm
Had an abortion (or with a partner who had an abortion)	Abortion
Had a traumatic experience (other than the above)	Trauma
Provided an untrue detail about your personal history	Lie
Violated your partner's trust (but NOT by a lie), for example, by snooping, revealing information about someone, breaking or losing something that belongs to someone without telling them, and so on.	Violate trust
Had an innocent crush on someone (who is not your partner) while in your relationship	Crush
Unhappy in a romantic relationship	Romantic discontent
Thought about having relations with another person who is not your partner	Extra-relational thoughts
Committed *emotional* infidelity (NOT involving actual sexual infidelity), for example, having an inappropriate emotional connection or engaging in something other than sex, such as flirting, kissing, and so on, with someone who is not your partner	Emotional infidelity
Committed *sexual* infidelity (engaged in sexual relations with someone who is not your partner)	Sexual infidelity
In contact with an ex-partner	Ex-partner
Dislike a friend or unhappy with current social life	Social discontent
Dissatisfied with something physical about yourself	Physical discontent
Had mental health issues or dissatisfied with something about yourself other than physical appearance (e.g., fears, anxieties, depression, mental disorders, eating disorders)	Mental health
Cheated or did something improper at work (or school), or having lied to get a job (or into a school)	Work cheating
Performing poorly at work (or school)	Poor work performance
Dissatisfied with your situation at work (or school)	Work discontent

For the above (Part 1), response options (presented in the following order):

*I have had this experience, and keep it secret from everyone (*including* my partner).*

*I have had this experience, and keep it secret *specifically* from my partner (while another person/some other people know).*

I have had this experience, and initially kept it a secret from my partner, but then I confessed this to my partner.

I have had this experience, but I never kept it a secret from my partner.

I have never had this experience.

PART 2: *Similar to the above, have YOU ever at any time hidden these things from your partner?*

Did you ever hide a hobby or possession?	Hobby
Hide that you are in a relationship with your partner from someone else (without telling your partner)?	Hidden relationship
Have you ever kept a detail about your family secret?	Family detail
Been pregnant in the past (or with a partner who was pregnant), but did not tell your partner?	Pregnant
Kept secret aspects of your *sexual* history from your partner?	Sexual history
Kept secret aspects of your history of *prior relationships* from your partner?	Relationship history
Concealed a sexual preference from your partner?	Sexual preference
Kept secret a preference for something (e.g., not liking something that people think you like, or liking something people do not know you like)?	Preference
Kept a belief secret (e.g., political views, religious views, views about social groups, prejudice)?	Belief/ideology
Kept secret details about finances (or amount of money you have)?	Finances
Kept secret a job or employment that you have (or school activity)?	Employment
An unusual behavior (unrelated to *any* of the above categories, in this section and the above section) secret?	Counternormative
A specific story you keep a secret (unrelated to *any* of the other categories, in this section and the above section)?	Personal story

For the above (Part 2), response options (presented in the following order):

*Yes, I have something like this that I keep secret from everyone (*including* my partner).*

*Yes, I have something like this that I keep *specifically* from my partner (while another person/some other people know).*

Yes, I have something like this that I initially kept secret from my partner, but then I confessed this to my partner.

Yes, I have had something like this that some people tend to keep secret, but I never kept it secret from my partner.

I have never had something related to this that people tend to keep secret.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) declared receipt of the following financial support for the research, authorship, and/or publication of this article: This work was funded by an Australian Research Council Discovery Project awarded to Brock Bastian RG135085.

Supplemental Material

Supplementary material is available online with this article.

Notes

- Given the relative expense of collecting the larger group of 1,500 participants, additional data were collected for a future article about experience with infidelity (see Supplemental Material); reports of these data are available upon request.
- We also included one exploratory measure of self-punishment, giving participants the option to enter a lottery that would choose one winner and pay \$1. By not entering the lottery, the participant forgoes the chance to win while increasing the chances of winning for people who do enter the lottery. Only 14 participants, however, abstained from the lottery (10 who were currently keeping the infidelity secret, 4 who confessed to their partner).
- To preview a finding here, the direct effect is not significant in every study, whereas the indirect effect is. A meta-analysis conducted on all studies does, however, find an overall reliable and significant direct effect.

- We also asked how much participants felt they had been punished for their transgression in the past, which did not differ by condition, $t(143) = 0.06, p = .95$. Increased judgments of having received punishment (independent of condition) predicted feeling *more* punishment was still deserved, $b = 0.16, SE = 0.07, 95\% \text{ confidence interval [CI]} = [0.01, 0.31], t(142) = 2.16, p = .03$, and keeping the misdeed secret still independently predicted feeling more punishment was still deserved, $b = 1.42, SE = 0.29, 95\% \text{ CI} = [0.85, 1.99], t(142) = 4.92, p < .0001$. All effects remained when controlling for perceived prior punishment.
- It is important to note that we first collected $N = 200$, wherein independent of condition, judgments of deserving punishment did significantly predict seeking of pain, $b = 0.17, SE = 0.05, 95\% \text{ CI} = [0.07, 0.27], t(163) = 3.33, p = .001$, but behavioral choice of pain marginally, $b = 0.17, SE = 0.10, 95\% \text{ CI} = [-0.02, 0.37], \text{Wald } z = 1.72, p = .08$. We then collected another 200 participants. Critically, we calculate an adjusted critical p value necessary to maintain the same Type I error rate (.05). Using Sagarin, Ambler, and Lee's (2014) algorithm, we calculate the p value .049 is needed for predicting seeking pain, and .043 for choosing pain to maintain Type I error rate = .05 (i.e., the former threshold is less stringent because the first wave of analysis was significant for that predictor, unlike the latter). Our final p values .01 and .02 cleared both thresholds.

References

- Bastian, B., Jetten, J., & Fasoli, F. (2011). Cleansing the soul by hurting the flesh. *Psychological Science, 22*, 334-335.
- Bates, D., Maechler, M., Bolker, B., & Walker, S. (2015). *lme4: Linear Mixed-Effects Models Using Eigen and S4* (Version 1.1-7) [Computer software]. Retrieved from <http://cran.r-project.org/package=lme4>

- Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science*, 6, 3-5.
- Carlsmith, K. M., Darley, J. M., & Robinson, P. H. (2002). Why do we punish? Deterrence and just deserts as motives for punishment. *Journal of Personality and Social Psychology*, 83, 284-299.
- Carlsmith, K. M., Wilson, T. D., & Gilbert, D. T. (2008). The paradoxical consequences of revenge. *Journal of Personality and Social Psychology*, 95, 1316-1324.
- Cole, S. W., Kemeny, M. E., Taylor, S. E., & Visscher, B. R. (1996). Elevated physical health risk among gay men who conceal their homosexual identity. *Health Psychology*, 15, 243-251.
- Critcher, C. R., & Ferguson, M. J. (2014). The cost of keeping it hidden: Decomposing concealment reveals what makes it depleting. *Journal of Experimental Psychology: General*, 143, 721-735.
- Dil, B., & Darwall, S. (2014). Moral psychology as accountability. In J. D'Arms & D. Jacobson (Eds.), *Moral psychology and human agency: Philosophical essays on the science of ethics* (pp. 40-83). Oxford, UK: Oxford University Press.
- Effron, D. A., & Miller, D. T. (2015). Do as I say, not as I've done: Suffering for a misdeed reduces the hypocrisy of advising others against it. *Organizational Behavior and Human Decision Processes*, 131, 16-32.
- Frijns, T., Finkenauer, C., & Keijsers, L. (2013). Shared secrets versus secrets kept private are linked to better adolescent adjustment. *Journal of Adolescence*, 36, 55-64.
- Fritz, C. O., Morris, P. E., & Richler, J. J. (2012). Effect size estimates: Current use, calculations, and interpretation. *Journal of Experimental Psychology: General*, 141, 2-18.
- Funk, F., McGeer, V., & Gollwitzer, M. (2014). Get the message: Punishment is satisfying if the transgressor responds to its communicative intent. *Personality and Social Psychology Bulletin*, 40, 986-997.
- Glucklich, A. (2001). *Sacred pain: Hurting the body for the sake of the soul*. New York, NY: Oxford University Press.
- Gollwitzer, M., & Bushman, B. J. (2012). Do victims of injustice punish to improve their mood? *Social Psychological & Personality Science*, 3, 572-580.
- Gosling, S. D., Sandy, C. J., John, O. P., & Potter, J. (2010). Wired but not WEIRD: The promise of the Internet in reaching more diverse samples. *Behavioral and Brain Sciences*, 33, 94-95.
- Gray, K., & Wegner, D. M. (2010). Torture and judgments of guilt. *Journal of Experimental Social Psychology*, 46, 233-235.
- Gray, K., & Wegner, D. M. (2011). To escape blame, don't be a hero—Be a victim. *Journal of Experimental Social Psychology*, 47, 516-519.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408-420.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33, 61-83.
- Hu, X., Bergström, Z. M., Gagnepain, P., & Anderson, M. C. (2017). Suppressing unwanted memories reduces their unintended influences. *Current Directions in Psychological Science*, 26, 197-206.
- Inbar, Y., Pizarro, D. A., Gilovich, T., & Ariely, D. (2013). Moral masochism: On the connection between guilt and self-punishment. *Emotion*, 13, 14-18.
- Keller, L., Oswald, M., Stucki, I., & Gollwitzer, M. (2010). A closer look at an eye for an eye: Laypersons' punishment decisions are primarily driven by retributive motives. *Social Justice Research*, 23, 99-116.
- Kelly, A. E., & Kahn, J. H. (1994). Effects of suppression of personal intrusive thoughts. *Journal of Personality and Social Psychology*, 66, 998-1006.
- Kelly, A. E., & McKillop, K. J. (1996). Consequences of revealing personal secrets. *Psychological Bulletin*, 120, 450-465.
- Kelly, A. E., Klusas, J. A., von Weiss, R. T., & Kenny, C. (2001). What is it about revealing secrets that is beneficial? *Personality and Social Psychology Bulletin*, 27, 651-665.
- Kelly, A. E., & Yip, J. J. (2006). Is keeping a secret or being a secretive person linked to psychological symptoms? *Journal of Personality*, 74, 1349-1369.
- Klinger, E. (2013). Goal Commitments and the content of thoughts and dreams: Basic principles. *Frontiers in Psychology*, 4, 415.
- Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2013). *lmerTest: Tests in Linear Mixed Effects Models* (Version 2.0-11) [Software]. Retrieved from <http://cran.r-project.org/web/packages/lmerTest/>
- Lane, J. D., & Wegner, D. M. (1995). The cognitive consequences of secrecy. *Journal of Personality and Social Psychology*, 69, 237-253.
- Larson, D. G., & Chastain, R. L. (1990). Self-concealment: Conceptualization, measurement, and health implications. *Journal of Social and Clinical Psychology*, 9, 439-455.
- Larson, D. G., Chastain, R. L., Hoyt, W. T., & Ayzenberg, R. (2015). Self-Concealment: Integrative review and working model. *Journal of Social and Clinical Psychology*, 34, 705-729.
- Lehmiller, J. J. (2009). Secret romantic relationships: Consequences for personal and relational well-being. *Personality and Social Psychology Bulletin*, 35, 1452-1466.
- Lerner, M. J. (1980). *The belief in a just world: A fundamental delusion*. New York, NY: Plenum Press.
- Maas, J., Wismeijer, A. A. J., van Assen, M. A. L. M., & Aquarius, A. E. A. M. (2012). Is it bad to have secrets? Cognitive preoccupation as a toxic element of secrecy. *International Journal of Clinical and Health Psychology*, 12, 23-37.
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, 58, 593-614.
- Mason, M. F., Bar, M., & Macrae, C. N. (2007). Exploring the past and impending future in the here and now: Mind-wandering in the default state. *Cognitive Sciences*, 3, 143-162.
- Mason, M. F., & Reinholtz, N. (2015). Avenues down which a self-reminding mind can wander. *Motivation Science*, 1, 1-21.
- Mason, W., & Suri, S. (2011). Conducting behavioral research on Amazon's Mechanical Turk. *Behavioral Research Methods*, 44, 1-23.
- Molenmaker, W. E., de Kwaadsteniet, E. W., & van Dijk, E. (2016). The impact of personal responsibility on the (un)willingness to punish non-cooperation and reward cooperation. *Organizational Behavior and Human Decision Processes*, 134, 1-15.
- Nelissen, R. M. A. (2012). Guilt-induced self-punishment as a sign of remorse. *Social Psychological & Personality Science*, 3, 139-144.
- Nelissen, R. M. A., & Zeelenberg, M. (2009). When guilt evokes self-punishment: Evidence for the existence of a Dobby Effect. *Emotion*, 9, 118-122.

- Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, 3, 400-424.
- Paolacci, G., & Chandler, J. (2014). Inside the Turk: Understanding Mechanical Turk as a participant pool. *Current Directions in Psychological Science*, 23, 184-188.
- Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making*, 5, 411-419.
- Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, 8, 162-166.
- Quinn, D. M., & Chaudoir, S. R. (2009). Living with a concealable stigmatized identity: The impact of anticipated stigma, centrality, salience, and cultural stigma on psychological distress and health. *Journal of Personality and Social Psychology*, 97, 634-651.
- Quinn, D. M., Williams, M. K., Quintana, F., Gaskins, J. L., Overstreet, N. M., Pishori, A.... Chaudoir, S. R. (2014). Examining effects of anticipated stigma, centrality, salience, internalization, and outness on psychological distress for people with concealable stigmatized identities. *PLoS ONE*, 9(5): e96977.
- Rosenthal, R. (1991). *Meta-analytic procedures for social research*. Newbury Park, CA: SAGE.
- Rothermund, K. (2003). Automatic vigilance for task-related information: Perseverance after failure and inhibition after success. *Memory & Cognition*, 31, 343-352.
- Sagarin, B. J., Ambler, J. K., & Lee, E. M. (2014). An ethical approach to peeking at data. *Perspectives on Psychological Science*, 9, 293-304.
- Skitka, L. J., & Wisneski, D. C. (2012). Justice theory and research: A social functionalist perspective. In I. B. Weiner, H. A. Tennen, & J. M. Suls (Eds.), *Handbook of psychology: Personality and social psychology* (2nd ed., pp. 407-428). New York, NY: Wiley.
- Slepian, M. L., Camp, N. P., & Masicampo, E. J. (2015). Exploring the secrecy burden: Secrets, preoccupation, and perceptual judgments. *Journal of Experimental Psychology: General*, 144, e31-e42.
- Slepian, M. L., Chun, J. S., & Mason, M. F. (2017). The experience of secrecy. *Journal of Personality and Social Psychology*. Advance online publication, May 8, 2017. doi:10.1037/pspa0000085
- Slepian, M. L., Masicampo, E. J., & Ambady, N. (2014). Relieving the burdens of secrecy: Revealing secrets influences judgments of hill slant and distance. *Social Psychological & Personality Science*, 5, 293-300.
- Slepian, M. L., Masicampo, E. J., & Galinsky, A. D. (2016). The hidden effects of recalling secrets: Assimilation, contrast, and the burdens of secrecy. *Journal of Experimental Psychology: General*, 145, e27-e48.
- Song, X., & Wang, X. (2012). Mind wandering in Chinese daily lives—An experience sampling study. *PLoS ONE*, 7, e44423.
- Vangelisti, A. L. (1994). Family secrets: Forms, functions and correlates. *Journal of Social and Personal Relationships*, 11, 113-135.
- Wenzel, M., Okimoto, T. G., Feather, N. T., & Platow, M. J. (2008). Retributive and restorative justice. *Law and Human Behavior*, 32, 375-389.
- Zeigarnik, B. (1927). Das behalten erledigter und unerledigter handlungen [The retention of completed and uncompleted activities]. *Psychologische Forschung*, 9, 1-85.