Article

Emotion Appraisals and Coping with Secrets

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Abstract

Secrecy is both common and consequential. Recent work suggests that personal experiences with secrets (i.e., mind-wandering to them outside of concealment contexts), rather than concealment (within conversations), can explain the harms of secrecy. Recent work has also demonstrated that secrecy is associated with emotions that center on self-evaluation—shame and guilt. These emotions may help explain the harms of secrecy and provide a point of intervention to improve coping with secrecy. Four studies with 800 participants keeping over 10,500 secrets found that shame surrounding a secret is associated with lower perceived coping efficacy and reduced well-being. Moreover, shifting appraisals away from shame improved perceptions of efficacy in coping with secrets, which was linked with higher well-being. These studies suggest that emotions surrounding secrets can harm well-being and highlight avenues for intervention.

Keywords

emotion, appraisal, coping, secrecy

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Secrecy—the intention to keep information unknown by one or more others—is related to a host of negative well-being outcomes (Larson & Chastain, 1990; Larson et al., 2015; Quinn & Chaudoir, 2009; Slepian et al., 2017). While the goal of secrecy is to conceal when required, recent work suggests that people do not frequently have to conceal their secrets. Instead, secrecy is more frequently characterized by repetitive mind-wandering toward secrets in moments that do not require active concealment (Slepian, 2021; Slepian et al., 2017). The frequency of mind-wandering to secrets predicts harm to well-being, whereas the frequency of concealment within social interactions does not (Slepian et al., 2017; Slepian, Greenaway, & Masicampo, 2020; Slepian & Moulton-Tetlock, 2019).

While the actions taken to conceal a secret can be similar across different kinds of secrets (e.g., Critcher & Ferguson, 2014; Slepian, 2021; Sun & Slepian, 2020), a person can think about any secret through several different lenses. For example, one might feel a sense of isolation (Slepian et al., 2019) or perceive oneself as inauthentic (McDonald et al., 2020). This emerging body of work suggests that *how* one thinks about a secret might matter more for well-being than the occasional moments during which active concealment is required.

The different ways in which people can appraise their secrets suggests a role for emotion in the well-being harms of secrecy. In particular, given the self-focused nature of secrets, self-conscious emotions seem likely to be important. When negatively evaluating or reflecting on one's self, people often experience self-conscious emotions such as shame and guilt (Tangney et al., 2007; Tracy & Robins, 2004). Shame and guilt can be differentiated by their divergent appraisals: shame tends to direct individuals' attention toward negative evaluations of the self ("I'm a bad person") and is characterized by feelings of helplessness and powerlessness. In contrast, guilt tends to direct attention toward negative evaluations of specific behaviors ("I did a bad thing") and is characterized by feelings of remorse and regret (Niedenthal et al., 1994; Schmader & Lickel, 2006; Tangney & Dearing, 2003; Tracy & Robins, 2007).

Shame and guilt also have different consequences. When people feel ashamed, they are more prone to focus on their own distress, whereas when people feel guilty, they are more prone to empathize with the harmed other (Tangney et al., 1996, 2007). As a result, individuals who experience guilt

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are more likely to take reparative actions (Ketelaar & Au, 2003), whereas those who experience shame are more likely to engage in counterproductive behaviors (Tangney, 1995; Tangney et al., 1996). In addition, clinical psychologists have suggested that shame is more likely than guilt to lead to psychological problems such as depression and post-traumatic stress disorder (PTSD; Andrews et al., 2000; Andrews & Hunter, 1997). Biological psychologists have also demonstrated that shame is related to maladaptive hormonal, immune, and cardiovascular reactivities (Dickerson, Gruenaewald, & Kemeny, 2004; Dickerson, Kemeny, et al., 2004; Gruenewald et al., 2004). In sum, across multiple domains, shame is relatively maladaptive and harmful, whereas guilt is more adaptive and helpful.

This is not to say that shame is uniformly maladaptive. Indeed, a body of work finds benefits of shame. For example, shame can motivate approach behavior aimed toward restoring a damaged self, but only when such behavior is neither risky nor difficult (de Hooge et al., 2010; de Hooge, Zeelenberg, & Breugelmans, 2011). In addition, under certain conditions, shame can prompt prosocial behavior, such as when someone feels that they let another person down (de Hooge et al., 2008). More broadly, shame can prompt people to want to spend time with others, rather than spend time alone (de Hooge et al., 2018). However, in the domain of secrecy, when people choose to keep a secret, they choose to be alone with the secret (Slepian et al., 2019), and so shame may feel particularly frustrating when it comes to secrets.

Given that people often keep secrets to protect their reputations (McDonald et al., 2020), it is likely that those secrets are perceived to reflect poorly on the self. Shame and guilt, which reflect negatively on the self, are likely to be especially relevant to secrecy. Indeed, research has begun to connect these emotions to the study of secrecy. Slepian, Kirby, and Kalokerinos (2020) examined how shame and guilt were related to two broad experiences of secrecy. They found that shame was associated with an increased tendency to mind-wander to one's secret outside of concealment contexts. In contrast, guilt was negatively associated with mind-wandering to the secret, although this was a much weaker effect. Neither shame nor guilt was associated with the frequency of concealing the secret within social interactions.

This prior work suggests that shame and guilt relate more to intrapersonal experiences with secrecy in the form of mind-wandering to the secret than to interpersonal concealment experiences. Given that intrapersonal experiences with secrecy are more harmful than interpersonal experiences (Slepian et al., 2017; Slepian, Greenaway, & Masicampo, 2020; Slepian & Moulton-Tetlock, 2019), it stands to reason that the emotions experienced during intrapersonal episodes would be more central to well-being. However, the one prior paper that examined emotions and secrecy (Slepian, Kirby, & Kalokerinos, 2020) did not examine well-being outcomes. In the current research, we not only examine well-being outcomes but also go one step further by implementing an experimental emotion appraisal intervention. Rather than exploring how emotions relate to when a secret is on the mind (i.e., whether a social interaction partner is present or not), or examining whether emotions might differentially predict if a secret is kept, this work begins with the experience already being a secret. We then explore well-being surrounding that secret and whether that well-being can be improved using an emotion appraisal intervention.

Research on shame suggests a specific process through which it may be harmful, relative to guilt. There is no quick fix for making a bad person into a good person, and so when shame causes one to feel like a bad person, they can feel helpless and powerless to change, which in turn leads them to overlook available personal coping resources (Tangney et al., 1994). Similarly, studies on coping styles have found that self-criticism and withdrawal are two common strategies people use to cope with shame (Elison, Lennon, & Pulos, 2006; Elison, Pulos, & Lennon, 2006). Taken together, this work suggests that shame stemming from a secret may reduce judgments of self-efficacy when it comes to coping with the secret. This reduced self-efficacy may explain why shame, more than guilt, is implicated in the well-being costs of secrecy.

We thus hypothesize that feelings of shame from a secret (more than guilt) should be associated with individuals feeling that they do not have control over the situation and are not able to cope with the secret. In particular, we propose that shame appraisals (more than guilt appraisals) for secrecy will relate to lower well-being as a function of reduced perceived coping efficacy. Furthermore, having an opportunity to reappraise feelings surrounding secrecy away from shame and toward guilt (or other emotions) should increase perceived coping efficacy and, in turn, well-being with respect to the secret.

Overview of the Present Research

Studies 1a and 1b took a correlational approach and examined whether feelings of shame would be uniquely associated with lower coping efficacy. Studies 2 and 3 used an experimental approach. Specifically, these studies implemented a novel experimental reframing intervention by providing participants with opportunities to reappraise the emotions surrounding their secrets. These studies led participants to make either shame or guilt appraisals for their secrets and examined resulting feelings of coping efficacy and well-being. Study 3 added a comparison condition (anger), allowing us to compare both shame and guilt to another negative emotion appraisal. All measures, manipulations, exclusions, and the method of determining the sample size are reported. All data and analysis scripts are available at https://osf.io/5cfzx/?view_only9fdd1f54e5ca487aa549fdf941aacb28.

Table 1. Measures of Shame, Guilt, Coping Efficacy, and Well-being.

Scale	Item
Shame	This secret makes me feel . . . ashamed.
	This secret makes me feel . . . humiliated.
	This secret makes me feel . . . disgraced.
Guilt	This secret makes me feel . . . regret.
	This secret makes me feel . . . remorse.
	This secret makes me feel . . . guilty.
Coping efficacy	How capable do you feel in your ability to cope with this secret?
	How much do you feel in control over this situation?
	How well do you feel like you are handling the secret?
Well-being	In general, this secret . . . −6 (*has made my life and well-being worse*) to 6 (*has made my life and well-being better*), midpoint 0 (*has had no effect on my life and well-being*).

Note. Shame and guilt items from Schmader and Lickel (2006); coping efficacy items from Slepian and Moulton-Tetlock (2019); well-being item from Slepian et al. (2017); Slepian and Moulton-Tetlock (2019).

Studies 1a and 1b

Method

To ensure a more diverse sample than college students, 200 participants were recruited on Amazon Mechanical Turk for each study (Study 1a: 108 women, 92 men; $M_{age} = 42.29$ years, $SD = 13.97$; Study 1b: 113 women, 87 men; $M_{age} = 38.49$ years, $SD = 11.45$). This mechanism for data collection allows for full anonymity, which is important for increasing comfort in engaging with the topic of secrecy. This population demonstrates similar patterns of secrecy as other samples (Slepian et al., 2017). In addition, individuals who participate in studies on secrecy do not differ in meaningful ways from those who do not take such studies (e.g., on well-being; Slepian, Greenaway, & Masicampo, 2020). At the end of the study, we asked if participants were completely honest in their reports of their secrets (with compensation promised regardless of their answer). Participants who admitted to fabricating answers were excluded from our analysis (as in Slepian et al., 2017; Slepian, Kirby, & Kalokerinos, 2020; Slepian & Moulton-Tetlock, 2019). Data analysis was performed after the data were collected.

We used a sensitivity power analysis and estimated (using a similar data set), with 13 secrets per participant (per prior work using the Common Secrets Questionnaire; Slepian et al., 2017; Slepian, Greenaway, & Masicampo, 2020; Slepian, Kirby, & Kalokerinos, 2020; Slepian & Moulton-Tetlock, 2019) that with this sample size (used in all studies in this work), we could detect a small effect ($b = .08$ on a 1 to 7 scale; alpha = .05, power = .80).

Each participant was given the Common Secrets Questionnaire (Slepian et al., 2017), which presents 38 common categories of secrets (presented in the appendix). For each category, we asked whether the participant currently had that secret. As participants held multiple secrets, this yields thousands of secrets per study for powerful analyses. For each secret participants had from the list, blocked by secret, they completed measures of shame and guilt surrounding the secret (from Schmader & Lickel, 2006), and a measure of perceived efficacy in coping with that secret (used in prior work on the effects of confiding secrets; Slepian & Moulton-Tetlock, 2019). All items are presented in Table 1.

In Study 1a, participants first completed the coping efficacy scale, then guilt, and then shame (blocked by secret), all using scales ranging from 1 (*not at all*) to 7 (*very much*); this order was chosen for Study 1a to ensure that feelings of coping efficacy could not be influenced by reflecting first on emotional appraisals. In Study 1b, participants first answered, "How significant is this secret?," then completed the guilt scale, then shame, and then coping efficacy, all from 1 (*not at all*) to 7 (*very much*), blocked by secret, and finally, participants completed a series of well-being questions, an item per each of their secrets (drawn from prior work; Slepian et al., 2017; Slepian & Moulton-Tetlock, 2019).

Results and Discussion

Participants who indicated that they fabricated answers (two and three participants from Studies 1a and 1b, respectively) were removed from the analysis. We analyzed each individual secret, implementing multilevel models that treated both participant and category of secret as random factors (using R-packages lme4 and lmerTest, entering cross-classified intercepts for both participant and category of secret). By taking our measures per each individual secret, we obtain multiple observations per each participant (as participants have multiple secrets), and because the set of secrets each participant has will differ from each other, the nature of this multilevel data is cross-classified rather than nested. Participants reported on 2,790 and 2,422 secrets in Studies 1a and 1b ($M = 14.10$, $SD = 7.74$ and $M = 12.29$, $SD = 7.38$, respectively).

By design, our mixed-effect model coefficients thus generalize across both participants and the content of the secrets

Table 2. Descriptive Statistics and Within-Subject Correlations for All Measures in Studies 1a and 1b.

Study 1a	*M*	Within-subject *SD*	w/in Ss reliability (Rc)	1	2		
1. Shame	2.56	1.41	.92				
2. Guilt	2.78	1.56	.93	.82**			
3. Coping efficacy	5.90	0.88	.91	−.33**	−.29**		
Study 1b	***M***	**Within-subject *SD***	**w/in Ss reliability (Rc)**	**1**	**2**	**3**	**4**
1. Shame	2.68	1.34	.92				
2. Guilt	2.78	1.47	.92	.83**			
3. Coping efficacy	5.89	0.85	.89	−.34**	−.31**		
4. Significance	3.72	1.60	—	.44**	.46**	−0.32**	
5. Well-being	−0.22	2.10	—	−.37**	−.33**	0.31**	−0.19**

Note. Multilevel reliability was calculated using equations from Shrout and Lane (2012); R_C = reliability within Ss (subjects).
**$p < .01$.

Table 3. Predicting Perceived Coping Efficacy, Studies 1a and 1b.

Study 1a	*b*	95% CI	*SE*	*df*	*t*	*p*
Shame	−0.17	[−0.21, −0.13]	0.02	2,717.80	−8.14	<.00001
Guilt	−0.05	[−0.09, −0.01]	0.02	2,604.96	−2.65	.008
Study 1b	***b***	**95% CI**	***SE***	***df***	***t***	***p***
Shame	−0.14	[−0.19, −0.10]	0.02	2,325.53	−6.06	<.00001
Guilt	−0.04	[−0.08, 0.01]	0.02	2,087.25	−1.73	.084
Significance	−0.10	[−0.13, −0.08]	0.01	2,120.47	−7.31	<.00001

Note. All variables entered simultaneously. CI = confidence interval.

they keep, and in principle generalize also to unobserved participants and unobserved categories of secrets (see Judd et al., 2012). In other words, conceptually and empirically, our results speak to the experiences people have with *secrets* across the very large diversity of what those secrets are about.

The mean values, standard deviations, and correlations of the variables are shown in Table 2. As can be seen in Table 3, the results showed that in both studies, shame predicted lower coping efficacy significantly more strongly than did guilt (i.e., the confidence intervals were nonoverlapping; Table 3).

Finally, in Study 1b, we examined all variables as simultaneous predictors of well-being (as in prior work Slepian et al., 2017; Slepian, Greenaway, & Masicampo, 2020). The findings (Table 4) reveal that coping efficacy, independent of the other variables, predicts well-being, thus suggesting that if an intervention could target coping efficacy, it may prove helpful for well-being (the goal of Studies 2 and 3).

While coping efficacy was measured (rather than manipulated), prior work has established that manipulations that influence coping efficacy improve well-being outcomes, making this causal path theoretically plausible (see Hutchinson et al., 2008; Marquez et al., 2002). We thus quantified our theorized indirect effect[1] on well-being through coping efficacy, which was significant for shame, $Z_{\text{mediation}} = -5.24$, 95% CI = [–7.20, –3.28], $p < .001$, whereas the confidence interval for guilt included zero, $Z_{\text{mediation}} = -1.93$, 95% CI = [–3.89, –0.03], $p = .054$.

Study 2

Studies 1a and 1b present the first evidence that shame evoked by one's secret more strongly predicts lower coping efficacy than does guilt, suggesting a potential route to lower well-being. This is significant from an intervention perspective. While the content of one's secret cannot be changed, the emotion appraisals around that secret can be changed for improved well-being. One effective process to do this is cognitive reappraisal: changing the way one thinks about what is making one emotional (Kalokerinos et al., 2015). Study 2 thus implemented a novel reappraisal paradigm targeting shame and guilt, seeking to understand if pushing people away from shame and toward guilt might help reduce the well-being harm of a secret.

For an intervention to provide long-lasting benefits, it is important to increase feelings of coping efficacy. When efficacy is perceived as high, people are more willing to expend

Table 4. Predicting Well-Being, Study 1b.

Study 1b	*b*	95% CI	*SE*	*df*	*t*	*p*
Coping Efficacy	0.32	[0.24, 0.40]	0.04	2,138.04	7.81	<.0001
Shame	−0.25	[−0.34, −0.15]	0.05	2,408.03	−5.06	<.0001
Guilt	−0.18	[−0.28, −0.09]	0.05	2,404.81	−3.75	<.001
Significance	0.06	[0.01, 0.12]	0.03	2,352.86	2.16	.031

Note. All variables entered simultaneously. CI = confidence interval.

Table 5. Experimental Emotion Reappraisal Items (Studies 2 and 3).

Reappraisal	Prompt: Which of these best fits your situation?
Shame (Studies 2 and 3)	○ When it comes to this secret . . . I feel ashamed.
	○ When it comes to this secret . . . I feel like a bad person.
	○ When it comes to this secret . . . I feel helpless.
Guilt (Studies 2 and 3)	○ When it comes to this secret . . . I feel bad about something I have done.
	○ When it comes to this secret . . . I feel sorry about something I have done.
	○ When it comes to this secret . . . I feel tension about something I have done.
Anger (Study 3)	○ When it comes to this secret . . . I feel angry.
	○ When it comes to this secret . . . I feel annoyed.
	○ When it comes to this secret . . . I feel frustrated.

Note. Items drawn from prior work (anger: Mauss et al., 2007; shame and guilt: Slepian, Kirby, & Kalokerinos, 2020; adapted from Tangney & Dearing, 2003).

effort to cope, finding healthier ways to think through a stressor for improved well-being (Kneeland et al., 2016). Indeed, feeling efficacious is related to a wide range of positive well-being outcomes (Alloy et al., 1984; Brown & Siegel, 1988; Godin & Kok, 1996; Greenaway et al., 2015; Langer & Rodin, 1976; Peterson & Stunkard, 1989).

We thus hypothesized that tipping participants away from shame and toward guilt would foster increased feelings of coping efficacy, which, in turn, would be linked with reports of greater well-being.

Method

Reappraisal manipulation. To manipulate the content of appraisals, for each condition, we presented three appraisals and asked which best fit the participant's situation. In the shame condition, three different shame-based appraisals were provided, whereas in the guilt condition, the three different appraisals were guilt-based (Table 5).

By asking participants which appraisal most fit their situation (per their condition), we prompted participants to view their secret through the lens of the appraisals we provided. That is, we prompted participants to reappraise their secret using one of our appraisals, allowing a choice that maximizes the likelihood that participants would choose the best fitting (and thereby most effective) version of the appraisal.

Furthermore, the process of choosing which appraisal (of three alternatives per condition) best fit their situation led participants to *endorse* an appraisal to which they were assigned. We chose this manipulation because it leads the participant to be more engaged in the paradigm, makes the manipulation feel more personally meaningful, and puts participants into an assimilative mindset. There is a long tradition of manipulating reappraisals, both at one time-point and at multiple time-points; prior work shows that reappraisal manipulations have effects on both emotion and downstream outcomes (Cohen & Ochsner, 2018; Denny & Ochsner, 2014; Gross, 1998).

Procedure. Participants ($N = 201$[2]; 78 men, 122 women, 1 other; $M_{age} = 39.32$ years, $SD = 12.55$) again filled out the Common Secrets Questionnaire (Slepian et al., 2017). For each of their current secrets (of the 38 categories), the secrets were randomly divided into two condition blocks, each representing a reappraisal condition (i.e., across the two blocks was our within-subjects manipulation). The order of the condition blocks was randomized (and each secret was only paired with one kind of reappraisal: shame or guilt).

Per each secret participants had from the 38 categories, participants were asked which of the three appraisal options best fit their secret (i.e., the reappraisal manipulation). Subsequently, participants completed a measure of their efficacy in coping with the secret (from Study 1) and an expanded well-being scale (from Slepian, Greenaway, & Masicampo, 2020; see Table 6). As in the prior studies, participants responded to one secret before being exposed to the next. The same prompt was shown for each secret in that condition block (i.e., shame in the shame condition; guilt in the guilt condition; Table 5).

Table 6. Measure of the Perceived Impact of the Secret on Well-Being (Studies 2 and 3).

In general, this secret . . .
−6 (*has made my life and well-being worse*) to 6 (*has made my life and well-being better*), midpoint 0 (*has had no effect on my life and well-being*).
−6 (*makes me unsatisfied with life*) to 6 (*makes me satisfied with life*), midpoint 0 (*has no effect on my satisfaction with life*)
−6 (*makes me unhappy*) to 6 (*makes me happy*), midpoint 0 (*has no effect on my happiness*)

Note. Items drawn from prior work (Slepian, Greenaway, & Masicampo, 2020).

Table 7. Outcomes of Experimental Intervention (Study 2).

Analysis	*b*	95% CI	*SE*	*df*	*t*	*p*
Predicting coping efficacy						
Condition						
Guilt = 1, Shame = 0	0.23	[0.14, 0.31]	0.05	2,441.14	5.00	<.0001
Predicting well-being						
Guilt = 1, Shame = 0	0.25	[0.10, 0.40]	0.08	2,467.62	3.20	.001
Predicting well-being						
Coping efficacy	0.84	[0.78, 0.89]	0.03	2,590.46	28.58	<.0001
Guilt = 1, Shame = 0	0.06	[−0.07, 0.20]	0.07	2,450.86	0.93	.354

Note. CI = confidence interval.

Single-item and short subjective measures of well-being have been shown to have high test–retest reliability and validity, and they often outperform both longer measures and those tracking ostensibly more objective variables (see Diener et al., 2018). Thus, following the tradition of stress and coping research, which examines the perceived impact of stressors, participants rated the perceived impact of each secret on their well-being (see DeLongis et al., 1988; Kubany et al., 2000). These short measures were necessary given that the design involved completing these measures for many different secrets.

This measure of the perceived impact of a secret on well-being has been validated in prior work; it predicts general life satisfaction as well as global reports of physical health (see Slepian et al., 2017; Slepian, Greenaway, & Masicampo, 2020; Slepian & Moulton-Tetlock, 2019).

Results and Discussion

Participants who indicated that they fabricated answers (n = 3) were removed from the analysis. Implementing the same multilevel modeling strategy from Study 1, we examined whether our reappraisal manipulation (1 = *guilt condition*, 0 = *shame condition*) influenced perceived coping efficacy and the perceived impact of that secret on well-being, each independent of the other. Participants in total had 2,621 secrets (M = 9.82, SD = 8.57).

As can be seen in Table 7, participants felt more capable of coping with their secret after making a guilt appraisal than after making a shame appraisal. They also reported higher well-being after making a guilt appraisal than after making a shame appraisal.

Finally, there was an independent relationship between coping efficacy and the perceived impact of the secret on well-being, suggesting an indirect effect: as a function of increasing coping efficacy, the guilt (vs. shame) intervention may have positive well-being impacts.

An indirect effect test revealed that the guilt (vs. shame) intervention predicted well-being ratings through higher perceived coping efficacy: $Z_{\text{mediation}}$ = 4.54, 95% CI = [2.58, 6.50], $p < .0001$. Although this result does not demonstrate a causal relationship between the mediator and the dependent measure, prior work has causally linked coping efficacy with well-being outcomes, making this route theoretically plausible (i.e., self-efficacy manipulations influence a range of well-being outcomes; see Hutchinson et al., 2008; Marquez et al., 2002).

Study 3

Study 2 demonstrated that emotional appraisals for one's secret impact both perceived coping efficacy and the perceived well-being harm of the secret. When people were randomly assigned to make shame appraisals about their secrets, they felt worse than when they were randomly assigned to make guilt appraisals. Yet, it remained unclear from Study 2 if the shame appraisals had negative effects or if the guilt appraisals had positive effects (if not both). To answer this question, a comparison condition is required.

Given that people frequently report generalized negative affect in response to their secrets (Slepian et al., 2017), it may not be reasonable for an intervention to ask participants to feel good about their secrets. Rather, it might be important to recognize that people will experience some negative

Table 8. Simple Slopes Outcomes of the Intervention (Study 3).

Analysis	*b*	95% CI	*SE*	*df*	*t*	*p*
Predicting coping efficacy						
Guilt vs. anger	0.09	[−0.03, 0.21]	0.06	2,552.04	1.52	.128
Shame vs. anger	−0.22	[−0.34, −0.10]	0.06	2,552.05	−3.57	<.0001
Predicting well-being						
Guilt vs. anger	0.22	[0.02, 0.42]	0.10	2,582.69	2.12	.034
Shame vs. anger	−0.11	[−0.31, 0.09]	0.10	2,579.83	−1.08	.282
Predicting well-being						
Coping efficacy	0.73	[0.68, 0.79]	0.03	2,631.31	26.15	<.0001
Guilt vs. anger	0.14	[−0.04, 0.33]	0.09	2,562.14	1.56	.118
Shame vs. anger	0.05	[−0.13, 0.23]	0.09	2,562.20	0.53	.596

Note. Each simple effect compares the experimental appraisal to the anger appraisal, reported at each level of the between-subjects condition (shame vs. guilt appraisal). CI = confidence interval.

affect, and rather than trying to simply eliminate it, it may be most beneficial to shift its focus in a helpful way.

Relative to a common non-self-conscious negative emotion (anger), reappraising one's emotions toward guilt (a negative evaluation of one's behavior) may be beneficial. In contrast, reappraising one's emotions toward shame (a negative evaluation of the self) may be harmful. Anger serves as an ideal control comparison as it is negative (like shame and guilt), but not specifically tied to the self or behavior (like shame and guilt, respectively).

Method

Procedure. Participants (N = 201: 88 men, 112 women, 1 unreported; M_{age} = 37.35 years, SD = 12.35) completed the same procedure as in Study 2, except in this study, participants were randomly assigned to be exposed to a block of shame appraisals and a block of anger appraisals (counterbalanced order of condition blocks), or a block of guilt appraisals and a block of anger appraisals (counterbalanced order of condition blocks). This meant that every participant completed an anger appraisal block, which was compared between-subjects to either a shame appraisal block (completed by half the participants) or a guilt appraisal block (completed by half the participants).

As in Study 2, each secret participants reported (from the list of 38) was randomly divided into two blocks, such that each secret was only paired with one appraisal. Accordingly, in addition to the within-subjects manipulation (each participant responded to two blocks of appraisals), for a between-subjects analysis, participants engaged in either shame or guilt appraisals (to be compared with anger appraisals).

As before, the manipulations were followed by measures of perceived coping efficacy and the perceived impact of the secret on well-being (the same measures from Study 2).

Results and Discussion

Participants who indicated that they fabricated answers (n = 5) were removed from analysis. Participants in total had 2,736 secrets (M = 9.67, SD = 9.06). Implementing the same multilevel modeling strategy from the earlier studies, we examined whether the focal experimental reappraisal (1 = *experimental appraisal*, 0 = *control appraisal [anger]*) interacted with the type of experimental appraisal (1 = *guilt condition*, 0 = *shame condition*) to influence perceived coping efficacy.

There was an interaction between the two variables on coping efficacy, b = −0.31, 95% CI = [−0.48, −0.14], SE = 0.09, $t(2549.23) = -3.61$, $p < .001$, as well as on the well-being impact of the secret, b = −0.33, 95% CI = [−0.62, −0.04], SE = 0.15, $t(2578.41) = -2.27$, $p = .024$. Note that, unlike in Studies 1a and 1b, these emotion variables are not continuous measures, but dichotomous condition variables, and thus, multiplying them does not cause multicollinearity concerns (unlike if interactions were entered in Studies 1a and 1b, which could cause such concerns; Kelava et al., 2008).

Simple slope analyses (see Table 8 for the simple effects) examined an interactive effect on feelings of coping efficacy. This revealed that engaging in shame appraisals (vs. anger appraisals) reduced feelings of coping efficacy, $p < .0001$ (Table 8). Relative to anger appraisals, guilt appraisals did not improve perceptions of coping efficacy, $p = .128$ (Table 8).

Finally, independent of the appraisals, feelings of coping efficacy were associated with an enhanced sense of well-being (Table 8). Thus, engaging in anger appraisals, relative to shame appraisals, was associated with a sense of well-being through an associated heightened feeling of coping efficacy, $Z_{mediation} = 3.62$, 95% CI = [1.66, 5.58], $p = .0003$. In addition, relative to anger appraisals, guilt appraisals led to a more general positive well-being outlook (see the second analysis of Table 8).

General Discussion

Recent research suggests that the well-being harms of secrecy are more associated with intrapersonal mind-wandering experiences than actions of concealment during social interactions (Slepian et al., 2017), but little work has examined the

mechanisms underlying such harm. Previous work has linked shame (but not guilt) with an increased tendency to mind-wander toward secrets (Slepian et al., 2020). Given that prior work has found that the frequency of mind-wandering to (but not concealing) secrets predicts lower well-being (Slepian et al., 2017; Slepian & Moulton-Tetlock, 2019), we hypothesized that shame from a secret, in particular, would predict harm to well-being. Four studies confirmed this prediction (as did two additional replication studies, see Supplemental Material). We also introduced a novel experimental reappraisal paradigm to mitigate these negative effects, which provided evidence for causal pathways.

In Studies 1a and 1b, shame from a secret (more than guilt) was associated with lower perceived coping efficacy, which was in turn associated with perceived harm to well-being. In Study 2, experimentally providing participants with shame rather than guilt appraisals for their secrets led to reductions in perceived coping efficacy and increased the perceived well-being harm of the secret. In Study 3, we compared guilt and shame to another negative emotion, anger, to determine whether shame was harmful, guilt was helpful, or both. We chose anger as a comparison negative emotion because it is similarly unpleasant to guilt and shame (Mauss et al., 2007). In addition, appraisal theorists agree that the primary difference between these emotions are that shame and guilt are characterized by feeling that the self is responsible for an event, but anger is characterized by feeling that another is responsible for the event (Keltner et al., 1993; Roseman et al., 1990; Scherer, 1997; Schmader & Lickel, 2006; Smith & Ellsworth, 1985). This means that anger provided a less self-involved, but equally unpleasant, control condition. Study 3 demonstrated that shame (relative to anger) appraisals reduced one's coping efficacy, whereas guilt (relative to anger) appraisals led to a more general positive well-being outlook. Thus, relative to shame, anger may help feelings of coping efficacy by taking the focus off the self and putting it on others. Yet, guilt, relative to anger, still seems healthier overall.

It is possible that guilt (compared with anger) did not lead to a significant boost in coping efficacy in Study 3 because both emotions are similarly approach-oriented (Harmon-Jones, 2004) and both are high-certainty appraisals (Smith & Ellsworth, 1985), which are positively related to healthy coping strategies (Duhachek, 2005). In contrast, relative to anger, shame decreased feelings of coping efficacy, which independently predicted well-being harm, consistent with our theorized mechanism of influence.

We did not test whether the experimental effects lasted beyond the experimental sessions. Accordingly, it would be most appropriate to consider the present experimental effects as temporary. The reappraisals would likely need to be reinforced to have long-lasting effects. That said, to the extent that a single reappraisal exercise motivates people toward healthy coping, downstream healthy coping should result (see Kneeland et al., 2016), and enhancing perceptions of coping efficacy is a significant first step in helping people work toward long-term coping efforts. Our first two studies are suggestive of this possibility. Studies 1a and 1b provided evidence that chronic experiences of shame (but not guilt) from a secret were reliably related to chronic reports of poorer coping efficacy with that secret, suggesting that these processes may play out over the longer term. In seeking a more impactful intervention, future work might specifically examine the secrets for which people need the most help.

This work contributes to the literature on secrecy. Previous work has linked intrapersonal experiences of secrecy with lower well-being (Slepian et al., 2017; Slepian, Greenaway, & Masicampo, 2020), yet the mechanisms through which secrecy causes harm to well-being have remained relatively unexplored. The current studies not only suggest a mechanism through which shame from a secret relates to well-being harm (coping efficacy), but also suggest interventions that might help people cope with their secrets and mitigate these harms.

This work also answers the call to study domain-specific self-conscious emotions (Tangney et al., 2007). Shame and guilt are often treated as dispositions, and researchers have thus criticized treatments of shame and guilt as stable, context-free traits (Leeming & Boyle, 2004). Although research has begun to develop measures to assess domain-specific shame and guilt (such as body shame, Fredrickson & Roberts, 1997; Hallsworth et al., 2005 or trauma-based guilt, Blacher, 2000; Lee et al., 2001), studies on the topic remain scarce. This work offers an example of domain-specific treatments of shame and guilt, and offers a paradigm that allows for repeated observations across our participants. To this end, our studies also used a secret-level measure of well-being (from Slepian et al., 2017; Slepian, Greenaway, & Masicampo, 2020; Slepian, Kirby, & Kalokerinos, 2020; Slepian & Moulton-Tetlock, 2019). The benefit of this method is that it more directly measures the perceived well-being harm of a particular secret, and analyses thus examine each secret rather than summarizing across them. We also successfully combined this approach with experimentation.

This work also offers implications for research on emotion regulation by connecting reappraisal strategies with the benefits and harms of self-conscious emotions. Scholars have called for research on coping with shame and guilt (Tangney et al., 2007), and work in emotion regulation seeks to design interventions that effectively lead participants to cognitive strategies like reappraisal.

By reappraising the meaning of emotional stimuli (Brooks, 2014; Hajcak & Nieuwenhuis, 2006; Jamieson et al., 2012; Ochsner et al., 2002), the emotional response (Kuehner et al., 2009; Low et al., 2008), or by taking another perspective (Crum et al., 2013; Ehring et al., 2010; Kross & Ayduk, 2011; Ochsner et al., 2004), individuals can mitigate the harm of negative emotions. We find that giving individuals an opportunity to reappraise toward a more helpful (but still realistic) emotion can be used to promote feelings of coping efficacy

and well-being. These findings are in line with research from clinical psychology, which finds that training clients to use reappraisal (e.g., using cognitive behavior therapy [CBT]) increases their feelings of self-efficacy, and in turn, these feelings of self-efficacy are associated with more positive clinical outcomes (Goldin et al., 2012).

Future work should explore the processes through which shame and guilt harms and benefits feelings of efficacy in coping with a secret and well-being. Perhaps the focus on the self that comes from shame (i.e., evaluating the self negatively) is counterproductive. It may feel difficult to change the self or how one thinks about the self (Lewis, 1971; Tangney et al., 2007), leading shame to negatively impact feelings of self-efficacy in coping with the secret. In contrast, a focus on one's behavior from guilt (i.e., evaluating the behavior negatively) may be productive, as one's behavior may not be deemed as stable and may be seen as more changeable (Feiring & Taska, 2005; Tracy & Robins, 2006).

Recent work has highlighted that believing that emotions are changeable is central to effective emotion regulation (Ford & Gross, 2019). This suggests a useful direction for future research—that is, testing the idea that emotional beliefs shape the harms of shame and the benefits of guilt, which would further shed light on the harms of secrecy and domain-specific emotions more broadly.

Other features that distinguish shame and guilt are also likely to be relevant. For instance, shame, relative to guilt, is more closely linked with avoidance—a common coping strategy in depressive disorders (Ottenbreit & Dobson, 2004). Thus, an avoidant coping style is unlikely to yield healthy thinking about one's secrets. In contrast, the approach motivation linked with guilt may lead individuals toward a more positive outlook (Ketelaar & Au, 2003; Wicker et al., 1983). While guilt (relative to anger) was associated directly with reports of higher well-being, perhaps their shared approach motivation explains why there was no significant difference between the anger and guilt conditions on perceived coping efficacy (indeed, proactive coping requires an approach motivation; Aspinwall & Taylor, 1997; Greenglass & Fiksenbaum, 2009).

Whereas one avenue for improved coping with secrets is fostering healthier thinking through reappraisals, another avenue is to talk about the secret with others. Indeed, sharing secrets with others is associated with benefits to well-being (Slepian & Moulton-Tetlock, 2019). Perhaps some of these benefits occur because confiding a secret in others results in a productive conversation that reduces shame associated with one's secret. Another intriguing possibility is that because shame is associated with seeking social connection (de Hooge, et al., 2018), shame might prompt people to eventually confess their secrets.

We reviewed evidence that shame can be maladaptive, thereby increasing suffering (Tangney et al., 1994), but we also reviewed another body of work, which finds that shame can prompt social behaviors that would serve to reduce that suffering (de Hooge et al., 2008, 2010, 2018; de Hooge, Nelissen, et al., 2011). In this work, people have already chosen to socially withdraw by keeping a secret, and shame within this context (more than guilt) is linked with reduced feelings of coping efficacy. Prior work finds that keeping a secret motivationally conflicts with wanting to connect with others, and this is related to a sense of fatigue (Slepian et al., 2019). Given that shame can prompt a desire for social connection, but that keeping a secret can cause shame and is a self-enforced social withdrawal, this motivational conflict may explain, in part, lower feelings of coping efficacy. Future work would benefit from examining such motivational conflicts as well as more general forms of distress. Indeed, Study 1b found that both shame and guilt predicted well-being independent of coping efficacy, suggesting other avenues through which well-being may be harmed. Future work could also explore additional other-focused emotions (e.g., jealousy; Lange & Crusius, 2015; Parkinson & Manstead, 2015) and dyadic processes (e.g., forgiveness; Adams & Inesi, 2016).

In sum, shame from one's secret may bring harm to well-being by rigidly evaluating the secret as reflecting poorly on oneself, making that self seem unchangeable. In contrast, guilt from one's secret may bring benefits through a stronger focus on behavior that is flexible with an approach-oriented focus on the future, which may yield behavior-specific optimism, and thereby reduce the harm of the behavior in question.

Appendix

Categories of Secrets Used in the Current Work

- Hurt another person (e.g., emotionally or physically hurt someone), and kept this secret from someone else [*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 [*abortion*]
- Had a traumatic experience (other than the above) [*trauma*]
- Have lied to someone [*lie*]
- Violated someone's trust (but NOT by a lie) (e.g., by snooping, revealing information about someone, breaking or losing something that belongs to someone without telling them, etc.) [*violate trust*]
- Had romantic desires about someone (while being single); for example, a crush, in love with someone, wanting relations with a specific person . . . while being single [*romantic desire*]

- Unhappy in a romantic relationship [*romantic discontent*]
- Thought about having relations with another person (while already in a relationship) [*extra-relational thoughts*]
- Committed *emotional* infidelity (NOT involving actual sexual infidelity); for example, having an inappropriate emotional connection with someone, or engaging in something other than sex, such as flirting and kissing, etc. [*emotional infidelity*]
- Committed *sexual* infidelity (engaged in sexual relations with someone who was not your partner) [*sexual infidelity*]
- At some point was in a relationship with someone who themselves actually had a partner (i.e., the person was cheating on their partner—with you) [*other woman/man*]
- 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 (for example, 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*]
- Planning to propose marriage [*marriage proposal*]
- Planning a surprise for someone (other than a marriage proposal) [*surprise*]
- Did you ever hide a hobby or possession? [*hobby*]
- Did you ever hide a current relationship, or keep a past relationship secret? [*hidden relationship*]
- Have you ever kept a detail about your family secret? [*family detail*]
- Have you ever been pregnant and didn't tell some people? [*pregnant*]
- Have you ever concealed your sexual orientation/gender identity? [*sexual orientation*]
- Sexual behavior that you keep secret? (other than sexual orientation); e.g., porn, masturbation, fantasies, unusual sexual behavior, etc. [*sexual behavior*]
- Kept secret a lack of having sex? (i.e., that you are not, or were not, having sex at some point) [*no sex*]
- 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*]
- Keep secret details about finances (or amount of money you have)? [*finances*]
- Kept secret a job or employment that you have (or school activity)? [*employment*]
- Kept a secret ambition, secret plan, or secret goal for yourself? [*ambition*]
- An unusual behavior (unrelated to *any* of the above categories) you keep secret? [*counternormative*]
- A specific story you keep a secret (unrelated to *any* of the other categories)? [*personal story*]

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Supplemental Material

Supplemental material is available online with this article.

Notes

1. There currently is no consensus on how to conduct the present mediation (i.e., how to bootstrap cross-classified data). To circumvent this issue, we used a formula for calculating indirect effects (Iacobucci, 2012; e.g., McDonald et al., 2020; Sun & Slepian, 2020). Each path coefficient was divided by its standard error, and we multiplied the resulting *z*-values; this product was then divided by the pooled standard error (i.e., the square root of the sum of the two squared *z*-values and one), yielding the $Z_{mediation}$ coefficient, for which its statistical significance can be tested by a *z* test.
2. When participants did not submit their code for payment, this allowed another participant to take part. When this occurred, this led to additional participants over the desired recruitment number (one participant in Study 2 and one participant in Study 3). We retained all data.

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